

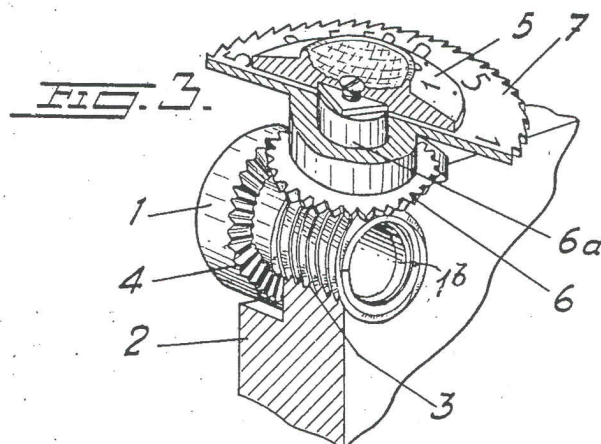
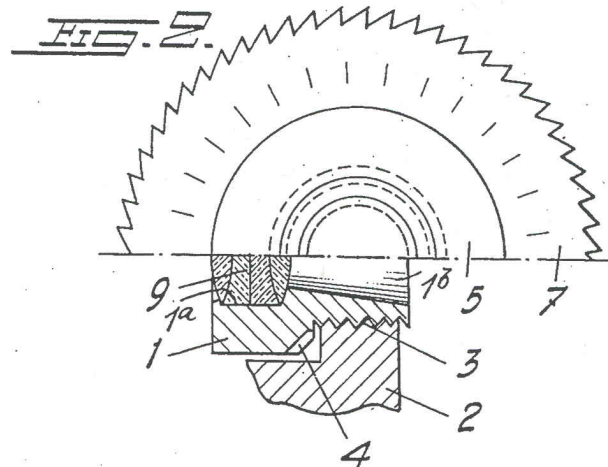
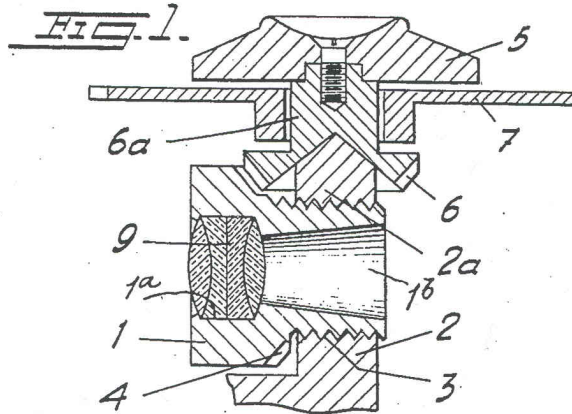
Feb. 14, 1939.

W. ZAPP

2,147,567

LENS MECHANISM FOR PHOTOGRAPHIC APPARATUS

Filed Dec. 6, 1937



Inventor
Walter Zapp
By Sommer & Young Att.

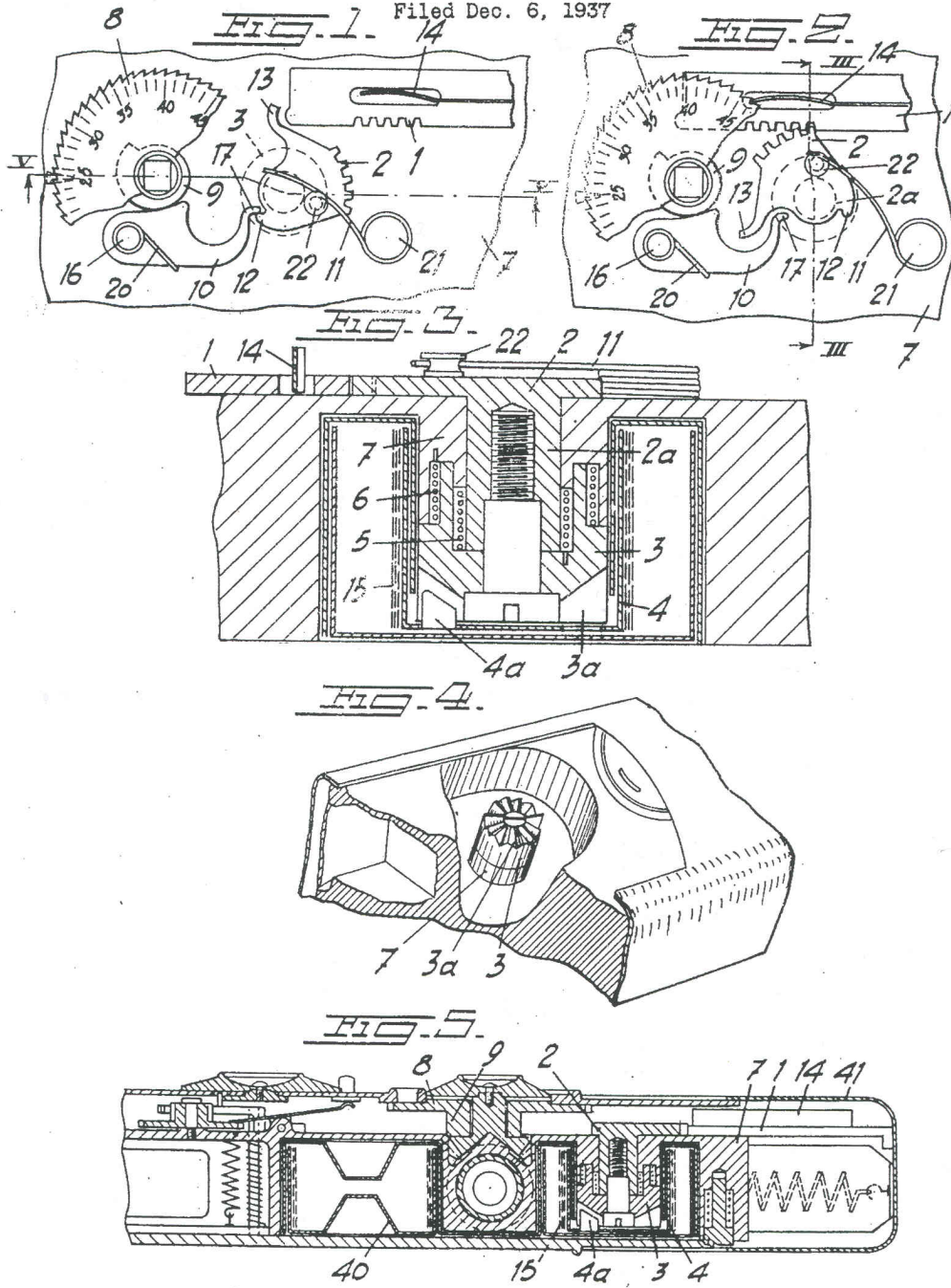
June 13, 1939.

W. ZAPP

2,161,941

FILM FEEDING MECHANISM FOR PHOTOGRAPHIC APPARATUS

Filed Dec. 6, 1937



Inventor
Walter Zapp.
By *Sommersdorf* Attys

UNITED STATES PATENT OFFICE

2,147,567

LENS MECHANISM FOR PHOTOGRAPHIC APPARATUS

Walter Zapp, Riga, Latvia, assignor to Valsts Elektrotehniska Fabrika, Riga, Latvia, a company of Latvia

Application December 6, 1937, Serial No. 178,391
In Finland December 24, 1936

2 Claims. (Cl. 95—45)

The present invention relates to a distance setting mechanism for lenses in photographic apparatus and more particularly to such setting mechanisms in which an annular member holding the lens or a part thereof is mounted in a part of the casing of the apparatus by means of an external screw thread and is movable in said part of the casing by means of a handle (a disc, a knob or the like) rotatable on an axis perpendicular to the axis of the lens.

The main object of the present invention is to construct setting mechanisms of said type in such manner that the motion of the handle will be transmitted to the lens via a minimum of transmitting members thus reducing the play or back-lash.

Another object is to create a compact construction of said mechanism for using such mechanisms in photographic apparatus of vest pocket size.

Another object of this invention is to create a simple and reliable mechanism for the purpose described.

One embodiment of the invention is shown in the annexed drawing.

Fig. 1 is a vertical section through the mechanism according to the present invention.

Fig. 2 is a plan of the same, partially in horizontal section through the lens, that is a section at right angles to that shown in Fig. 1.

Fig. 3 is a vertical section showing the mechanism perspectively.

The objective or lens 9, which may consist of a single lens or a complex lens system, is mounted in a holder 1 having a lens holding socket 1a, and bore 1b for passage of light from the lens system. This holder has an external screw thread 3 engaging a thread in a stationary part 2 of the casing of the photographic apparatus. A bevel gear wheel 4 is formed on the holder 1, the teeth of said wheel being arranged on a helical line having the same axial pitch as that of said screw thread 3. The wheel 4 meshes with a second bevel gear wheel 6 of normal construction which is rotatably mounted upon a journal 2a forming part of the casing 2 and extending in a direction perpendicular to the axis of the lens. The wheel 6 has a central cylindrical stud 6a to which a disc-shaped handle 5 is attached. Upon the stud 6a which is rotatably journaled in the casing 2 of the apparatus a disc 7 for counting the pictures exposed is rotatably mounted.

When the handle 5 is turned this motion is transmitted to the holder 1 and this transmission has substantially no back-lash due to the fact that the parts 5, 6a, 6 are rigidly interconnected and directly engage the holder. This is

an advantage especially in view of the fact that the handle 5 cooperates with a graduation for setting the lens for different distances. The helical arrangement of the teeth of the bevel gear wheel 4 ensures a correct engagement of the bevel gears 4, 6 in all positions of the holder, when said holder is screwed inwards or outwards to set the lens or lenses to different distances from the film, in dependence on the distance from the photographic apparatus to the object to be photographed.

The transmitting mechanism described is of a very compact construction but the provision of a stud on the wheel 6 serving as a journal for the disc 7, enables a further reduction of the dimensions of the photographic apparatus, in which said mechanism is arranged.

The mechanism described is especially adapted to be used in combination with the devices described in my co-pending patent applications Serial Nos. 178,389, 178,388 and 178,390, respectively entitled "Improvements in photographic apparatus," "Improvements in film feeding mechanisms for photographic apparatus," and "Improvements in packages for roll film," and filed at the same date as my present application. Some features claimed in said prior applications are also shown and described in the present application.

What I claim is:

1. A setting mechanism for the lens in photographic apparatus, comprising in combination, an annular lens holder, an external screw thread on said holder by means of which it is screwed into the casing of the photographic apparatus, a row of bevel gear teeth arranged on said holder on a helical line, said helical line having the same axial pitch as that of said screw thread, a bevel gear wheel in engagement with said row of teeth and rotatably mounted in said casing, and a handle rigidly attached to said bevel gear wheel for adjusting the lens.

2. A setting mechanism for the lens in photographic apparatus comprising, in combination, an annular lens holder, an external screw thread on said holder by means of which it is screwed into the casing of the photographic apparatus, a row of bevel gear teeth arranged on said holder on a helical line, said helical line having the same axial pitch as that of said screw thread, a bevel gear wheel in engagement with said row of teeth and rotatably mounted in said casing, a cylindrical central stud on said bevel gear wheel, a handle attached to said stud for rotating said gear wheel, and a picture counting disc rotatably mounted on said stud.

WALTER ZAPP.

on the end of a lever 10 fulcrumed on a pin 16 in the casing of the apparatus. This lever 10 is held by a spring 20 against a helical cam 9 attached to a toothed disc 8 having graduations marked thereon indicating the number of pictures exposed. The rack 1 carries a spring plate 14, acting as a pawl for feeding the disc 8 stepwise when the rack 1 is moved forwards. A spring 11 is secured to the stationary stud 21 and rests on a pin 22 of the plate 2, to be tensioned when the rack 1 is moved forwards.

The roller from which the film 15 is wound on to the roller 4 is indicated by 40.

This device acts as follows:

15 Assuming that the parts of the mechanism are in the position shown in Fig. 2 and that the film roll on the roller 4 has its smallest diameter, corresponding to the first picture. Now, when the rack 1 is moved backwards (to the right in Fig. 2) the rack 1 will operate the toothed plate 2 only as long as the teeth of the rack 1 engage those of the plate 2. During the subsequent portion of the backward motion of the rack 1 the plate 2, under the action of the spring 11, will continue its rocking motion until the arm 13 engages the end of the rack 1. For the next picture, the rack 1 is moved forwards causing the plate 2 to be rocked an angle as described above, and simultaneously causing the parts 8, 9 to be turned one step forwards by the action of the plate 14. Consequently also the lever 10 with its stop 17 is turned a corresponding angle. Thus, the stop 17 causes the plate 2, during its returning motion, to stop at an earlier point. For each subsequent picture the stop 17 will be turned a certain distance forwards in the path of motion of the projection 12 and the angle of rotation of the toothed plate 2 will decrease in the same degree as the diameter of the film roll on the roller 4 increases. When this film roll has attained its maximum diameter the projection 12 will meet the stop 17 already as the teeth of the plate 2 disengage the rack 1.

45 What I claim is:

1. A film feeding mechanism for photographic apparatus having a roller for carrying the film to be exposed, a second roller on to which the exposed film is wound, a rotatably mounted toothed plate operatively connected to said second roller by means of an unidirectional step-by-step feeding mechanism, a reciprocable rack, manually operable means for reciprocating said rack through strokes always of constant length, said rack being positioned to engage said toothed plate for turning said plate when moved in one direction, and for returning said plate a certain distance when moved backwards, a spring engaging said toothed plate for continuing the return motion of said toothed plate after said rack has returned said plate said certain distance, a projection on said toothed plate, and a stop located in the path of motion of said projection, and means operated by said rack on each stroke thereof for adjusting the position of said stop forwardly a certain distance in said path of motion of the projection.

2. A film feeding mechanism for photographic apparatus having a roller for carrying the film to be exposed, a second roller on to which the exposed film is wound, a rotatably mounted

toothed plate operatively connected to said second roller by means of an unidirectional step-by-step feeding mechanism, a reciprocable rack, manually operable means for reciprocating said rack through strokes always of constant length, said rack being positioned to engage said toothed plate for turning said plate when moved in one direction, and for returning said plate a certain distance when moved backwards, a spring engaging said toothed plate for continuing the return motion of said toothed plate after said rack has returned said plate said certain distance, a projection on said toothed plate, and a lever carrying a stop located in the path of motion of said projection, means operated by said rack on each stroke thereof for carrying the position of said stop forwardly a certain distance in said path of movement of the projection.

3. A film feeding mechanism for photographic apparatus having a roller for carrying the film to be exposed, a second roller on to which the exposed film is wound, a rotatably mounted toothed plate operatively connected to said second roller by means of a unidirectional step-by-step feeding mechanism, a reciprocable rack, manually operable means for reciprocating said rack through strokes always of constant length, said rack being positioned to engage said toothed plate for turning said plate when moved in one direction, and for returning said plate a certain distance when moved backwards, a spring engaging said toothed plate for continuing the return motion of said plate after said rack has returned said plate said certain distance, a projection on said toothed plate, a graduated toothed disc for counting the number of pictures exposed, means operated by said rack to turn said disc one step on each forward stroke of the rack corresponding to each picture taken, a helical cam mounted on said disc, a lever carrying a stop lying in the path of return motion of said projection, and a spring engaging said lever to press said lever yieldingly against said helical cam whereby the position of the stop on said lever is progressively adjusted according to the number of pictures taken and the return motion of the toothed plate is progressively diminished corresponding to the position of said stop.

4. A film feeding mechanism for photographic apparatus having a roller for carrying the film to be exposed, a second roller on to which the exposed film is wound, a rotatably mounted toothed plate operatively connected to said second roller by means of a unidirectional step-by-step feeding mechanism, an arm on said toothed plate, a reciprocable rack, manually operable means for reciprocating said rack through strokes always of constant length, said rack being positioned to engage first said arm and thereafter the teeth of said toothed plate to rock said plate, a spring engaging said toothed plate for continuing the return motion of said toothed plate after said rack has returned the latter a certain distance, a projection on said toothed plate, and a stop in the path of motion of said projection, means operated by said rack for adjusting the position of said stop progressively forwardly step by step, one step for each forward stroke of said rack, whereby the return motion of the toothed plate is progressively diminished.

WALTER ZAPP.

UNITED STATES PATENT OFFICE

2,169,548

ROLL FILM CAMERA

Walter Zapp, Riga, Latvia, assignor to Valsts Elektrotehnika Fabrika, Riga, Latvia, a company of Latvia

Application December 6, 1937, Serial No. 178,389
In Finland December 22, 1936

5 Claims. (Cl. 95—31)

The present invention relates to photographic apparatus.

One object of the invention is to create a photographic apparatus of such small dimensions that it may be carried in the vest pocket.

Another object of the invention is to provide a photographic apparatus which may be manipulated very quickly and by means of which a plurality of successive exposures may be made rapidly.

Another object of the invention is to construct the apparatus in such manner that protruding portions are avoided as much as possible. More particularly the usual rotatable handle for feeding the film is eliminated.

Another object of the invention is to construct the apparatus in such manner that the lens and the view-finder are protected when the apparatus is not used.

One embodiment of the invention is shown in the annexed drawings.

Fig. 1 is a perspective view showing the photographic apparatus according to the present invention, in normal position.

Fig. 2 is a perspective view showing the same apparatus in an extended position, ready for use.

Fig. 3 is a perspective view showing the same apparatus from the lower side, the lower wall being pulled out still further to uncover the chambers for the film.

Fig. 4 is a longitudinal section through the same apparatus on a larger scale, taken along the line IV—IV in Fig. 9.

Fig. 5 is a plan view showing the upper side of the apparatus, the upper wall being broken away.

Fig. 6 is a corresponding front view partly in section.

Fig. 7 is the same front view but shows the elements in another position.

Fig. 8 is a cross section taken on the line VIII—VIII in Fig. 5.

Fig. 9 is a longitudinal section taken on the line IX—IX in Fig. 2.

Figs. 5 to 7 are on a larger scale than Fig. 4, and Fig. 8 is on a still larger scale. Fig. 9 is in the same scale as Fig. 4.

Referring now to the drawings, the casing of the apparatus is formed by two bodies indicated by reference characters 1a and 1b. The two bodies 1a and 1b are of an oblong shape and the latter is movable in the former in the longitudinal direction. The relative motion of the bodies in the direction from each other is limited by a suitable stop 60 (Fig. 4). The exterior of the apparatus is shown in Figs. 1 and 2. In these fig-

ures numeral 2 indicates a button by which the shutter mechanism is released. Numeral 3 designates a graduation for setting the lens to different distances, while numeral 4 indicates a graduation for setting the time of exposure (the speed of the shutter movement). Reference numeral 5 designates a window for viewing a graduated disc which indicates the number of pictures exposed. Numeral 6 indicates a lens and 7 refers to a view finder. The lower side and the rear side of the apparatus in extended position are shown in Fig. 3. In this figure the ocular of the view-finder is indicated by numeral 8. Moreover, in this figure the lower side of the inner body 1b is uncovered, as the cover 1c is drawn out, so that the chambers

UNITED STATES PATENT OFFICE

2,161,941

FILM FEEDING MECHANISM FOR PHOTOGRAPHIC APPARATUS

Walter Zapp, Riga, Latvia, assignor to Valsts Elektrotehniska Fabrika, Riga, Latvia, a company of Latvia

Application December 6, 1937, Serial No. 178,388
In Finland December 21, 1936

4 Claims. (Cl. 242-71)

This invention relates to film feeding mechanisms for photographic apparatus of the type having a roller carrying the film which is to be exposed, a second roller on to which the film exposed is wound, and a manually operated member imparting to said second roller an angular movement when said member is operated.

One object of this invention is to feed the film by steps of equal length, in spite of the increase of diameter of the film roll wound on to the second roller.

Another object of this invention is to provide a simple and positive mechanism by which said angular movement of said second roller will be decreased in the same degree as the diameter of the film roll wound on to said second roller is increasing.

One embodiment of the invention is shown in the annexed drawings.

Fig. 1 shows said mechanism in its position of rest.

Fig. 2 shows the same mechanism in an operative position.

Fig. 3 is a section on a larger scale taken on the line III-III in Fig. 2 and showing the hub of the second roller.

Fig. 4 is a partial perspective view of the photographic apparatus showing the housing for the second roller, said roller and some other parts being broken away.

Fig. 5 is a longitudinal section on the line V-V in Fig. 1.

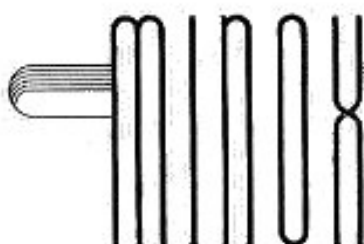
The invention is especially intended to be used in connection with photographic apparatus of the type described in my co-pending patent application entitled "Improvements in photographic apparatus", Serial No. 178,389, filed December 6, 1937. Some features herein shown and described are claimed in said co-pending application.

Referring now to the drawing 1 indicates a reciprocating member which is manually operated. On a part of its length the reciprocating member is formed as a rack. When applied to the photographic apparatus described in my co-pending patent application mentioned above this member 1 is secured to a movable part 41 of the two piece casing of the apparatus, but said rack 1 may be actuated directly by hand, if desired. The stroke of the rack is always of constant length.

The reference numeral 2 indicates a toothed plate which is rotatably mounted in the frame or casing of the apparatus. The toothed plate 2 has a radial projection 12 and a radially ex-

tending arm 13. When the rack 1 is moved forwards (to the left in Fig. 1) the toothed plate 2 is rotated, first by the front end of the rack which engages the arm 13, and then by the toothed portion of the rack which engages the teeth of the plate 2. The toothed plate is connected to the hub 4 of the roller on to which the film 15 is wound. This connection consists of a coupling member 3 and two coil-springs 5 and 6. The spring 5 has one of its ends secured to the coupling member 3, while its other end cooperates with the journal 2a of the plate 2, so as to rotate the coupling member 3, when the plate 2 is rocked forwards. The action of the spring 5 is due to the fact that the spring is arranged in such manner that the windings of the same run in the same direction as the forward rotation of the journal, and exert a light pressure upon the journal 2a. Now, when the journal is rotated forwards it initially carries the end of the spring a short distance; thus the pressure of the windings of the spring against the journal increases, and the moment of rotation will be transmitted from the journal to the coupling member 3. At the return of the plate 2 to its position of rest, the end of the spring slides over the surface of the journal because the diameter of the spring is increased as the end of the spring initially is carried a short distance by the journal. The coupling member is prevented from rotating backwards by means of the spring 6, one end of which is secured to the casing 7, while its other end engages the coupling member. This spring is arranged in a manner similar to that of the spring 5, and acts in a corresponding manner. The spring members 5, 6 form together a unidirectional feeding and stop mechanism, causing the coupling member 3 to rotate stepwise in one direction, while preventing the same from rotating in the opposite direction. The end surface of the coupling member 3 is provided with teeth 3a (see also Fig. 4) which are engaged by corresponding teeth 4a on the hub 4. Thus, for each stroke of the rack 1 to the left in Fig. 1 the film is wound on to the hub 4a distance corresponding to the length of a picture on the film.

Now, the diameter of the film roll increases as the film is wound on to the roller 4. Thus, for feeding the film, for each stroke of the rack 1, by steps of a constant length corresponding to the length of a picture, it is necessary to decrease the angle of rotation of the toothed plate 2 in the same degree as the diameter of the film roll increases. For this purpose a stop 17 is formed



92 LIBERTY STREET
NEW YORK, N. Y.
CABLE MINOX NEW YORK

INC.



July 9, 1940

Gentlemen:

We would like to take this opportunity to announce the advent of the new MINOX MINIATURE CAMERA to the American photographic market.

In order that you may get some idea as to its description, may we ask that you visualize a camera slightly larger than a pack of chewing gum--its entire mechanism concealed within a strong stainless steel case of beautiful design. Now, our comparison of the camera to a pack of chewing gum is probably causing you at this time to emit a rather skeptical groan. BUT--we would like to be present to observe your reactions after you have digested the characteristics listed below.

Within its streamlined stainless steel case, the following features are concealed:

- A. A highly corrected 3.5 anastigmat lens of 15mm. focal length. (Giving extreme depth)
- B. A built-in 2x yellow light filter that automatically returns to its housing after the exposure has been made.
- C. A brilliant, direct vision viewfinder with automatic parallax compensation.
- D. Shutter speeds of 1/2 second to 1/1000 second, including time and bulb.
- E. A focusing scale which permits accurate focusing up to 7 3/4 inches.
- F. Last but not least, the shutter winding and the film transport are automatic and simultaneous so that fifty exposures can be made at one loading with ease and rapidity.

At this point it might be wise for us to give you a brief history as to how the camera came into being and how it has been received on other markets.

Assuming that the apparatus is shut, then the hook 9a of the shutter 9 is engaged by the catch lever 14. When the apparatus is extended, that is when the inner body 1b is moved outwards in the outer body 1a to the position shown in Fig. 2, the shutter 9 is also moved in the same direction as the inner body 1b, tensioning the spring 12. When the apparatus has attained its most extended position the plate 11 presents an opening 11a in front of the lens 6. However, the opening 10 in the shutter 9 does not lie in front of the lens but beside the same, as shown in Fig. 7. Thus, in this position the lens 6 is covered. If, now, the button 2 is depressed the shutter 9 is released and moves over the lens 6, which will be exposed to the light when the opening 10 of the shutter passes the opening 11a. Then the shutter 9 has attained its position of rest, the lens 6 again is covered, as shown in Fig. 6. Then the apparatus may be shut. During this motion the opening 10 in the shutter 9 would uncover the lens if the plate 11, which covers the lens during the movement of the opening 10 past the lens 6, were not provided.

