





PROBLEM**CAUSE(S)****SOLUTION**

There is soot or fly ash in the house.

The window is being cleaned when the stove is operating.

Turn down the convection fan or turn off stove before cleaning to prevent dispersion of ash and soot into the room.

There is leakage at the joints between the combustion fan, exhaust pipe, and "L" vent. This will be evidenced by dust on the impeller of the convection fan, and in the heat exchanger tubes.

Seal up any leaks in the exhaust system with room temperature vulcanizing silicone sealer (RTV).

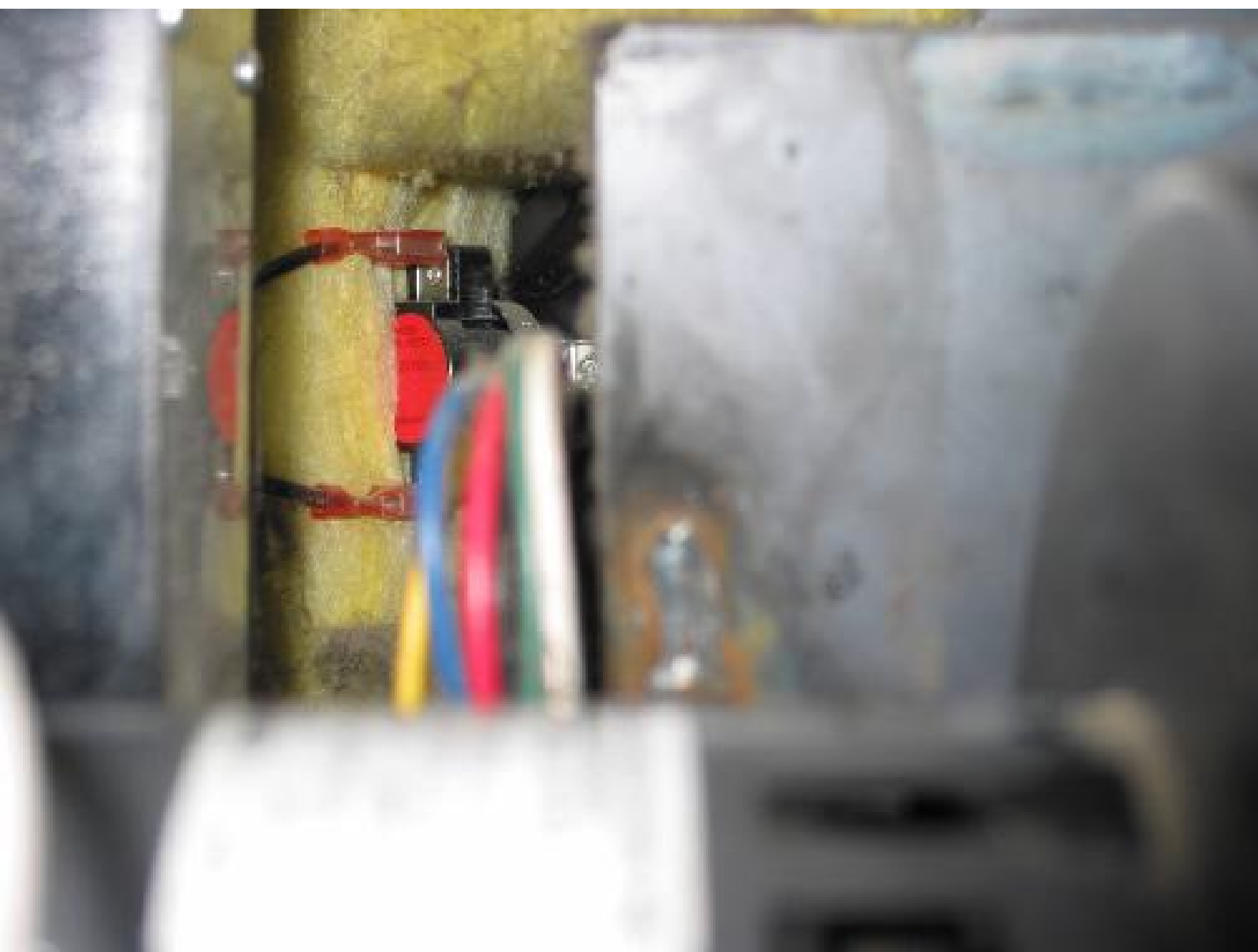
For a fireplace insert installation: If the existing fireplace opening was not thoroughly cleaned and painted before the insert was installed, then the convection fan may be picking up the fireplace dust, soot or ash and blowing it into the house.

Pull insert away from fireplace opening. Thoroughly clean the opening and paint the inside of the opening with latex or an inexpensive spray paint to hold down the finer particles of dust.

The vacuum cleaner is leaking.

Check your vacuum cleaner bag, replace the bag, or don't use a vacuum to clean out soot and fly ash from your stove.





APPENDIX A

TROUBLE-SHOOTING

UNPLUG STOVE BEFORE PERFORMING ANY MAINTENANCE WORK

PROBLEM	CAUSE(S)	SOLUTIONS
Fire burns with a lazy orange flame. Pellets build up in the grate and the window gets sooted up.	There is insufficient combustion air.	Remove any clinkers or ash from the bottom of the grate that might be obstructing the primary air holes). Change to a better grade of fuel if necessary . Check that the damper is open sufficiently (pulled out). Check that the heat exchange tubes are not clogged with ash. Clean ash traps baffles. Check ash build up behind the side firebricks. Clean if necessary . Check gasket seal around the door. Use a thin strip of paper, 1 in. wide. Open the door and close it on the paper strip. A slight friction should be felt when the paper strip is pulled. Repeat this process at various locations around the door gasket. A small adjustment may be required to ensure a good seal. Replace the door gasket if necessary Check that the ash pan is latched in the correct position and check the gasket seal around the ash pan door in the same manner as above. Replace the ash pan door gasket if necessary. Check for blockage in the air inlet tube or exhaust pipe. Clean as necessary. Have your Whitfield dealer check your combustion blower settings.
	Fuel feed rate is too high.	Have your certified Whitfield dealer adjust the fuel feed rate on the control panel.



FASCO INDUSTRIES, INC.
MOTOR DIVISION
CASSVILLE PLANT
7021-7786
TYPE U218 HP 1/30
AMP 1.5 RPM 3000
115 HZ 60
FULLY PROTECTED
EVERY 6 MONTHS WITH SAE 20
W 12126109



PROBLEM	CAUSE(S)	SOLUTION
Fire goes out or stove shuts down automatically.	The hopper is empty.	Refill hopper.
	Pellets are not feeding.	See "Pellets will not feed" below.
	The high limit temperature switch has tripped.	Allow stove to cool for 1 hour and re-light. If the stove has been operating at a medium to high burn rate, and the convection fan has been turned down low, then the fan should be turned up higher. If this problem persists (particularly at lower burn rates) then the high limit snap switch should be replaced by your certified Whitfield dealer.
	The combustion air setting is too high.	Adjust damper in to reduce combustion air flow.
Pellets will not feed.	The fuel feed rate is too low.	Have your certified Whitfield dealer adjust the fuel control.
	The hopper is empty.	Refill hopper.
Stove runs for 30 minutes then shuts down.	The auger motor, circuit board, air inlet high limit switch or pressure switch may be defective.	Have your certified Whitfield dealer diagnose the problem and replace any parts if necessary.
	The exhaust gas is not up to temperature.	Press start switch and re-light stove if necessary.
	The low limit snap switch is not operating correctly.	Have your certified Whitfield dealer replace the low limit snap switch.
Blowers will not shut off after the fuel has been switched off and the stove has cooled down.	The wires to the low limit snap switch are loose or disconnected.	Check wires between the snap switch and the terminal block. Make sure there are good connections between the wires and their terminals.
	The low limit snap switch has failed in the closed position.	Have your certified Whitfield dealer replace the low limit snap switch.
Blowers will not operate when the start switch is depressed.	There is no power to the stove.	Check that the stove is plugged in to the wall outlet. Check to see if your circuit breaker has tripped.
	There is no power to the control board.	Check the wire connections between the high limit snap switch and the terminal block.





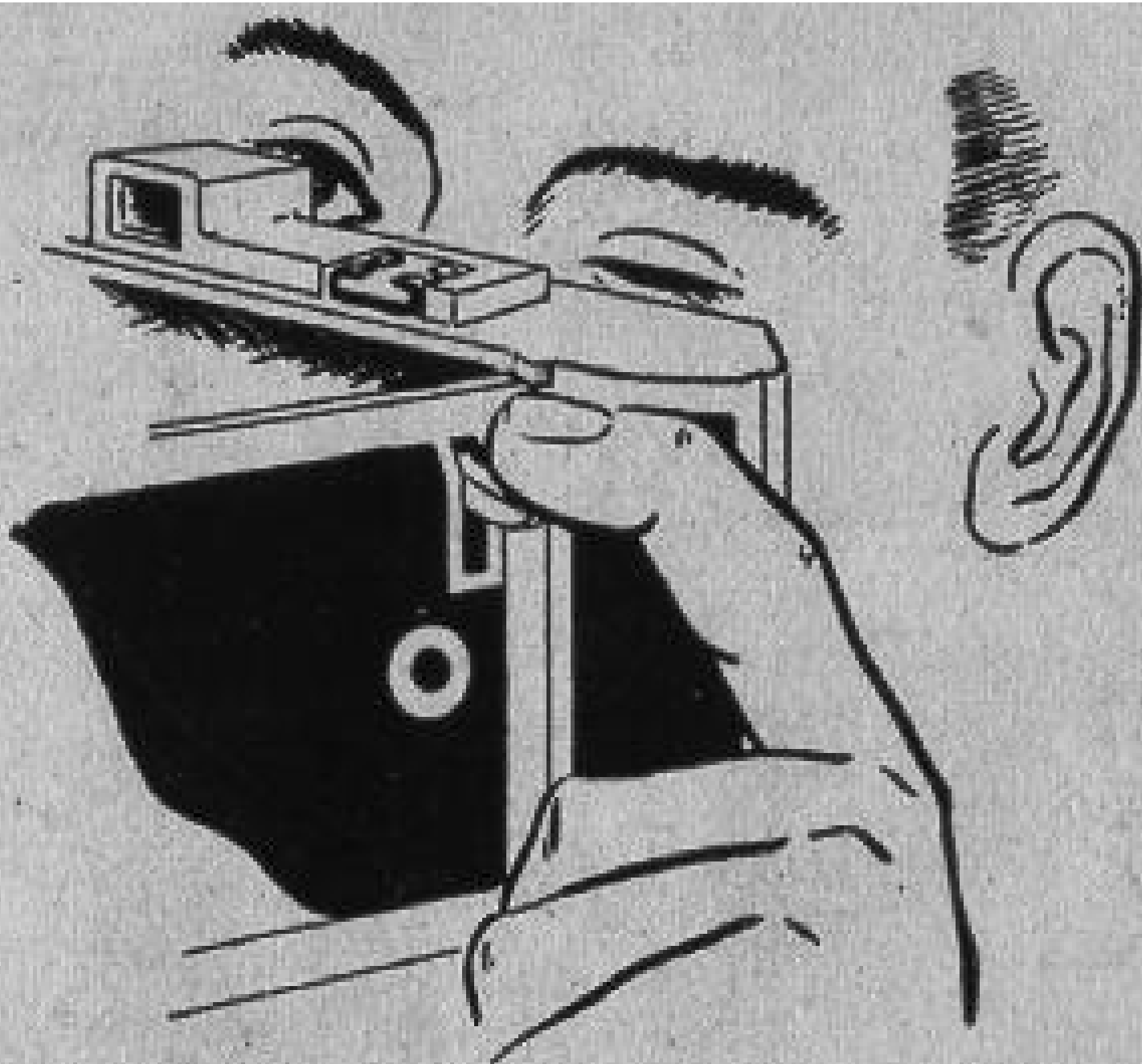


Fig. 13

Table Showing Standard Masks and Lenses for Various Film Sizes (not Camera size)

2 1/4 x 3 1/4 FILM LENS	MASK NUMBER	2 1/4 x 3 1/4 FILM LENS	MASK NUMBER	2 1/4 x 2 1/4 FILM LENS	MASK NUMBER
63 2 1/2" - 3" 76	*	150 6 1/16" - 7 1/2" 170	11	100 3 15/16" - 4 1/2" 114	12
83 3 1/4" - 3 7/8" 93	3	177 7 9/16" - 7 3/4" 187	8	4 9/16" - 5" 127	14
100 3 15/16" - 4 1/2" 114	2	177 7 13/16" - 9 1/2" 241	7	5 1/16" - 6" 152	15
4 9/16" - 5" 127	9	302 9 9/16" - 11 7/8" 302	6	6 1/16" - 8" 203	17
5 1/16" - 6" 152	10	330 11 15/16" - 13" 330	5	9 9/16" - 11 7/8" 302	13

*Wide angle viewfinder adapter Cat. No. 3060

Table of depth of focus.

$F = 43 \text{ mm}$

calculated with an index number for the depth of focus $Z = 2000$

focussed at a distance feet	stops													
	2,8		3,5		4		5,6		8		11		16	
	sharp from	to	sharp from	to	sharp from	to	sharp from	to	sharp from	to	sharp from	to	sharp from	to
INF	85 $\frac{1}{2}$	INF	69	INF	59	INF	43	INF	29 $\frac{1}{2}$	INF	18	INF	13	INF
20	18	25 $\frac{1}{2}$	18	27 $\frac{1}{2}$	16 $\frac{1}{2}$	29 $\frac{1}{2}$	15	36	12	56	9	INF	7 $\frac{1}{2}$	INF
10	9	11	8 $\frac{3}{4}$	11 $\frac{1}{2}$	8 $\frac{3}{4}$	13	8	16 $\frac{1}{2}$	7	18	6	23	5 $\frac{1}{4}$	28
7	6 $\frac{3}{4}$	7 $\frac{1}{2}$	6 $\frac{3}{4}$	7 $\frac{1}{2}$	6 $\frac{1}{4}$	8 $\frac{1}{2}$	6	9	5 $\frac{1}{2}$	10	4 $\frac{3}{4}$	13	4 $\frac{1}{4}$	20
5	4 $\frac{3}{4}$	5 $\frac{1}{2}$	4 $\frac{3}{4}$	5 $\frac{1}{2}$	4 $\frac{3}{4}$	5 $\frac{3}{4}$	4 $\frac{1}{2}$	6	4	6 $\frac{1}{2}$	3 $\frac{3}{4}$	7 $\frac{1}{2}$	3 $\frac{1}{2}$	9 $\frac{3}{4}$
4	3 $\frac{3}{4}$	4 $\frac{1}{4}$	3 $\frac{3}{4}$	4 $\frac{1}{4}$	3 $\frac{3}{4}$	4 $\frac{1}{2}$	3 $\frac{3}{4}$	4 $\frac{3}{4}$	3 $\frac{1}{2}$	5	3 $\frac{1}{4}$	5 $\frac{3}{4}$	2 $\frac{3}{4}$ -3	6 $\frac{3}{4}$

All measurements given in the table, the distances focussed as well as the distances given for the depth of focus, are to be taken from the objective glass only. All figures in feet.