In Fig. 5 the retarding mechanism for the shutter is shown in the position corresponding to the shortest time of exposure. When the picture is to be exposed for a longer time the cam 4a is turned in a clockwise direction, and for the following description it is to be assumed that the cam 4a is directed more downwardly than in Fig. 5. This figure illustrates the lever 35 and the shutter 9 in their positions after the releasing of the latter. In these positions the hook 9a prevents the lever 35 from being swung into engagement with the cam 4a by the torsional spring 39a. When the apparatus is pushed together the left end of the lever 35 is disengaged from the hook 9a and is swung counter-clockwise by the spring 39a, and simultaneously the wheels 36, 37 are rotated clockwise by the sector 35a of the lever 35 until the rotation is stopped by the engagement of the pin 35b with the cam 4a. This is the initial position of the retarding mechanism and this initial position is determined by the position to which the cam 4a was set. When the apparatus now is extended nothing occurs but the tensioning of the shutter 9 which in the normal position of the apparatus had become engaged by the catch lever 14. Upon disengagement of the lever 14 by depression of the button 2 the shutter 9 moves freely to the left until it engages the left end of the lever 35 which then is swung in a clockwise direction from the engagement with the cam 4a until the lever 35 has attained the position shown in Fig. 5. During this turning motion the lever rotates the wheels 36, 37 in a counter-clockwise direction, and the speed of rotation of the wheels is controlled by the double pawl 38 in well-known manner, and the lens is uncovered by opening 10. Then the shutting motion of the shutter is completed and the lens is covered. Now, the apparatus may be pushed together so that the lever 35 is swung into engagement with the cam 4a. It is evident that the time during which the lens is uncovered depends on the position from which the lever 35 begins its rotation in a clockwise direction.

It is evident that the reciprocating motion operates the shutter mechanism, that is tensions the shutter spring. Furthermore, the feeding of the film is also effected by this reciprocating motion. For this purpose to the right end of the outer body 1a (Fig. 9) a member 19 is attached which in the embodiment shown is formed as a

rack. In the inner body 1b the film rollers 61 and 62 are located in the chambers 40 (Figs. 3 and 9). The film feeding roller 61 is connected to a plate 20 rotatably mounted in the inner body 1b by means of a coupling member 21 and a unidirectional feeding-and-stop pawl mechanism 23, 24. This plate 20 has a toothed portion 20a and an arm 31 for cooperation with the rack 19. Also a returning spring 30 for said plate 20 is provided. The starting position of the plate 20 is defined by a lever 29 engaging a projection 32 on the plate 20 and operated in such manner that at the feeding of the film due compensation for the increase of the diameter of the film roll will be attained. For this purpose a helical cam 50 attached to the disc 5a counting the number of pictures exposed cooperates with said lever 29, and a spring plate 33 is secured to said member 19 which plate 33 serves to turn the disc 5a by means of a step-by-step motion. When the apparatus is shut the member 19 feeds the film and also operates the disc 5a thus causing a compensation for the increase in diameter of the film roll. When the apparatus is extended the film feeding mechanism is brought into position for the next feeding of the film. This mechanism for feeding the film and for compensating for the increase of diameter of the film roll is further described and claimed in my co-pending patent application entitled, Improvements in film feeding mechanism for photographic apparatus and filed on the same date as my present application. Some features shown and claimed in that application are also shown and described in the present application.

When the apparatus is shut, that is, pushed together, the lens 6 as well as the view-finder 7 together with the ocular 8 are protected by portions of the outer body 1a (Fig. 4). Only in extended position are the lens and the view-finder uncovered, the lens by an opening 70 in said portion of the body 1a and the view-finder on account of the fact that it then lies outside the outer body 1a (see also Fig. 2). Thus, the lens and the view-finder are uncovered by the extending motion of the apparatus.

The film is pressed against the picture window only when the apparatus is in extended position. For this purpose a member 16 (Fig. 4) is arranged behind the lens 6. This member 16 formed as a plate is mounted in an opening in the inner body 1b. This opening extends in the direction of the axis of the lens. Thus, the member 16 is movable toward and away from the film 26. The outer body 1a has an inwardly extending projection 18 in such position that it lies opposite to the member 16 when the apparatus is extended. By means of a spring 17 said projection 18 then presses the plate 16 against the film, which is thus pressed against the picture window.

What I claim is:

1. A photographic apparatus for use of roll films comprising, in combination, a casing composed of two bodies telescopically reciprocable rectilinearly with respect to each other to extend and shut the casing; a lens having its axis perpendicular to the direction of reciprocation of said bodies, said lens being mounted in one of said bodies; a roll film feeding mechanism arranged in the same body as the lens; a shutter mounted in the body carrying the lens and movable before the lens; a spring permanently connecting the shutter with the body not carrying the lens; a spring-pressed catch mechanism located in the same body as the lens in position

(2)

The camera is manufactured in its entirety, in Latvia, a neutral country. It is patented in twenty-five countries, including five singular patents in the United States. The MINOX was the outcome of extensive research by a group of scientific engineers, representing VEF, who in employing over four thousand workers is the largest and most widely-known technical plant in the Baltic States. Immediately upon first presentation of the MINOX, during the latter part of last year, it was received as a huge success. In fact, the demand was so great that it was not until now that sufficient production could be effected to attempt distribution on the American market. Likewise, the reaction abroad was such that multitudes of inquiries are constantly being forwarded from our foreign associates everyday. The MINOX camera is becoming more widely known everyday, and the list of MINOX users, which already tops several thousands, is rapidly increasing.

We are enclosing for your inspection, enlargements made from a portion of a MINOX negative. We have purposely made them up on a glossy surface to accentuate the fact that they have NOT been retouched. Pleasing pictures like these can consistently be obtained with the MINOX, and there is no restriction as to the range of subject matter that the MINOX embraces.

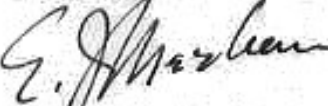
We are also enclosing a booklet which we hope will be instrumental in acquainting you with the camera even better than the before mentioned description.

We are having our cameras sold only through photographic dealers of authorized standing. Insofar as you are properly listed as an authorized dealer, we would be happy if in the future you had occasion to aid in the disposal of our cameras. Meanwhile, should you be faced with any inquiries concerning the camera, it might interest you to be acquainted with the existing prices of the MINOX. The MINOX camera \$79.00. The small MINOX enlarger \$35.00. The MINOX developing tank (daylight loading) \$8.50. The MINOX tripod head \$2.95. MINOX film, 50 exposures per cassette \$.90. All items to be sold at list according to a Fair Trade agreement. Dealers discount will be 33 1/3 per cent.

In the very near future, our representative will call upon you, and it will be his pleasure to give you more information concerning the MINOX camera and its accessories. If personal contact is not made by our representative before late August, you can be assured of seeing him at the N. P. D. A. Convention in Chicago.

Very truly yours,

E. J. MEEHAN



SALUS MANAGER
MINOX, INC.

EJM:HF
Enclosures

to engage the shutter when the two bodies are moved into their shut position and to tension the shutter mechanism as the two bodies are moved apart; and a member secured to the body on which the shutter is permanently connected in position for engaging and operating said film feeding mechanism as the two bodies are moved together into shut position.

2. A photographic apparatus for use of roll films comprising, in combination, a casing composed of two bodies telescopically reciprocable rectilinearly with respect to each other to extend and shut the casing; a lens having its axis perpendicular to the direction of reciprocation of said bodies, said lens being mounted in one of said bodies; a roll film feeding mechanism mounted in the same body as the lens; a shutter mounted in the body carrying the lens and movable before the lens; a spring permanently connecting the shutter with the body not carrying the lens; a catch mechanism located in the same body as the lens in position to engage the shutter when the two bodies are moved into their shut position and to tension the shutter mechanism as the two bodies are moved apart; a member secured to the same body to which the shutter is permanently connected in position for engaging and operating said film feeding mechanism as the two bodies are moved into shut position; and a plate mounted on the body to which the shutter is permanently connected and screening the lens when the two bodies are in shut position.

3. A photographic apparatus for use of roll films comprising, in combination, a casing composed of two bodies reciprocable rectilinearly with respect to each other to extend and shut the casing; a lens having its axis perpendicular to the direction of reciprocation of said bodies, said lens being mounted in one of said bodies; a roll film feeding mechanism mounted in the same body as the lens; a shutter mounted in the body carrying the lens and movable before the lens; a spring permanently connecting said shutter with the body not carrying the lens; a spring-pressed catch mechanism mounted in the same body as the lens in position to engage the shutter when the two bodies are moved into their shut position and to tension the shutter mechanism as the two bodies are moved apart; a member secured to the same body as the shutter in position to engage and operate said film feeding mechanism as the two bodies are moved in shut position; a view-finder in the body carrying the lens; and a plate mounted on the body to which the shutter is permanently secured in position to screen the view-finder when the two bodies are in shut position.

4. A photographic apparatus for use of roll films comprising, in combination, a casing composed of two bodies reciprocable rectilinearly with respect to each other to extend and shut the casing; a lens having its axis perpendicular to the direction of reciprocation of said bodies, said lens being mounted in one of said bodies; a roll film feeding mechanism mounted in the same body as the lens; a shutter mounted in the body carrying the lens and movable before the lens; a spring permanently connecting said shutter with the body in which the lens is not mounted; a spring-pressed catch mechanism mounted in the same body as the lens in position to engage the shutter when the two bodies are in shut position and to tension the shutter mechanism as the two bodies are moved apart; a member secured to the body with which the shutter is permanently connected in position to engage and operate said film feeding mechanism as the two bodies are moved together into shut position; the body carrying the lens having an opening located behind the lens and extending in the direction of the lens axis; a press member for pressing the film mounted in said opening; and a projection on the body to which the shutter is permanently connected for pressing said press member against the film and, thus, the film against the picture window only when the bodies are in extended position.

5. A photographic apparatus for use of roll films comprising, in combination, a casing composed of two bodies reciprocable rectilinearly with respect to each other to extend and shut the casing; a lens having its axis perpendicular to the direction of reciprocation of said bodies and mounted in one of said bodies; a roll film feeding mechanism mounted in the same body as the lens; a shutter mounted in the body carrying the lens and movable before the lens; a spring permanently connecting said shutter with the body not carrying the lens; a spring-pressed catch mechanism mounted in the same body as the lens in position to engage the shutter when the two bodies are in their shut position and to tension the shutter mechanism as the two bodies are moved to extended position; a member secured to the body to which the shutter is permanently connected to operate said film feeding mechanism as the two bodies are moved together into shut position; and a plate between the lens and the shutter, said plate being secured to the body to which the shutter is permanently connected in position to cover the lens in all relative positions of the two bodies except the most extended position.

WALTER ZAPP.

Aug. 15, 1939

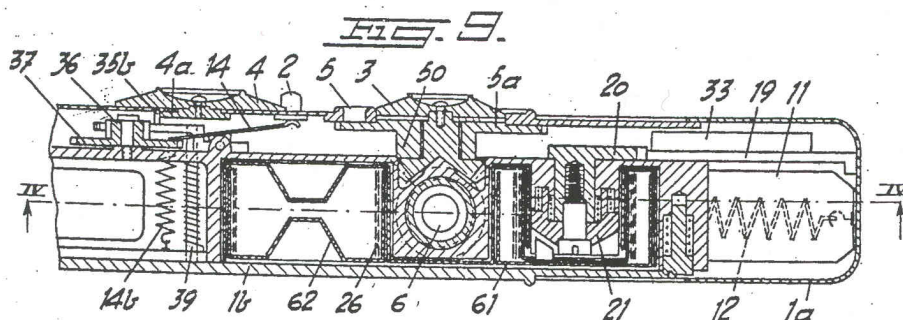
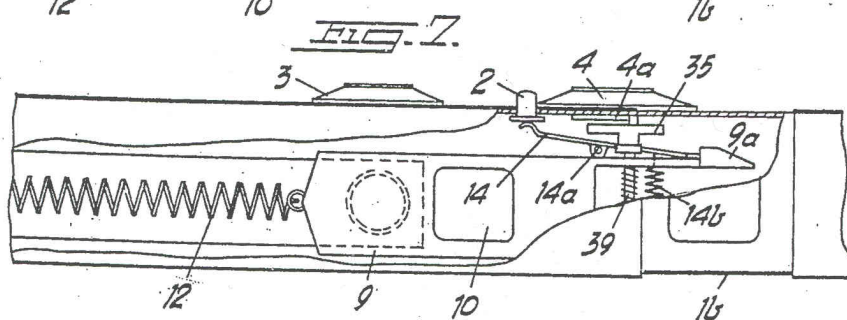
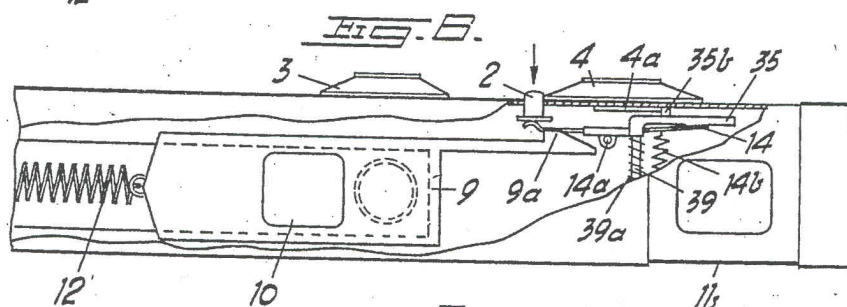
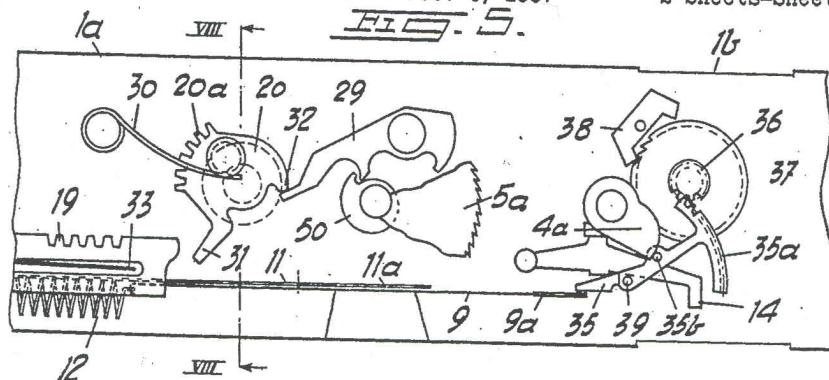
W. ZÄPP

2,169,548.

ROLL FILM CAMERA

Filed Dec. 6, 1937

2 Sheets-Sheet 2



Inventor
Walter Fapp
By Sommers & Young attys

Aug. 15, 1939

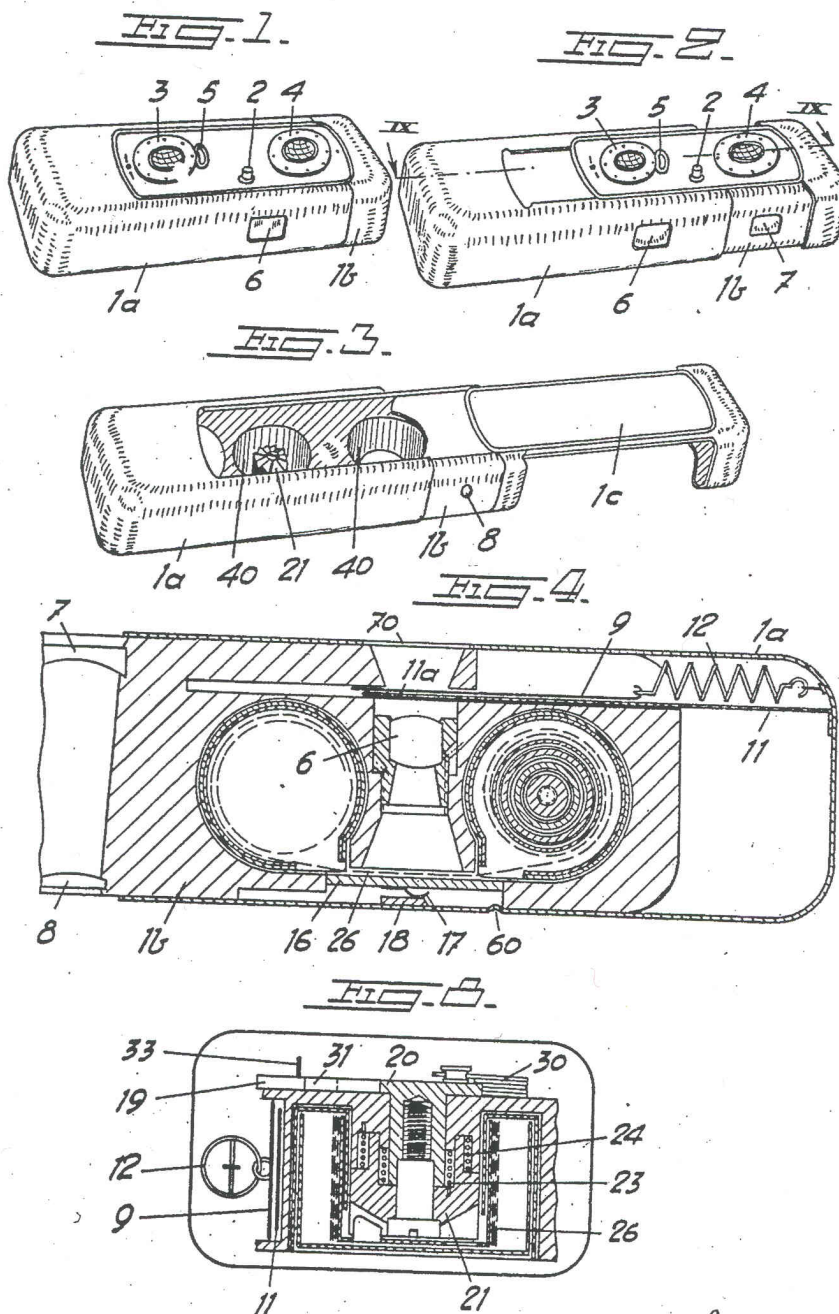
W. ZAPP

2,169,548

ROLL FILM CAMERA

Filed Dec. 6, 1937

2 Sheets-Sheet 1



Inventor
Walter Zapp.
By Sommers & Young Attys





Jahresgabe 1. Deutscher Minox-Club e.V. 1999/2000

PATENTANSPRÜCHE:

1. Rollfilmkamera, deren Gehäuse aus
teleskopisch verschachtelten Teilen besteht,
von denen der eine das Objektiv und die
Filmrollenlager enthält und gegen den an-
deren ohne Aufhebung der lichtdichten Ver-
schachtelung verschiebbar ist, dadurch ge-
kennzeichnet, daß die Gehäuseteile (1, 2) in
der Bewegungsrichtung des hinter dem Ob-
jektiv befindlichen, der Belichtung unter-
liegenden Filmbandteiles verschachtelt sind,
ohne daß beim Ausziehen des Gehäuses die
Filmrollen ihre Stellung zueinander und zum
Bildfenster ändern.

2. Rollfilmkamera nach Anspruch 1, da-
durch gekennzeichnet, daß das Objektiv (9)
und vorzugsweise auch der Sucher (10) in
dem inneren Gehäuseteil (2) liegen und die

Wandung des äußeren Gehäuseteiles (1) der-
art ausgeführt ist, daß sie die optischen Öff-
nungen (9, 10, 11) nur beim Ausziehen der
Gehäuseteile (1, 2) freigibt.

3. Rollfilmkamera nach Anspruch 1 oder 2,
dadurch gekennzeichnet, daß der äußere Ge-
häuseteil (1) einen vom offenen Ende aus-
gehenden tiefen Ausschnitt (3) hat, durch
den die am inneren Gehäuseteil (2) befind-
lichen Skalen und Einstellmittel (5, 6, 7, 8)
zugänglich sind.

4. Rollfilmkamera nach Anspruch 1, da-
durch gekennzeichnet, daß die Gehäuseteile
(1, 2) bei ihrer teleskopischen Verstell-
bewegung ein quer dazu verschiebbares Glied
(16) steuern, das in der Bereitschaftsstellung
der Gehäuseteile den Film gegen die Bild-
öffnung drückt.

Hierzu 1 Blatt Zeichnungen

DEUTSCHES REICH



AUSGEGEBEN AM
20. NOVEMBER 1940

REICHSPATENTAMT
PATENTSCHRIFT

№ 698 952

KLASSE 57a GRUPPE 22₀₁

V 34360 IX a/57 a

✱ **Walter Zapp in Riga, Union der Sozialistischen Sowjet-Republiken,** ✱
ist als Erfinder genannt worden.

Valsts Elektrotehniska Fabrika
in Riga, Union der Sozialistischen Sowjet-Republiken
Rollfilmkamera

Patentiert im Deutschen Reiche vom 2. Dezember 1937 ab

Patenterteilung bekanntgemacht am 24. Oktober 1940

Die Priorität der Anmeldung in Finnland vom 22. Dezember 1936 ist in Anspruch genommen

Es ist bereits eine Rollfilmkamera bekannt, deren Gehäuse aus zwei teleskopisch miteinander verschachtelten Teilen besteht, von denen der eine das Objektiv und die Filmrollenlager enthält und gegen den anderen Gehäuseteil ohne Aufhebung der lichtdichten Verschachtelung verschiebbar ist. Bei dieser Kamera sind die Gehäuseteile in Richtung der Objektivachse gegeneinander beweglich und in dieser Richtung miteinander verschachtelt. Die teleskopische Verstellbewegung der Gehäuseteile wird bei dieser bekannten Kamera auch zur selbsttätigen Weiterschaltung des Filmstreifens und zum Spannen des Objektivverschlusses benutzt, so daß die Kamera durch die teleskopische Verschiebung der Gehäuseteile abwechselnd in die Bereitschafts- und Schließstellung kommt. Da-

bei ändern jedoch die Filmrollen ihre Lage gegenüber dem Bildfenster, so daß, vor allem beim Zusammenschieben der Gehäuseteile infolge der notwendigen Ausgleichsbewegung des Filmbandes, der Film stark beansprucht wird. Ferner bereitet der lichtdichte Abschluß der Gehäuseteile Schwierigkeiten.

Es gibt auch eine Rollfilmkamera, deren Gehäuse quer zur Objektivachse in der Bewegungsrichtung des Filmstreifens ausziehbar ist, so daß es durch Auseinanderziehen der Gehäuseteile in der Laufrichtung des Filmbandes eine Vergrößerung erfährt. Die Gehäuseteile sind dabei aber durch Balgen miteinander verbunden und enthalten je an einem Ende ein Filmrollenlager, so daß sich beim Auseinanderziehen und Zusammenschieben des Gehäuses die Entfernung zwischen

den Filmrollenlagern verändert. Auch hier muß beim Zusammenschieben für einen Ausgleich der Filmbandbewegung gesorgt werden.

Die Erfindung betrifft nun eine Rollfilmkamera der erstgenannten Art, deren Gehäuse also aus teleskopisch verschachtelten Teilen besteht, von denen der eine das Objektiv und die Filmrollenlager enthält und gegen den anderen ohne Aufhebung der lichtdichten Verschachtelung verschiebbar ist. Erfindungsgemäß sind die Gehäuseteile der Kamera in der Bewegungsrichtung des hinter dem Objektiv befindlichen, der Belichtung unterliegenden Filmbandteiles verschachtelt, ohne daß beim Ausziehen des Gehäuses die Filmrollen ihre Stellung zueinander und zum Bildfenster ändern.

Hierdurch wird gegenüber den bekannten Kameras der Vorteil erzielt, daß die Gehäuseverschiebung ohne eine Ausgleichsbewegung des Filmbandes erfolgt, und daß die Verstellung der Gehäuseteile zur Verdeckung und Freilegung der optischen Öffnungen benutzt werden kann. Es ergibt sich dadurch eine Kamera, die in der Schließ- und in der Bereitschaftsstellung eine sehr gedrängte Ausführung besitzt und sich mit geringen Verstellkräften durch Zug und Druck in die Bereitschaftsstellung bringen läßt.

Zweckmäßig wird die Kamera nach der Erfindung so ausgeführt, daß das Objektiv und vorzugsweise auch der Sucher in dem inneren Gehäuseteil liegen, während die Wandung des äußeren Gehäuseteiles derart ausgeführt ist, daß sie die optischen Öffnungen nur beim Ausziehen der Gehäuseteile freigibt. Hierdurch erhalten die empfindlichen Teile der Kamera eine gute Sicherung gegen Beschädigung und Schmutz.

Der äußere Gehäuseteil wird bei einer zweckmäßigen Ausführung mit einem vom offenen Ende ausgehenden tiefen Ausschnitt versehen, durch den die am inneren Gehäuseteil befindlichen Skalen und Einstellmittel zugänglich sind. Diese Ausführung ermöglicht es, die Kamera mit verhältnismäßig kleinen Verstellbewegungen in die Schließ- und Bereitschafts-lage zu bringen.

Die teleskopische Verstellbewegung der Gehäuseteile kann ferner zweckmäßigerweise zur Steuerung eines quer dazu verschiebbaren Gliedes benutzt werden, das in der Bereitschaftsstellung der Gehäuseteile den Film in an sich bekannter Weise gegen die Bildöffnung drückt, ihn aber nach Aufhebung der Bereitschaftsstellung wieder freigibt. Dadurch wird bei Weiterschaltung des Filmes durch die Verstellbewegung der Gehäuseteile ein Verschrammen des Filmes vermieden und erreicht, daß man zur Verstellung der Gehäuseteile nur wenig Kraft aufzuwenden braucht.

Die Zeichnung zeigt ein Ausführungsbeispiel für die Kamera nach der Erfindung.

Fig. 1 zeigt die Kamera in geschlossenem Zustande,

Fig. 2 in ihrer Bereitschaftsstellung nach dem Auseinanderziehen der Gehäuseteile.

Fig. 3 zeigt die Kamera von unten in ausgezogenem Zustande, wobei die untere Wand des Gehäuses noch weiter ausgezogen ist.

Fig. 4 zeigt in größerem Maßstabe einen waagerechten Längsschnitt durch die Kamera.

Das Gehäuse der Kamera besteht aus zwei miteinander verschachtelten Teilen 1 und 2. Der Teil 2 ist in dem Teil 1 verschiebbar. Der Teil 1 besteht im wesentlichen aus einer hohlen Hülse, die von einem Stirnende her auf den Teil 2 geschoben ist und auf beiden Seiten der Kamera an den breiten Gehäuseflächen von den Öffnungskanten ausgehende tiefe Ausschnitte 3, 4 besitzt, durch die die zugehörigen Flächen des Gehäuseteiles 2 zugänglich sind. Im Bereich des Ausschnittes 3 befinden sich an dem Gehäuseteil 2 ein Auslöseknopf 5 für den Objektivverschluß, eine Drehskala 6 für die Einstellung der Objektentfernung durch Objektivverstellung, eine drehbare Skala 7 für die Einstellung der Verschlußgeschwindigkeit bzw. Belichtungsdauer sowie ein Fenster, das den Rand einer darunterliegenden Bildzählscheibe 8 sichtbar werden läßt. An der Vorderkante der Kamera liegen je eine Öffnung 9 für das Objektiv und eine Öffnung 10 für den Sucher, dessen Okular 11 an der gegenüberliegenden Wand auf der hinteren Seite der Kamera liegt.

Die im Bereich des Ausschnittes 4 gelegene Wand 12 des inneren Gehäuseteiles läßt sich als Deckel gemäß Fig. 3 gesondert ausziehen. Sie gibt in der ausgezogenen Stellung die Filmaufnahmekammer 13 frei, so daß man den Film in die Kamera einlegen kann. Mit 14 ist in Fig. 3 der Kupplungsteil der Filmschaltvorrichtung bezeichnet, mit dem die Filmaufwickelspule zum Eingriff kommt.

Das Objektiv 15 liegt im Innern des Gehäuseteiles 2 und ist derart angeordnet, daß seine Achse rechtwinklig zur Verschiebungsachse der Gehäuseteile liegt. Es wird bei zusammengeschobener Kamera ebenso wie der Sucher 10, 11 von dem Gehäuseteil 1 verdeckt und rückt erst beim Auseinanderziehen der Kamera in den Bereich der Öffnung 9.

In dem inneren Gehäuseteil ist gemäß Fig. 4 eine Platte 16 derart verschiebbar gelagert, daß sie sich in Richtung der Objektivachse verstellen kann. Eine an der Außenfläche dieser Platte befindliche Feder 17 kommt beim Auseinanderziehen der Gehäuseteile mit einem Vorsprung 18 zum Eingriff, so daß die Platte 16 in Richtung auf das Objektiv 15 bewegt wird und den Filmstreifen 19 fest gegen die Bildöffnung drückt. Beim Zusammenschieben der Gehäuseteile kommen die Feder 17 und der Vorsprung 18 wieder außer Eingriff, so daß die Platte 16 freigegeben ist und der Film reibungslos und ohne Gefahr eines Einritzens der Schicht verstellt werden kann.



Working Instructions

The sub-miniature MINOX camera is a product of highest skill and should be handled as a precision instrument. A study of the following instructions will effectively help you to obtain excellent photographic results and so increase your pleasure.



When not in use the housing of the MINOX is shut (as shown in the illustration) displaying all the principal controls and reading points, which are conveniently grouped together. The small disc at the left carries the distance scale, while the larger one at the right serves for setting the exposure period. The button release lies between them. The number of exposures made is read on the scale appearing in the curved window.

FIG. 1.

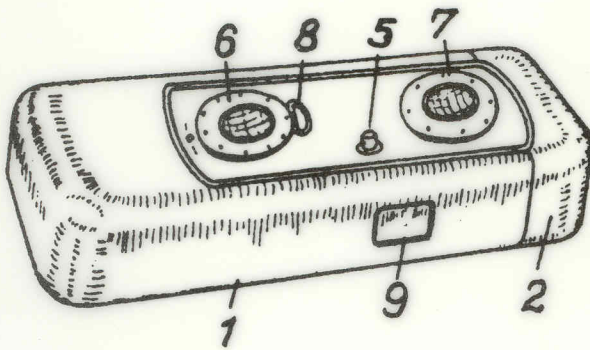


FIG. 2.

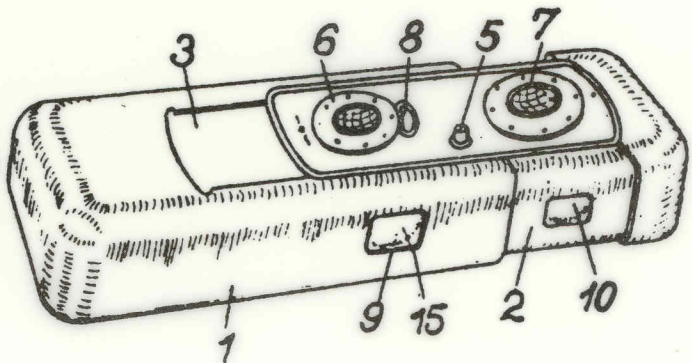


FIG. 3.

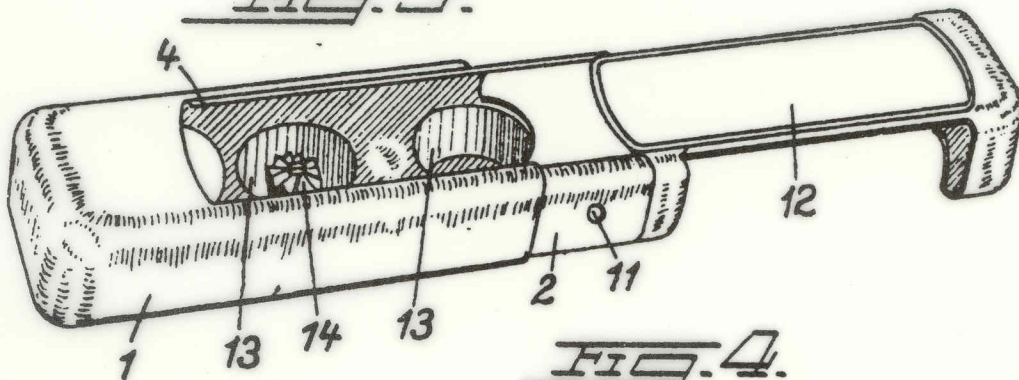
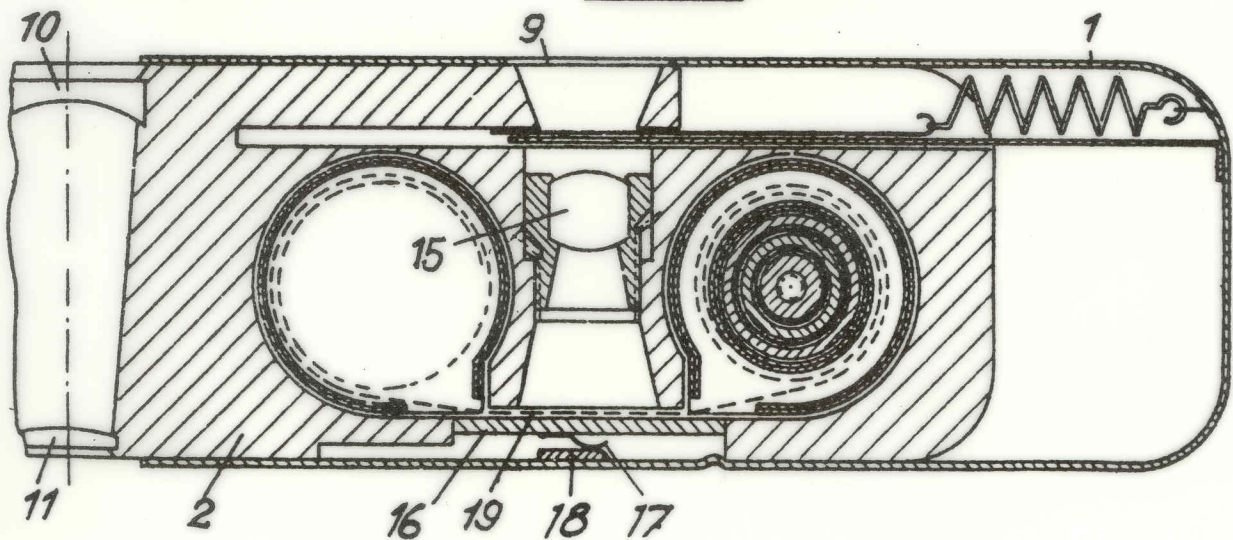
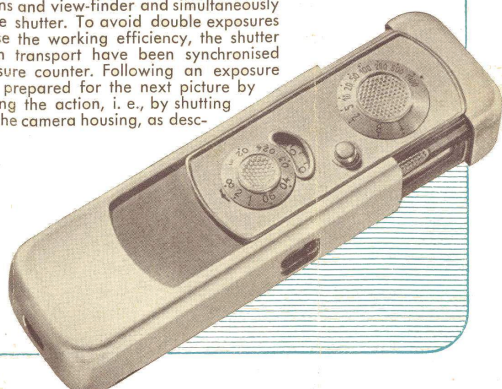


FIG. 4.



In the illustration the MINOX is shown open and ready for use. The opening operation consists of sliding the housing through about half an inch, so exposing the lens and view-finder and simultaneously winding up the shutter. To avoid double exposures and to increase the working efficiency, the shutter wind and film transport have been synchronised with the exposure counter. Following an exposure the camera is prepared for the next picture by simply repeating the action, i. e., by shutting and opening the camera housing, as described above.



The self-contained construction of the MINOX effectively protects the interior of the camera from dust and damage. Care of the camera is confined to an occasional cleaning of glass surfaces which is best effected by breathing on them and carefully wiping them with a piece of clean linen or cotton wool wrapped around a match stick. Implements such as screw drivers, pocket knives or needles of any kind should never be used, nor should benzine or alcohol be used as cleaning fluids. The interior of the MINOX requires no lubrication, although no harm is done by occasionally applying a little high grade Neatsfoot oil to the sliding points of the camera housing.

For developing films the MINOX Daylight Developing Tank is recommended, as it affords the greatest possible protection of the film and a maximum of convenience in manipulation. MINOX Film-envelopes will guard your negatives against scratches and bruises. With the aid of the MINOX Film-Viewing Magnifier, negatives can be scrutinized while in their envelopes. For enlarging purposes we are offering MINOX Enlargement Appliances ensuring excellent definition and sharpness of your pictures. Literature and quotations on accessories will be gladly submitted upon request.

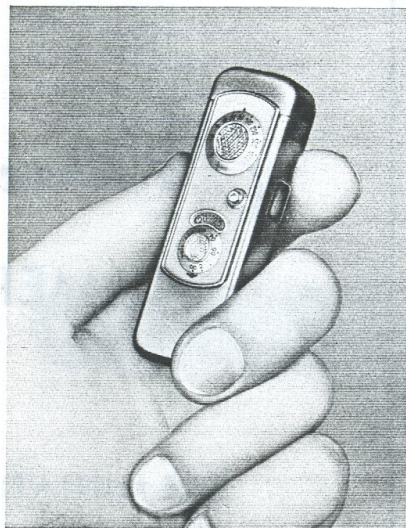
MINOX G. m. b. H., WETZLAR
Gießen-Heuchelheim Works

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Gießen, Postfach 137

3. 50

The complete camera



A SLIM CASE
WITH NO EXPOSED
OPTICAL PARTS



AND FREE FROM
PROTRUDING ACCESSORIES

From the taking of the snapshot to the
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there are two courses open to you

Either you can send your exposed film-magazine to a competent developing station and receive the finished pictures from them

Or you may prefer to develop the film for yourself.

In the latter case, please ask for our

CATALOGUE OF MINOX PHOTOGRAPHIC APPLIANCES AND ACCESSORIES

which will indicate to you that the development and enlargement of your films by the

MINOX SYSTEM

is as simple and safe as the use of your

MINOX CAMERA

THE MINOX CAMERA

Technical data

Overall dimensions (including focal and exposure controls) $1\frac{9}{32}'' \times 1\frac{1}{16}'' \times 3\frac{1}{8}''$.

Weight of complete camera – $4\frac{1}{2}$ ounces.

Lens – “Minostigmat” Aperture f 3.5, Focal length 15 mm.
(The “Minostigmat” is a special Anastigmatic lens with an extremely high precision factor and great rapidity.)

Size of negative – $\frac{5}{16}'' \times \frac{7}{16}''$ (8 mm. $\times$ 11 mm.)

Film Unperforated film of 9.5 mm. is used, factory loaded in a double-magazine and giving fifty exposures with one loading.

Shutter – $\frac{1}{2}$ second to $\frac{1}{1000}$ th second with “B” and “T” settings for longer exposures.

Range of Photos – Suitable for photographing all objects from 8 inches (20 cms.) to Infinity.

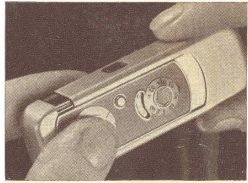
Price:

Film Prices:

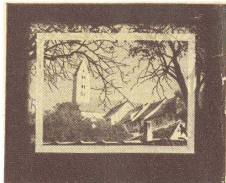
32

THE *Minox* CAMERA

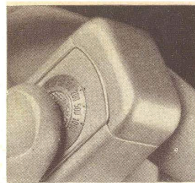
THE MINIATURE
MASTERPIECE



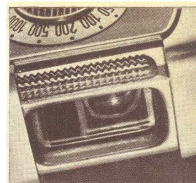
Important! For convenience and safety the MINOX should be handled as follows: Hold the camera with the thumb and index finger of the left hand closing around the camera, one of these fingers resting firmly upon the exposure disc. Now grip the narrow sides of the housing sleeve with the thumb and index finger of the right hand and pull open until resistance is felt, or, after the exposure, close the housing again. By holding the camera in this manner the fingers have the safest hold and largest gripping surfaces, thus avoiding any accidental pressure on glass surfaces.



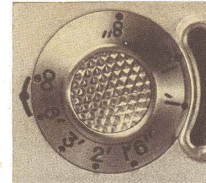
The finder clearly indicates (within a white light frame) the exact limits of the image field. The problem of «the diminishing field», occurring as an object approaches the camera, has been met with in the following manner: for longer distances the outer limits of the white frame should be referred to, while for a distance of about 3' the inner limits are to be applied. For very short distances of, say, 8" to 10" a width corresponding to about that of the thickness of the frame-line should be allowed within the field.



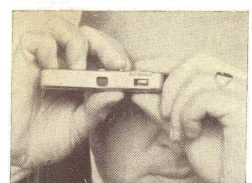
The exposure disc (the larger one of the two discs) is easily set by lightly pressing one finger tip upon the knurled centre and then rotating the disc. The exposure period may be set irrespective of whether the camera housing is open or closed, or whether the shutter is wound up or run down. For snap shots intermediate values may be set. The white point mark appearing in the lens gate indicates that the shutter is wound up. The black field appearing after exposure is a reminder that the MINOX should be made ready for the next exposure, which is simply done by operating the housing sleeve i. e., by closing the camera housing and opening it again.



By means of the milled rod above the finder gate either one of the two built-in filters may be shifted in front of the lens. In doing so please observe that the required filter (green or orange) completely covers the lens opening. When using filters do not forget to allow for a corresponding extension of your exposure period. Filter factors for panchromatic film are about 2 for orange and about 3 for green. Do not fail to shift filters out of the way after the picture has been taken.



The great depth of definition obtained as a result of the short focal length does not absolve you from employing every care when setting your distance. Maximum definition is inseparably dependent upon properly set distance. The small bracket at the setting mark indicates the prevailing depth of focus range which, in the above illustration for example, would extend from about 6' to ∞ . The exact values of the depth of focus range and of the size of the image field may be taken from the table supplied with the camera. In the case of the MINOX the distances should be measured from the camera front. Measuring for close work is facilitated by using the measuring beads of the lanyard attached to the camera which are engraved with the exact distances of 8', 10', 1', 1'6" and 2' (complete chain).



To obtain sharply defined pictures it is essential that the camera be held absolutely steady! The two illustrated ways of holding the MINOX for either horizontal or vertical pictures are recommended as being the most satisfactory, viz., with the left index finger resting securely on the shutter dial and thumb in an opposite position under the camera. The camera is then raised until the left index finger firmly contacts the forehead under the left eye. The right thumb should rest alongside the left thumb on the lower side of the camera, while the remaining 4 fingers rest on top in a way reminding one of playing a flute. If possible and convenient the right hand should also rest against the forehead.



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VALSTS ELEKTROTEHNISKĀ FABRIKA
RIGA-LATVIA

MADE IN LATVIA

THE MINOX CAMERA IS PROTECTED BY WORLD PATENTS

VEF
MINOX
RIGA



*The Twining
Point*

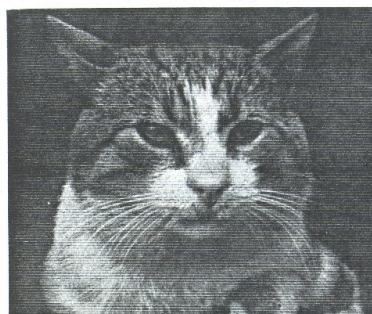
Perfect definition



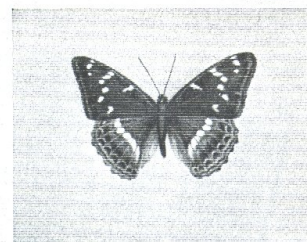
IS PRESENTED BY THE
MINOX VIEWFINDER WITH
THE PICTURE CLEARLY FRAM-
ED WITHIN A LIGHT BORDER



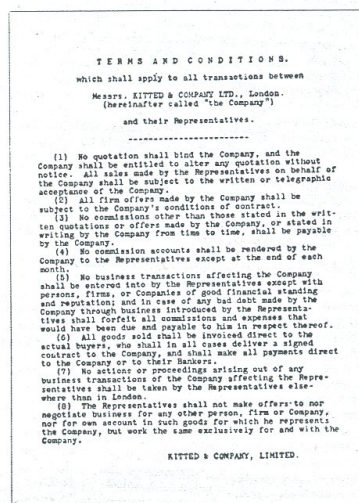
EASE OF CONTROL
THE WEARING OF GLASSES IS NO
HANDICAP TO MINOX PHOTOGRAPHY



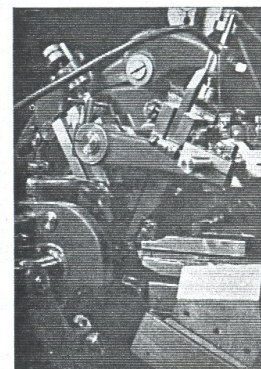
A Cat. Taken from a distance of $11\frac{3}{4}$ inches



Natural Science Photograph
Distance $7\frac{1}{8}$ inches



Reproduction of a Letter



A Screw Automaton
Artificial light



Tower Gates



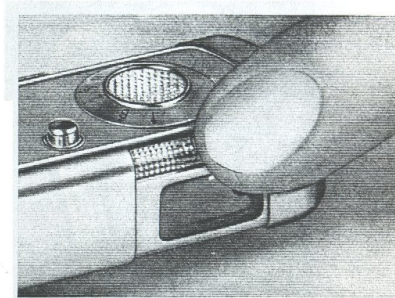
The Arch of a Bridge



Exposure $\frac{1}{50}$ sec.

Interior Architecture

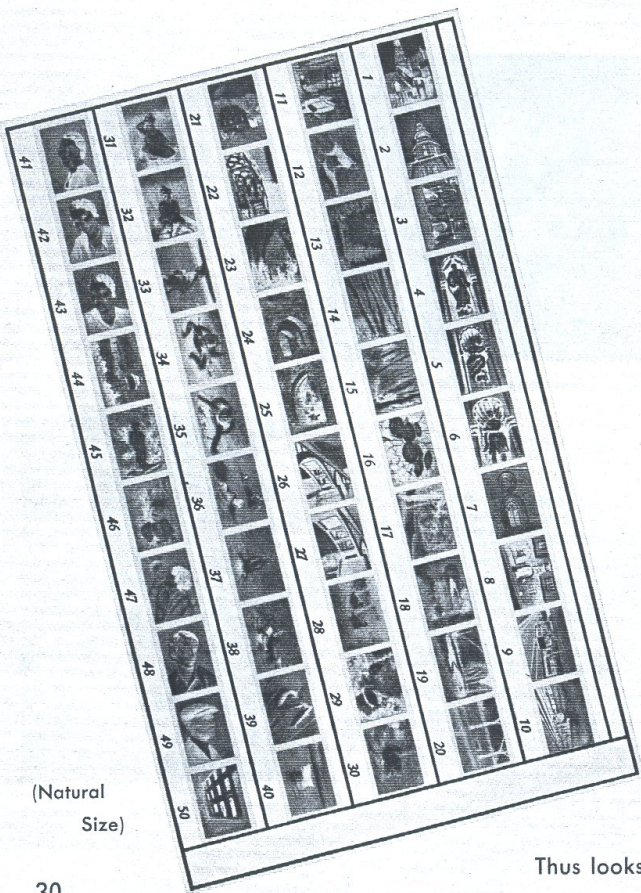
An in-built yellow filter



IS BROUGHT INTO
POSITION BY MOVING
THIS SLIDE

**WHICH RETURNS AUTOMATICALLY
AFTER THE PICTURE HAS BEEN TAKEN**



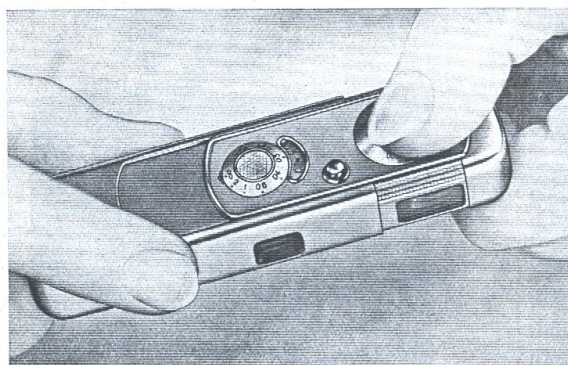


(Natural
Size)

30

Thus looks
a ready "**MINOX**" film

A light lengthwise pull



PREPARES THE CAMERA
FOR ACTION

ALL THAT REMAINS TO BE DONE
IS TO PRESS THE BUTTON!



Finger-tip shutter control

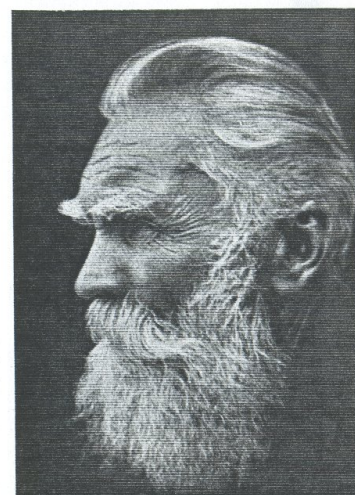


GIVING SPEEDS
FROM $\frac{1}{2}$ - **SECOND**
TO $\frac{1}{1000}$ TH OF A
SECOND -

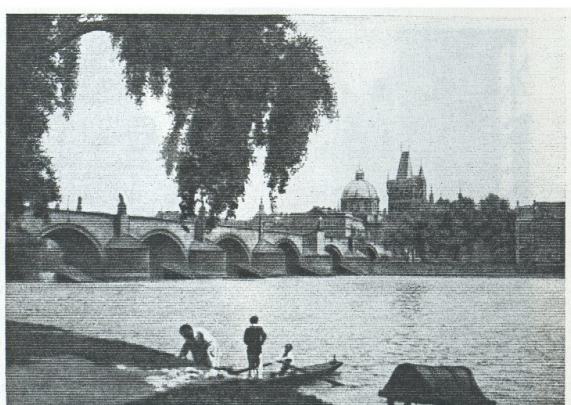


AND "T" or "B" FOR TIME
EXPOSURES

Characteristic Portrait
of an Old Man
Taken from a distance
of $15\frac{3}{4}$ "



Portrait of a Lady
Artificial light
Exposure $\frac{1}{2}$ sec.



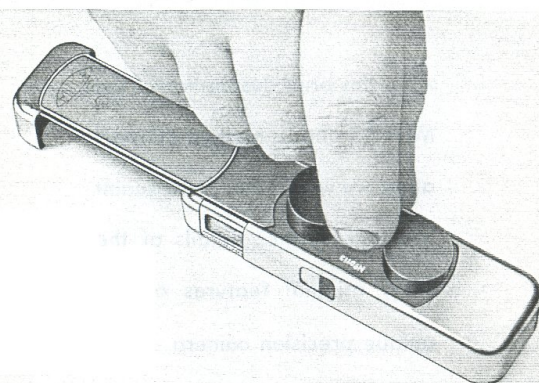
A View



Fishers

24

For daylight loading



YOU SIMPLY SLIDE THE PANEL ON
THE REVERSE OF THE CAMERA,
REMOVE THE EXPOSED MAGA-
ZINE AND INSERT A NEW ONE

MINOX "MAGAZINE-LOADING"
IS QUICK AND FOOLPROOF



The totally enclosed design of this camera without sharp edges, protruding parts or attachments, makes the **waist-coat pocket** or the vanity case the logical place in which to carry it on all occasions.

Any controls necessary for its operation – and they have been reduced to a minimum – are clearly arranged on the upper face of the camera.

The two flush-fitting discs which respectively control the shutter speed and the focal depth, are easily manipulated with the tip of one finger. This **simplicity of operation**, other aspects of which are dealt with in the following pages, is a prominent feature of the MINOX.

The true miniature camera must **not have any exposed parts** which are liable to get damaged or accumulate dust. The most important and expensive part – **the lens** – is especially safeguarded, being housed in the interior of the camera behind a protective glass screen which again is recessed within the casing as a further precaution.

This arrangement has the additional advantage that it automatically forms a lens hood which is so essential when taking photographs against the sun.

When not in use, all vital parts are completely covered and protected by the strong **metal casing**.

One more big point to be remembered

It is characteristic of the MINOX that it imparts a feeling of photographic confidence to the amateur. If he or she doubts an ability to secure a fleeting impression, it is a simple and very inexpensive matter to take several snapshots in quick succession and subsequently to enlarge and retain the best of the series.