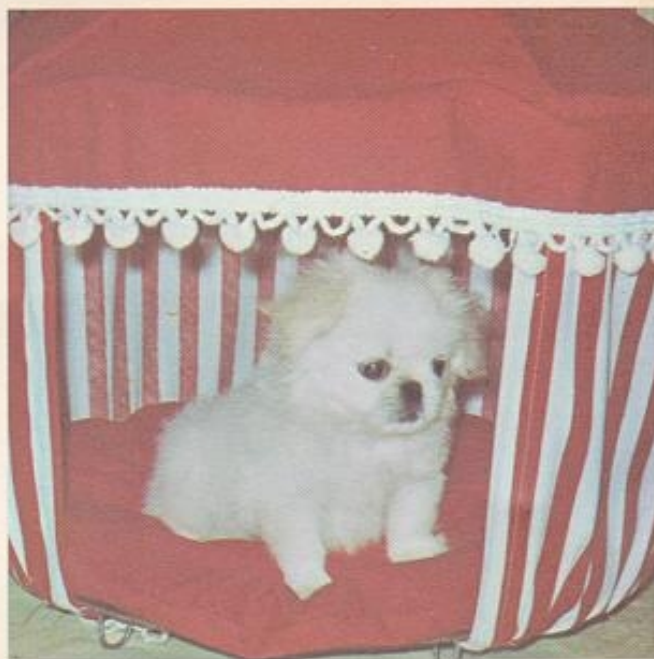
CIRCLE OF CONFUSION = .004"

Camera set to distance	Limits of sharp focus	LENS APERTURE					
		f/6.3	f/8	f/11	f/16	f/22	f/32
5 ft.	Far Near	5' 5 $\frac{3}{8}$ " 4' 7 $\frac{1}{4}$ "	5' 7 $\frac{1}{4}$ " 4' 6 $\frac{1}{8}$ "	5' 10 $\frac{1}{2}$ " 4' 4 $\frac{1}{4}$ "	6' 4 $\frac{1}{2}$ " 4' 1 $\frac{3}{8}$ "	7' 4 $\frac{1}{8}$ " 3' 9 $\frac{1}{2}$ "	8' 9 $\frac{3}{4}$ " 3' 5 $\frac{3}{8}$ "
7 ft.	Far Near	8' 0" 6' 2 $\frac{1}{2}$ "	8' 3 $\frac{1}{4}$ " 6' 0"	8' 10 $\frac{1}{2}$ " 5' 9 $\frac{1}{4}$ "	10' 2" 5' 4 $\frac{1}{4}$ "	12' 2" 4' 11"	18' 4" 4' 4"
10 ft.	Far Near	12' 3 $\frac{3}{4}$ " 8' 5 $\frac{1}{2}$ "	12' 10" 8' 2"	14' 5" 7' 7 $\frac{3}{4}$ "	18' 1" 6' 11"	26' 1" 6' 2 $\frac{1}{4}$ "	97' 0" 5' 3 $\frac{1}{4}$ "
15 ft.	Far Near	20' 8" 11' 9"	22' 9" 11' 2"	28' 2" 10' 3"	46' 11" 8' 11"	232' 6" 7' 9"	Inf. 6' 4 $\frac{1}{4}$ "
25 ft.	Far Near	47' 3" 17' 3"	58' 6" 15' 11"	118' 0" 14' 0"	Inf. 11' 8"	Inf. 9' 8 $\frac{1}{2}$ "	Inf. 7' 7"
Inf.	Far Near	Inf. 56' 0"	Inf. 43' 0"	Inf. 31' 4"	Inf. 21' 7"	Inf. 15' 8"	Inf. 10' 9"

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Gorgeous Color Photos
like these



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...without fussing with dials,
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Please see that I receive free facts about the amazing FOTRON Color Camera — the pushbutton electronic camera that does away with gadgets and accessories, takes great pictures yet saves me money. I understand there is no cost or obligation for this information.



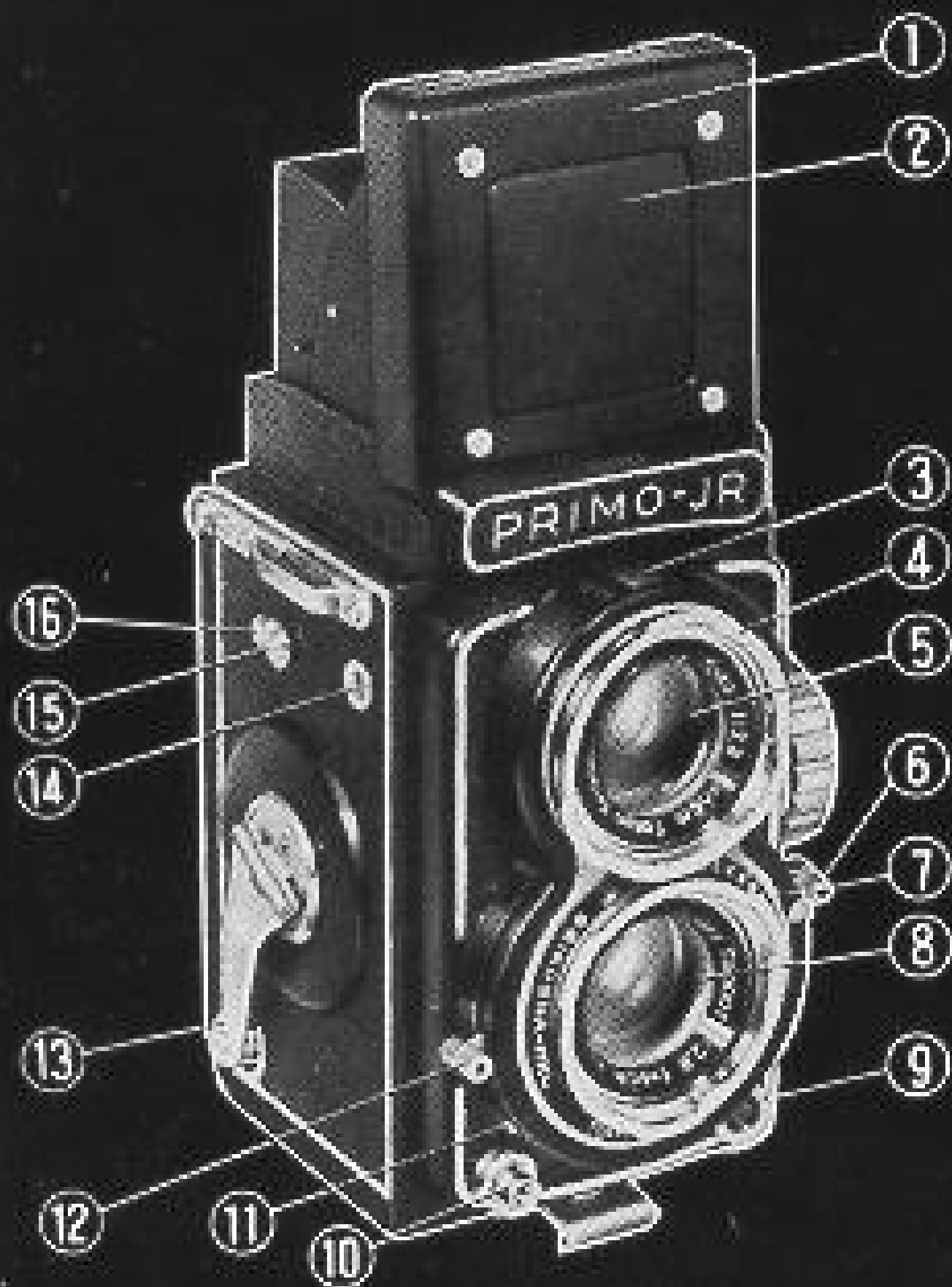
Name _____

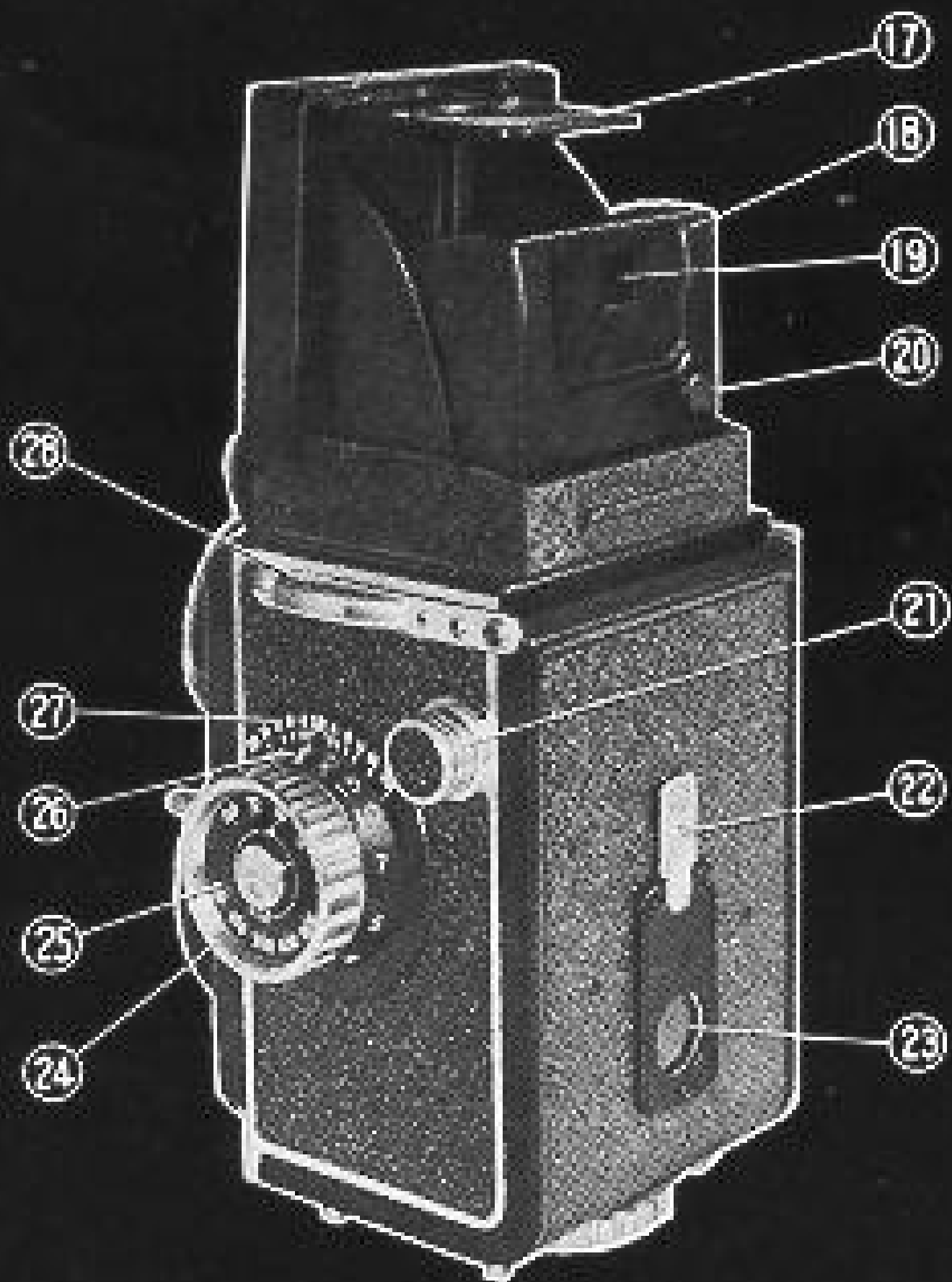
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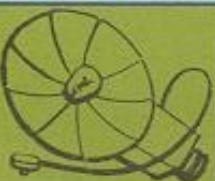
The amazing **FOTRON**[®] Color Camera

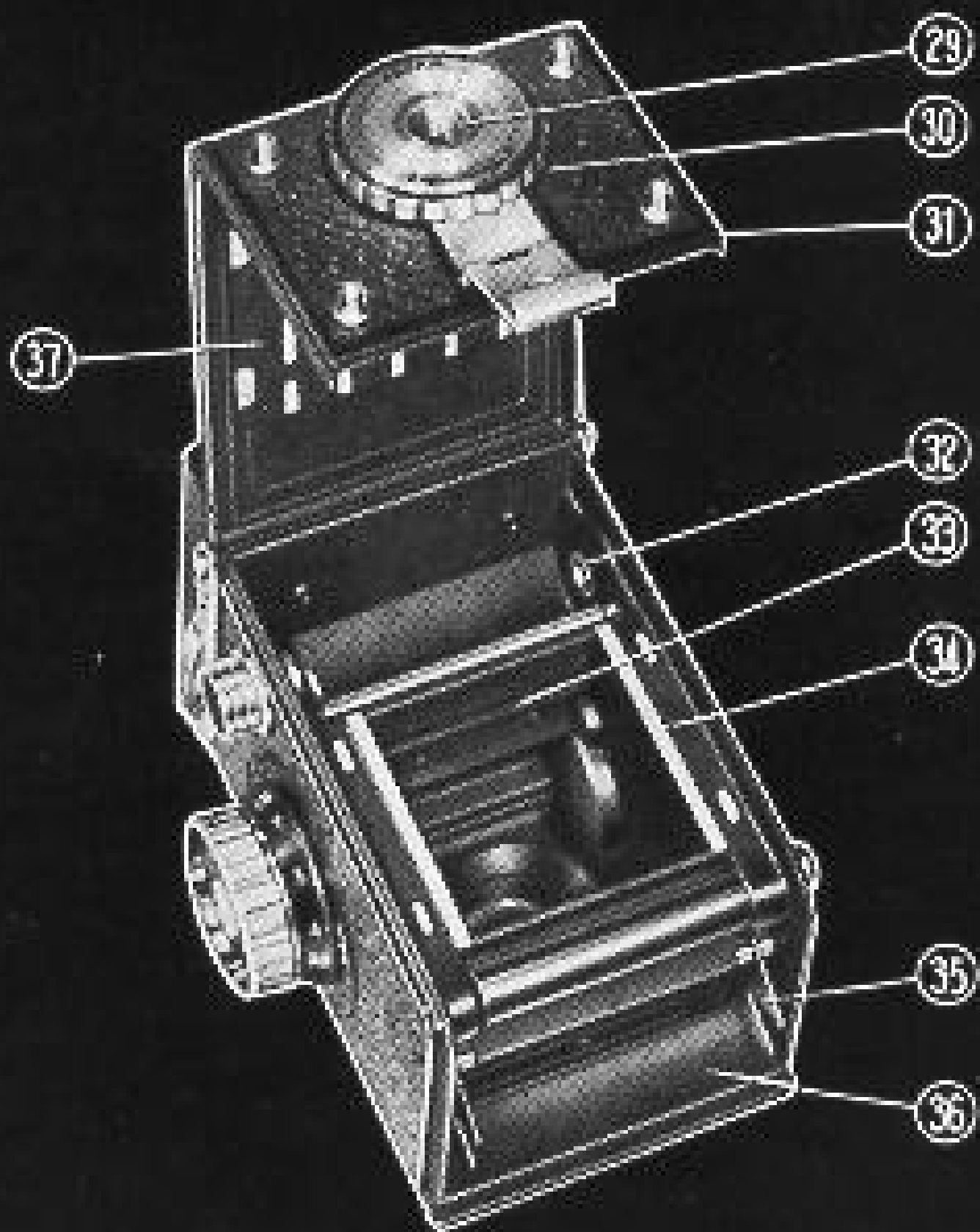
Works electronically — loads in 2 seconds!

Fotron is so easy to use it makes "automatic" cameras seem complicated. You never even touch the film. Just push the proper button and Fotron takes over — focuses the lens, sets the exposure, fires the flash, snaps the picture, moves the film to the next exposure and tells you how many shots are left. The built-in Sunburst[®] electronic flash goes off every time you shoot, giving you "sunlight" day or night.



FOTRON does away with these 12 gadgets!

					
NO FILM TO HANDLE	NO FILM KNOB TO WIND	NO SPOOLS TO THREAD	NO LOCKS TO OPEN	NO METERS TO READ	NO DOORS TO PRY
					
NO BATTERIES TO BUY	NO FOCUS KNOBS TO ADJUST	NO FLASH CUBES TO BUY	NO "F" STOPS TO FIGURE	NO FLASH GUNS TO ATTACH	NO ASA RATINGS TO WORRY ABOUT



Now! Anyone 8 to 80 can take Wonderful Color Photos! Just push two buttons!

Here's the ideal camera for anyone who wants to take great color photos **every time** — especially the 99 out of 100 wives who refuse to fuss with their husband's cameras. Even the amateur can get beautiful color pictures, breathtaking color slides and dazzling black-and-white photos — day or night — with amazing ease!

No power-failure problems. Fotron comes with its own power pack and recharger built-in. To restore energy, just plug the camera into any standard wall outlet.

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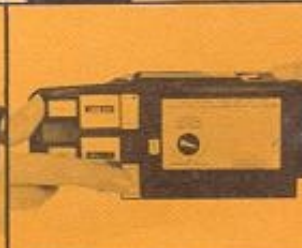
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Photos
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1, 2, 3!**



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into place. No
need to touch
film.



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the "indoors"
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3. PUSH
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and you've
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"... excellent pictures ..." "With six children, there are many birthdays and holidays to record on film. With the simplicity of the Fotron Camera, we get excellent pictures, indoors and outdoors, day or night. Thank you for making such a fine camera available." — Mrs. Louis Pastel, Calif.

"... no-effort camera ..." "No flashbulbs to buy, no light meter to read, no adjustments to make, no time lost changing film ... In fact, Fotron is a no-effort camera that takes fantastic color pictures. I get the same results in bright sunlight or shade ... a very good picture!" — John Phipps, Okla.



"... does all the work ..." "No worrying with settings or lighting conditions, this camera does all the work for you. Forget all about flashbulbs, batteries and rolling film ... just push the button and that's it. I'm proud of my Fotron Color Camera and the pictures I take with it." — Miss Susan Bruner, Ky.