The **size of the final pictures** may be chosen entirely in accordance with personal tastes. In principle there is no limit to the enlarging of a photograph and no difficulty arises in bringing your MINOX prints up to quarter-plate, the popular post-card or even larger to say, 12 inches by 9 inches.

Lantern slides for projection purposes can also be made in a range of sizes from MINOX negatives.

The following reproductions of numerous MINOX photographs show the camera at work. The wide range of our selection will, we hope, **amply demonstrate** its ability to deal competently and faithfully with a variety of subjects.

About five years ago a group of scientific engineers decided to produce a camera on **entirely new principles** to satisfy the most exacting demands for extreme handiness, to be devoid of the intricacies of operation inherent in precision cameras, but at the same time to be capable of superlative work.

Above all, the camera had to be **reduced in size** to a degree that would remove once and for all, the need to wear it slung on straps or to be carried in the hand. It had in fact to be so minute that it could be slipped into the smallest handbag or the ticket pocket without being noticed.

It had to be sympathetically **responsive to all photographic situations** and yet so **simple** that no technical knowledge or skill would be necessary for its operation.

All these qualities are embodied in the MINOX and many of them will be apparent from its exterior aspects.

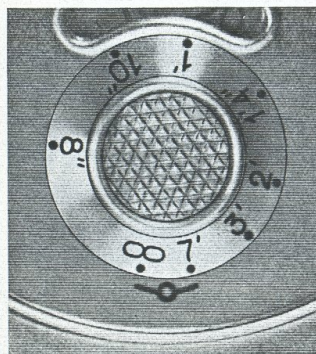


Counter-light at the Lake side



An Evening Scene

Automatik focus



THE MINOX IS AUTOMATICALLY IN FOCUS FOR ALL OBJECTS FROM 12 FEET TO INFINITY

ONLY WHEN TAKING AT CLOSER RANGE DO YOU NEED THIS ADJUSTMENT

THE MINOX HAS "NATURAL SIGHT" AND, LIKE THE HUMAN EYE, CAN FOCUS AND RECORD OBJECTS AT A DISTANCE OF **ONLY 8 INCHES** FROM THE LENS



An exclusive MINOX feature

is the **automatic winding-on** of the film after each exposure.

The short lengthwise movement which extends the body of the camera to the working position simultaneously sets the camera in readiness for taking the picture. The shutter is set and the film moved forwards and pressed against the picture aperture. Externally the lens and the view-finder are uncovered, these four operations being achieved **automatically** when the camera body is extended.

There need be no doubt as to whether or not the camera is ready for making the exposure. Even if it is not closed immediately after taking a picture, a bright circle which appears in the lens aperture clearly indicates whether or not the shutter is loaded. If it is shown that the button has been pressed, one simply closes the camera and opens it again, and takes the next picture.

The extremely light weight and convenient shape of the camera permit the photographer to adopt a natural position when sighting and operating, the extended camera offering a well balanced and stable unit which it is easy to handle.

When opening or closing the MINOX, the fingers may remain in the same position as for the actual taking of the picture. This action is the simplest possible and permits several pictures to be "shot" in quick succession.

Miniature cameras

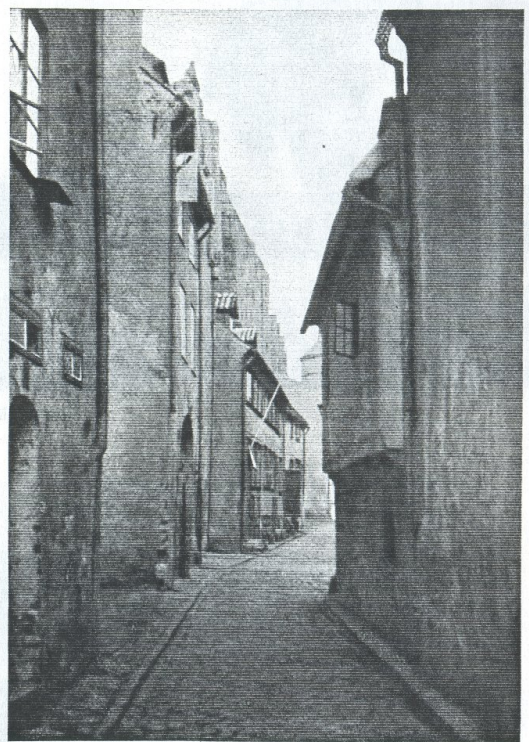
for **very small pictures** have been constructed before, however, they were not based on new principles and did not yield any perceptible advantages over the well known larger type of camera. Therefore it was necessary to **design and develop an entirely new type of camera** which could do justice in every respect to the peculiarities and **possibilities which the real miniature negative** alone can offer.

This demanded that considerable technical difficulties had to be overcome because the smaller the camera, the greater the need for precision in each and every component. In the production of the MINOX it has been necessary to carry precision work to limits which only modern optical and engineering science have made possible. The results of four years of research and painstaking development are now to be found in the remarkable instrument with which this booklet deals.

It is fair for us to claim that it is the modern and unchallenged interpretation of the **true** miniature, the signal for the curtain to be raised on a new era of photographic achievement.

After this brief description of the MINOX and its method of operation, we would like to acquaint you with further details of the many original features of this unique precision camera –

the miniature masterpiece.



An Old Lane



Fifty exposures



ARE HOUSED IN THE
MINOX WITH ONE
LOADING
THIS RECORDER SHOWS
HOW MANY PICTURES
HAVE BEEN TAKEN



Bathing Delights

What results can MINOX achieve?

This camera is a high precision instrument and gives results of a higher standard than those the amateur might reasonably expect from the normal all-purpose camera.

For example, when photographing **near-by** moving objects, the MINOX is superior to larger models, reproducing remote and close subjects with the same sharpness.

Photos of persons and particularly children taken at close range and in quick succession, or snapshots of fast moving objects are all within the compass of the MINOX and extremely simple to take.

The **light weight** and entire absence of bulk, coupled with the **exceptionally large capacity** (50 exposures) make this camera the ideal for the hiker and traveller and for use at parties, dinners, receptions etc.

And what is so very important, it will never fail at the critical moment because it is **always ready for the picture to be taken.**

The MINOX can also reproduce letters, illustrations from books, objects of art, interiors, etc. with equal ease, speed and truth.

It will be noted that the **view-finder**, as well as the **lens**, is completely protected and is uncovered only when the camera is in use. The surfaces of these two vital components **are therefore always clean.**

The principle of the view-finder is also an original MINOX feature.

The majority of view-finders have the disadvantage that they do not define the borders of the picture sharply and correctly. In consequence the position and the dimensions of the view can vary according to the position of the eye.

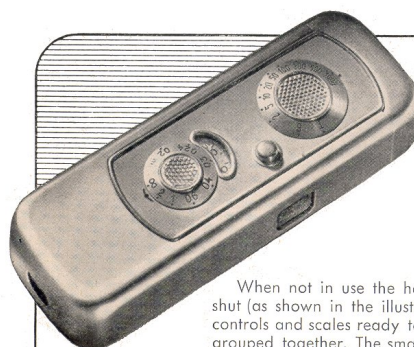
With the MINOX improved view-finder one sees the picture – whether a vertical or a horizontal is being taken – **upright and in proper lateral focus.** As the eye-piece is comparatively large, there is no need to bring it extremely close to the eye, this feature being appreciated by those who wear glasses.

The view-finder is automatically corrected for parallax and its operation is therefore **absolutely exact and reliable** in every respect.



Working Instructions

The sub-miniature MINOX camera is the work of expert craftsmen and, like all precision instruments, will repay careful handling. And should be handled as a precision instrument. A study of the following instructions will help you to obtain excellent photographic results and derive constant pleasure from your pleasure from your camera.



When not in use the housing of the MINOX is shut (as shown in the illustration). All the principal controls and scales ready to hand, are conveniently grouped together. The small disc at the left has the distance scale, while the larger one at the right serves for setting the time of exposure. The button release lies between them. The number of exposures made is read on the scale appearing in the curved window.

incorrect **stopping**, in other words a wrong setting of the diaphragm opening is probably the most prolific contributor to spoiled pictures. Good or bad photographs are determined largely by the degree of accuracy and skill that the amateur displays in this respect.

This problem does not exist in the MINOX.

The function of a diaphragm is to improve the depth of focus by reducing the effective aperture of the lens. The MINOX lens already has an unusually small diameter notwithstanding its **high speed factor of f.3.5**, and it does not therefore require any additional stopping.

It can be used at its full aperture at all times.

The operation of the camera is consequently rendered **very simple** and it is also possible to photograph moving objects at very close range as, for example, children playing at short distance. In circumstances such as these an ability to use a quick exposure coupled with a generous focal depth is an obvious advantage.

Some figures will explain these facts.

In order to attain the same depth of focus when using a camera with a small lens of 2 inch focal length, the diaphragm would have to be reduced to f 12 which would necessitate an exposure lasting ten times as long. With a camera taking, say 3½" by 4¾" pictures an exposure one hundred times longer would be necessary in order to achieve the same results.

The short focal length

of the MINOX (¹⁹/₃₂") makes it possible without any special attachments to photograph objects at a distance of only 8" from the lens. A picture taken at this close range and enlarged to the normal post-card will show the object at its actual size.

The MINOX camera is the first to have a **lens shutter** with an exposure up to ¹/₁₀₀₀th of a second. This unique facility is rendered possible by the fact that the moving parts are so minute. Such a high shutter velocity has hitherto been reached with the aid of slit shutters only with the consequent disadvantage that fast moving objects are reproduced with distortion.

It should be noted that the time of exposure can be set or varied while the camera is either open or closed as well as **before** or **after** the shutter has been released.

For taking photographs of clouds or landscapes or other circumstances needing a colour filter, the integral **2×yellow filter** can be switched to cover the lens as and when needed. The filter is **automatically** returned to its original position when the camera is closed or reset.

Daylight loading simplified

It has been found possible to develop the daylight film container in the MINOX as a double-magazine, eliminating the cumbersome and often tricky work of inserting the film and then threading in onto a second spool. It is sufficient to insert the film magazine just as it is on delivery to you direct into the camera and to remove it intact in the same manner after the content has been exposed.

The film itself is therefore not handled at all from the time it is packed at the factory until it is developed.

Owing to the small consumption of film and the ability to load fifty exposures at once, photographing with the MINOX is not only extremely simple, but is rendered inexpensive.

Due to the minute dimensions of the MINOX lens,

the infinity point (∞) is very close.

This is the distance beyond which everything in the picture is reproduced with the same sharpness of focus and it is governed by the diameter of the lens. As the lens diameter increases, so must the infinity point be advanced and it is obviously an advantage to keep it as close as possible.

In the MINOX the practical infinity point is as close as 12 feet, but when the distance scale is set to this figure, the range of focal depth is such that

the infinity point is effectively reduced to only 6 feet.

In comparison with larger cameras, this has two important advantages.

Firstly, it minimises the need for frequent adjustment of the focussing scale and, secondly, this great depth of focus safeguards the picture from the errors of inaccurate settings.

Unless one is taking a close-up at a distance of less than 2 yards, the focal scale can be left permanently at 12 feet for all photographs.

In the illustration the MINOX is shown open and ready for use. The opening operation consists of sliding the housing through about half an inch, so exposing the lens and view-finder and simultaneously winding up the shutter. To avoid double exposures and to increase the working efficiency, the shutter wind and film transport have been synchronised with the exposure counter. Following an exposure the camera is prepared for the next picture by simply repeating the action, i. e., by shutting and opening the camera housing, as described above.



The self-contained construction of the MINOX effectively protects the interior of the camera from dust and damage. Care of the camera is confined to an occasional cleaning of glass surfaces which is best effected by breathing on them and carefully wiping them with a piece of clean linen or cotton wool wrapped around a match stick. Implements such as screw drivers, pocket knives or needles of any kind should never be used, nor should benzine or alcohol be used as cleaning fluids. The interior of the MINOX requires no lubrication, although no harm is done by occasionally applying a little high grade Neatsfoot oil to the sliding points of the camera housing.

For developing films the

MINOX Daylight Developing Tank

is recommended, as it affords the greatest possible protection of the film and a maximum of convenience in manipulation. MINOX Film-envelopes will guard your negatives against scratches and bruises. With the aid of the MINOX Film-Viewing Magnifier, negatives can be scrutinized while in their envelopes. For enlarging purposes we offer MINOX Enlargement Appliances ensuring excellent definition and sharpness of your pictures. Literature and quotations for accessories will be gladly forwarded upon request.

MINOX G. m. b. H., WETZLAR

Gießen-Heuchelheim Works

Gießen, Postfach 137



Working Instructions

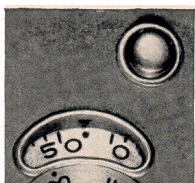
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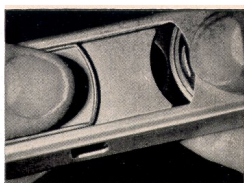
When not in use the housing of the MINOX is shut (as shown in the illustration). All the principal controls and scales ready to hand, are conveniently grouped together. The small disc at the left has the distance scale, while the larger one at the right serves for setting the time of exposure. The button release lies between them. The number of exposures made is read on the scale appearing in the curved window.



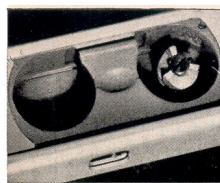
By holding the camera in this way the mistake — common with beginners — of blocking the light path to the lens or view-finder is avoided. The shutter can be released, conveniently and steadily with the middle finger of the right or left hand. The position of the hands does not alter materially when changing over from horizontal to vertical pictures. Steady position may also be achieved, if necessary, by leaning against a wall or post etc. when taking the picture. Where longer exposure periods are required it will be necessary to rest the MINOX securely, or attach it to a tripod with the aid of the MINOX tripod head attachment using a wire release for the exposure.



Prior to loading a new film cartridge make sure that the exposure counter is set to point to the red mark between the marks 50 and 0 (see illustration). This is the only way to ensure uniform film-transport since, by an ingenious mechanism, the rotation of the film take-up diminishes as the number of exposures increases (due to the growing diameter of the film spool). Switching over for the new film is done with the exposure counter in the position shown above. The counter advances one interval (about 3 mm.) each time the MINOX is opened and shut again.



To change films the MINOX is readily opened in the following manner: Pull the camera open, lower side up. The index finger should rest on controls-side of camera, with the thumb of the same hand resting on the slide housing on the lower side. Then, with the thumb of the other hand press down the lid-trigger (at the visible notch). The slide now opens easily under light thumb pressure.
Note: In this position the film cartridge must neither be removed nor inserted (since the backing plate is still being pressed against the cartridge).



Important: To release the working pressure of the backing plate and to open the film channel the open MINOX is closed by about 2 to 3 mm. (i.e., up to a point where the trigger for the lid vanishes, as shown in the above illustration). Before inserting a new film make sure that cavities are clean and free from dust. When changing films the film channel and the film-lens (not visible in illustration) must be cleaned using the cork wiper supplied with the camera. Carefully introduce wiper into the film channel — cork side facing the lens — and move it briefly to and fro, at the same time blowing away dust particles.



When unwrapping film cartridges and inserting them into the camera be sure, to expose them only to subdued light, such as that produced by your own shadow. The twin cartridge should be inserted holding it by the bridge and without using any force. (If resistance should be met with, it will merely be necessary to give the take-up spool a turn by moving the sleeve a little to and fro). The lid is then closed (without opening up the camera full length) until the trigger catches. One closing and opening action of the MINOX will now suffice to feed the pre-exposed film section into the cassette; the exposure counter will indicate »0« showing that the MINOX is ready for use.



The entire film is exposed as soon as the exposure counter indicates the figure »50«. By a double repeating action (opening and closing the camera twice) the last picture will be transported into the light-tight cassette. The exposure counter now displays the red mark indicating that the camera is ready for re-loading. To guard against loss or damage the camera may be attached to and carried on a lanyard which is provided at its lower end with a locking device. Locking is easily effected by putting the key at the end of the lanyard into the lock and securing it there by a quarter turn in clockwise direction. For unlocking, the ring is pushed into the groove of the key and the latter turned to the left. Measuring the distance for close-up work with the aid of the measuring beads should be done when the lock is closed.



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Important! For convenience and safety the MINOX should be handled as follows: Take the camera with the thumb and index finger of the left hand, one of these resting firmly upon the exposure disc. Then grip the narrow sides of the housing sleeve with the thumb and index finger of the right hand and pull open until resistance is felt, or, after the exposure, close the housing again. By holding the camera in this manner the fingers have the safest hold and largest gripping surfaces, and any accidental pressure on glass surfaces is avoided.



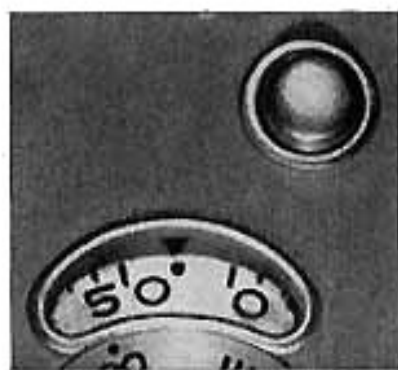
The **view-finder** clearly indicates (within a white light frame) the exact limits of the image field. The problem of »the diminishing field«, occurring as an object approaches the camera, may be met in the following manner: for longer distances the outer limits of the white frame should be referred to, while for a distance of about 3' the inner limits are to be applied. For very short distances of, say, 8" to 10" a width corresponding to about that of the thickness of the frame-line should be allowed within the field.



The **exposure disc** (the larger one of the two discs) is easily set by lightly pressing one finger tip upon the knurled centre and then rotating the disc. The time of exposure may be set irrespective of whether the camera housing is open or closed, or whether the shutter is set or not. For snap shots intermediate values may be set. The point mark appearing in the lens gate indicates that the shutter is set. When this mark is not visible the MINOX should be made ready for the next exposure, which is simply done by operating the housing sleeve i. e., by closing the camera housing and opening it again. Because of the focus length of 15 mm the depth of definition is extremely large; so all pictures can be taken with the full aperture of $f\ 1:3.5$.



By holding the camera in this way the mistake — common with beginners — of blocking the light path to the lens or view-finder is avoided. The shutter can be released conveniently and steadily with a finger of the right or left hand. The position of the hands does not alter materially when changing over from horizontal to vertical pictures. Steady position may also be achieved, if necessary, by leaning against a wall or post etc. when taking the picture. Where longer exposure periods are required it will be necessary to rest the MINOX securely, or attach it to a tripod with the aid of the MINOX tripod head using a wire release for the exposure.



Prior to loading a new film cartridge make sure that the exposure counter is set to point to the red mark between the marks 50 and 0 (see illustration). This is the only way to ensure uniform film-transport since, by an ingenious mechanism, the rotation of the film take-up diminished as the number of exposures increases (due to the growing diameter of the film spool). Switching over for the new film is done with the exposure counter in the position shown above. The counter advances one interval (about 3 mm.) each time the MINOX is opened and shut again.



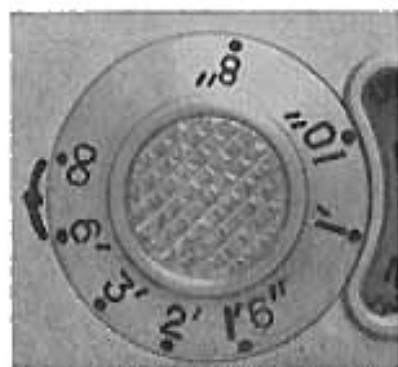
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Note: In this position the film cartridge must neither be removed nor inserted since the backing plate is still being pressed against the filmguide.



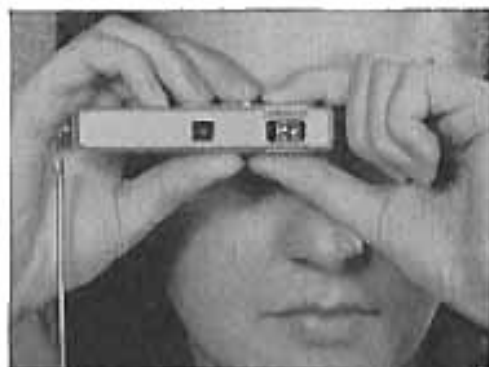
By means of the milled rod above the finder gate either one of the two built-in **filters** may be shifted in front of the lens. In doing so please ensure that the required filter (green or orange) completely covers the lens opening. When using filters do not forget to allow for a corresponding extension of your exposure period. Filter factors for panchromatic film are about 3 for orange and about 2 for green.

When closing the camera again, the filter is slid back automatically.

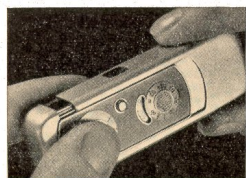


The great depth of definition obtained as a result of the short focal length does not absolve you from employing every care when **setting your distance**. Maximum definition is inseparably dependent upon proper distance setting. The small bracket at the setting mark indicates the prevailing depth of focus range which, in the above illustration for example, would extend from about 6' to ∞ . The exact values of the depth of focus range and of the size of the image field may be taken from the table supplied with the camera. In case of the MINOX the distances should be measured from the camera front. Measuring for close work is facilitated by using the measuring beads of the lanyard attached to the camera which are engraved with the exact distances of 8", 10", 1', 1'6" and 2' (complete chain).

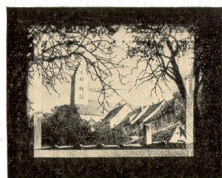
The MINOX-camera is available with distance marks and chain for feet and meter.



To obtain sharp pictures it is essential that the camera is held absolutely steady! The two illustrated ways of **holding the MINOX** for either horizontal or vertical pictures are recommended as being the most satisfactory, viz., with the left index finger resting securely on the shutter dial and thumb in an opposite position under the camera. The camera is then raised until the left index finger firmly contacts the forehead above the left eye. The right thumb should rest alongside the left thumb on the lower side of the camera, while the remaining 4 fingers rest on top in much the same way as a flute is held. If possible and convenient the right hand should also rest against the forehead.



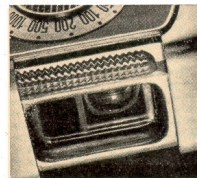
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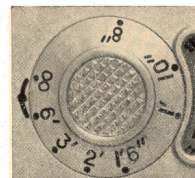
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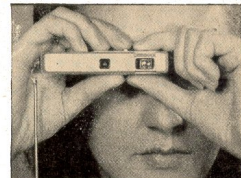
The **exposure disc** (the larger one of the two discs) is easily set by lightly pressing one finger tip upon the knurled centre and then rotating the disc. The time of exposure may be set irrespective of whether the camera housing is open or closed, or whether the shutter is set or not. For snap shots intermediate values may be set. The point mark appearing in the lens gate indicates that the shutter is set. When this mark is not visible the MINOX should be made ready for the next exposure, which is simply done by operating the housing sleeve i.e., by closing the camera housing and opening it again. Because of the focus length of 15 mm the depth of definition is extremely large, so all pictures can be taken with the full aperture of f 1:3.5.



By means of the milled rod above the finder gate either one of the two built-in **filters** may be shifted in front of the lens. In doing so please ensure that the required filter (green or orange) completely covers the lens opening. When using filters do not forget to allow for a corresponding extension of your exposure period. Filter factors for panchromatic film are about 3 for orange and about 2 for green. When closing the camera again, the filter is slid back automatically.



The great depth of definition obtained as a result of the short focal length does not absolve you from employing every care when **setting your distance**. Maximum definition is inseparably dependent upon proper distance setting. The small bracket of the setting mark indicates the prevailing depth of focus range which, in the above illustration for example, would extend from about 6' to ∞. The exact values of the depth of focus range and of the size of the image field may be taken from the table supplied with the camera. In case of the MINOX the distances should be measured from the camera front. Measuring for close work is facilitated by using the measuring beads of the lanyard attached to the camera which are engraved with the exact distances of 8", 10", 1', 1 1/2" and 2" (complete chain). **The MINOX-camera is available with distance marks and chain for feet and meter.**



To obtain sharp pictures it is essential that the camera is held absolutely steady! The two illustrated ways of **holding the MINOX** for either horizontal or vertical pictures are recommended as being the most satisfactory, viz., with the left index finger resting securely on the shutter dial and thumb in an opposite position under the camera. The camera is then raised until the left index finger firmly contacts the forehead above the left eye. The right thumb should rest alongside the left thumb on the lower side of the camera, while the remaining 4 fingers rest on top in much the same way as a flute is held. If possible and convenient the right hand should also rest against the forehead.

In the illustration the MINOX is shown open and ready for use. The opening operation consists of sliding the housing through about half an inch, so exposing the lens and view-finder and simultaneously winding up the shutter. To avoid double exposures and to increase the working efficiency, the shutter wind and film transport have been synchronised with the exposure counter. Following an exposure the camera is prepared for the next picture by simply repeating the action, i.e., by shutting and opening the camera housing, as described above.



The self-contained construction of the MINOX effectively protects the interior of the camera from dust and damage. Care of the camera is confined only to an occasional cleaning of glass surfaces which is best effected by breathing on them and carefully wiping them with a piece of clean linen or cotton wool wrapped around a match stick. Implements such as screw drivers, pocket knives or needles of any kind should never be used, nor should benzine or alcohol be used as cleaning fluids. The interior of the MINOX requires no lubrication, although no harm is done by occasionally applying a little high grade Neatsfoot oil to the sliding points of the camera housing.

For developing films the

MINOX Daylight Developing Tank

is recommended, as it affords the greatest possible protection of the film and a maximum of convenience in manipulation. MINOX Film-envelopes will guard your negatives against scratches and bruises. With the aid of the MINOX Film-Viewing Magnifier, negatives can be scrutinized while in their envelopes. For enlarging purposes we offer the MINOX Enlarger ensuring excellent definition and sharpness of your pictures. Literature and quotations for accessories will be gladly forwarded upon request.

MINOX G. m. b. H., WETZLAR
Giessen-Heuchelheim Works

Giessen, Postfach 137



Important: Before inserting or taking out a film cartridge the working pressure of the backing plate must be removed to open the film channel. This is done by closing the opened MINOX by about one sixth of an inch, i. e. up to a point where the trigger for the lid vanishes, as shown in the above illustration.

Before inserting a new film make sure that cavities are clean and free from dust. When changing films the film channel and cartridge space must be cleaned by blowing away dust particles.



When unwrapping film cartridges and inserting them into the camera be sure to expose them only to subdued light, such as that produced by your own shadow. After releasing the pressure of the backing plate (as shown before), the twin cartridge should be inserted holding it by the bridge and without using any force. (If resistance should be met with, it will merely be necessary to give the take-up spool a turn by moving the sleeve a little to and fro). The lid is then closed (without opening up the camera full length) until the trigger catches. One closing and opening action of the MINOX will now suffice to feed the pre-exposed film section into the cassette; the exposure counter will indicate >0< showing that the MINOX is ready for use.



The entire film is exposed as soon as the exposure counter indicates the figure >50<. By a double repeating action (opening and closing the camera twice) the last picture will be transported into the light-tight cassette. The exposure counter now displays the red mark indicating that the camera is ready for re-loading.

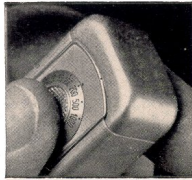
To guard against loss or damage the camera may be attached to and carried on a lanyard which is provided at its lower end with a locking device. Locking is easily effected by putting the key at the end of the lanyard into the lock and securing it there by a quarter turn in clockwise direction. For unlocking, the ring is pushed into the groove of the key and the latter turned of the left. Measuring the distance for close-up work with the aid of the measuring beads should be done when the lock is closed.



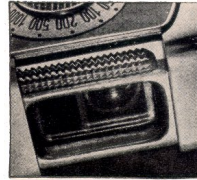
Important! For convenience and safety the MINOX should be handled as follows: Take the camera with the thumb and index finger of the left hand, one of these resting firmly upon the exposure disc. Then grip the narrow sides of the housing sleeve with the thumb and index finger of the right hand and pull open until resistance is felt, or, after the exposure, close the housing again. By holding the camera in this manner the fingers have the safest hold and largest gripping surfaces, and any accidental pressure on glass surfaces is avoided.



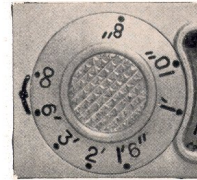
The view-finder clearly indicates (within a white light frame) the exact limits of the image field. The problem of »the diminishing field«, occurring as an object approaches the camera, may be met in the following manner: for longer distances the outer limits of the white frame should be referred to, while for a distance of about 3' the inner limits are to be applied. For very short distances of, say, 8" to 10" a width corresponding to about that of the thickness of the frame-line should be allowed within the field.



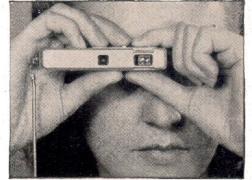
The exposure disc (the larger one of the two discs) is easily set by lightly pressing one finger tip upon the knurled centre and then rotating the disc. The time of exposure may be set irrespective of whether the camera housing is open or closed, or whether the shutter is set or not. For snap shots intermediate values may be set. The white point mark appearing in the lens gate indicates that the shutter is set. The black field appearing after exposure is a reminder that the MINOX should be made ready for the next exposure, which is simply done by operating the housing sleeve i.e., by closing the camera housing and opening it again.



By means of the milled rod above the finder gate either one of the two built-in filters may be shifted in front of the lens. In doing so please ensure that the required filter (green or orange) completely covers the lens opening. When using filters do not forget to allow for a corresponding extension of your exposure period. Filter factors for panchromatic film are about 2 for green and about 3 for orange.



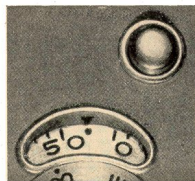
The great depth of definition obtained as a result of the short focal length does not absolve you from employing every care when setting your distance. Maximum definition is inseparably dependent upon properly set distance. The small bracket at the setting mark indicates the prevailing depth of focus range which, in the above illustration for example, would extend from about 6' to ∞. The exact values of the depth of focus range and of the size of the image field may be taken from the table supplied with the camera. In the case of the MINOX the distances should be measured from the camera front. Measuring for close work is facilitated by using the measuring beads of the lanyard attached to the camera which are engraved with the exact distances of 8", 10", 1', 1 1/2" and 2' (complete chain).



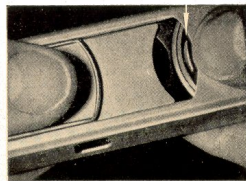
To obtain sharp pictures it is essential that the camera be held absolutely steady! The two illustrated ways of holding the MINOX for either horizontal or vertical pictures are recommended as being the most satisfactory, viz., with the left index finger resting securely on the shutter dial and thumb in an opposite position under the camera. The camera is then raised until the left index finger firmly contacts the forehead under the left eye. The right thumb should rest alongside the left thumb on the lower side of the camera, while the remaining 4 fingers rest on top in much the same way as a flute is held. If possible and convenient the right hand should also rest against the forehead.



By holding the camera in this way the mistake — common with beginners — of blocking the light path to the lens or view-finder is avoided. The shutter can be released, conveniently and steadily with a finger of the right or left hand. The position of the hands does not alter materially when changing over from horizontal to vertical pictures. Steady position may also be achieved, if necessary, by leaning against a wall or post etc. when taking the picture. Where longer exposure periods are required it will be necessary to rest the MINOX securely, or attach it to a tripod with the aid of the MINOX tripod head using a wire release for the exposure.

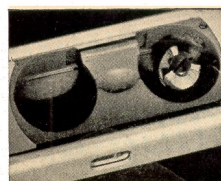


Prior to loading a new film cartridge make sure that the exposure counter is set to point to the red mark between the marks 50 and 0 (see illustration). This is the only way to ensure uniform film-transport since, by an ingenious mechanism, the rotation of the film take-up diminished as the number of exposures increases (due to the growing diameter of the film spool). Switching over for the new film is done with the exposure counter in the position shown above. The counter advances one interval (about 3 mm.) each time the MINOX is opened and shut again.



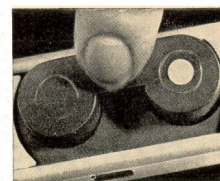
To change films the MINOX is readily opened in the following manner: Pull the camera open, lower side up. The index fingers should rest on controls-side of camera, with the thumb of the same hand resting on the slide housing on the lower side. Then, with the thumb of the other hand press down the lid-trigger (at the visible notch). The slide now opens easily under light thumb pressure.

Note: In this position the film cartridge must neither be removed nor inserted since the backing plate is still being pressed against the filmguide.

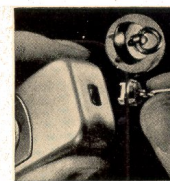


Important: Before inserting or taking out a film cartridge the working pressure of the backing plate must be removed to open the film channel. This is done by closing the opened MINOX by about one sixth of an inch, i.e. up to a point where the trigger for the lid vanishes, as shown in the above illustration.

Before inserting a new film make sure that cavities are clean and free from dust. When changing films the film channel and cartridge space must be cleaned by blowing away dust particles.

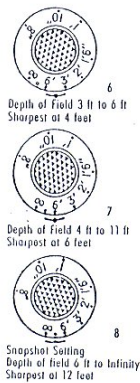


When unwrapping film cartridges and inserting them into the camera be sure to expose them only to subdued light, such as that produced by your own shadow. After releasing the pressure of the backing plate (as shown before), the twin cartridge should be inserted holding it by the bridge and without using any force. (If resistance should be met with, it will merely be necessary to give the take-up spool a turn by moving the sleeve a little to and fro). The lid is then closed (without opening up the camera full length) until the trigger catches. One closing and opening action of the MINOX will now suffice to feed the pre-exposed film section into the cassette; the exposure counter will indicate »0« showing that the MINOX is ready for use.



The entire film is exposed as soon as the exposure counter indicates the figure »50«. By a double repeating action (opening and closing the camera twice) the last picture will be transported into the light-tight cassette. The exposure counter now displays the red mark indicating that the camera is ready for re-loading.

To guard against loss or damage the camera may be attached to and carried on a lanyard which is provided at its lower end with a locking device. Locking is easily effected by putting the key at the end of the lanyard into the lock and securing it there by a quarter turn in clockwise direction. For unlocking, the ring is pushed into the groove of the key and the latter turned to the left. Measuring the distance for close-up work with the aid of the measuring beads should be done when the lock is closed.



Setting the Distance (Focusing)

The MINOX Distance Scale is calibrated from 8" to Infinity (∞). Set the subject-to-camera distance by rotating the Distance Scale until the estimated distance is opposite the black dot of the small bracket. Objects at the set distance will be sharpest but, within a certain range, nearer and farther objects will also appear acceptably sharp. The entire range of sharpness from nearest to farthest objects is called "depth of field".

The near and far limits of the Depth of Field for any distance setting are indicated on the MINOX by the small bracket adjacent to the Distance Scale. For example, when set at 6' (Illustration 7), the Depth of Field extends from 4 ft to 11 ft; or, when set at 4' (Illustration 6) it reaches from 3 ft to 6 ft. The greatest Depth of Field is obtained with the SNAPSHOT SETTING (small dot half-way between ∞ -Infinity - and 6 ft) as shown in illustration 8. You will find this setting convenient for all pictures which require quick readiness and fast shooting, (i. e. Sports, Groups, Street Scenes, etc.); just keep in mind that the nearest object must be at least 6 feet away.

6

For scenery without important foreground interest, always set the Scale at Infinity (∞). At this setting, the Depth of Field begins at approximately 12 ft.

For accurate measuring of extreme close-ups (6" to 24"), the safety chain of your MINOX carries small beads at distances corresponding exactly to the close distances engraved on the Distance Scale. With the chain locked in the camera socket, and held taut, exact measurements can be made at 8 - 10 - 12 - 18 and 24 inches (full length). The Depth of Field ranges and Subject Sizes at various set distances are shown in the Tables on page 27.

Always f/3.5 - an Important MINOX Feature

The 15 mm Compur lens of your MINOX yields such extreme Depth of Field, and together with the slightly curved design of the Film Gate gives such outstanding definition over the entire film area, that an adjustable lens diaphragm could be omitted - saving you an extra operation necessary with other cameras.

The MINOX always works at full f/3.5 opening.

7

The Convenient Filters

You can place the built-in orange or green filters before the lens simply by pushing the knurled slide - above the viewfinder window - towards the lens window. Make sure the desired filter is fully visible in the lens window. When using the green filter, double the exposure time (i. e. use $1/100$ sec. instead of $1/200$ sec.); with the orange filter, triple the exposure. For tips on using filters, see pages 16 and 17.

The filters are automatically retracted when the camera is closed. Therefore, subsequent exposures are made without a filter unless the filter is again pushed into position.

Taking the Picture

When you are ready to "shoot", frame your picture in the viewfinder (see page 4), and "squeeze" the shutter release button - don't "punch" it. For critically sharp pictures, the camera must not be jarred during exposure. The shutter release of the MINOX works so smoothly - and without resistance - that you will find it easy to operate.

NOTE: The small circle in the lens window indicates that the shutter is wound, ready for an exposure. If the circle is not showing, simply "push-and-pull" the camera to make it ready.

Attention

Your MINOX III's has a built-in Neutral Density (Gray) Filter instead of the Orange Filter mentioned on pages 8 and 17. Some hints for the use of Neutral Density (ND) Filter:

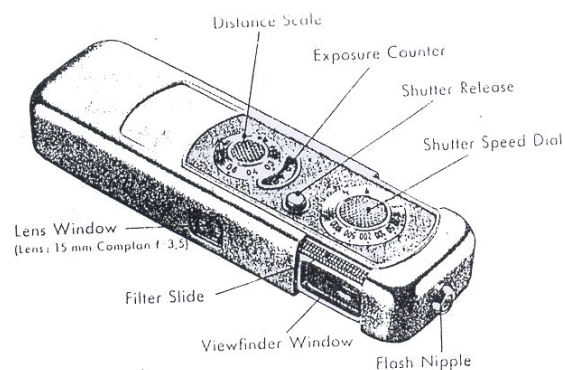
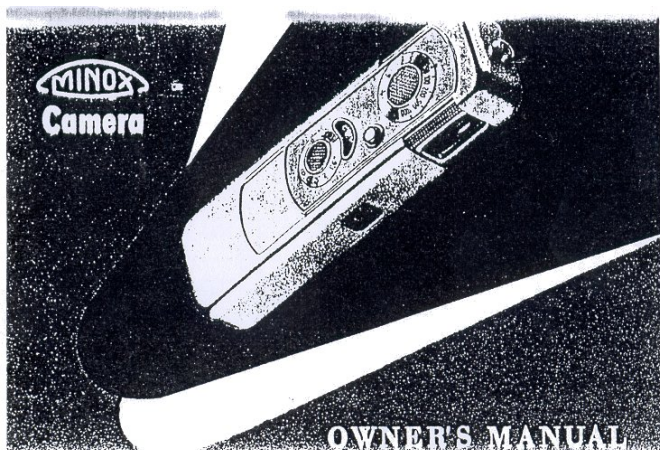
1. Extremely bright scenes

- especially when using high speed films - may require exposures shorter than $1/1000$ sec. In these cases you place the ND filter in front of the lens to cut down light to $1/16$ (example: set shutter for $1/100$ instead of $1/1000$). ND filter can be used with black and white or color films. Do not use with color for low, orange-red sun, since ND filter has similar influence on color rendition as Skylight Filter (voids blue tinge of noon).

2. Flash exposures

ND filter may be used also for cutting down light when using flash on shorter distance. Shutter setting is not changed when taking flash exposures: Stay on $1/125$ for AG 1 bulbs!

When using MINOX BC flashgun with AG 1 flashbulbs, these distances will give you good results in average rooms:



CONTENTS

[See also alphabetical index on page 33]

	Page
How to use the MINOX	
Opening and Closing the Camera - Holding the MINOX - The Viewfinder - Setting the Shutter - Setting the Distance - Always f/3.5-an important MINOX feature - The convenient Filters - Taking the Picture - The Exposure Counter - Loading - Un-loading - Attaching the Safety Chain - Things to Remember	2
Tips for best results	
The "best" Film STEADY - How about Longer Exposures? - "Frame" your Subject - Close-ups of Small Things - How to stop Moving Subjects - The two built-in Filters - Flash is Easy - It's a Colorful World - Copying - Changing the Film Type - Picture Series - Tele-Photography	13
What happened?	23
Subject Size and Depth of Field Tables	27
The MINOX Exposure Meter	28
The MINOX Slide Projector	29
The MINOX Developing Tank	30
The MINOX Enlarger-Copying Stand	31

YOUR MINOX is a precision instrument designed and built to give you excellent pictures under all kinds of conditions, indoors and out. As your constant companion, your MINOX is always ready to catch not only delightful, spontaneous snapshots, but an endless variety of fine pictures of any subject, any occasion, at any time. This Manual shows you the way to best results with your MINOX. It contains many valuable tips which you will find helpful. Read the various sections carefully so that you will get fine results right from the start.

The first section explains the operation of your MINOX. Read it with the un-loaded camera at hand - once you are familiar with the simple operating steps, you will always enjoy the full pleasure of picture-taking with your MINOX.

Part two will help you select the proper kind of film for best results. It tells about filters, flash, close-ups, and many other special uses for your MINOX.

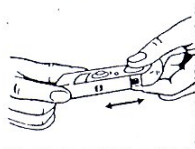
The final pages point out annoying little errors which may make the difference between a good and a bad picture. You will find it easy to avoid such mistakes, once you are aware of them.

If you have any questions, your MINOX dealer will always be glad to help.

HOW TO USE THE MINOX

Opening and Closing the Camera

Illustration 1



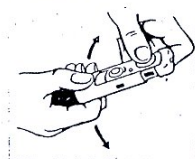
To open the camera for picture-taking, place left thumb on Shutter Speed Dial and left forefinger on underside of camera, while grasping narrow sides of camera with the right thumb and forefinger; pull camera open — like a telescope — as far as it will go. After a picture has been taken, push the camera together as far as possible. This "pumping" action automatically advances the film and winds the shutter for the next exposure. **IMPORTANT: Pull or push all the way!**

2

The Viewfinder

The luminous frame within the MINOX viewfinder contains the exact picture area that will appear on the film. The viewfinder image is automatically corrected, at all distances, to agree with the picture area. (Parallax Compensation). For extreme close-ups (8–10 inches), the picture area lies a frame-width within the luminous frame. Eyeglass wearers may readily use the MINOX viewfinder without correction lenses.

Illustration 4



Setting the Shutter

The length of time the light is permitted to reach the film is controlled by the shutter. The Shutter Speed Dial is conveniently rotated by placing the thumb on the knurled surface while holding the forefinger under the camera and, with the other hand, turning the camera until the desired speed is set opposite the black dot. The Shutter Speed Dial may be rotated with the camera open or closed, whether the shutter is wound or not.

4

Holding the MINOX

The illustrations show the most practical way of holding your MINOX: With both hands, and steadied against the face. Such a steady, firm hold is assurance against camera movement during exposure. Keep both thumbs under the camera and other fingers on top to avoid the possibility of covering the lens window. You might practice this hold in front of a mirror to check yourself. The same hold can conveniently be used for vertical or horizontal pictures.

3

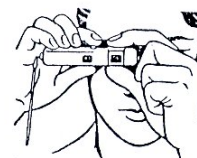


Illustration 2

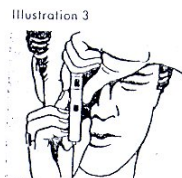


Illustration 3

The engraved figures are fractions of a second (2 indicates $\frac{1}{2}$ second, 1000 is $\frac{1}{1000}$ sec., etc.). Intermediate speeds may also be set.

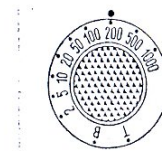


Illustration 5
Shutter Speed Dial
(set at $\frac{1}{250}$ sec.)

When the Dial is set at "B", the shutter opens if the Shutter Release is pressed down, and remains open as long as the Release is held down; set at "T" (Time), the shutter opens when the Release is pressed down, and remains open until the Release is pressed a second time. B or T exposures should be made only with the MINOX resting on or against a firm support, or with a tripod (see page 14).

Always use an exposure guide, or the MINOX Exposure Meter, to determine the correct shutter setting for existing light conditions.

5

THINGS TO REMEMBER

- Before loading —
 - make sure Exposure Counter is set at red dot between 50 and 0
- Before inserting or removing film cassette —
 - make sure Film Gate is open
- When taking the picture —
 - keep fingers away from lens window;
 - hold camera steady; "squeeze" shutter release button
- At end of film —
 - do not attempt to take more pictures than the film allows (50 on black-and-white; 36 on color film)
- Always —
 - keep Lens Window clean. Fingerprints or other smudges on the lens window cause un-sharp pictures. To clean, wrap soft linen cloth around match stick.

12

TIPS FOR BEST RESULTS

The "best" Film

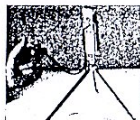
MINOX film is available in several different types for black-and-white photography, and for Color Pictures. The black-and-white films vary in sensitivity (speed) to suit every possible need. The sensitivity is expressed in American Standard exposure index numbers: ASA 12 (Green Label), ASA 25 (Yellow Label), ASA 50 (Blue Label), ASA 100 (Red Label). ASA 100 film is twice as sensitive to light as ASA 50, ASA 50 twice as sensitive as ASA 25, and so on. Thus, under any given conditions ASA 50 film, for instance, would require only half the shutter speed needed for ASA 25. The lower the film sensitivity, the finer the detail it is capable of reproducing in the final print. Therefore, the super-sensitive ASA 100 film should be used only in instances when there is not enough illumination for slower films, or when flash exposures are not feasible (stage photography, candid shots, etc.). The medium sensitivity films ASA 25 and ASA 50 are best suited for all-around picture-taking, and will yield excellent prints in all popular sizes. ASA 12 film is especially suited for bright beach, mountain, and snow scenes, as well as for close-ups of stationary small objects with the MINOX used on a tripod.

MINOX Color Film is available for daylight, and for artificial (tungsten) light.

Steady!

Get used to a comfortable, steady hold of your MINOX during exposure; experience will show you whether you can get steady pictures even at the slower shutter speeds. Generally, you will find it advisable to use a tripod or other firm support for shutter

13



speeds of $\frac{1}{30}$ sec. and slower. For all snapshots, use the hold suggested on page 3, always making sure that you "squeeze" the shutter to avoid jarring the camera.

How About Longer Exposures?



You may be able to hold the MINOX steady by leaning your elbows on a table or other firm surface, or against a wall; or you may place the MINOX on a glass, ledge, etc. It is best, however, to attach the MINOX with a camera clamp to a tripod. You will find the MINOX pocketed tripod a particularly fine and versatile accessory. Only slightly larger than a pencil, this tripod with its swivel top may be used on a table, chair, window sill, or against a wall. It may also be held against your shoulders. The pictures at the left suggest various ways of using the MINOX tripod. As an extra precaution against jarring the camera, always use a cable release for tripod exposures.



14

"Frame" Your Subject

Since the MINOX viewfinder shows you the exact picture area, you can easily compose your picture before you actually take it, so that unimportant or disturbing details are omitted right at the start. Advance planning of composition saves extra work in enlarging, and it gives you precisely the picture you want every time.

Close-ups of Small Things

There is a special fascination in close-ups. A frame-filling picture of a single blossom showing the delicate details of each petal can be more exciting than showing a whole acre of flowers. Therefore: Get CLOSE to the subject! Your MINOX offers you the great advantage that you can get as close as 8 inches without any supplementary equipment or extra lenses. Make the most of this excellent feature. Always use the measuring beads of the safety chain to determine the correct distance, as the depth of field at close range is very limited. For instance, when the distance scale is set at 1 ft., the depth extends only from 11 inches to 13 inches. Therefore, accurate distance setting is a must for extreme close-ups. Remember also that, at distances between 8 and 10 inches, the picture area lies a frame-width within the luminous frame of the viewfinder.

15

Film	without filter	with ND filter
ASA 25	ca. 3' - 15'	ca. 1' - 4'
Plus X	ca. 7' - 30'	ca. 2' 6" - 8'
Anscochrome *	ca. 5' - 9'	ca. 1' 6" - 5'
CN 14	ca. 5' - 13'	ca. 1' - 3'

* For color reversal film use blue bulbs (AG 1 B), or use clear bulbs (AG 1) with additional B 6 - Filter (from MINOX colorfilter set).

Your MINOX III's even has a third filter!

Contrary to the MINOX III's described in this manual, your most modern MINOX III's has a third filter:

Your lens window is a UV-Filter (Haze Filter).

The colorless UV-Filter always stays in front of the lens to avoid lack of sharpness due to ultra-violet radiation at high altitudes. No exposure increase necessary. UV-Filter is used with black-and-white and color films.

Printed in Germany X. 62

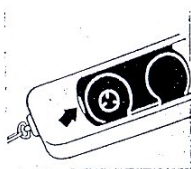


Illustration 11

LOAD CASSETTE INTO CAMERA ONLY WHEN FILM GATE IS OPEN. Drop cassette into film chambers, close back cover, and push-pull camera once.

If the back cover cannot be closed - this is a rare coincidence when the film take-up core is resting on the teeth of the transport wheels in the film chamber - lift out the cassette, pull the camera open all the way, and close again until the film gate opens. Re-insert cassette, close back cover, and push-pull-push camera once.

Un-Loading

Watch the Exposure Counter - 50 is the last exposure! Push-and-pull the camera twice. The Exposure Counter should now be at the red dot. Unload in subdued light. Open back cover and spread film gate (as if to load).

10

The Exposure Counter

tells you at a glance how many pictures you have taken on the film. The Counter advances automatically each time you move the film forward by a "pull-push" of the MINOX. The Exposure Counter must be set at the red dot between 50 and 0 before a new film cassette is inserted. (Illustration 9). Otherwise, overlapping pictures may result.

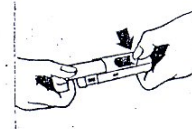


Illustration 9

Loading

Film cassettes should be shielded from bright sunlight. Always load - or un-load - the MINOX in subdued light, or in the shade. Set Exposure Counter at red dot between 50 and 0 by "pumping" camera. With camera in pulled-out position, press down on crescent-shaped Snaplock (illustration 10) and slide open Back Cover until both Film Chambers are free. Then "close" camera about 1/4 inch to spread the Film Gate open. (This occurs when the snaplock almost disappears in the camera (Illustration 11).

Illustration 10



9

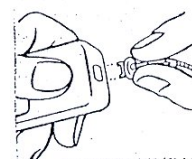
Film cassette will drop out of camera with slight tapping, or may be lifted out by its bridge. Store the cassette in film box or in black paper until it is developed. Note: Color Films end at 36. Unload after two push-and pull motions. Advance Exposure Counter to red dot before loading new film.

CAUTION: Do not advance films beyond the numbers indicated above, as the film would be entirely pulled into the take-up side; this may result in light entering through the cassette slit during un-loading.

Attaching the Safety Chain

To protect your MINOX against accidental falls, always keep it on its chain. Insert the rectangular plug at the end of the chain into the corresponding Chain Socket of the camera. The spring-loaded dust cover will disappear in the camera. Use the D-ring at the end of the chain in the manner of a screw driver, inserting it into the slot of the plug disc; turn the plug one-quarter turn to the right. (Illustration 12). To remove the chain, reverse these steps; insert D-ring into slot, turn one-quarter to the left - plug will jump out of socket.