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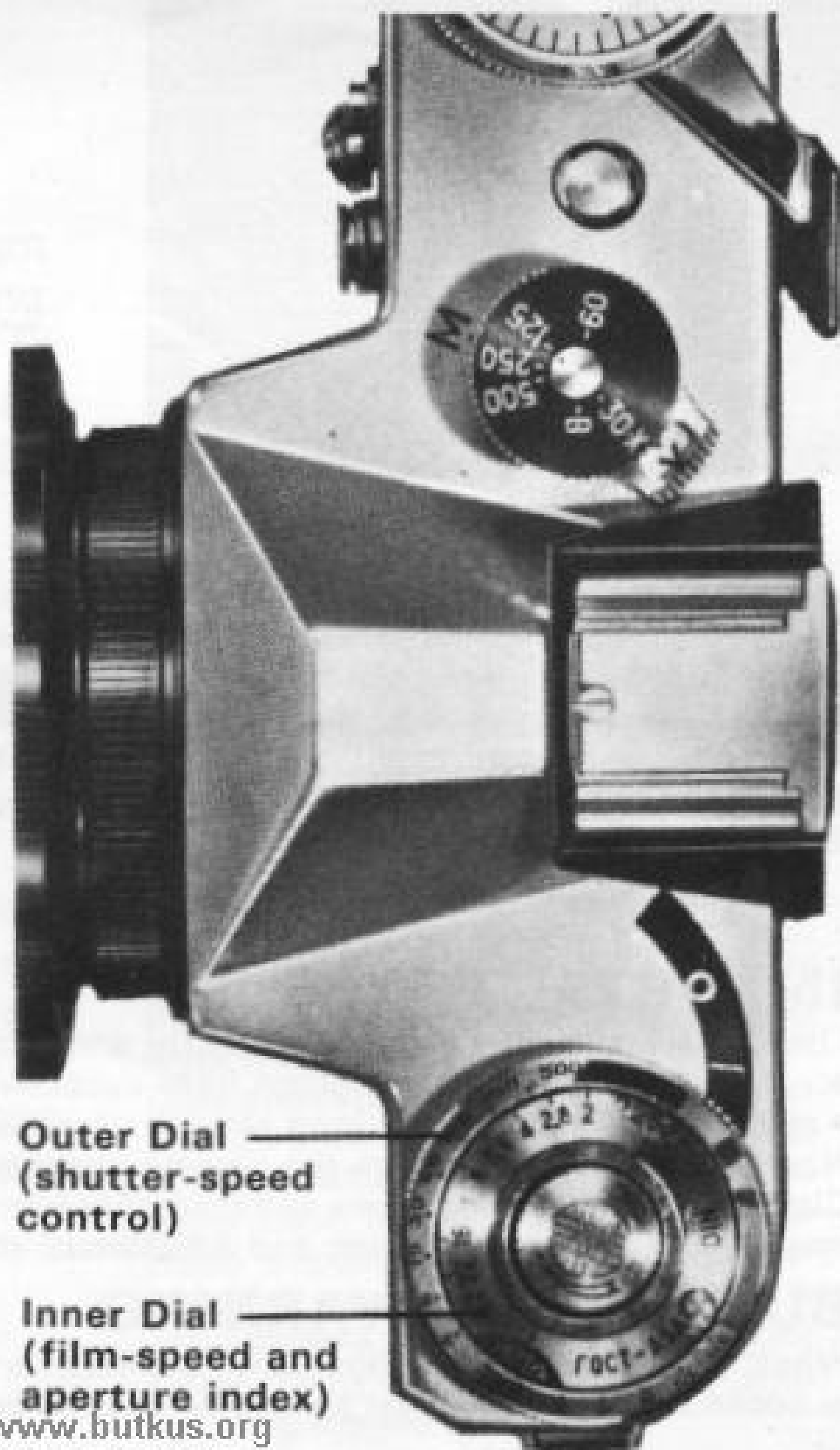
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Outer Dial —
(shutter-speed
control)

Inner Dial —
(film-speed and
aperture index)