Illustration 12



11

How to Stop Moving Subjects

Sports and other fast action call for high shutter speeds – otherwise your pictures may be blurred. But even under unfavourable light conditions, requiring slower shutter speeds, you can stop motion by using professional tricks. It is easier, for example, to stop motion of a subject moving straight toward the camera, or at a slight angle, than it is to "freeze" a subject moving straight across at right angles to the camera. Or, watch for the "still moment" such as is reached by a swing at its highest point just before it swings back, or by the tennis player during the serve when the ball is at the peak of the toss, and the racket is about to be swung. Even $\frac{1}{250}$ second will "stop" such shots. For very fast motion – automobile races, speed boats, skiing – another well-known professional trick will help you get fine results: Keep the car, boat, or skier centered in the MINOX viewfinder and follow the motion with the camera, releasing the shutter at any instant during this panoraming. The background will be blurred, adding to the impression of fast action, but the subject stays sharp even at $\frac{1}{250}$ second.

The two built-in Filters

..... will help you improve your black-and-white pictures. In scenic pictures, the green filter will give a blue sky – which would otherwise appear white in the final

16



$\frac{1}{250}$ sec. without flash. Scenery properly exposed figure too dark



$\frac{1}{250}$ sec. with electronic flash. Light balanced for figure and scenery

Flash is Easy

You can get fine pictures with your MINOX right around the clock, because, when daylight or room light is no longer sufficient, you can attach a flash unit to your camera. Even in daylight, you can penetrate deep shadows or lighten scenes by using flash.

The MINOX may be used with any type of flash source connected to the flash nipple of the camera. The shutter has built-in synchronization of the X-type (it "fires" the flash as soon as the shutter release of the camera is pressed).

Flash Source	Synchronized at shutter speeds:
Electronic Flash Units	 $\frac{1}{2}$ second to $\frac{1}{250}$ second
Flash Bulbs: SM, SF	 $\frac{1}{2}$ second to $\frac{1}{250}$ second
M-2, S, B, 25	 $\frac{1}{2}$ second to $\frac{1}{250}$ second

18

print – a richer tone, making white clouds stand out clearly. Green foliage, lawns, etc. which would normally print darker, will show a lighter tone and better modulation. Because the green filter reduces the overall amount of light transmitted through the lens, you must double the shutter speed – in other words use $\frac{1}{100}$ sec. when the MINOX exposure meter or exposure guide indicates $\frac{1}{200}$ sec.

The orange filter – which requires three times normal shutter speed – darkens blue skies considerably, but lightens all reddish tones. Even in full sunlight it produces dramatic skies and scenes resembling night shots. More important is its ability to produce clear pictures on days when there is a blue atmospheric haze. The orange filter is particularly useful for cloud pictures, snow scenes, mountain photography, and on hazy days. DO NOT USE THE ORANGE FILTER FOR PORTRAITS as red lips would appear almost white.

NEVER USE THE GREEN OR ORANGE FILTER WITH COLOR FILM.

17



$\frac{1}{250}$ sec. without filter



$\frac{1}{100}$ sec. with green filter, sky darker, clouds stand out



$\frac{1}{100}$ sec. with orange filter, sky very dark, clouds "fluffy", green areas lighter

It's a Colorful World

The 15 mm f/3.5 Complan lens of your MINOX is color-corrected, and has an anti-reflection coating – in other words it is ideally suited for Color Photography.

If you have never taken color pictures before, keep in mind the following suggestions which will help you get fine results from the outset:

Color Film yields the best results in bright or hazy sunlight; on overcast days, results are usually not satisfactory.

Morning and early afternoon hours are the best time for color pictures. At noon the light is usually bluish, resulting in very "cold" colors or an over-all bluish tinge. During the hours just after sunrise, or just before sunset, the light is more reddish, resulting in very "warm" colors.

Watch for the possibility of color reflections (which may not be visible to the eye): A white dress on a green lawn is never pure white, but faintly green.

19

... IF a picture is partly blank

One of your fingers covered the lens window. Be sure to keep fingers clear of lens window during exposure – check your "hold"; see page 3.

... IF your film shows irregular spacing or overlapping

Either you forgot to set the exposure counter at the red dot when you started the film, or you did not pull and push the camera ALL THE WAY between exposures.

... IF some of your negatives are very thin, others almost black

Determine correct shutter setting for each picture situation. Use an exposure guide or, better still, the MINOX photo-electric exposure meter.

... IF some prints show more "grain" than others from the same film

Badly over-exposed pictures have coarser grain. Over-exposure is as undesirable as under-exposure. Use an exposure guide or MINOX exposure meter to get correct shutter speed every time.

24

... IF film cassette does not lie flush in both film chambers, so that back cover of camera cannot be closed

This may happen on rare occasions when the film take-up core rests on the teeth of the transport wheel in the film chamber. Simply lift out cassette, pull camera open all the way, and close again until the film gate opens. Re-insert cassette. Close cover.

... IF film shows dark areas along edges at intervals

Either the cassette was handled in very bright light or the film was advanced beyond the red dot before un-loading which may result in light entering through the film slit of the cassette.

26

... IF film has thin horizontal scratches (telephone wires)

Dust is the enemy of your MINOX films. Never keep a film cassette in your pocket without a wrapper. Before loading the camera, blow out any dust particles which may have lodged in the film chambers of the camera.

... IF film cassette will not easily drop into camera when loading

The film gate **must be open** when the film is dropped into the camera; be sure to push the camera (with open cover) together about 1/4" to open gate. (See page 9.)

... IF the cassette cannot be removed from camera, or if cassette lid lifts out, but the film and container remain in camera

See previous explanation. Film gate must be open when loading or un-loading cassette. Never use force to remove film. Accidentally opened film may be partly saved if it is immediately wrapped in black paper.

25

Subject/Field Size and Depth of Field Tables

Distance Focused On	Subject/Field Size – inch.	Depth of Field
∞ Infinity	—	12' 8" to ∞
12'	105 x 77	6' 1 1/2" to ∞
6'	53 x 38	4' to 11' 4"
4'	35 x 25 1/2	3' 1/2" to 5' 11"
3'	26 x 19	2' 5 7/8" to 3' 9 1/2"
2' 4 7/8"	20 3/4 x 15	1' 11 7/8" to 2' 11 1/4"
2'	17 1/8 x 12 1/2	1' 8 3/4" to 2' 4 1/4"
1' 8 3/4"	14 7/8 x 10 7/8	1' 6 3/8" to 2'
1' 6"	12 3/4 x 9 3/4	1' 4 1/4" to 1' 8 1/2"
1' 2 3/8"	10 1/2 x 7 1/8	1' 1 1/8" to 1' 3 7/8"
1'	8 7/8 x 6	11 1/4" to 1' 1"
10 7/8"	7 1/2 x 5 3/8	10 1/4" to 11 3/4"
10"	6 3/4 x 4 7/8	9 1/4" to 10 3/4"
8 7/8"	6 x 4 3/8	8 3/8" to 9 1/2"
8"	5 3/8 x 3 7/8	7 3/8" to 8 1/2"

Distances are measured from the front of the camera.

Figures in light type apply when distance scale of camera is set exactly half-way between two adjacent engraved distance markings.

For convenient measuring of close distances, the MINOX chain is equipped with beads at 8" – 10" – 12" – 18".

27

Color Film does not have as much exposure latitude as black-and-white film. Therefore, use correct shutter speed! The MINOX photo-electric exposure meter is particularly valuable in Color Photography. Even slight deviations from the correct shutter speed may result in false color reproduction.

As a general rule, color pictures are best taken with the sun slightly to one side behind the photographer's back.

If you are seriously interested in all phases of Color Photography, you will find it worthwhile to read one of the many comprehensive books covering this field.

Copying

... of documents, drawings, books, etc. is easily done with your MINOX. By using a tripod, MINOX Repro Stand, MINOX Copying Arm, or other means of support, you can conveniently copy such matter, getting as close as 8 inches for largest possible reproduction. Use the special MINOX Micro Grain Copy Film, except when copying photographs or illustrations containing half-tones for which regular MINOX ASA 25 or ASA 50 film is recommended. (See tables showing area covered at various distances, on page 27.)

20

Picture Series and Sequence Shots

Your MINOX — compact and instantly ready to "shoot" — makes it so easy to get spontaneous, un-posed pictures. Whenever possible take a whole series of pictures to tell a complete story. With a little practice, you can take an entire sequence of pictures within a few seconds; simply keep your MINOX at eye-level and "pump" the camera with your right hand to advance film and re-cock the shutter.

Tele-Photography with the MINOX

There are times when you cannot get close enough to a subject to get a large image on your MINOX film — or, in fact, you may want to remain at a distance on purpose. Your MINOX may be attached to any high-quality binocular with the MINOX Binocular Clamp; focusing and view-finding is done conveniently through one of the binocular eye-pieces while the MINOX is mounted to the other one. If you are interested in wildlife, mountaineering, etc. you will find the Binocular Clamp a valuable addition to your MINOX.

22

Changing the Film Type

Some day you may want to take color pictures just when your MINOX is loaded with black-and-white film — or vice versa. Thanks to the MINOX film cassette, it is very easy to "switch" from one film to another at any time.

When you want to change cassettes, "pump" camera once to transport the last-exposed film frame into the take-up end of the cassette. Then remove cassette in the usual manner (see page 10). Note number showing on Exposure Counter; write this number on cassette for future reference.

Before inserting fresh film, set exposure counter at red dot between 50 and 0 — as described on page 9 — and load in the usual manner.

When you re-load the "started" cassette: First set exposure counter three numbers back of the number which you noted when you removed the cassette; example: if you took the cassette out at "28", set counter at "25". Now insert cassette in the usual manner. Pump camera three times. This takes up any slack in the cassette and gets your MINOX ready for the next exposure.

Remember: Load and un-load only in subdued light, or in the shade.

21

WHAT HAPPENED?

You will find it easy to get the "feel" of your MINOX within a short time, and to get fine results with every picture. If you should have a failure at one time or another, check it against these possible errors and learn to avoid a repetition:

- ... IF the principal subject is not sharp
 - The distance scale was not set correctly. Always set the distance carefully, especially for close-ups. Use the measuring chain for extreme close-ups.
- ... IF pictures look muddy and out of focus
 - The lens window probably has a fingerprint or other smudge on it. Clean with soft linen cloth wrapped around a match.
- ... IF there are blurred or double outlines
 - The camera moved during exposure; (hold camera steady or use tripod for longer exposures), OR subject moved (use faster shutter speed for moving subjects).

23



The MINOX Exposure Meter

... tells you the correct shutter setting for any picture at a glance—and "remembers" the setting until you make the next exposure reading.

What's more, a built-in viewfinder lets you pre-view the picture just as your MINOX camera will see it; thus you can select the best possible angle every time.

Correct shutter setting means better pictures — pictures with fine highlights, good shadow detail, and every subtle tone of the original scene. Color film, particularly, requires correct exposure to assure proper color values. Even smaller than the MINOX camera, the MINOX Exposure Meter is a precision built photo-electric meter with a honeycomb light gathering lens for readings over a wide range of light conditions. It has jewel bearings and is shock resistant.

Supplied with a leather case to match your camera case, and with a chrome chain, the MINOX Exposure Meter is the perfect companion for your MINOX camera. It may also be used with other cameras.

28

MINOX Slide Projector Model 30

There is no greater thrill than seeing your fine MINOX Color Transparencies projected on the screen. All the subtleties of color are brought out in projection.

The MINOX Slide Projector is especially designed for your MINOX slides. It has an efficient light system, with a 100 Watt projection bulb, silvered concave glass reflector, and aspherical condenser lens; a special adjusting lamp socket permits critical alignment of the filament for even illumination over the entire picture area. Triple-wall construction of the all-metal housing assures free air circulation for complete ventilation of the lighting system. A heat absorbing filter gives added protection to the transparencies during projection.

The MINOSTAR f/2.9 35 mm projection lens, in focusing mount, produces brilliant, critically sharp screen images. The MINOX Slide Projector has an attractive, practical, gray instrument crackle finish. Built-in front elevating micrometer screw permits height adjustment to center the projected image on the screen. The projector is supplied complete with an all-metal slide carrier.

The MINOX color transparencies for projection in the MINOX Slide Projector should be mounted in MINOX 30 x 30 mm Transparency Mounts; the MINOX Transparency Cutter is a convenient accessory for cutting individual transparencies out of film strips.

The MINOX Projector may also be used with other ultraminiature transparency sizes down to 15 x 15 mm.

29



MINOX Developing Tank

The developing of MINOX black-and-white films becomes a simple and convenient matter with the MINOX Developing Tank.

You need no darkroom. You place the film cassette into the "light lock" of the tank, and twist the tank core to unwind the film inside — that's all. The MINOX Tank Thermometer and your watch are the only other equipment you need.

Pre-measured quantities of MINOX dry chemicals for micro-grain development are available in handy packets, ready for solution in water.

Ask your Dealer to show you the simple operation of the MINOX Daylight-Loading Developing Tank.

30

The MINOX Enlarger-Copying Stand

While commercial MINOX processing services can give you excellent enlargements from your films, you will get even greater satisfaction and pleasure from your MINOX if you make enlargements yourself. Then you can obtain precisely the results you desire, compose each picture perfectly, and use the paper surface and contrast that best suits the individual subject.

The MINOX Enlarger-Copying Stand is equipped with a light source, condenser unit, and lens system specifically designed for ultra-miniature film; as in the MINOX camera, the film is held in a curved position and the highly corrected 15 mm. f/3.5 lens yields prints of critical sharpness. Enlargements up to 11 x 14 inches can be made on the baseboard, while even greater enlargements are possible by means of an accessory reflex mirror. With the lamp house removed, the upright becomes the support for a Copying Arm to hold the MINOX, or other cameras, for photographing documents or small objects at close range.

Accessory film carriers permit using the MINOX Enlarger for 8 mm, 16 mm movie negatives and 10 x 10 mm film size.

31



Shutter guide for outdoor pictures

This simple guide will give you good results from two hours after sunrise until two hours before sunset. For accurate and convenient determination of shutter speeds for all possible conditions the MINOX Exposure Meter is recommended. Use the shutter speed shown opposite the type of subject, under the prevailing light conditions.

Subjects are:

AVERAGE - Nearby people, gardens, houses

LIGHT - People in beach, sea, snow

scenes, distant scenery

DARK - People in dark clothing, dark

flowers, streets, houses

When in doubt use, AVERAGE setting.

Light Conditions are:

BRIGHT Sun - Clear Sky strong

shadows

HAZY Sun - Soft shadows

CLOUDY Bright - No sun, no shadows

CLOUDY Dull - No sun, dark sky

	Bright Sun	Hazy Sun	Cloudy Bright	Cloudy Dull
ASA 12 Film (Green Label)				
AVERAGE	100	50	20	10
LIGHT	200	100	50	20
DARK	50	20	10	5
ASA 25 Film (Yellow Label)				
AVERAGE	200	100	50	20
LIGHT	500	200	100	50
DARK	100	50	20	10

	Bright Sun	Hazy Sun	Cloudy Bright	Cloudy Dull
ASA 50 Film (Blue Label)				
AVERAGE	500	200	100	50
LIGHT	1000	500	200	100
DARK	200	100	50	20
ASA 100 Film (Red Label)				
AVERAGE	1000	500	200	100
LIGHT	*1000	1000	500	200
DARK	500	200	100	50

*Note: Use green filter

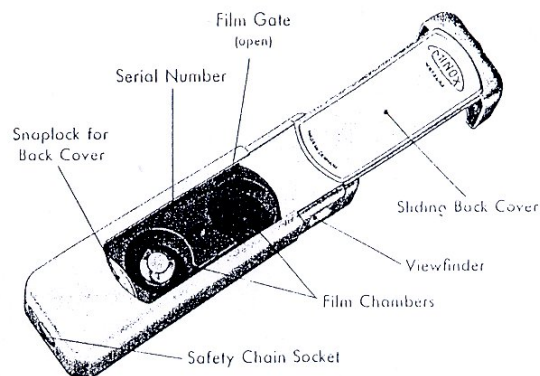
For shutter settings when using Green or Orange Filter, see page 17.

32

Index

Binocular Clamp	22	Exposure Guide	32	Panoraming	16
Blank Exposures	24	Exposure		Parallax Compensation	4
Cable Release	14	Meter	5, 17, 20, 24, 28	Picture Series	22
Chain, use of	7, 11, 15, 23	Film, Choice of	13	Reproduction Unit	20
Chain, use of	7, 11, 15, 23	Film Gate	10, 12, 25, 26	Safety Chain	7, 11, 15, 23
Changing Film Type	21	Film Grain	13, 24	Sequence Shots	22
Close-ups	7, 15, 23	Film Loading	9, 12, 25, 26	Shutter Release	5, 8, 12, 16
Cloud Pictures	17	Film, Scratches	25	Shutter Speeds	4, 16, 17, 18, 20, 23
Color Film	13, 17, 19	Film, Unloading	10, 26	Snapshot Setting	6
Color Filters	8, 17	Filters	8, 17	Spacing, un-even	24
Complan Lens	7	Flash Pictures	18	Sports pictures	16
Copying	20, 31	Focusing	6, 15, 23	Subject Size, Table	27
Copying Arm	20, 31	Hazy Days	17	Telephoto Pictures	22
Depth of Field	6, 15, 27	Holding		Time Exposures	14
Developing Tank	30	the MINOX	3, 13, 24	Tripod	14
Distance Setting	6, 15, 23	Lens Window	8, 12, 23, 24	Tripod Clamp	13, 14
Enlarger	31	Measuring		Viewfinder	4, 15, 16
Errors	23, 24, 25	Chain	7, 11, 15, 23		
Exposure		Mountains	17		
Counter	9, 10, 12, 24				

33



A Camera

small, of quick operation, yet rendering

Pictures full of life

A Camera which should be your constant companion always and everywhere; not only when you plan to take pictures but also when at work, or travelling about . . .

A Camera so light that you hardly notice its weight; so small that you always carry it in your pocket like a box of matches . . .

A Camera with refinements which simplify operation and prevent complications

A Camera superior in performance to many larger ones, versatile, and more handy

A Camera with essential accessories you need not search your pockets for because they are already built-in

A Camera in short, simple to operate, combining elegance with mechanical precision and high efficiency

The Realisation of an Ideal — that's the Minox!

The foregoing features were in the mind of its inventor. Improvements followed until the modern MINOX stands for

Maximum Performance in the Minimum Space,

resulting in the perfect sub-miniature camera.

The following pages tell you about this miracle of a sub-miniature; your dealer will be pleased to demonstrate just how wonderful it is.

Technical data will help you to realise all that the camera will do, much better than so many words.

So here are some figures: —

Dimensions: — 8.2 x 2.8 x 1.6 cm
(3 1/8 x 1 x 3/4 ins. approx.)

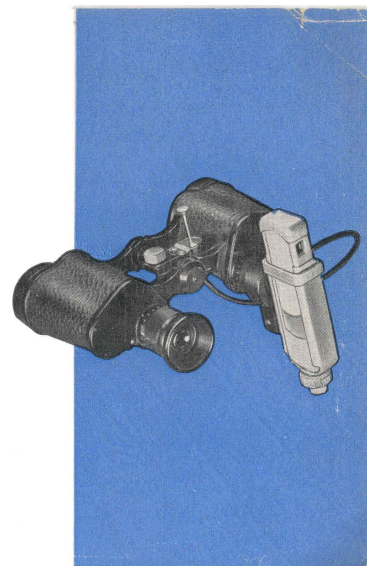
Weight: — 70 grams (2 ozs. 7 drs. approx).

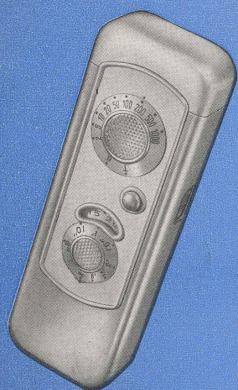
Lens: — Complan coated Anastigmat
f/3.5, 15 mm.

Focusing Range: **20 cm** (about 8 ins.)
to infinity (∞)

MINOX-Binocular Attachment

The MINOX Binocular Attachment enables MINOX users to take tele-photographs through field glasses. One-half of the Binoculars serves as a supplementary to the camera lens, while, owing to the small size of the MINOX camera, the other lens system of the binoculars can be used unimpeded in the usual way. It serves for the observation of the scene, and at the same time acts as a viewfinder. Magnification and quality of the image will, of course, depend on the type of the binoculars used.





MINOX-Camera
closed

Viewfinder

The MINOX viewfinder shows the subject within a well defined white frame as it will be seen in the final picture. Even wearers of glasses are able to see clearly the large bright field. Viewfinder and lens are coupled for focusing to give automatic parallax compensation; even in close-up subjects the field shown in the viewfinder corresponds exactly with the image on the film.

Shutter

The central shutter, of novel construction, operates in front of the lens and opens fully at any speed. Speeds from $\frac{1}{2}$ to $\frac{1}{1000}$ th of a second, as well as T & B, are set on a disc. When set to B the shutter opens as the release is pressed down and closes when the pressure ends. When set to T, the shutter opens on depression of the release and remains open until the release is pressed a second time. The sensitive shutter release operates very smoothly and without jerking. The shutter mechanism is most reliable and is not affected by temperature or climatic conditions.

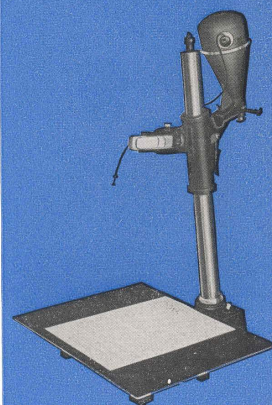
The Camera Controls

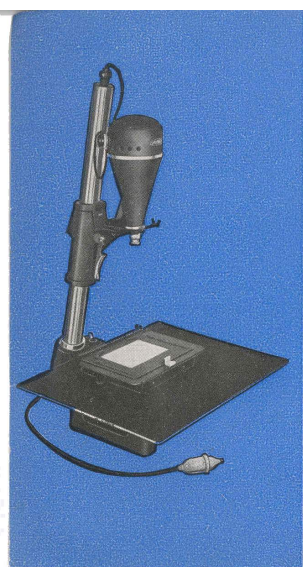
The controls are arranged side by side on top of the camera and can be observed at a glance. Large

MINOX - Copying Attachment

When the enlarger is to be used for copying, the lamp house is swung round through 180° and the Copying Attachment is fixed on the support provided for this purpose. It ensures that the MINOX camera is held exactly parallel with the baseboard.

To enable another camera to be used with the Copying Attachment an adaptor provided with a tripod bush takes its place.





-Enlarger Model II

The remarkably well corrected coated Complan lens of 15 mm. focal length ensures enlargements of pinpoint sharpness. A low voltage lamp (6 volts, 5 amps.) in conjunction with a double condenser yields a very high light output; to obtain conveniently long exposure times for smaller enlargements, a light reducing switch has been built in. Enlargements up to 24 x 30 cm (12 x 15 ins.) can be made on the baseboard.

The film carrier is glassless; this will prevent the appearance of Newton rings.

The mask is interchangeable for other sizes. With the appropriate mask from the set provided, enlargements can be made of single frames from 8, 9.5 and 16 mm. sub-standard cine film.

14

rotating scales, controlling distance and speed, are easily set by finger tip operation, even in winter when wearing gloves.

Film Transport

The film transport is coupled with the shutter; closing and opening the camera advances the film and tensions the shutter. In this way double exposures are impossible.

Lens Hood

The well known advantages of a lens hood are obtained because the lens is so deeply recessed that the camera body acts as its own sunshade.

Two Filters

The MINOX is equipped with two built-in filters (green and orange) which slide in front of the lens as required. Advancing the film automatically withdraws the filters.

Loading the Camera

Film loading is simplicity itself. A daylight loading cartridge for 50 exposures is inserted into the camera, and the camera is closed. When the last exposure has been made, the cartridge is simply taken out; there is no need to rewind the film.

7



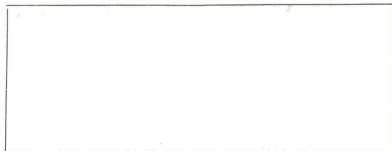
MINOX-Camera open
ready for use

Careful and expert processing of the film is of the greatest importance in sub-miniature photography. Your work should be entrusted to a dealer who employs expert, well experienced workers.

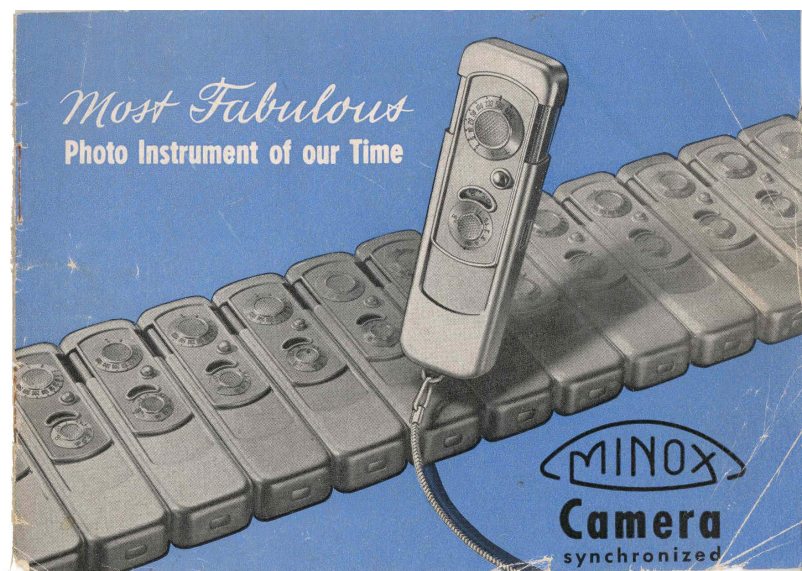
If, however, you would like to enjoy the pleasures of MINOX photography to the full by developing and printing your own films, all the equipment shown on the preceding pages is available from your dealer.

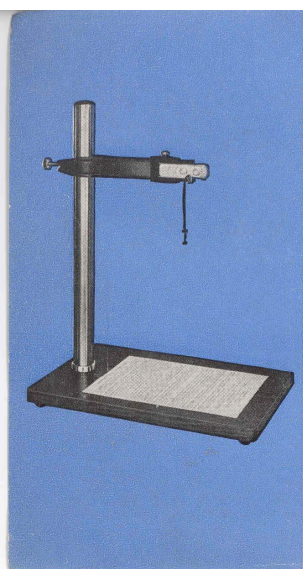
It is the constant aim of the scientists and technical experts of the MINOX Company to perfect and expand the MINOX photography system.