Shutter release button

Synchronization setting lever

Synchronization lever index

Index for shutter-speed selector

Shutter speed selector

Film rewind release button

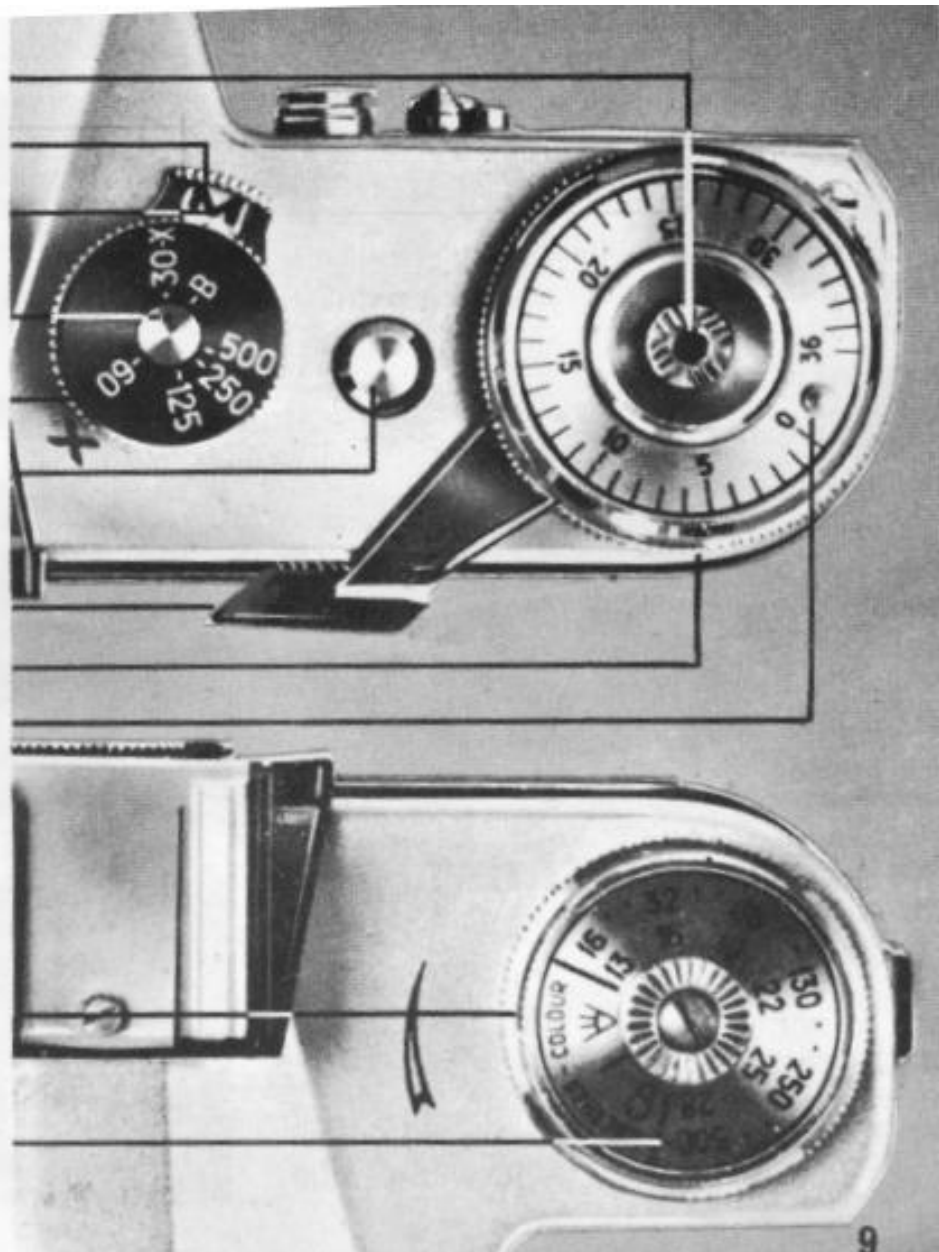
Shutter cocking lever

Exposure counter dial index

Exposure-counter dial with guide

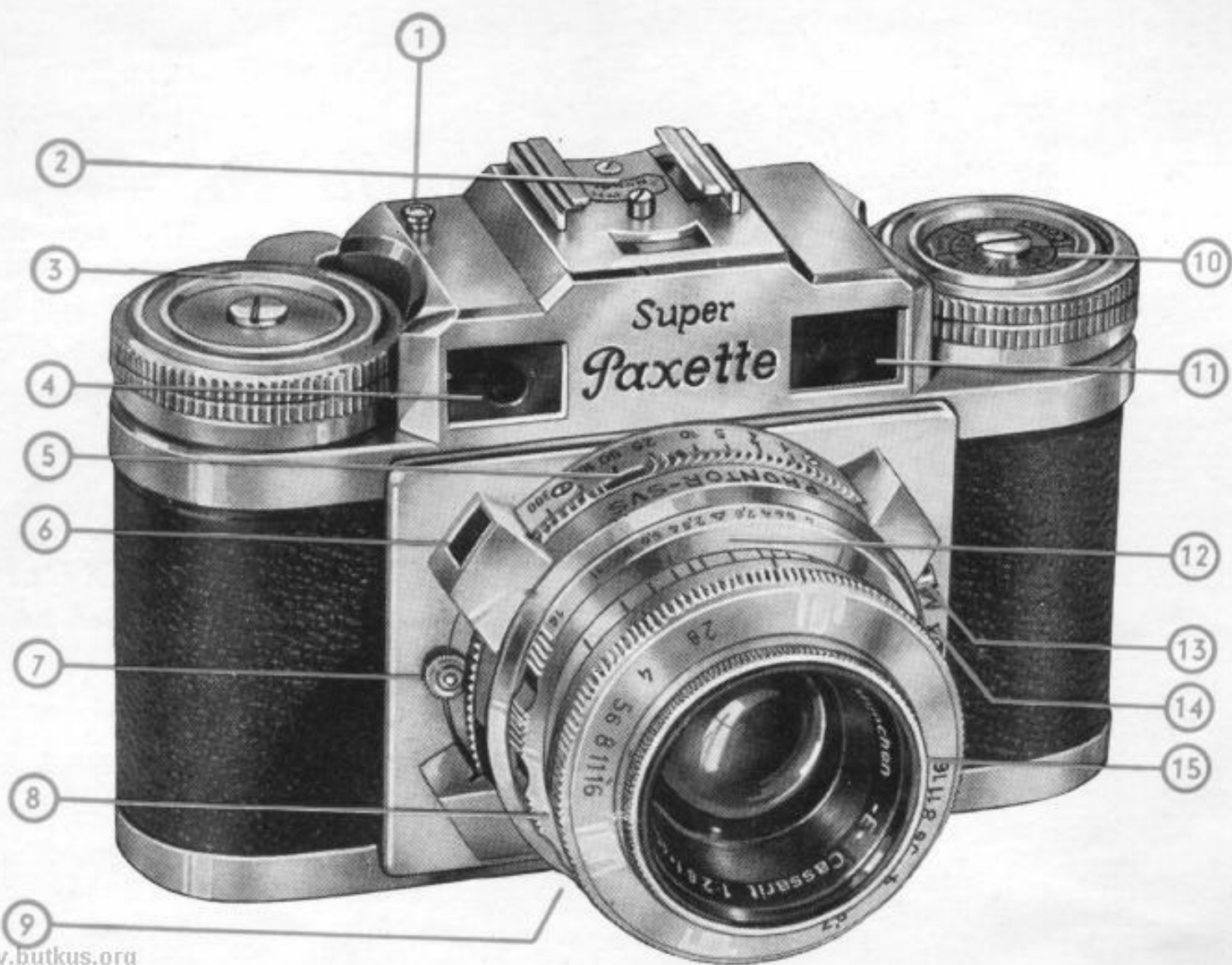
Film rewind knob

Film speed scale











4

3

2

1

5

6

7

8

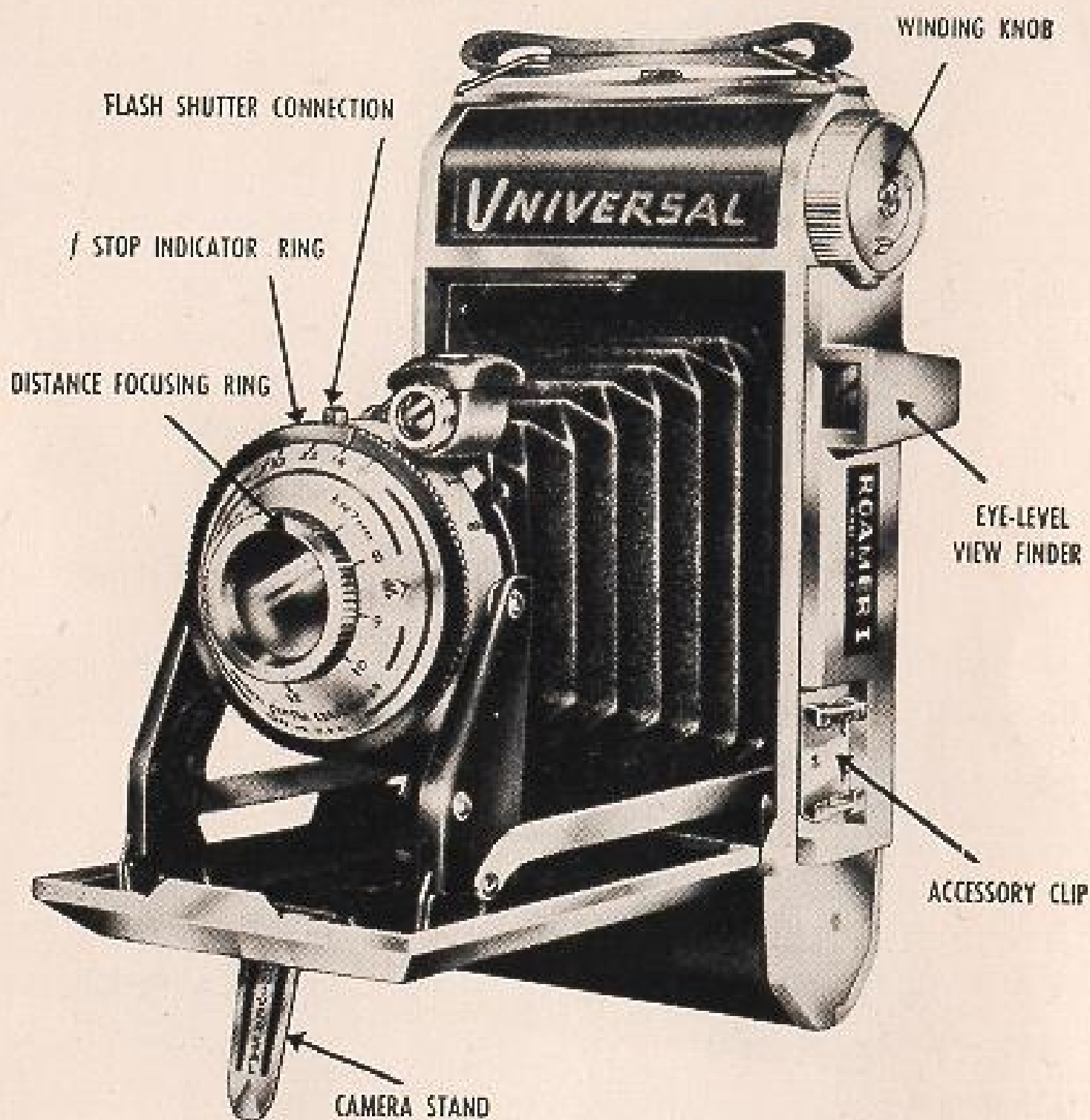
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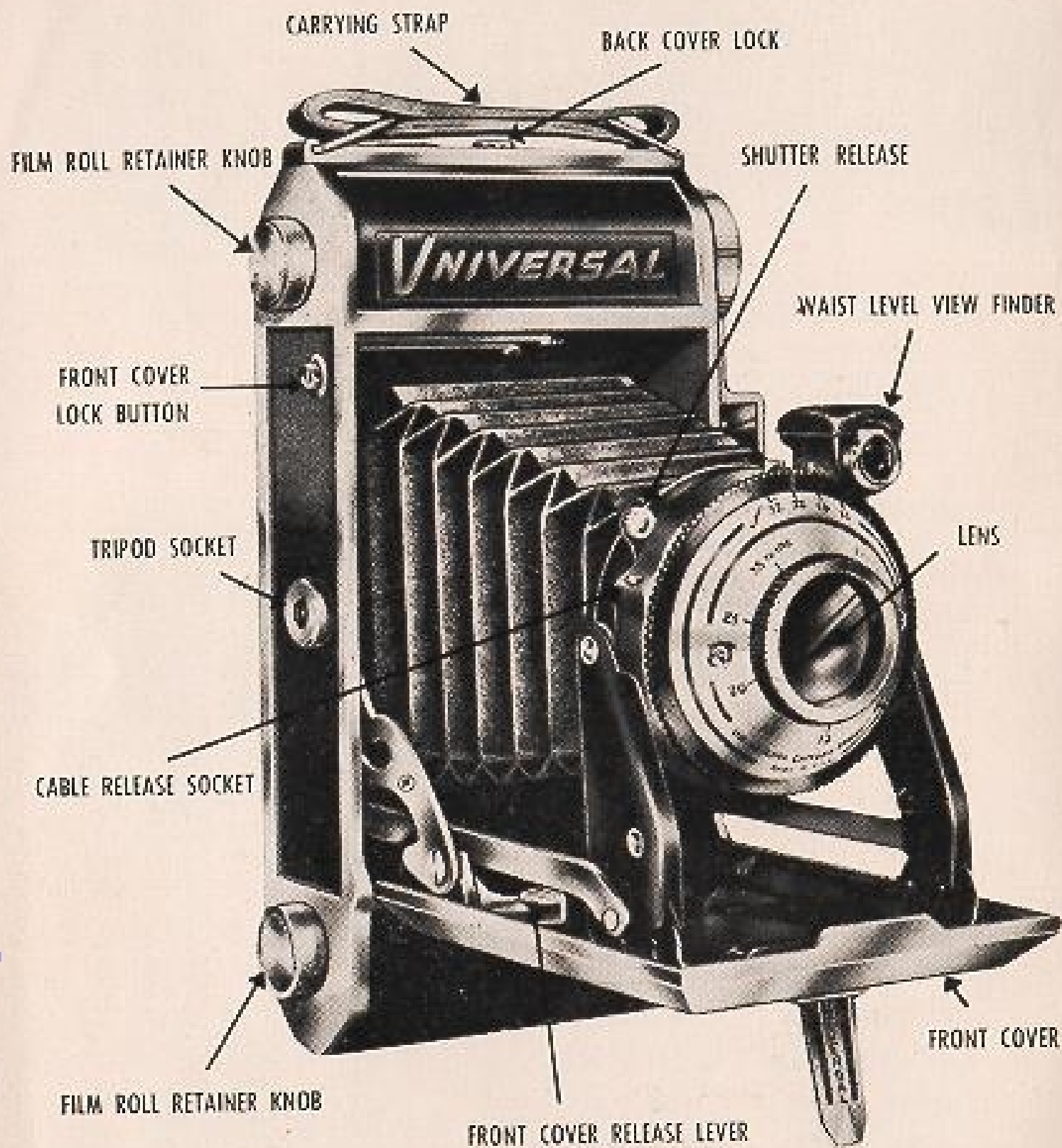
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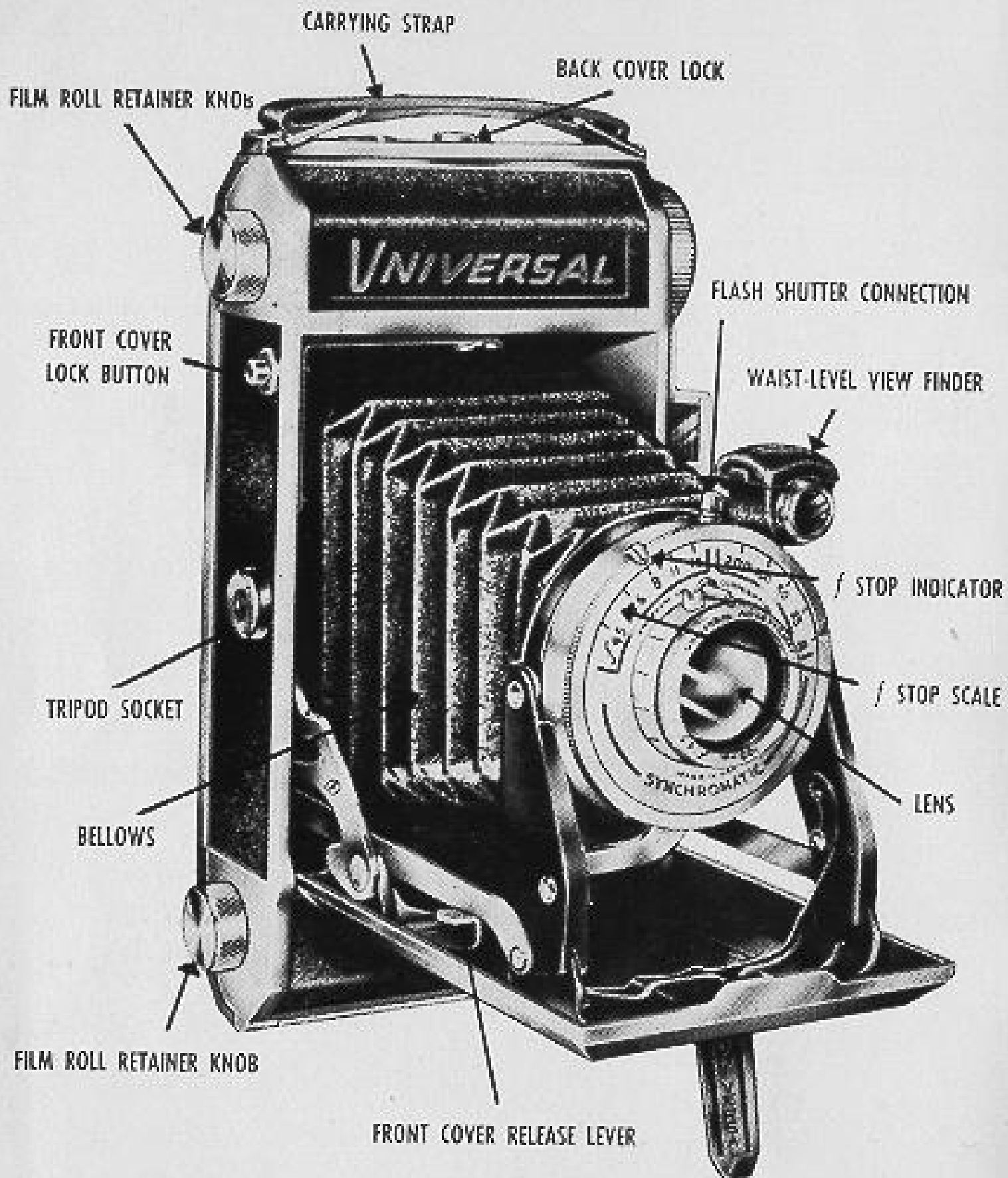
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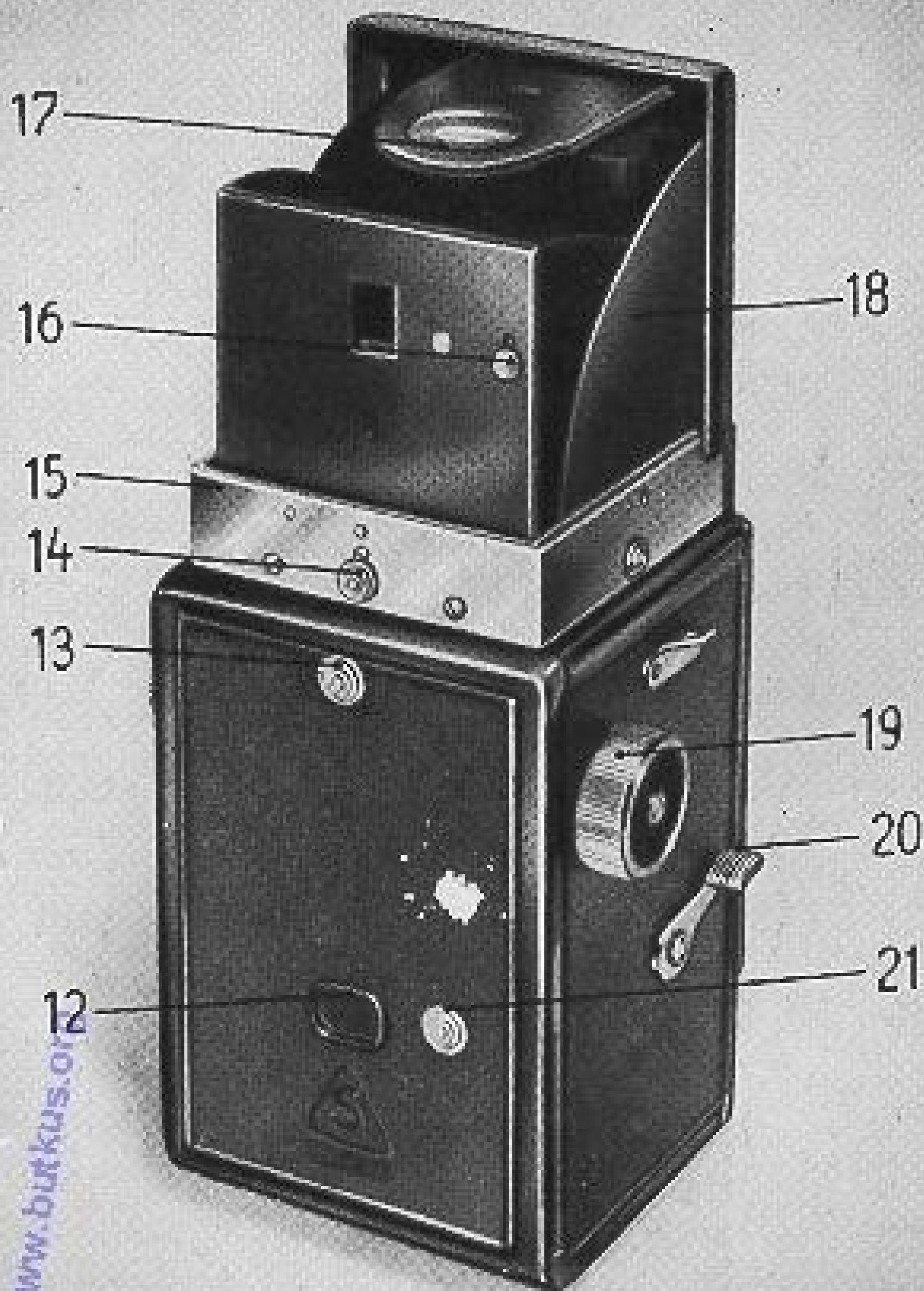


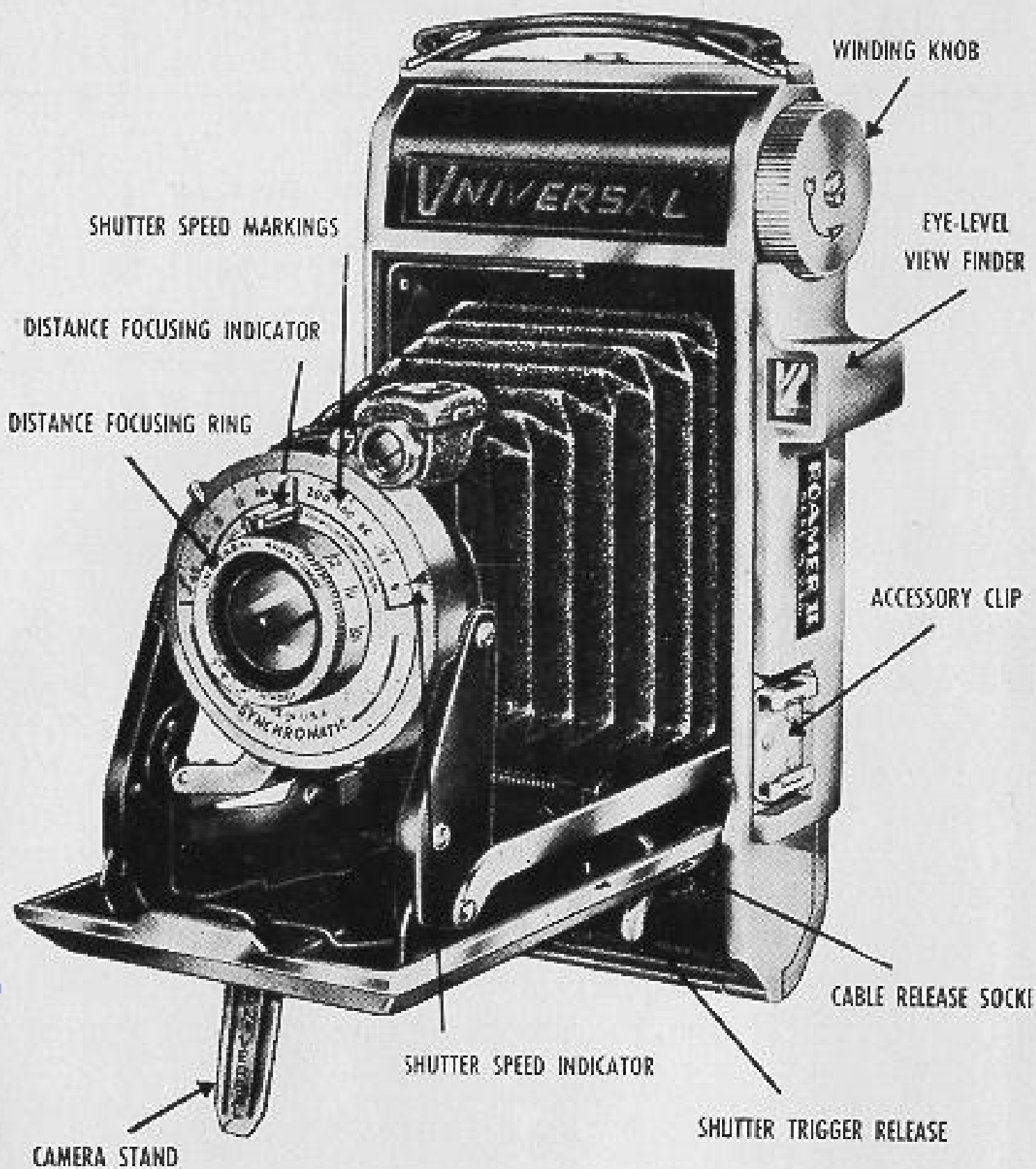
Big shipping boxes











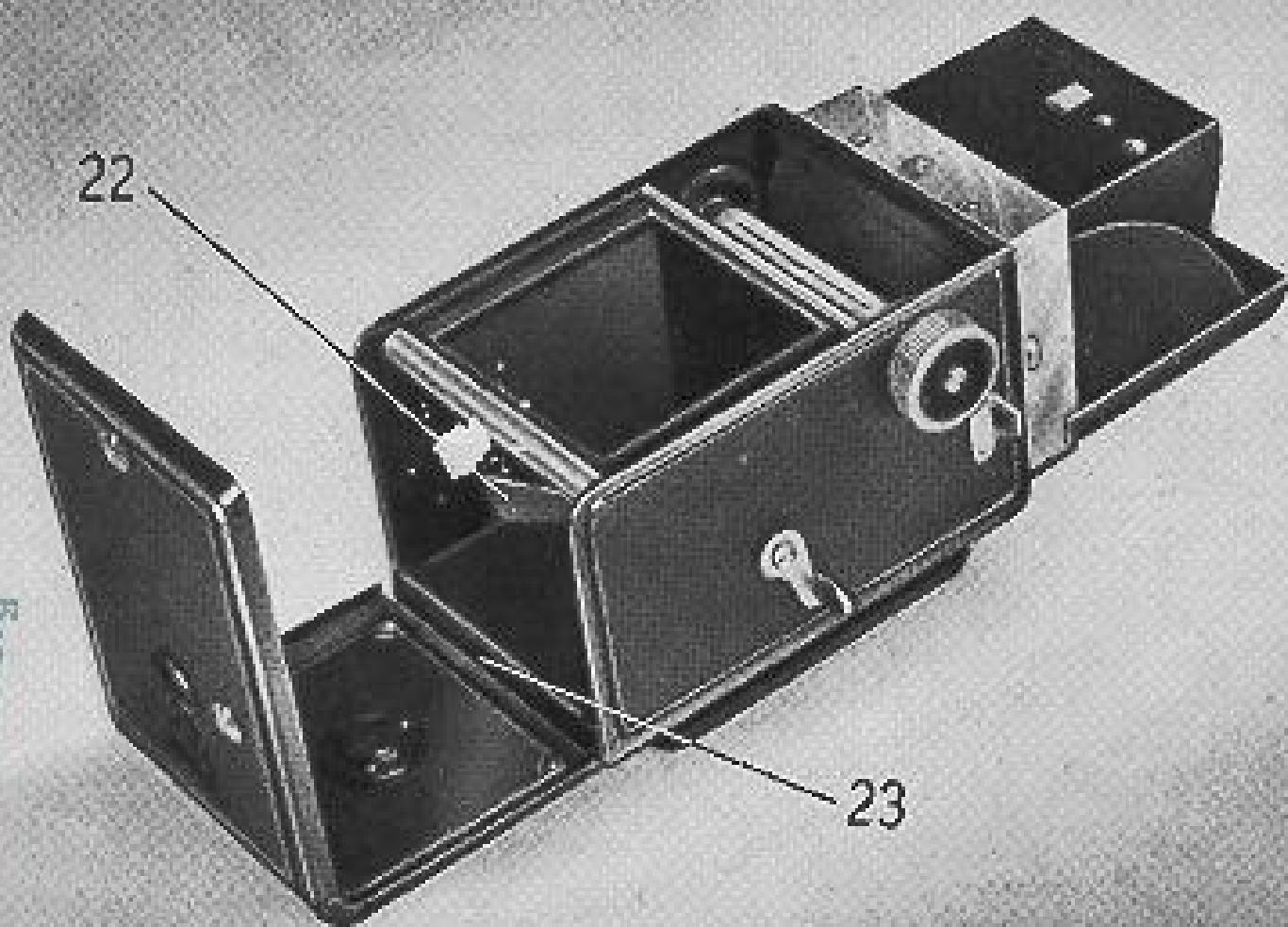


	WESTON TUNGSTEN	DISTANCE IN FEET											
	SPEED												
	16		20	17	14	12	10	8	6	—			
	32		28	24	20	17	14	12	10	8	6	—	
	64		40	32	27	24	20	17	14	12	10	8	
	125		56	45	39	33	27	24	19	17	14	12	
DIAPHRAGM OPENING													
G. E.	#5					11		16		22		32	
	#11				11		16		22		32		
	#22		11		16		22		32				
WABASH	#0					11		16		22		32	
	#40			11		16		22		32			
	#50			11		16		22		32			
	#25*			11		16		22		32			

*Table—corrected for midget lamps when used in parabolic reflectors.