MINOX G.m.b.H., Optical and Precision Engineering Works
Giessen, P. O. B. 137, Germany



(The manufacturers reserve the right to alter the design of any piece of equipment described in this leaflet).





-Copying Arm

A Copying Arm has been constructed for users not possessing the MINOX II Enlarger. It can be attached to any vertical column (e. g. other enlargers, the leg of a table or chair, or to stands or tripods used in scientific laboratories). Its operation is similar to that of the Copying Attachment. The MINOX Copying Arm is also supplied with an adaptor for other cameras.

16

Shutter speeds: $\frac{1}{2}$, $\frac{1}{5}$, $\frac{1}{10}$, $\frac{1}{20}$, $\frac{1}{50}$, $\frac{1}{100}$, $\frac{1}{200}$, $\frac{1}{500}$ and $\frac{1}{1000}$ second, B & T flash synchronized.

Negative: Size: 8 x 11 mm

Film: Daylight loading cassettes with film for 50 exposures available in the following speeds: 10/10°, 14/10°, 17/10° and 21/10° DIN. For copying work there is the special MINOX Document film.

Film Transport: coupled with shutter tensioning.

Viewfinder: Direct-vision type, with automatic parallax compensation.

Two built-in Filters (green and orange).

The Complan

is a fully coated Anastigmat of recognised excellent performance. When the camera is closed, lens and viewfinder are well protected by the very resistant light metal body. The short focal length of 15 mm. yields great depth of field at the full speed of f/3.5; therefore stops have been dispensed with and, utilising the full speed, any subject between 2 m (6.5 ft) and infinity will be sharply defined.

5

Film Guide:

When the camera is in the taking position, the film is pressed by the film guide into a shaped position which yields maximum sharpness of the image. As the film is advanced, the pressure is released and the film runs freely through the film guide.

The Speed of the Lens:

The great depth of field and the special kind of film pressure make stopping down unnecessary. The MINOX is always used at the fixed aperture of f 3.5.

Close-Ups as near as 20 cms 8 ins.):

Close-up photography, to record the intricate beauty of small things, to secure the charm of detail, is a joy with the MINOX. Without supplementary lenses or other accessories, it will focus down as near as 20 cms. (8 inches and give good definition at the full speed of f 3.5. The carrying chain is provided with measuring beads which facilitate the accurate setting of the distance when focusing at close range.

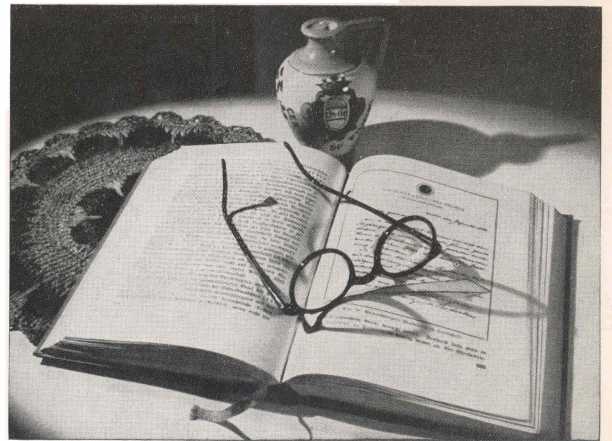


Negative
Size

4



Negative
Size



17



Relief on the City Theatre in Giessen (Germany).
MINOX-photo with Binocular Attachment.
Binocular 8x40.



City Theatre Giessen. MINOX-photo without
Binocular Attachment. Same standpoint.

18

Negative
Size



3

MINOX ACCESSORIES

For Picture Taking:

MINOX Exposure Meter • MINOX Camera Clamp for attaching to Tripod etc. • MINOX Table Tripod • MINOX Binocular Clamp
MINOX Copying Arm • MINOX Universal Copying Arm • MINOX
Folding Reproduction Stand • MINOX Black and white films for
all purposes and all degrees of sensitivity • MINOX Color film.

This complete line of intelligently designed and very practical accessories add to the scope of MINOX photography. They will be welcomed particularly by those photographers who want to utilize the many special applications to which the MINOX can be put, or who want to do their own developing and enlarging.

MINOX ACCESSORIES

MINOX Accessories

For Film Developing:

MINOX Daylight Developing Tank • MINOX Fine Grain Developer. MINOX Transparent Negative Wallets.

For Enlarging:

MINOX Enlarger Copying Stand • MINOX Enlarging Easel with print Masks • MINOX Film Magnifier.

For Projection:

MINOX Projector • MINOX Slide Frames • MINOX Film Cutter.



Sole US Distributors:

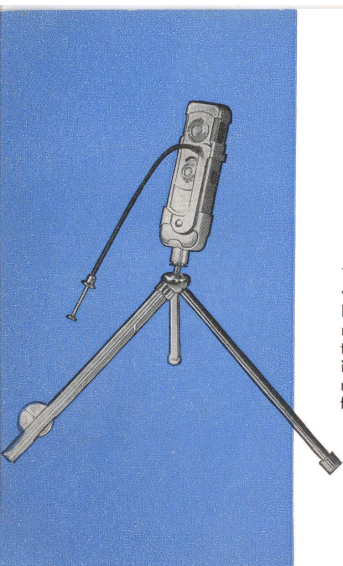
KLING PHOTO CORPORATION

NEW YORK 3, N. Y. LOS ANGELES 46, CALIF.

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Printed in Germany

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-Tripod Adaptor

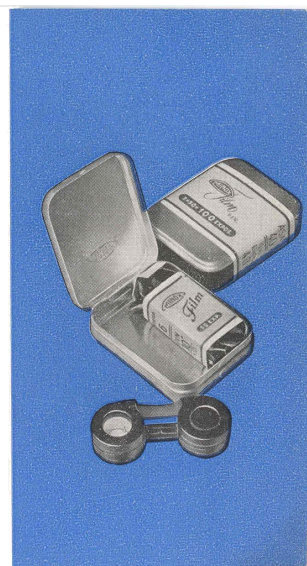
For time exposures and close-up work the MINOX camera is placed on a tripod. The special Tripod Adaptor makes it possible to use any kind of tripod in conjunction with it. The camera shutter is released by means of a cable release which screws into the Tripod Adaptor.

-Table Tripod

The small but very steady Table Tripod is equipped with a built-in ball and socket head, which is fixed by means of the thickest of the three legs. When not in use, the other two legs are held inside this thicker ribbed leg. The whole tripod when closed is about the size of an ordinary pencil. The firmness of the tripod is such that it can also be used for larger cameras.

-Films

Only finest emulsions made by well-known, first-rate German firms are used in the production of MINOX films. Owing to the special construction of the day-light loading cassette (cartridge) it takes only a few seconds to load the camera, and no rewinding of the exposed film is necessary. Two cartridges of 50 exposures each are packed in a practical metal box, which protects the film even in tropical conditions. MINOX film is available in speeds to 10/10, 14/10, 17/10, 21/10 degrees DIN. A special type of film for copying is also supplied in MINOX cartridges.



MINOX
Camera



PRICE 50 cents

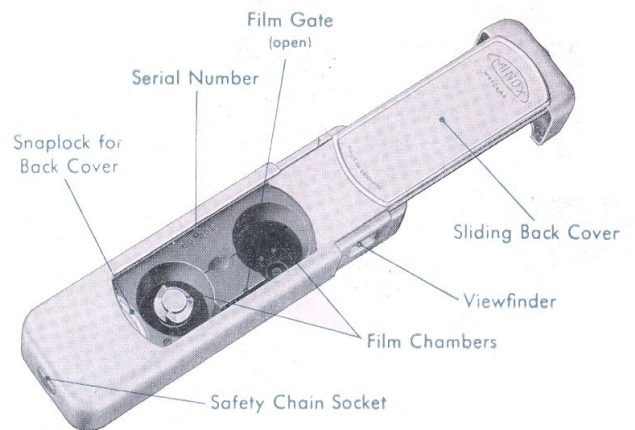
OWNER'S MANUAL

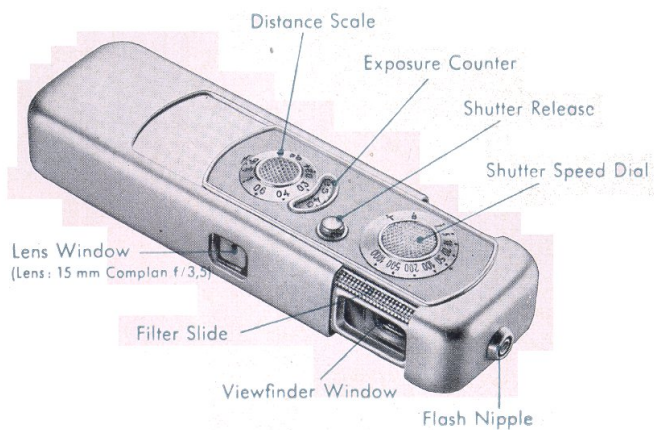
The little MINOX — for great enjoyment

Before you start reading, please fold back this and the last page of the Manual, so that you will have the diagrams of the MINOX constantly at your fingertips for reference.

Index

Binocular Clamp	22	Exposure Guide	32	Panoraming	16
Blank Exposures	24	Exposure		Parallax Compensation	4
Cable Release	14	Meter	5, 17, 20, 24, 28	Picture Series	22
Chain, use of	7, 11, 15, 23	Film, Choice of	13	Reproduction Unit	20
Changing Film Type	21	Film Gate	10, 12, 25, 26	Safety Chain	7, 11, 15, 23
Close-ups	7, 15, 23	Film Grain	13, 24	Sequence Shots	22
Cloud Pictures	17	Film Loading	9, 12, 25, 26	Shutter Release	5, 8, 12, 16
Color Film	13, 17, 19	Film, Scratches	25	Shutter	
Color Filters	8, 17	Film, Unloading	10, 26	Speeds	4, 16, 17, 18, 20, 23
Complan Lens	7	Filters	8, 17	Snapshot Setting	6
Copying	20, 31	Flash Pictures	18	Spacing, Un-even	24
Copying Arm	20, 31	Focusing	6, 15, 23	Sports pictures	16
Depth of Field	6, 15, 27	Hazy Days	17	Subject Size, Table	27
Developing Tank	30	Holding the MINOX	3, 13, 24	Telephoto Pictures	22
Distance Setting	6, 15, 23	Lens Window	8, 12, 23, 24	Time Exposures	14
Enlarger	31	Measuring		Tripod	14
Errors	23, 24, 25	Chain	7, 11, 15, 23	Tripod Clamp	13, 14
Exposure Counter	9, 10, 12, 24	Mountains	17	Viewfinder	4, 15, 16





CONTENTS

(See also alphabetical index on page 33)

How to use the MINOX

Page

Opening and Closing the Camera – Holding the MINOX – The Viewfinder – Setting the Shutter – Setting the Distance – Always f/3.5-an important MINOX feature – The convenient Filters – Taking the Picture – The Exposure Counter – Loading – Un-loading – Attaching the Safety Chain – Things to Remember 2

Tips for best results

The "best" Film – STEADY – How about Longer Exposures? – "Frame" your Subject – Close-ups of Small Things – How to stop Moving Subjects – The two built-in Filters – Flash is Easy – It's a Colorful World – Copying – Changing the Film Type – Picture Series – Tele-Photography 13

What happened?

23

Subject Size and Depth of Field Tables 27

The MINOX Exposure Meter 28

The MINOX Slide Projector 29

The MINOX Developing Tank 30

The MINOX Enlarger-Copying Stand 31



The MINOX® -Exposure Meter

The MINOX meter is a photo-electric exposure meter. It has a **built-in viewfinder** which helps you to determine exactly the field of which a reading is to be taken.

Exposure Times

for the MINOX can be read off at a glance without any further setting. The reading is retained until the instrument is used again, the needle locking when the meter is not in use, but being released during measuring. A table on the back of the MINOX meter is intended for users of other cameras; it shows conversion values for other apertures.

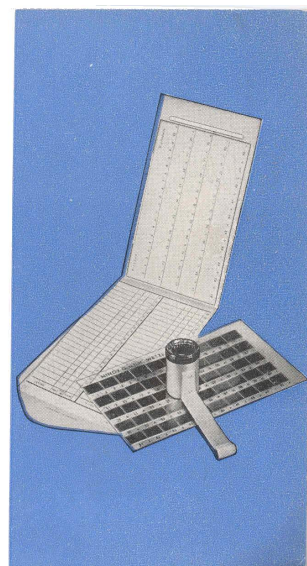
The MINOX meter is particularly shock-proof, owing to the measuring unit being laid in pivot-jewelled bearings, in accordance with recent technical advances.

MINOX® -Film Envelope

A transparent cellophane envelope with five sections to store the developed film and protect it from scratches, dust, and fingermarks. Printed numbers make it easy to locate any desired negative. Space for negative data and other notes is provided on the cardboard cover.

MINOX® -Film Viewing Magnifier

The Viewing Magnifier which gives a high degree of magnification serves to examine the negatives without taking them out of the film envelope. A mask at the lower end of the tube limits the view to one negative and its number. The magnifier is removable from the tube, and may thus be used for other purposes.



Shutter guide for outdoor pictures

This simple guide will give you good results from two hours after sunrise until two hours before sunset. For accurate and convenient determination of shutter speeds for all possible conditions, the MINOX Exposure Meter is recommended.

Use the shutter speed shown opposite the **type of subject**, under the prevailing **light conditions**.

Subjects are:

AVERAGE – Nearby people, gardens, houses
LIGHT – People in beach, sea, snow scenes, distant scenery

DARK – People in dark clothing, dark flowers, streets, houses

When in doubt use **AVERAGE** setting.

Light Conditions are:

BRIGHT Sun – Clear Sky strong shadows

HAZY Sun – Soft shadows

CLOUDY Bright – No sun, no shadows

CLOUDY Dull – No sun, dark sky

	Bright Sun	Hazy Sun	Cloudy Bright	Cloudy Dull
ASA 12 Film (Green Label)				
AVERAGE	100	50	20	10
LIGHT	200	100	50	20
DARK	50	20	10	5
ASA 25 Film (Yellow Label)				
AVERAGE	200	100	50	20
LIGHT	500	200	100	50
DARK	100	50	20	10

	Bright Sun	Hazy Sun	Cloudy Bright	Cloudy Dull
ASA 50 Film (Blue Label)				
AVERAGE	500	200	100	50
LIGHT	1000	500	200	100
DARK	200	100	50	20
ASA 100 Film (Red Label)				
AVERAGE	1000	500	200	100
LIGHT	*1000	1000	500	200
DARK	500	200	100	50

*Note: Use green filter

For shutter settings when using Green or Orange Filter, see page 17.

YOUR MINOX is a precision instrument designed and built to give you excellent pictures under all kinds of conditions, indoors and out. As your constant companion, your MINOX is always ready to catch not only delightful, spontaneous snapshots, but an endless variety of fine pictures of any subject, any occasion, at any time.

This Manual shows you the way to best results with your MINOX. It contains many valuable tips which you will find helpful. Read the various sections carefully so that you will get fine results right from the start.

The **first section** explains the operation of your MINOX. Read it with the un-loaded camera at hand – once you are familiar with the simple operating steps, you will always enjoy the full pleasure of picture-taking with your MINOX.

Part two will help you select the proper kind of film for best results. It tells about filters, flash, close-ups, and many other special uses for your MINOX.

The **final pages** point out annoying little errors which may make the difference between a good and a bad picture. You will find it easy to avoid such mistakes, once you are aware of them.

If you have any questions, your MINOX dealer will always be glad to help, and we invite you to write to us whenever we may be of service to you.

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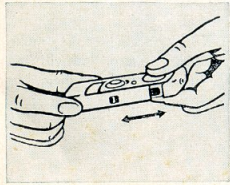
Kling Photo Corporation

235 Fourth Avenue New York 3, N. Y.

HOW TO USE THE MINOX

Opening and Closing the Camera

Illustration 1



To open the camera for picture-taking, place left thumb on Shutter Speed Dial and left forefinger on underside of camera, while grasping narrow sides of camera with the right thumb and forefinger; pull camera open — like a telescope — as far as it will go. After a picture has been taken, push the camera together as far as possible. This "pumping" action automatically advances the film and winds the shutter for the next exposure. **IMPORTANT:** Pull or push **all the way!**

2

The **MINOX** Enlarger-Copying Stand

While commercial MINOX processing services can give you excellent enlargements from your films, you will get even greater satisfaction and pleasure from your MINOX if you make enlargements yourself. Then you can obtain precisely the results you desire, compose each picture perfectly, and use the paper surface and contrast that best suits the individual subject.

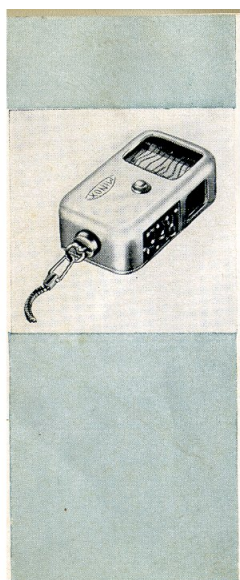
The MINOX Enlarger-Copying Stand is equipped with a light source, condenser unit, and lens system specifically designed for ultra-miniature film; here, as in the MINOX camera, the film is held in a curved position and the highly corrected 15 mm f/3.5 lens yields prints of critical sharpness. Enlargements up to 11x14 inches can be made on the baseboard, while even greater enlargements are possible by means of an accessory reflex mirror.

With the lamp house removed, the upright becomes the support for a Copying Arm to hold the MINOX, or other cameras, for photographing documents or small objects at close range.

Accessory film carriers permit using the MINOX Enlarger for 8 mm, 16 mm or 10x10 mm film sizes.

31





The MINOX Exposure Meter

... tells you the correct shutter setting for any picture at a glance—and "remembers" the setting until you make the next exposure reading.

What's more, a built-in viewfinder lets you pre-view the picture just as your MINOX camera will see it; thus, you can select the best possible angle every time.

Correct shutter setting means better pictures—pictures with fine highlights, good shadow detail, and every subtle tone of the original scene. Color film, particularly, requires correct exposure to assure proper color values.

Even smaller than the MINOX camera, the Minox Exposure Meter is a precision built photo-electric meter with a honeycomb light gathering lens for readings over a wide range of light conditions. It has jewel bearings and is shock resistant.

Supplied with a leather case to match your camera case, and with a chrome chain, the MINOX Exposure Meter is the perfect companion for your MINOX camera. It may also be used with other cameras.

28

The engraved figures are fractions of a second (2 indicates $\frac{1}{2}$ second, 1000 is $\frac{1}{1000}$ sec., etc.).

Intermediate speeds may also be set.

When the Dial is set at "B", the shutter opens if the Shutter Release is pressed down, and

remains open as long as the Release is held

down; set at "T" (Time), the shutter opens when the Release is pressed down, and remains open until the Release is pressed a second time. B or T exposures should be made only with the MINOX resting on or against a firm support, or with a tripod (see page 14).

Always use an exposure guide, or the MINOX Exposure Meter, to determine the correct shutter setting for existing light conditions.

5

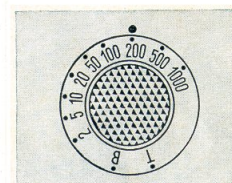
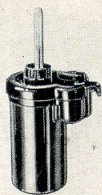


Illustration 5
Shutter Speed Dial
(set at $\frac{1}{200}$ sec.)



MINOX Developing Tank

The developing of MINOX black-and-white films becomes a simple and convenient matter with the MINOX Developing Tank.

You need no darkroom. You place the film cassette into the "light lock" of the tank, and twist the tank core to unwind the film inside - that's all. The MINOX Tank Thermometer and your watch are the only other equipment you need.

Pre-measured quantities of MINOX dry chemicals for micro-grain development are available in handy packets, ready for solution in water.

Ask your Dealer to show you the simple operation of the MINOX Daylight-Loading Developing Tank.

Holding the MINOX

The illustrations show the most practical way of holding your MINOX: With both hands, and steadied against the face. Such a steady, firm hold is assurance against camera movement during exposure. Keep both thumbs under the camera and other fingers on top to avoid the possibility of covering the lens window. You might practice this hold in front of a mirror to check yourself. The same hold can conveniently be used for vertical or horizontal pictures.

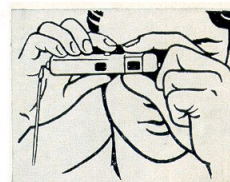


Illustration 2

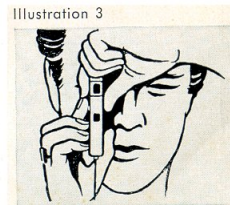
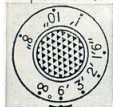


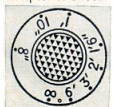
Illustration 3



6
Depth of Field 3ft to 6ft
Sharpest at 4 feet



7
Depth of Field 4ft to 11ft
Sharpest at 6 feet



8
Snapshot Setting
Depth of Field 6ft to Infinity
Sharpest at 12 ft

Setting the Distance (Focusing)

The MINOX Distance Scale is calibrated from 8" to Infinity (∞). Set the subject-to-camera distance by rotating the Distance Scale until the estimated distance is opposite the black dot of the small bracket. Objects at the set distance will be sharpest but, within a certain range, nearer and farther objects will also appear acceptably sharp. The entire range of sharpness from nearest to farthest objects is called "depth of field".

The near and far limits of the Depth of Field for any distance setting are indicated on the MINOX by the small bracket adjacent to the Distance Scale. For example, when set at 6' (Illustration 7), the Depth of Field extends from 4 ft to 11 ft; or, when set at 4' (Illustration 6) it reaches from 3 ft to 6 ft. The greatest Depth of Field is obtained with the SNAPSHOT SETTING (small dot half-way between ∞ -Infinity - and 6 ft) as shown in illustration 8. You will find this setting convenient for all pictures which require quick readiness and fast shooting, (i. e. Sports, Groups, Street Scenes, etc.); just keep in mind that the nearest object must be at least 6 feet away.

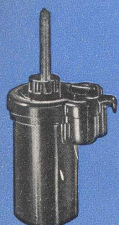
Subject/Field Size and Depth of Field Tables.

Distance Focused On	Subject / Field Size - inch.	Depth of Field
∞ Infinity	—	12' 8" to ∞
12'	105 x 77	6' 1 1/2" to ∞
6'	53 x 38	4' to 11' 4"
4'	35 x 25 1/2	3' 1/2" to 5' 11"
3'	26 x 19	2' 5 7/8" to 3' 9 1/2"
2' 4 7/8"	20 3/4 x 15	1' 11 7/8" to 2' 11 1/4"
2'	17 1/8 x 12 1/2	1' 8 3/4" to 2' 4 1/2"
1' 8 3/4"	14 7/8 x 10 7/8	1' 6 3/8" to 2'
1' 6"	12 3/4 x 9 3/4	1' 4 1/8" to 1' 8 1/2"
1' 2 3/8"	10 1/2 x 7 1/8	1' 1 1/8" to 1' 3 7/8"
1'	8 7/8 x 6	11 1/8" to 1' 1"
10 7/8"	7 1/2 x 5 3/8	10 1/8" to 11 3/4"
10"	6 3/4 x 4 7/8	9 1/4" to 10 3/4"
8 7/8"	6 x 4 3/8	8 3/8" to 9 1/2"
8"	5 3/8 x 3 7/8	7 3/8" to 8 1/2"

Distances are measured from the front of the camera.

Figures in light type apply when distance scale of camera is set exactly half-way between two adjacent engraved distance markings.

For convenient measuring of close distances, the MINOX chain is equipped with beads at 8" - 10" - 12" - 18".



MINOX -Developing Tank

A daylight developing tank which permits the film not only to be developed but also to be loaded into the tank in ordinary room light. During the whole process the film is not touched by hand. The tank requires just over 1 1/4 ozs. of solution. To ensure the essential requirements of fineness of grain and resolution, a special fine-grain developer is available. Its use is strongly recommended.



MINOX -Ultra Fine grain Developer

Available in packages containing 15 developing sets (developer powders A and B, fixer, and wetting agent) in welded plastic bags which will keep the chemicals dry even during prolonged storage.

Film Speed

is pre-set by simply turning a knob. The scale is marked in ASA and DIN degrees.

The Measuring Range

of the MINOX meter meets fully the usual requirements of a modern exposure meter.

The Attractive Light Metal Body,

of beautiful functional shape, has been specially surface-treated to withstand adverse external conditions.

A Chromed Carrying Chain

safeguards the instrument against damage by falls, and against loss.

The Morocco Leather Case

protects the valuable instrument, and saves the measuring unit, ensuring that the needle stops when the instrument is not in use.

Small Size and Light Weight

characterize the MINOX meter, making it your constant companion, like the MINOX camera.



The Convenient Filters

You can place the built-in orange or green filters before the lens simply by pushing the knurled slide — above the viewfinder window — towards the lens window. Make sure the desired filter is fully visible in the lens window. When using the green filter, double the exposure time (i. e. use $\frac{1}{100}$ sec. instead of $\frac{1}{200}$ sec.); with the orange filter, triple the exposure. For tips on using filters, see pages 16 and 17.

The filters are automatically retracted when the camera is closed. Therefore, subsequent exposures are made without a filter unless the filter is again pushed into position.

Taking the Picture

When you are ready to "shoot", frame your picture in the viewfinder (see page 4), and "squeeze" the shutter release button — don't "punch" it. For critically sharp pictures, the camera must not be jarred during exposure. The shutter release of the MINOX works so smoothly — and without resistance — that you will find it easy to operate.

NOTE: The small circle in the lens window indicates that the shutter is wound, ready for an exposure. If the circle is not showing, simply "push-and-pull" the camera to make it ready.

IF film has thin horizontal scratches (telephone wires)

Dust is the enemy of your MINOX films. Never keep a film cassette in your pocket without a wrapper. Before loading the camera, blow out any dust particles which may have lodged in the film chambers.