22

23





	WESTON TUNGSTEN FILM SPEED	DISTANCE IN FEET (Lamp to Subject)								
	8			4	6	8	11	16	23	32
	16		4	6	8	11	16	23	32	45
	32	4	6	8	11	16	23	32	45	64
	64	6	8	11	16	23	32	45	64	90
	LAMP TYPE	DIAPHRAGM SETTING (f number)								
WABASH	SF		16	11	8	5.6	4.5			
	25				16	11	8	5.6	4.5	
	0				16	11	8	5.6	4.5	
	40				16	11	8	5.6	4.5	
	50					16	11	8	5.6	4.5
G. E. & WEST.	*SM		16	11	8	5.6	4.5			
	.5			16	11	8	5.6	4.5		
	11				16	11	8	5.6	4.5	
	22					16	11	8	5.6	4.5

*Table correct for midjet lamps when used in parabolic reflectors

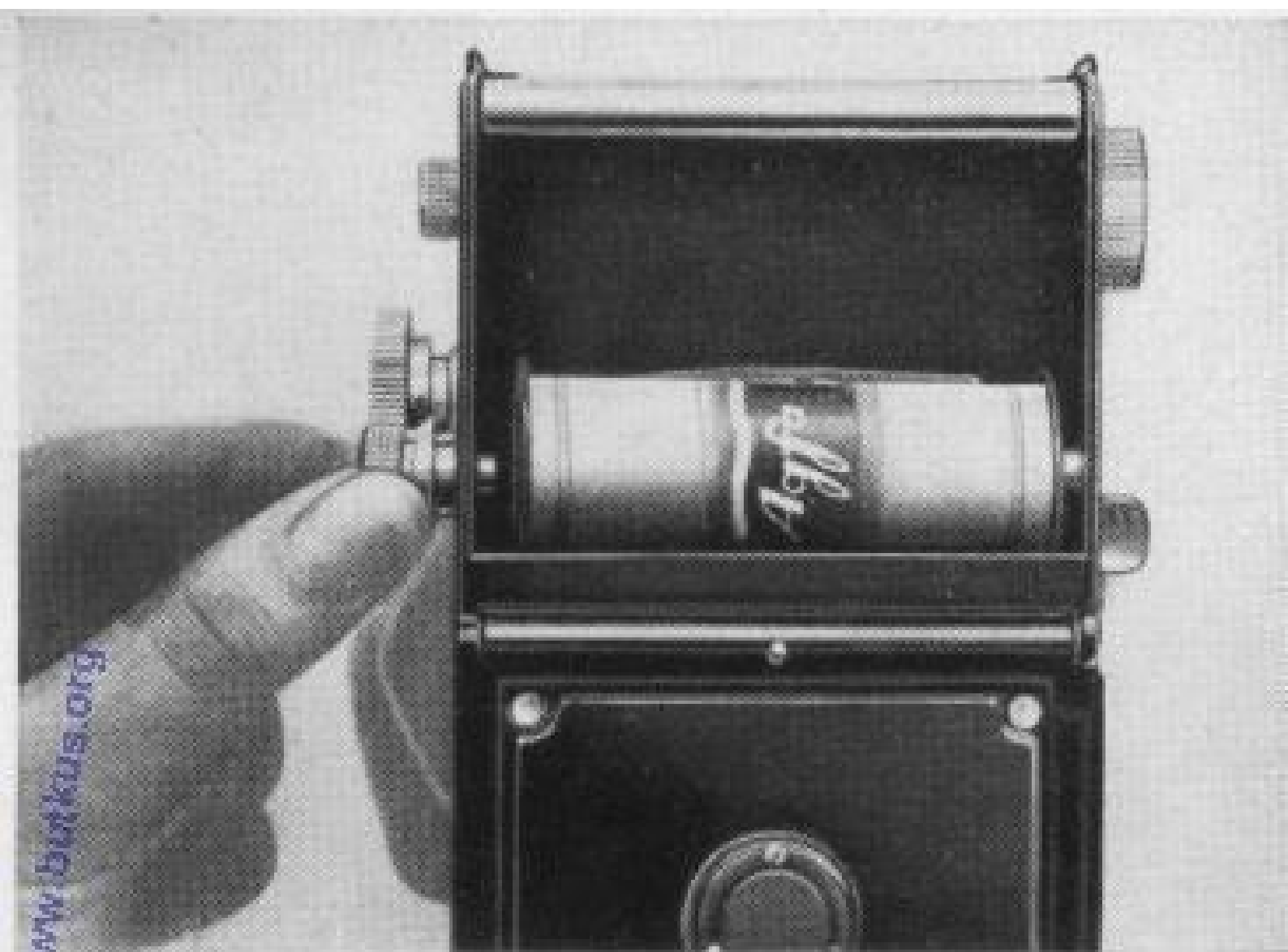


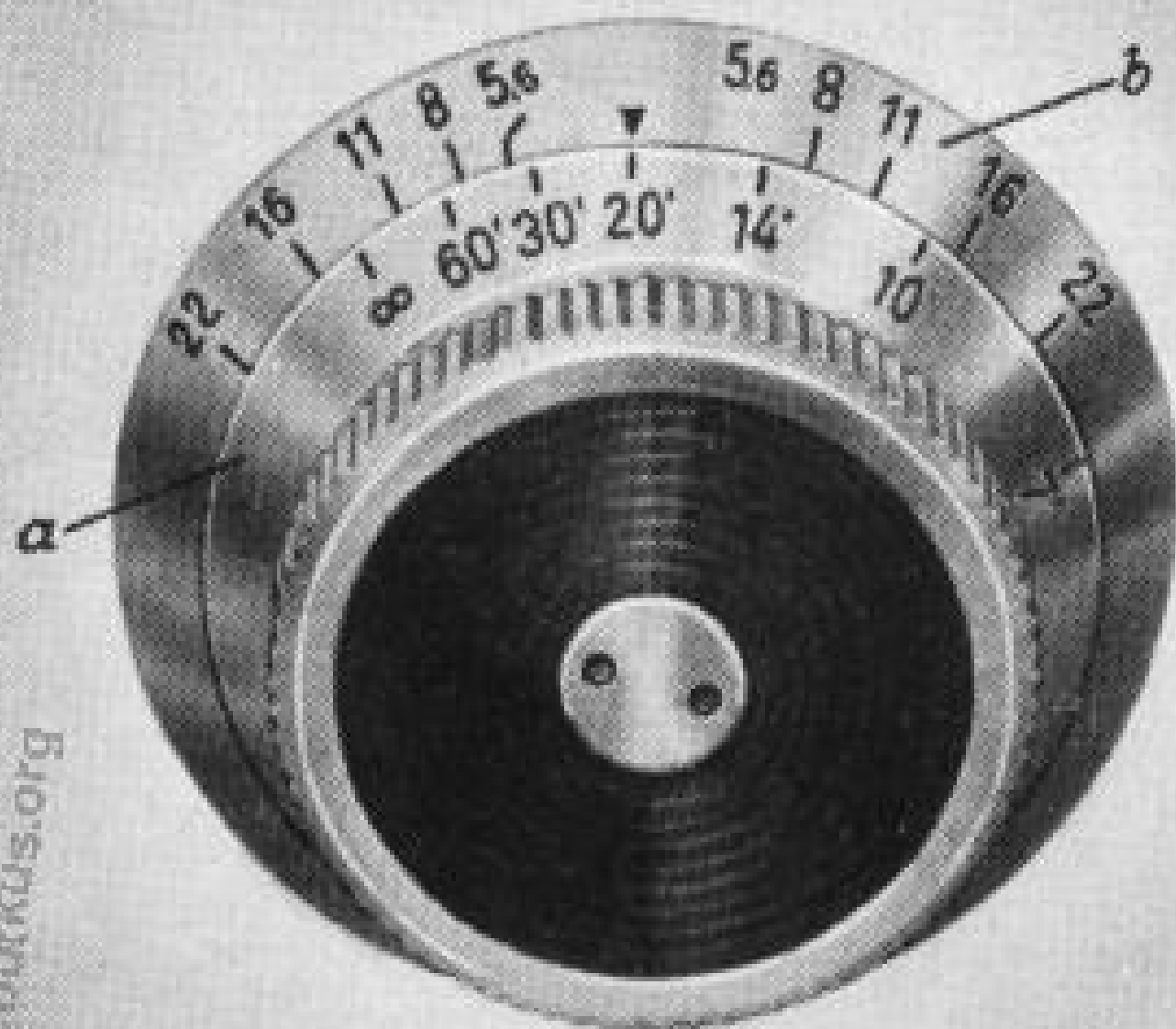
Fig. 3



Fig. 4



Fig. 1



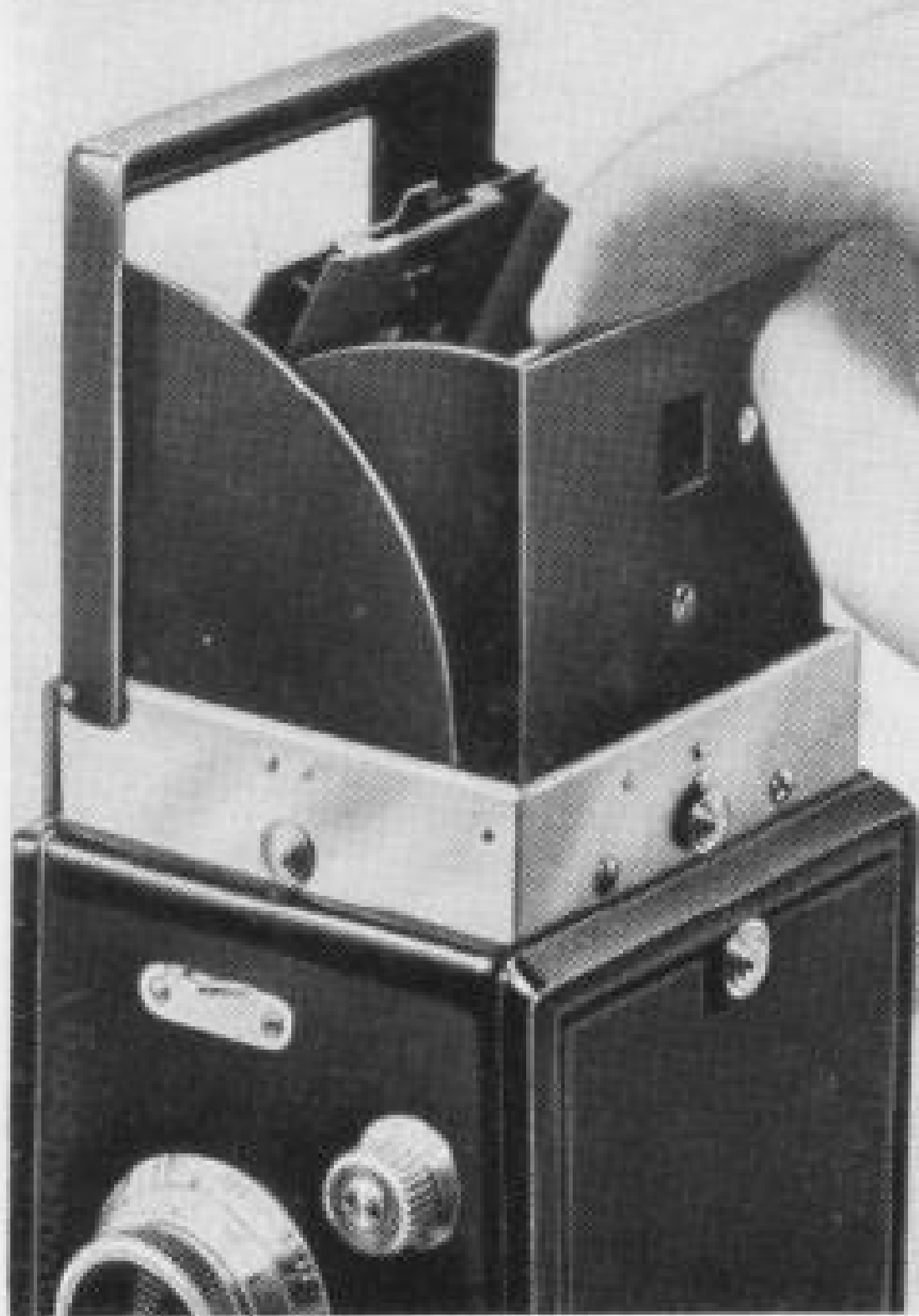


Fig. 8

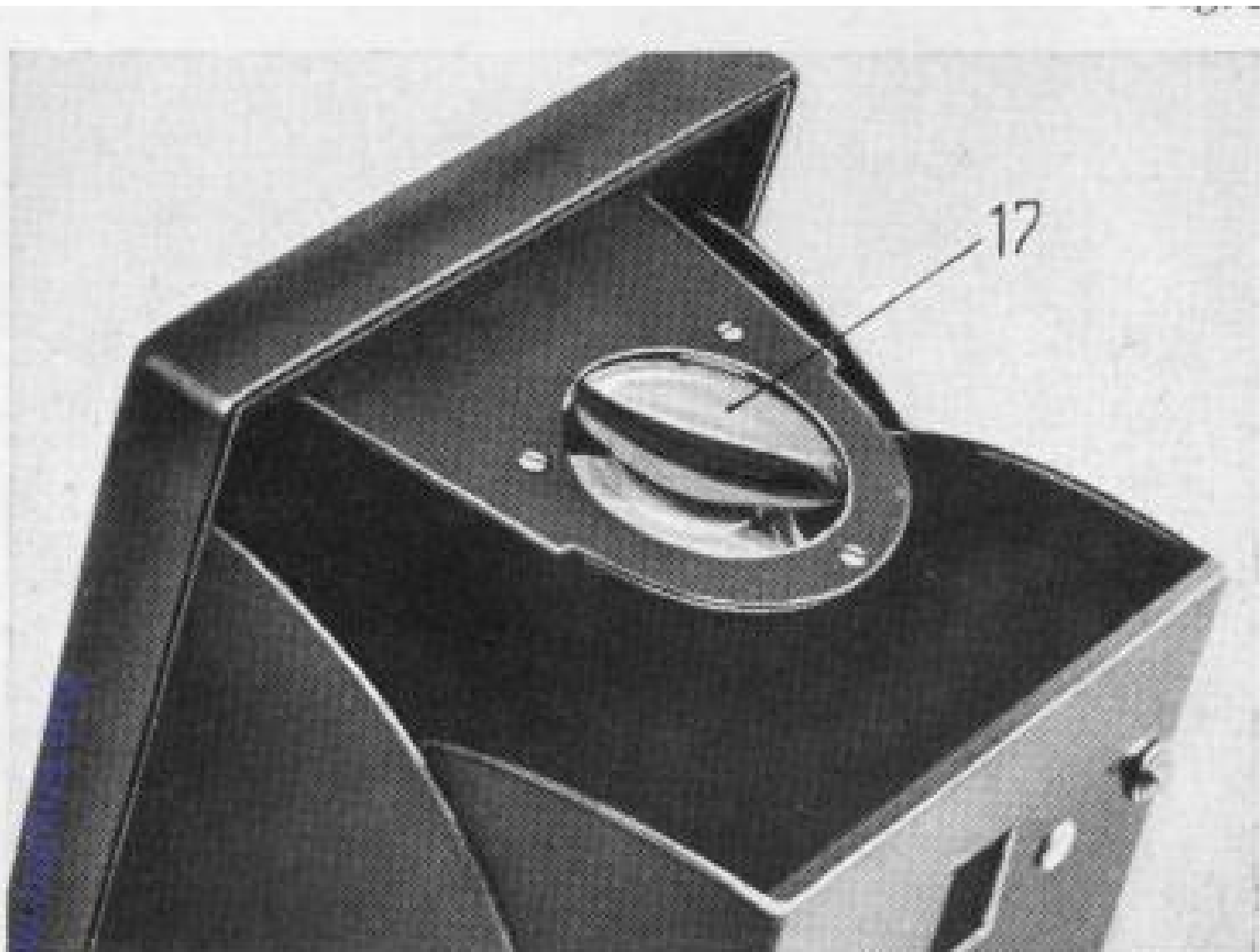


Fig. 7



Fig. 9

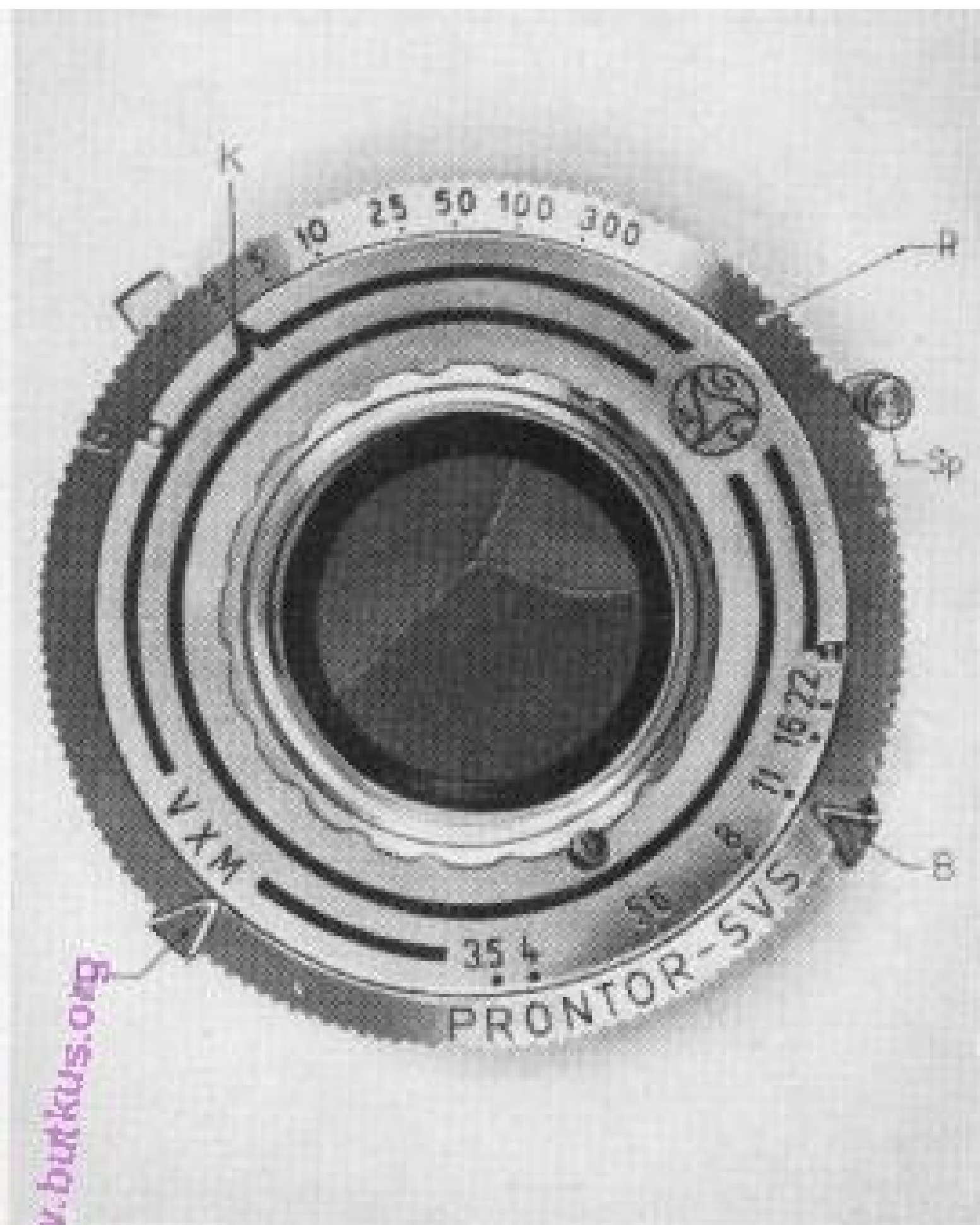
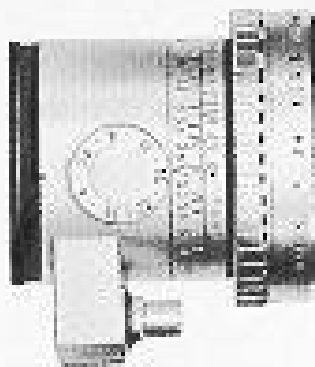
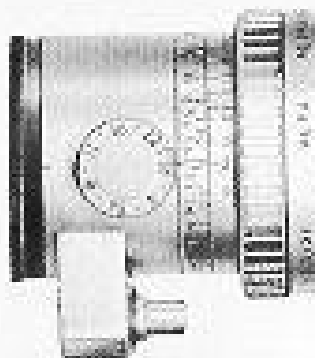


Fig. 12

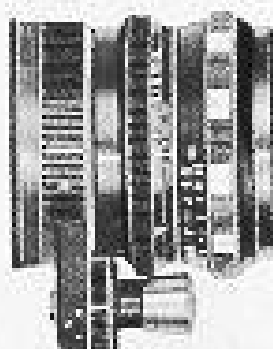
24 mm



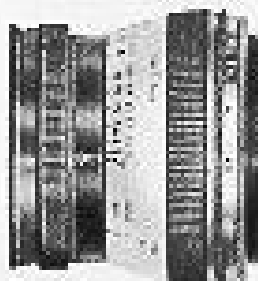
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35



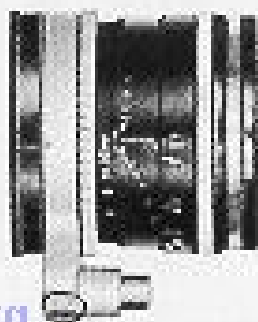
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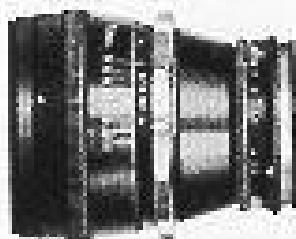
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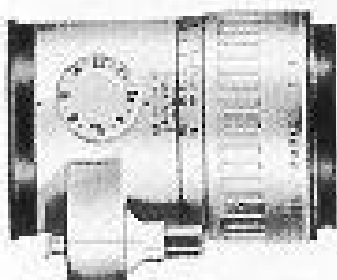
50



75 mm



90



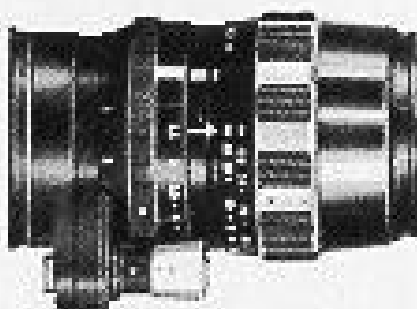
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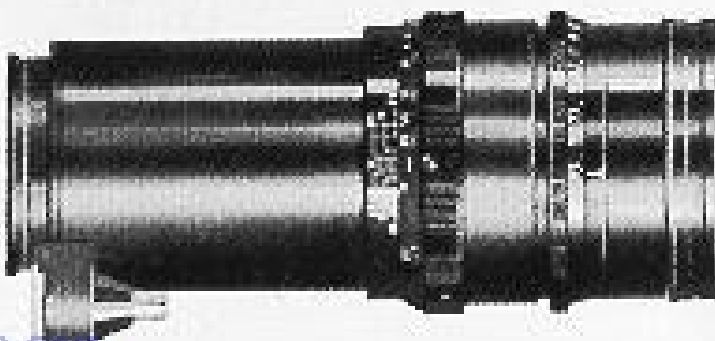
100



135



150

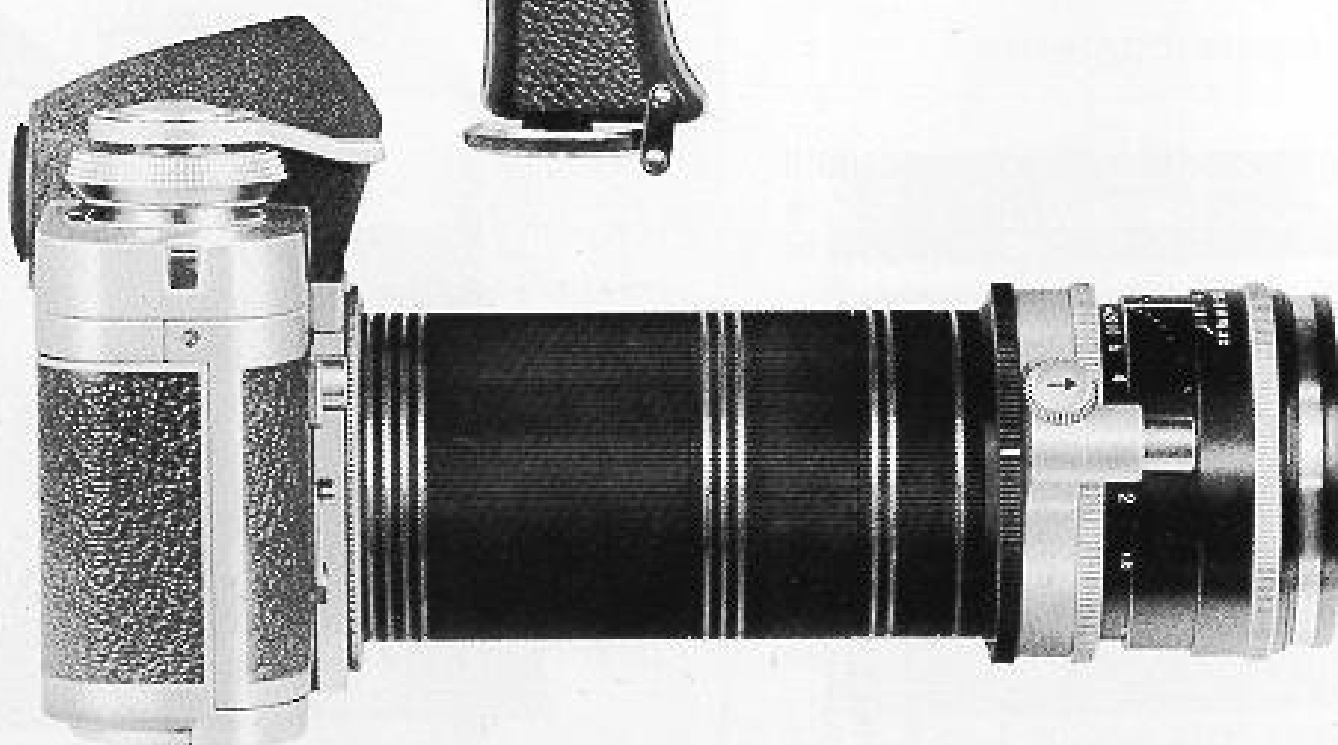


Depth of field scale for the 75 mm lens, f/3.5

A	D	3' 3"	4'	5'	7'	10'	14'	20'	30'	60'	∞
3.5	from to	3' 1" 3' 4,4"	3' 10" 4' 2"	4' 8" 5' 4"	6' 5" 7' 8"	9' 11' 7"	11' 10" 17' 4"	16' 28'	21' 52'	32' 6" 338'	70' ∞
4	from to	3' 1" 3' 5"	3' 9" 4' 3"	4' 8" 5, 5"	6' 4" 7' 9"	9' 12'	11' 5" 18'	15' 29'	20' 58'	35' 5" ∞	60' ∞
5.6	from to	3' 3' 6"	3' 8" 4' 4"	4' 7" 5' 7"	6' 2" 8' 2"	8' 13'	10' 9 20'	14' 36'	18' 90'	25' 7 ∞	45' ∞
8	from to	3' 3' 7"	3' 7" 4' 5"	4' 5" 5' 10"	5' 10" 8' 10"	8' 14' 5"	9' 10" 24' 10"	12' 55'	15' 700'	20' 6" ∞	30' ∞
11	from to	2' 11" 3' 9"	3' 6" 4' 8"	4' 3" 6' 2"	5' 6" 9' 9"	7' 17'	8' 10" 35' 8"	10' 150'	13' ∞	16' 5" ∞	22' ∞
16	from to	2' 10" 3' 11"	3' 4" 5' 1"	4' 7'	5' 12'	6' 26'	7' 7" 152'	8' ∞	10' ∞	12' 4" ∞	15' ∞
22	from to	2' 8" 4' 3"	3' 1" 5' 8"	3' 8" 8' 2"	4' 6" 16'	5' 65'	6' 7" ∞	7' 5" ∞	8' ∞	9' 10" ∞	11' ∞

A = Aperture D = Distance in feet Circle of confusion ϕ = 0.075 mm

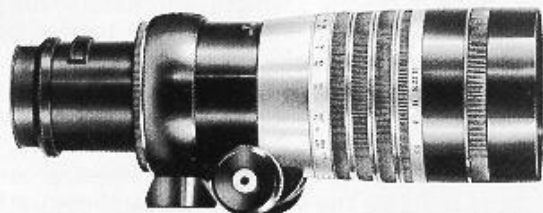




180 mm



300



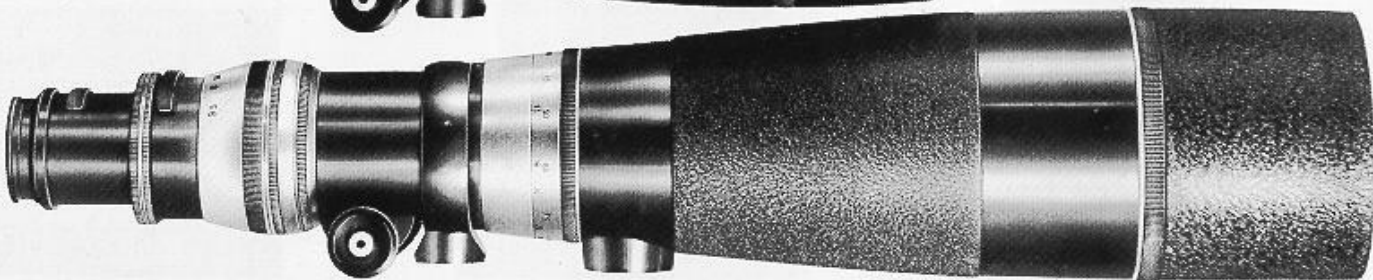
360



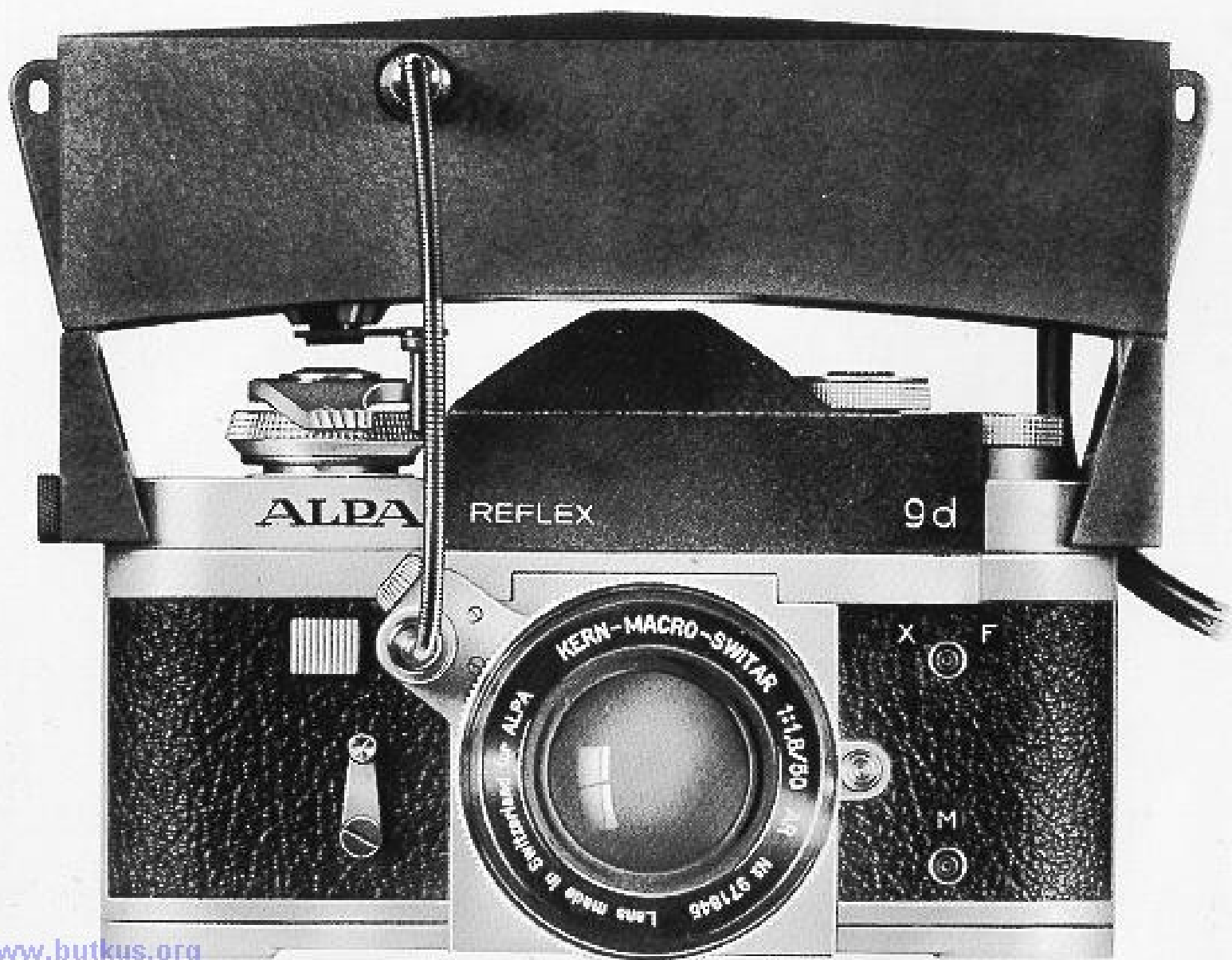
400

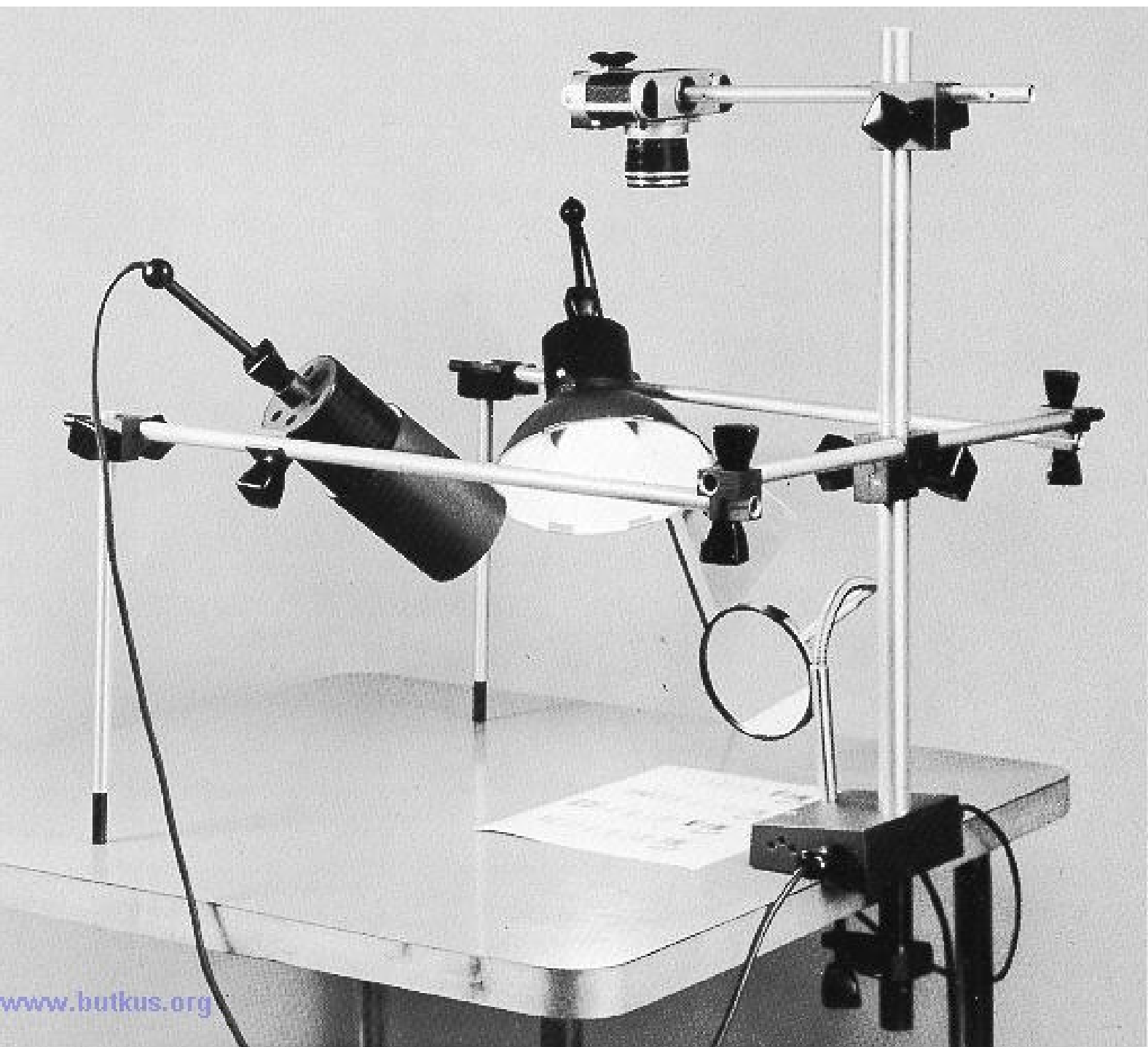


600



The ALPA formula:
Swiss chronometer precision
+ custom ground optics
= unconditional guarantee for
mechanical and optical excellence





	1	2	3	4a	4b	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Alpa lenses	RETROFOCUS	RETROFOCUS	CURTAGON	MACRO-KILAR E	MACRO-KILAR D	SWITAR	MACRO- SWITAR	XENAR	ALFITAR	MACRO-KILAR	APOCHROMAT	TELE-XENAR	APOCHROMAT	ALITAR	TELE-KILAR	TELE-XENAR	FERN-KILAR	TELE-KILAR	FERN-KILAR
Focal length in mm:	24	28	35	40	40	50	50	75	90	90	100	135	150	180	300	360	400	500	600
Rel. aperture f:	3,5	3,5	2,8	2,8	2,8	1,8	1,8	3,5	2,5	2,8	2	3,5	2,8	4,5	4	5,5	4	4,8	5,5
Smallest diaphragm setting f:	22	22	22	22	22	22	22	32	22	32	22	22	32	32	32	32	45		45
Angle of field on the diagonal of 24 x 36 mm frame:	83°	75°	65°	55°	55°	45°	45°	32°	27°	27°	24°	18°	16°	13°	8°	7°	6°	5°	4°
Ratio of image size at infinity, standard focal length 50 mm = 1	0,46	0,56	0,7	0,8	0,8	1	1	1,5	1,8	1,8	2	2,7	3	3,6	6	7,2	8	10	12
Direct focusing from infinity down to: inches / feet and meters	15 1/4" 0,4 m	19" 0,5 m	13 1/2" 0,35 m	7 1/2" 0,20 m	6 1/2 1/8" 0,17 m	19" 0,5 m	11" 0,28 m	18 1/4" 0,46 m	30 3/4" 1 m	14 1/4" 0,36 m	33 1/2" 0,85 m	5" 1,5 m	5 1/2" 1,6 m	8" 2,5 m	6" 1,8 m	15" 4,5 m	16" 5 m		33" 10 m
Subject to image ratio for nearest direct focusing:	1:11	1:14	1:7	1:2	1:1,1	1:9	1:3	1:3,8	1:9	1:1	1:7,5	1:9	1:9,5	1:11	1:5	1:10	1:11		1:12
Subject to image ratio for focusing with +1 diopter suppl. lens:	—	—	donabe 1:5,6	—	—	donal 1:5,8	donabe 1:2,4	donal 1:2,8	donabe 1:5	—	—	donabe 1:3,8	—	donabe 1:4	—	—	—	—	—
Weight in ounces / pounds and grams	12 1/2 350 g	12 1/2 340 g	7 1/2 220 g	5 1/2 160 g	6 170 g	6 170 g	9 1/4 280 g	5 1/2 155 g	13 1/2 370 g	20 570 g	26 1/2 750 g	20 570 g	37 1050 g	20 570 g	4 1/2 p 2000 g	47 1/4 1350 g	6 1/2 p 3100 g		8 1/2 p 4000 g
Actual Length of the lens:	2 23/32" 60 mm	2 23/32" 60 mm	1 1/4" 47 mm	1 1/4" 47 mm	1 1/4" 47 mm	1 1/4" 40 mm	1 1/4" 46 mm	2 23/32" 60 mm	2 11/16" 75 mm	4 1/8" 107 mm	4 23/64" 120 mm	3 1/4" 95 mm	7 1/16" 185 mm	5 1/16" 130 mm	8 1/8" 215 mm	10" 255 mm	17 1/4" 445 mm		25 7/16" 650 mm
Number of elements:	8	6	6	4	4	7	7	4	4	4	6	4	6	5	4	4	2	available in 1985	2
Ø for filters:	D	D	B	E	E	A*)	B	A*)	B	A	D	B	D	B	K*	Sp	K*		K*
Code word for filters:	filtrado	filtrado	filtrabe	ecrana	ecrana	filtrana	filtrabe	filtrana	filtrabe	filtrana	filtrado	filtrabe	filtrado	filtrabe	—	xfiltran	—		—
Ø for sun-shade:	—	—	B	—	—	A	B	A	B	—	D	B	D	B	—	Sp	—		—
Code word for sun-shade:	none	none	curtabe	incl.	incl.	omxana	omxabe	omxana	omxabe	incl.	parso	omxabe	parso	omxabe	incl.	parante	incl.		incl.
Type of diaphragm:	autom.	autom.	autom.	simple	simple	autom.	autom.	simple	autom.	simple	autom.	autom.	autom.	autom.	simple	simple	simple		simple
Depth of field indicator:	simple	simple	autom.	simple	simple	simple	autom.	simple	simple	simple	simple	autom.	simple	simple	simple	simple	simple		simple
Leather case for lens only:	redark	redark	normdark	normdark	normdark	normdark	normdark	xeldark	redark	nodark	muldark	muldark	kindark	aldark	—	texdark	—		—
Leather case for lens with sun-shade:	—	—	redark	—	—	normdark	normdark	xeldark	muldark	—	muldark	muldark	kindark	aldark	trade	tesdark	traso		trave
Manufactured by:	Angénieux	Angénieux	Schneider	Kilfitt	Kilfitt	Kern	Kern	Schneider	Angénieux	Kilfitt	Kinoptik	Schneider	Kinoptik	Angénieux	Kilfitt	Schneider	Kilfitt	Kilfitt	Kilfitt

* "filtrabe", filters and "omxabe" sun-shades can be used with conversion ring "interbag BA"
K * Wratten gelatine filters

CONVENIENT EXPOSURE TABLE

Season – Spring or Autumn

Film Speed – ASA 50

Diaphragm – f. w/out Filter

Weather – Fine

SUBJECT	TIME	10 a.m. –2 p.m.	9–10 a.m. 2–3 p.m.	8–9 a.m. 3–4 p.m.	7–8 a.m. 4–5 p.m.
Open beach, High mountain	(f/11)	1/500	1/500	1/250	1/100
Distant landscape		1/500	1/250	1/100	1/50
Ordinary landscape		1/250	1/100	1/50	1/25
Bright Streets, Squares		1/100	1/50	1/25	1/10
Portrait in open air		1/50	1/25	1/10	1/5
Groups in shads		1/25	1/10	1/5	1/2
Portrait in shade		1/10	1/5	1/2	1
Inner bright chamber		1/5	1/2	1	2
Inner light dark chamber		1/2	1	2	4

Notes :

2 times of the above figure	under bright cloud
4	under dark cloud
2	in winter season
1/2	in summer season

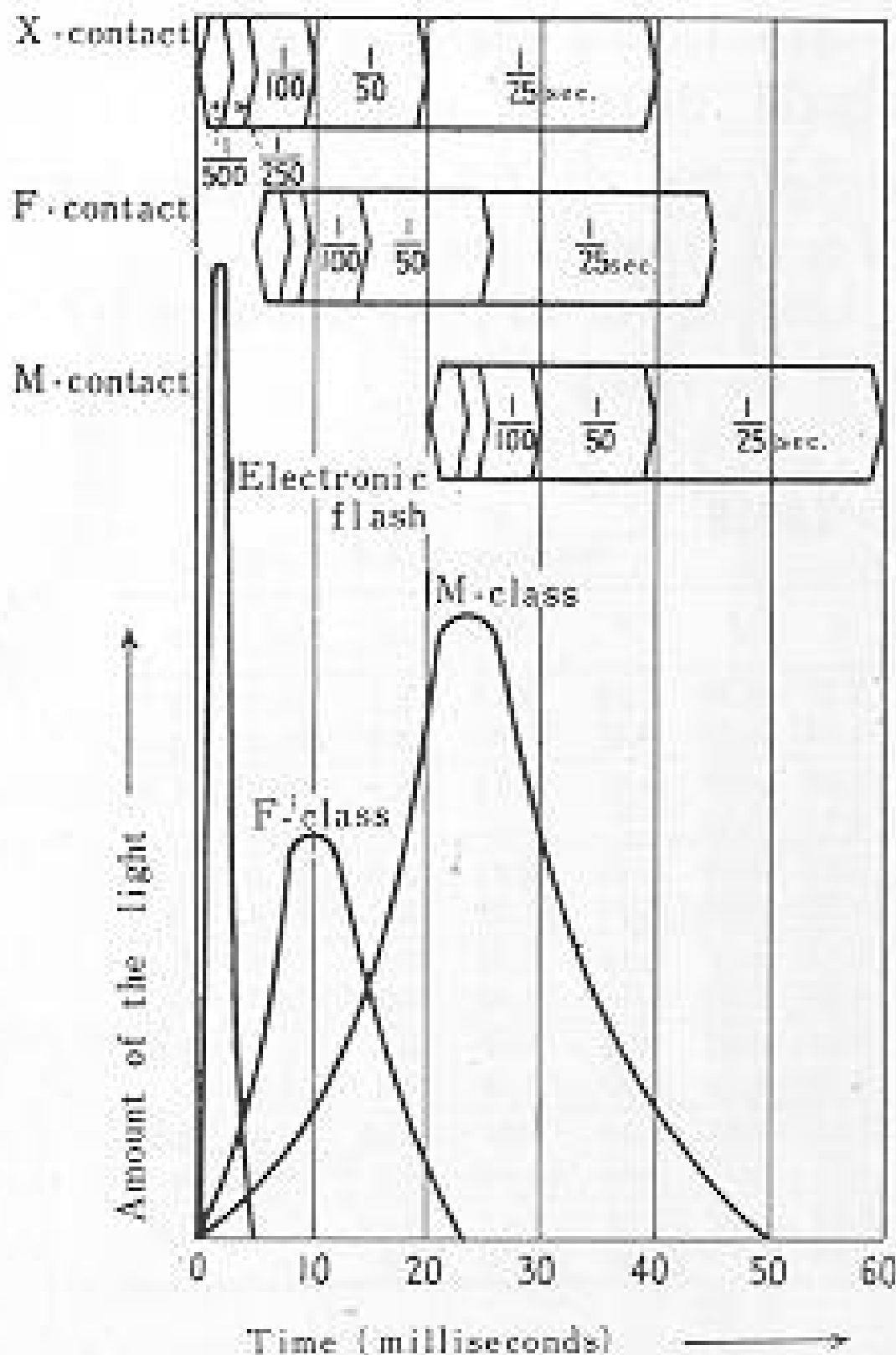
DEPTH OF FIELD TABLE

Prominar 1 : 3.5 F = 75 mm

Feet F	3	4	5	7	10	15	30	∞
3.5	2.93	3.87	4.79	6.60	9.18	13.2	23.6	108.7
	3.08	4.14	5.23	7.47	10.98	17.3	41.2	∞
4	2.92	3.85	4.77	6.57	9.12	13.1	23.2	101.3
	3.08	4.15	5.25	7.51	11.07	17.6	42.5	∞
5.6	2.90	3.80	4.69	6.41	8.81	12.5	21.2	71.8
	3.12	4.22	5.35	7.74	11.58	18.9	51.4	∞
8	2.86	3.72	4.57	6.18	8.38	11.6	18.9	50.4
	3.18	4.32	5.53	8.11	12.42	21.3	73.7	∞
11	2.79	3.64	4.43	5.92	7.90	10.7	16.6	36.8
	3.25	4.46	5.76	8.62	13.68	25.3	165.3	∞
16	2.71	3.48	4.21	5.54	7.22	9.48	13.8	25.3
	3.37	4.71	6.18	9.63	16.45	36.9	∞	∞
22	2.61	3.33	3.98	5.15	6.55	8.34	11.5	18.5
	3.54	5.05	6.79	11.22	21.80	82.8	∞	∞

lever.