IF film cassette will not easily drop into camera when loading

The film gate **must be open** when the film is dropped into the camera; be sure to push the camera (with open cover) together about $\frac{1}{8}$ " to open gate. (See page 9.)

IF the cassette cannot be removed from camera, or if cassette lid lifts out, but the film and container remain in camera

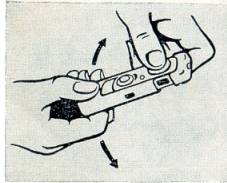
See previous explanation. Film gate must be open when loading or un-loading cassette. Never use force to remove film. Accidentally opened film may be partly saved if it is immediately wrapped in black paper.

The Viewfinder

The luminous frame within the MINOX viewfinder contains the exact picture area that will appear on the film. The viewfinder image is automatically corrected, at all distances, to agree with the picture area. (Parallax Compensation). For extreme close-ups (8-10 inches), the picture area lies a frame-width within the luminous frame.

Eyeglass wearers may readily use the MINOX viewfinder without correction lenses.

Illustration 4



Setting the Shutter

The length of time the light is permitted to reach the film is controlled by the shutter. The Shutter Speed Dial is conveniently rotated by placing the thumb on the knurled surface while holding the forefinger under the camera and, with the other hand, turning the camera until the desired speed is set opposite the black dot. The Shutter Speed Dial may be rotated with the camera open or closed, whether the shutter is wound or not.

MINOX Slide Projector Model 30

There is no greater thrill than seeing your fine MINOX Color Transparencies projected on the screen. All the subtleties of color are brought out in projection.

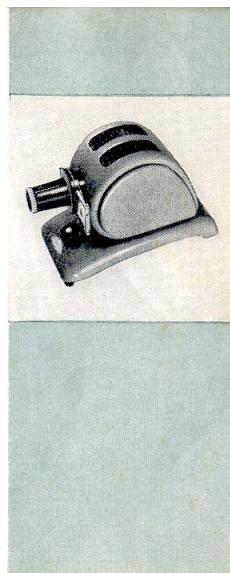
The MINOX Slide Projector is especially designed for your MINOX slides. It has an efficient light system, with a 100 Watt projection bulb, silvered concave glass reflector, and aspherical condenser lens; a special adjusting lamp socket permits critical alignment of the filament for even illumination over the entire picture area.

Triple-wall construction of the all-metal housing assures free air circulation for complete ventilation of the lighting system. A heat-absorbing filter gives added protection to the transparencies during projection.

The MINOSTAR f/2.9 35 mm projection lens, in focusing mount, produces brilliant, critically sharp screen images. The MINOX Slide Projector has an attractive, practical, gray instrument crackle finish. Built-in front elevating micrometer screw permits height adjustment to center the projected image on the screen. The projector is supplied complete with an all-metal slide carrier.

MINOX color transparencies for projection in the MINOX Slide Projector should be mounted in MINOX 30x30 mm Transparency Mounts; the MINOX Transparency Cutter is a convenient accessory for cutting individual transparencies out of film strips.

The MINOX Projector may also be used with other ultra-miniature transparency sizes down to 15x15 mm.



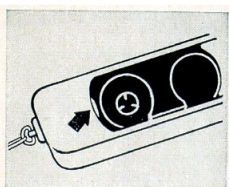


Illustration 11

LOAD CASSETTE INTO CAMERA ONLY WHEN FILM GATE IS OPEN. Drop cassette into film chambers, close back cover, and push-pull camera once.

If the back cover cannot be closed – this is a rare coincidence when the film take-up core is resting on the teeth of the transport wheel in the film chamber – lift out the cassette, pull the camera open all the way, and close again until the film gate opens. Re-insert cassette, close back cover, and push-pull-push camera once.

Un-Loading

Watch the Exposure Counter – 50 is the last exposure! Push-and-pull the camera twice. The Exposure Counter should now be at the red dot. Unload in subdued light. Open back cover and spread film gate (as if to load).

WHAT HAPPENED?

You will find it easy to get the "feel" of your MINOX within a short time, and to get fine results with every picture. If you should have a failure at one time or another, check it against these possible errors and learn to avoid a repetition:

... IF the principal subject is not sharp

The distance scale was not set correctly. Always set the distance carefully, especially for close-ups. Use the measuring chain for extreme close-ups.

... IF pictures look muddy and out of focus

The lens window probably has a fingerprint or other smudge on it. Clean with soft linen cloth wrapped around a match.

... IF there are blurred or double outlines

The camera moved during exposure; (hold camera steady or use tripod for longer exposures), OR subject moved (use faster shutter speed for moving subjects).

THINGS TO REMEMBER

- Before loading —
 - make sure Exposure Counter is set at red dot between 50 and 0
- Before inserting or removing film cassette —
 - make sure Film Gate is open
- When taking the picture —
 - keep fingers away from lens window;
 - hold camera steady; "squeeze" shutter release button
- At end of film —
 - do not attempt to take more pictures than the film allows (50 on black-and-white; 30 or 36 on color film)
- Always —
 - keep Lens Window clean. Fingerprints or other smudges on the lens window cause un-sharp pictures. To clean, wrap soft linen cloth around match stick.

Changing the Film Type

Some day you may want to take color pictures just when your MINOX is loaded with black-and-white film — or vice versa. Thanks to the MINOX film cassette, it is very easy to "switch" from one film to another at any time.

When you want to change cassettes, "pump" camera once to transport the last-exposed film frame into the take-up end of the cassette. Then remove cassette in the usual manner (see page 10). Note number showing on Exposure Counter; write this number on cassette for future reference.

Before inserting fresh film, set exposure counter at red dot between 50 and 0 — as described on page 9 — and load in the usual manner.

When you re-load the "started" cassette: First set exposure counter three numbers **back** of the number which you noted when you removed the cassette; example: if you took the cassette out at "28", set counter at "25". Now insert cassette in the usual manner. Pump camera three times. This takes up any slack in the cassette and gets your MINOX ready for the next exposure.

Remember: Load and un-load only in subdued light, or in the shade.

IF film cassette does not lie flush in both film chambers, so that back cover of camera cannot be closed

This may happen on rare occasions when the film take-up core rests on the teeth of the transport wheel in the film chamber. Simply lift out cassette, pull camera open all the way, and close again until the film gate opens. Re-insert cassette. Close cover.

IF film shows dark areas along edges at intervals

Either the cassette was handled in very bright light or the film was advanced beyond the red dot before un-loading which may result in light entering through the film slit of the cassette.

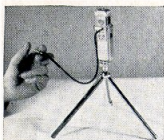
For scenery without important foreground interest, always set the Scale at Infinity (∞). At this setting, the Depth of Field begins at approximately 12 ft.

For accurate measuring of extreme close-ups (8" to 24"), the safety chain of your MINOX carries small beads at distances corresponding exactly to the close distances engraved on the Distance Scale. With the chain locked in the camera socket, and held taut, exact measurements can be made at 8 – 10 – 12 – 18 and 24 inches (full length). The Depth of Field ranges and Subject Sizes at various set distances are shown in the Tables on page 27.

Always f/3.5 — an Important MINOX Feature

The 15 mm Complan lens of your MINOX yields such extreme Depth of Field, and together with the slightly curved design of the Film Gate gives such outstanding definition over the entire film area, that an adjustable lens diaphragm could be omitted – saving you an extra operation necessary with other cameras.

The MINOX always works at full f/3.5 opening.



speeds of $\frac{1}{20}$ sec. and slower. For all snapshots, use the hold suggested on page 3, always making sure that you "squeeze" the shutter to avoid jarring the camera.

How About Longer Exposures?

You may be able to hold the MINOX steady by leaning your elbows on a table or other firm surface, or against a wall; or you may place the MINOX on a glass, ledge, etc. It is best, however, to attach the MINOX with a camera clamp to a tripod. You will find the MINOX pocket tripod a particularly fine and versatile accessory. Only slightly larger than a pencil, this tripod with its swivel top may be used on a table, chair, window sill, or against a wall. It may also be held against your shoulders. The pictures at the left suggest various ways of using the MINOX tripod. As an extra precaution against jarring the camera, always use a cable release for tripod exposures.

It's a Colorful World

The 15 mm f/3.5 Complan lens of your MINOX is color-corrected, and has an anti-reflection coating – in other words it is ideally suited for Color Photography.

If you have never taken color pictures before, keep in mind the following suggestions which will help you get fine results from the outset:

Color Film yields the best results in bright or hazy sunlight; on overcast days, results are usually not satisfactory.

Morning and early afternoon hours are the best time for color pictures. At noon the light is usually bluish, resulting in very "cold" colors or an over-all bluish tinge. During the hours just after sunrise, or just before sunset, the light is more reddish, resulting in very "warm" colors.

Watch for the possibility of color reflections (which may not be visible to the eye): A white dress on a green lawn is never pure white, but faintly green.

... IF a picture is partly blank

One of your fingers covered the lens window. Be sure to keep fingers clear of lens window during exposure – check your “hold”; see page 3.

... IF your film shows irregular spacing or overlapping

Either you forgot to set the exposure counter at the red dot when you started the film, or you did not pull and push the camera ALL THE WAY between exposures.

... IF some of your negatives are very thin, others almost black

Determine correct shutter setting for each picture situation. Use an exposure guide or, better still, the MINOX photo-electric exposure meter.

... IF some prints show more “grain” than others from the same film

Badly over-exposed pictures have coarser grain. Over-exposure is as undesirable as under-exposure. Use an exposure guide or MINOX exposure meter to get correct shutter speed every time.

The Exposure Counter

tells you at a glance how many pictures you have taken on the film. The Counter advances automatically each time you move the film forward by a “pull-push” of the MINOX.

The Exposure Counter must be set at the red dot between 50 and 0 before a new film cassette is inserted. (Illustration 9). Otherwise, overlapping pictures may result.

Loading

Film cassettes should be shielded from bright sunlight. Always load – or un-load – the MINOX in subdued light, or in the shade.

Set Exposure Counter at red dot between 50 and 0 by “pumping” camera. With camera in pulled-out position, press down on crescent-shaped Snaplock (Illustration 10) and slide open Back Cover until both Film Chambers are free. Then “close” camera about $\frac{1}{8}$ inch to spread the Film Gate open. (This occurs when the snaplock almost disappears in the camera Illustration 11).

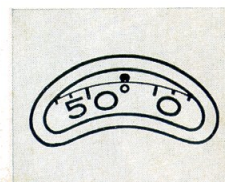
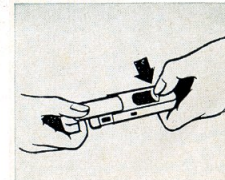


Illustration 9

Illustration 10



Picture Series and Sequence Shots

Your MINOX – compact and instantly ready to “shoot” – makes it so easy to get spontaneous, un-posed pictures. Whenever possible take a whole series of pictures to tell a complete story. With a little practice, you can take an entire sequence of pictures within a few seconds; simply keep your MINOX at eye-level and “pump” the camera with your right hand to advance film and re-cock the shutter.

Tele-Photography with the MINOX

There are times when you cannot get close enough to a subject to get a large image on your MINOX film – or, in fact, you may want to remain at a distance on purpose. Your MINOX may be attached to any high-quality binocular with the MINOX Binocular Clamp; focusing and view-finding is done conveniently through one of the binocular eye-pieces while the MINOX is mounted to the other one. If you are interested in wildlife, mountaineering, etc. you will find the Binocular Clamp a valuable addition to your MINOX.

22

Film cassette will drop out of camera with slight tapping, or may be lifted out by its bridge. Store the cassette in film box or in black paper until it is developed.

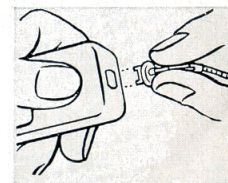
Note: Color Films end at 30 or 36 – see film package. Unload after two push-and-pull motions. Advance Exposure Counter to red dot before loading new film.

CAUTION: Do not advance films beyond the numbers indicated above, as the film would be entirely pulled into the take-up side; this may result in light entering through the cassette slit during un-loading.

Attaching the Safety Chain

To protect your MINOX against accidental falls, always keep it on its chain. Insert the rectangular plug at the end of the chain into the corresponding Chain Socket of the camera. The spring-loaded dust cover will disappear in the camera. Use the D-ring at the end of the chain in the manner of a screw driver, inserting it into the slot of the plug disc; turn the plug one-quarter turn to the right. (Illustration 12). To remove the chain, reverse these steps; insert D-ring into slot, turn one-quarter to the **left** – plug will jump out of socket.

Illustration 12



11



1/100 sec. without flash. Scenery properly exposed figure too dark



1/200 sec. with electronic flash. Light balanced for figure and scenery

Flash is Easy

You can get fine pictures with your MINOX right around the clock, because, when daylight or room light is no longer sufficient, you can attach a flash unit to your camera. Even in daylight, you can penetrate deep shadows or lighten scenes by using flash.

The MINOX may be used with any type of flash source connected to the flash nipple of the camera. The shutter has built-in synchronization of the X-type (it "fires" the flash as soon as the shutter release of the camera is pressed).

Flash Source

Synchronized at shutter speeds:

Electronic Flash Units	 1/2 second to 1/500 second
Flash Bulbs: SM, SF	 1/2 second to 1/100 second
M-2, 5, 8, 25	 1/2 second to 1/20 second

A flash unit made by MINOX is expected to become available soon, very complete flash instructions will be issued at the same time.

"Frame" Your Subject

Since the MINOX viewfinder shows you the exact picture area, you can easily compose your picture before you actually take it, so that unimportant or disturbing details are omitted right at the start. Advance planning of composition saves extra work in enlarging, and it gives you precisely the picture you want every time.

Close-ups of Small Things

There is a special fascination in close-ups. A frame-filling picture of a single blossom showing the delicate details of each petal can be more exciting than showing a whole acre of flowers. Therefore: Get CLOSE to the subject! Your MINOX offers you the great advantage that you can get as close as 8 inches without any supplementary equipment or extra lenses. Make the most of this excellent feature. Always use the measuring beads of the safety chain to determine the correct distance, as the depth of field at close range is very limited. For instance, when the distance scale is set at 1 ft., the depth extends only from 11 inches to 13 inches. Therefore, accurate distance setting is a must for extreme close-ups. Remember also that, at distances between 8 and 10 inches, the picture area lies a frame-width within the luminous frame of the viewfinder.

Color Film does not have as much exposure latitude as black-and-white film. Therefore, use correct shutter speed! The MINOX photo-electric exposure meter is particularly valuable in Color Photography. Even slight deviations from the correct shutter speed may result in false color reproduction.

As a general rule, color pictures are best taken with the sun slightly to one side behind the photographer's back.

If you are seriously interested in all phases of Color Photography, you will find it worthwhile to read one of the many comprehensive books covering this field.

Copying

... of documents, drawings, books, etc. is easily done with your MINOX. By using a tripod, MINOX Repro Stand, MINOX Copying Arm, or other means of support, you can conveniently copy such matter, getting as close as 8 inches for largest possible reproduction. Use the special MINOX ASA 5 Micro Grain Copy Film, except when copying photographs or illustrations containing half-tones for which regular MINOX ASA 12 or ASA 25 film is recommended. (See tables showing area covered at various distances, on page 27.)

TIPS FOR BEST RESULTS

The "best" Film

MINOX film is available in several different types for black-and-white photography, and for Color Pictures. The black-and-white films vary in sensitivity (speed) to suit every possible need. The sensitivity is expressed in American Standard exposure index numbers: ASA 12 (Green Label), ASA 25 (Yellow Label), ASA 50 (Blue Label), ASA 100 (Red Label). ASA 100 film is twice as sensitive to light as ASA 50, ASA 50 twice as sensitive as ASA 25, and so on. Thus, under any given conditions ASA 50 film, for instance, would require only half the shutter speed needed for ASA 25.

The lower the film sensitivity, the finer the detail it is capable of reproducing in the final print. Therefore, the super-sensitive ASA 100 film should be used only in instances when there is not enough illumination for slower films, or when flash exposures are not feasible (stage photography, candid shots, etc.). The medium sensitivity films ASA 25 and ASA 50 are best suited for all-around picture-taking, and will yield excellent prints in all popular sizes. ASA 12 film is especially suited for bright beach, mountain, and snow scenes, as well as for close-ups of stationary small objects with the MINOX used on a tripod.

MINOX Color Film is available for daylight, and for artificial (tungsten) light.

Steady!

Get used to a comfortable, steady hold of your MINOX during exposure; experience will show you whether you can get steady pictures even at the slower shutter speeds. Generally, you will find it advisable to use a tripod or other firm support for shutter

MINOX ACCESSORIES

For Picture Taking:

MINOX Exposure Meter · MINOX Camera Clamp for attaching to Tripod etc. · MINOX Table Tripod · MINOX Binocular Clamp
MINOX Copying Arm · MINOX Universal Copying Arm · MINOX
Folding Reproduction Stand · MINOX Black and white films for
all purposes and all degrees of sensitivity · MINOX Color film.

This complete line of intelligently designed and very practical accessories add to the scope of MINOX photography. They will be welcomed particularly by those photographers who want to utilize the many special applications to which the MINOX can be put, or who want to do their own developing and enlarging.

MINOX ACCESSORIES

For Film Developing:

MINOX Daylight Developing Tank · MINOX Fine Grain Developer, MINOX Transparent Negative Wallets.

For Enlarging:

MINOX Enlarger Copying Stand · MINOX Enlarging Easel with print Masks · MINOX Film Magnifier.

For Projection:

MINOX Projector · MINOX Slide Frames · MINOX Film Cutter.



MINOX G.m.b.H.

Optical and Precision Engineering Works
GIESSEN, P.O. B. 137, West Germany

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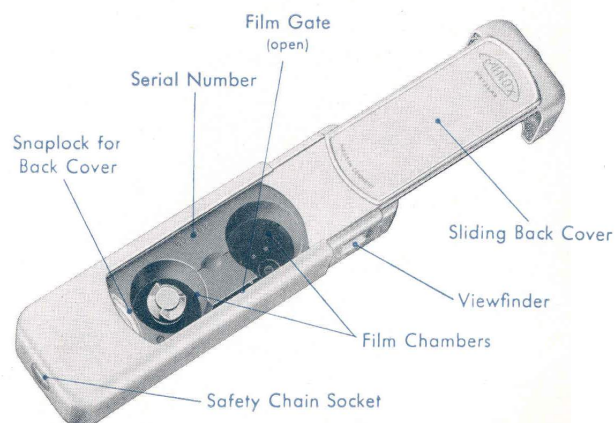
Printed in Germany

MINOX
Accessories

I. 55

Index

Binocular Clamp	22	Exposure Guide	32	Panoraming	16
Blank Exposures	24	Exposure		Parallax Compensation	4
Cable Release	14	Meter	5, 17, 20, 24, 28	Picture Series	22
Chain, use of	7, 11, 15, 23	Film, Choice of	13	Reproduction Unit	20
Changing Film Type	21	Film Gate	10, 12, 25, 26	Safety Chain	7, 11, 15, 23
Close-ups	7, 15, 23	Film Grain	13, 24	Sequence Shots	22
Cloud Pictures	17	Film Loading	9, 12, 25, 26	Shutter Release	5, 8, 12, 16
Color Film	13, 17, 19	Film, Scratches	25	Shutter	
Color Filters	8, 17	Film, Unloading	10, 26	Speeds	4, 16, 17, 18, 20, 23
Complan Lens	7	Filters	8, 17	Snapshot Setting	6
Copying	20, 31	Flash Pictures	18	Spacing, Un-even	24
Copying Arm	20, 31	Focusing	6, 15, 23	Sports pictures	16
Depth of Field	6, 15, 27	Hazy Days	17	Subject Size, Table	27
Developing Tank	30	Holding the MINOX	3, 13, 24	Telephoto Pictures	22
Distance Setting	6, 15, 23	Lens Window	8, 12, 23, 24	Time Exposures	14
Enlarger	31	Measuring		Tripod	14
Errors	23, 24, 25	Chain	7, 11, 15, 23	Tripod Clamp	13, 14
Exposure		Mountains	17	Viewfinder	4, 15, 16
Counter	9, 10, 12, 24				



How to Stop Moving Subjects

Sports and other fast action call for high shutter speeds – otherwise your pictures may be blurred. But even under unfavourable light conditions, requiring slower shutter speeds, you can stop motion by using professional tricks. It is easier, for example, to stop motion of a subject moving straight toward the camera, or at a slight angle, than it is to “freeze” a subject moving straight across at right angles to the camera.

Or, watch for the “still moment” such as is reached by a swing at its highest point just before it swings back, or by the tennis player during the serve when the ball is at the peak of the toss, and the racket is about to be swung. Even $\frac{1}{20}$ second will “stop” such shots. For very fast motion – automobile races, speed boats, skiing – another well-known professional trick will help you get fine results: Keep the car, boat, or skier centered in the MINOX viewfinder and follow the motion with the camera, releasing the shutter at any instant during this panoraming. The background will be blurred, adding to the impression of fast action, but the subject stays sharp even at $\frac{1}{50}$ second.

The two built-in Filters

..... will help you improve your black-and-white pictures. In scenic pictures, the green filter will give a blue sky – which would otherwise appear white in the final

16

print – a richer tone, making white clouds stand out clearly. Green foliage, lawns, etc. which would normally print darker, will show a lighter tone and better modulation. Because the green filter reduces the overall amount of light transmitted through the lens, you must double the shutter speed – in other words use $\frac{1}{100}$ sec. when the MINOX exposure meter or exposure guide indicates $\frac{1}{200}$ sec.

The orange filter – which requires three times normal shutter speed – darkens blue skies considerably, but lightens all reddish tones. Even in full sunlight it produces dramatic skies and scenes resembling night shots. More important is its ability to produce clear pictures on days when there is a blue atmospheric haze. The orange filter is particularly useful for cloud pictures, snow scenes, mountain photography, and on hazy days. DO NOT USE THE ORANGE FILTER FOR PORTRAITS as red lips would appear almost white.

NEVER USE THE GREEN OR ORANGE FILTER WITH COLOR FILM.

17



$\frac{1}{500}$ sec.
without filter



$\frac{1}{250}$ sec. with green
filter, sky darker,
clouds stand out



$\frac{1}{100}$ sec. with orange
filter sky very dark,
clouds “fluffy”,
green areas lighter

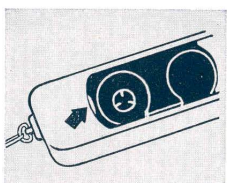


Illustration 11

resting on the teeth of the transport wheel in the film chamber – lift out the cassette, pull the camera open all the way, and close again until the film gate opens. Re-insert cassette, close back cover, and push-pull-push camera once.

Un-Loading

Watch the Exposure Counter – 50 is the last exposure! Push-and-pull the camera twice. The Exposure Counter should now be at the red dot. Unload in subdued light. Open back cover and spread film gate (as if to load).

LOAD CASSETTE INTO CAMERA ONLY WHEN FILM GATE IS OPEN. Drop cassette into film chambers, close back cover, and push-pull camera once.

If the back cover cannot be closed – this is a rare coincidence when the film take-up core is

WHAT HAPPENED?

You will find it easy to get the "feel" of your MINOX within a short time, and to get fine results with every picture. If you should have a failure at one time or another, check it against these possible errors and learn to avoid a repetition:

... IF the principal subject is not sharp

The distance scale was not set correctly. Always set the distance carefully, especially for close-ups. Use the measuring chain for extreme close-ups.

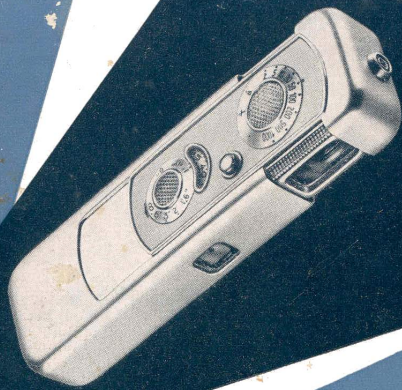
... IF pictures look muddy and out of focus

The lens window probably has a fingerprint or other smudge on it. Clean with soft linen cloth wrapped around a match.

... IF there are blurred or double outlines

The camera moved during exposure; (hold camera steady or use tripod for longer exposures), OR subject moved (use faster shutter speed for moving subjects).

MINOX
Camera



OWNER'S MANUAL

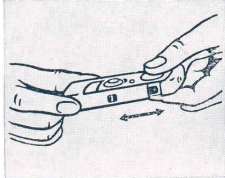
The little MINOX — for great enjoyment

Before you start reading, please fold back this and the last page of the Manual, so that you will have the diagrams of the MINOX constantly at your fingertips for reference.

HOW TO USE THE MINOX

Opening and Closing the Camera

Illustration 1



To open the camera for picture-taking, place left thumb on Shutter Speed Dial and left forefinger on underside of camera, while grasping narrow sides of camera with the right thumb and forefinger; pull camera open – like a telescope – as far as it will go. After a picture has been taken, push the camera together as far as possible. This “pumping” action automatically advances the film and winds the shutter for the next exposure. **IMPORTANT:** Pull or push **all the way!**

The Enlarger-Copying Stand

While commercial MINOX processing services can give you excellent enlargements from your films, you will get even greater satisfaction and pleasure from your MINOX if you make enlargements yourself. Then you can obtain precisely the results you desire, compose each picture perfectly, and use the paper surface and contrast that best suits the individual subject.

The MINOX Enlarger-Copying Stand is equipped with a light source, condenser unit, and lens system specifically designed for ultra-miniature film; here, as in the MINOX camera, the film is held in a curved position and the highly corrected 15 mm f/3.5 lens yields prints of critical sharpness. Enlargements up to 11 x 14 inches can be made on the baseboard, while even greater enlargements are possible by means of an accessory reflex mirror.

With the lamp house removed, the upright becomes the support for a Copying Arm to hold the MINOX, or other cameras, for photographing documents or small objects at close range.

Accessory film carriers permit using the MINOX Enlarger for 8 mm, 16 mm or 10x10 mm film sizes.