Contact	Time Lag
X	0
F	5 m. second
M	20 "



[TABLE OF EXPOSURE INDEX]

Black and White Film		ASA Exposure Index	
	Type	(Daylight)	(Tungsten)
Kodak Tri-X	Pan	200	160
Kodak Verichrome	"	80	64
Kodak Panatomic-X	"	25	20
Anso All-Weather	"	64	50
Anso Supreme	"	50	32
Ilford HPS	"	400	320
Ilford HP3	"	200	160
Ilford FP3	"	64	50

Color Film

	Finish	Light Source	ASA	Filter to be used
Kodachrome	Positive	Daylight	10	
Kodachrome "	Negative "	" Photoflood	32 25	
Ektachrome "	Positive "	Daylight Photoflood	32 12	80 B
Ektachrome-F "	" "	Daylight Photoflood	20 16	85 C 82 A
Ansochrome "	" "	Daylight Photoflood	32 16	80 B
Ansochrome-F "	" "	Daylight Photoflood	25 20	85 C 82 A
Agfacolor-T " -K	Negative "	Daylight Photoflood or Flash lamp	20 20	

Lens Hood and Filters.

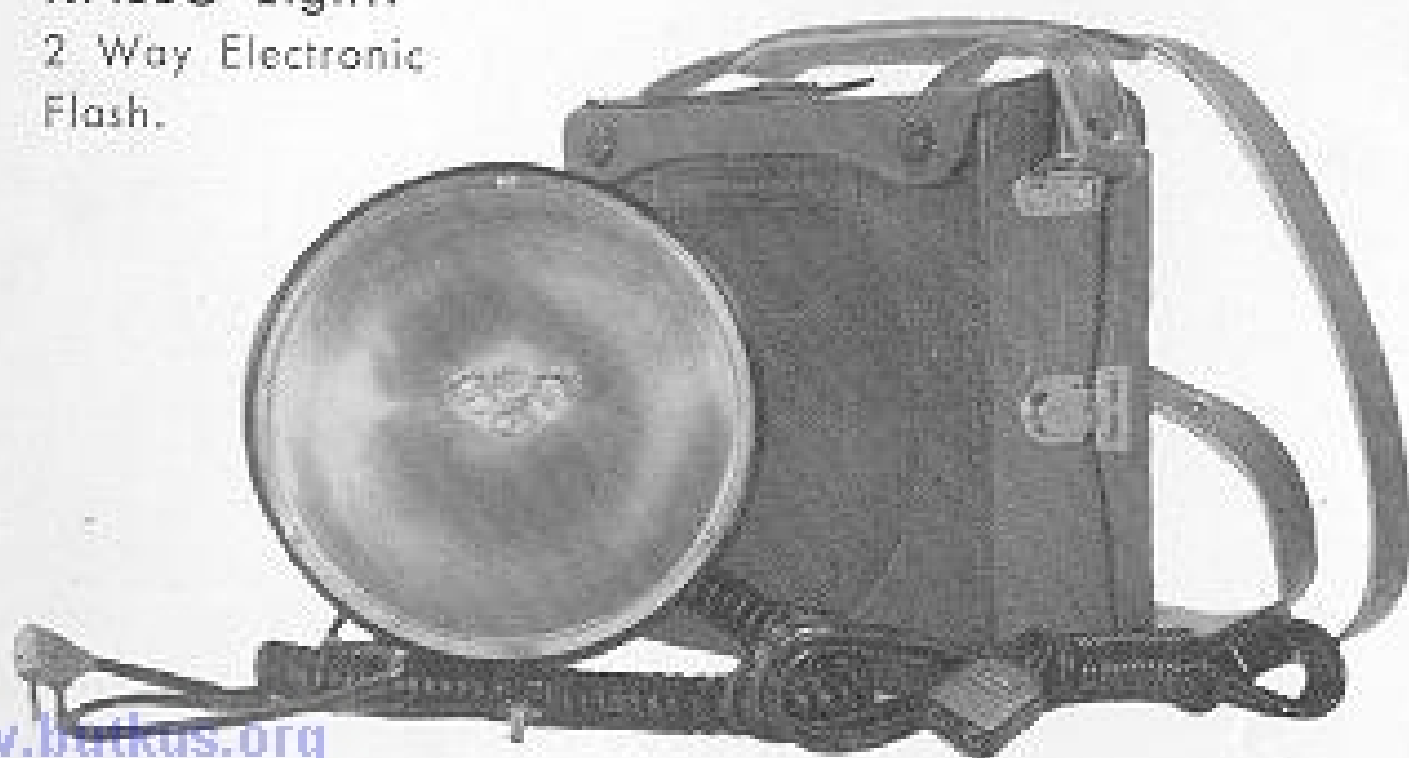


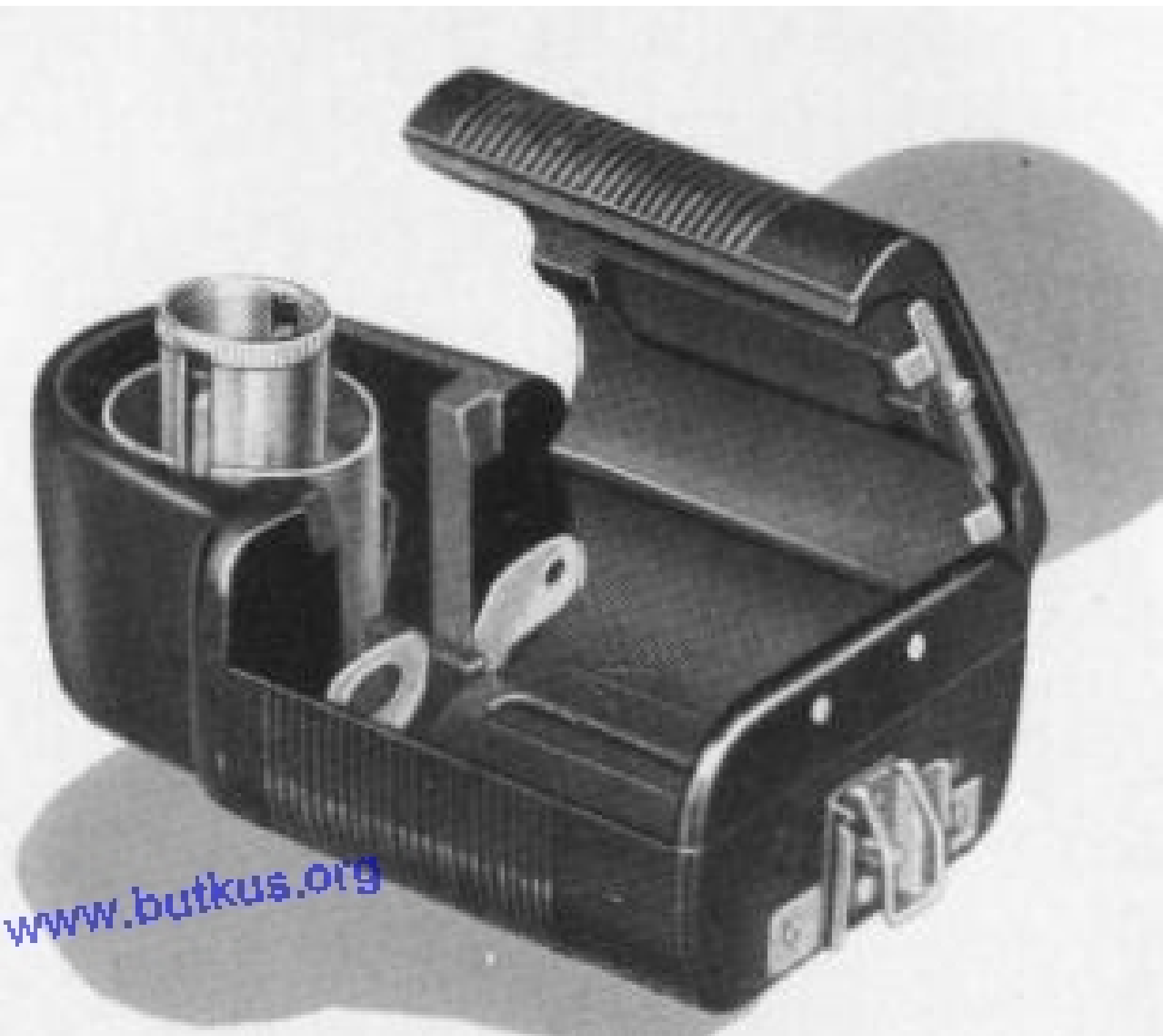
www.burkus.org

KALLO Pocket Flash Unit.



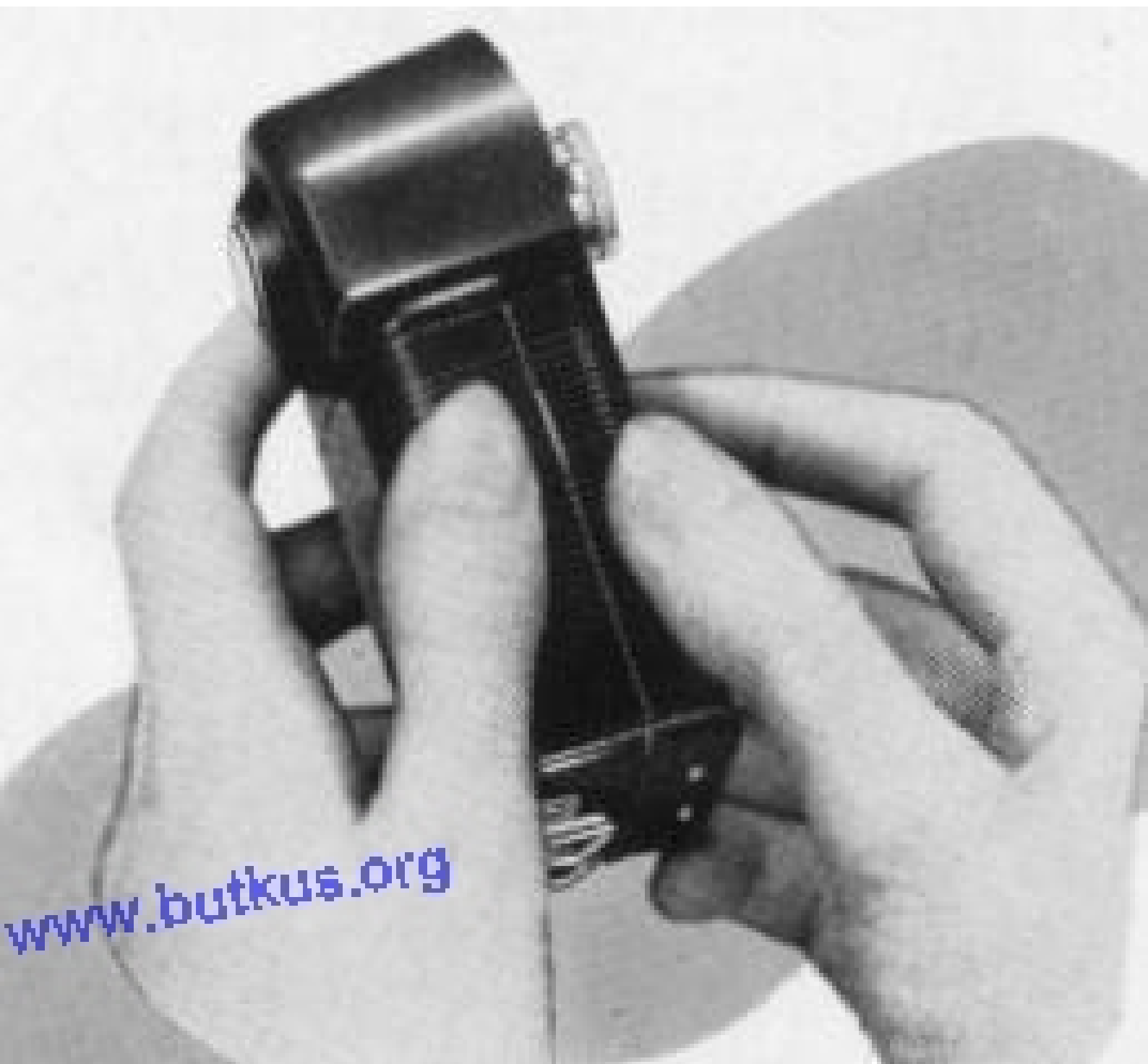
KALLO Light.
2 Way Electronic
Flash.







www.butkus.org

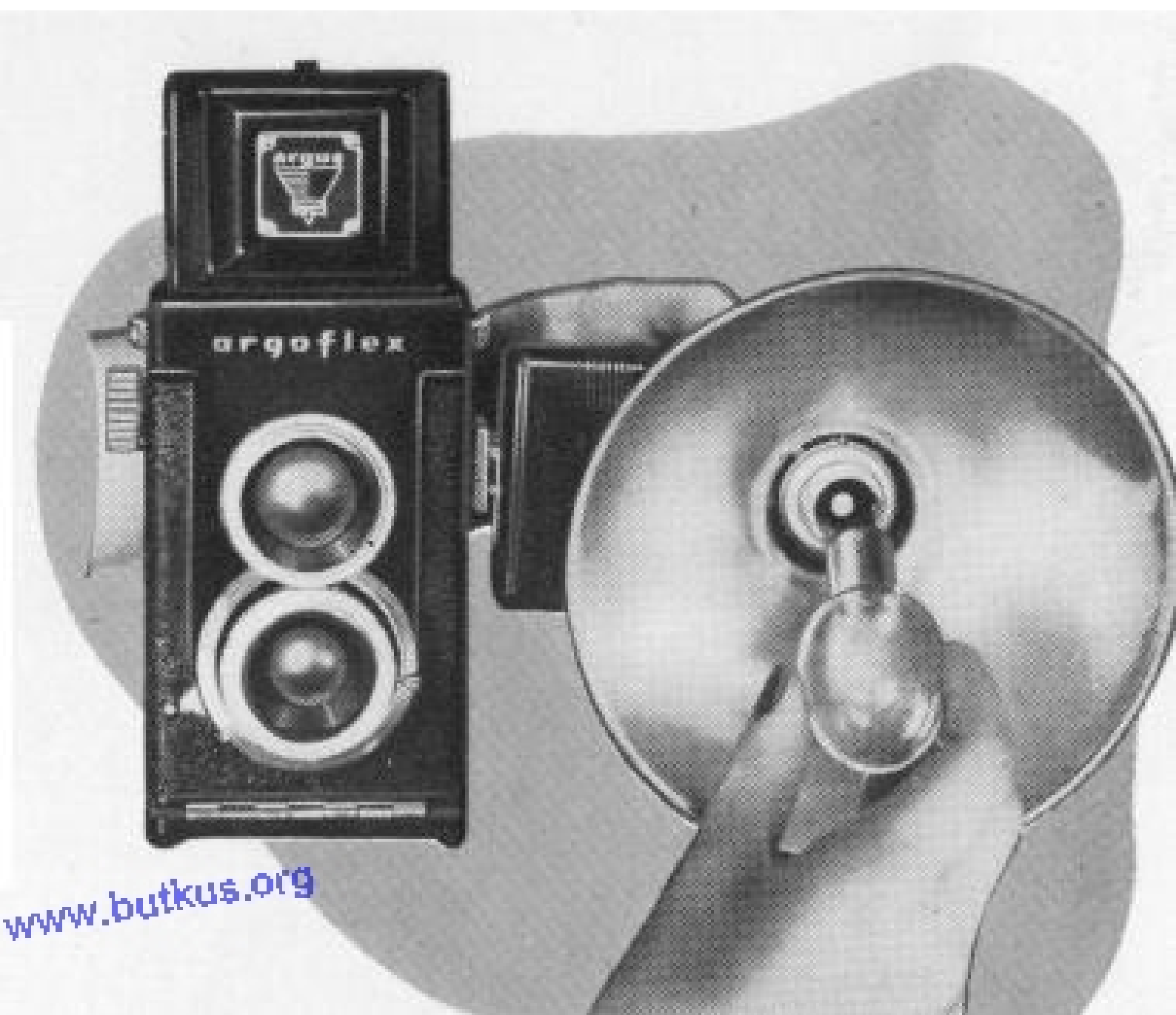




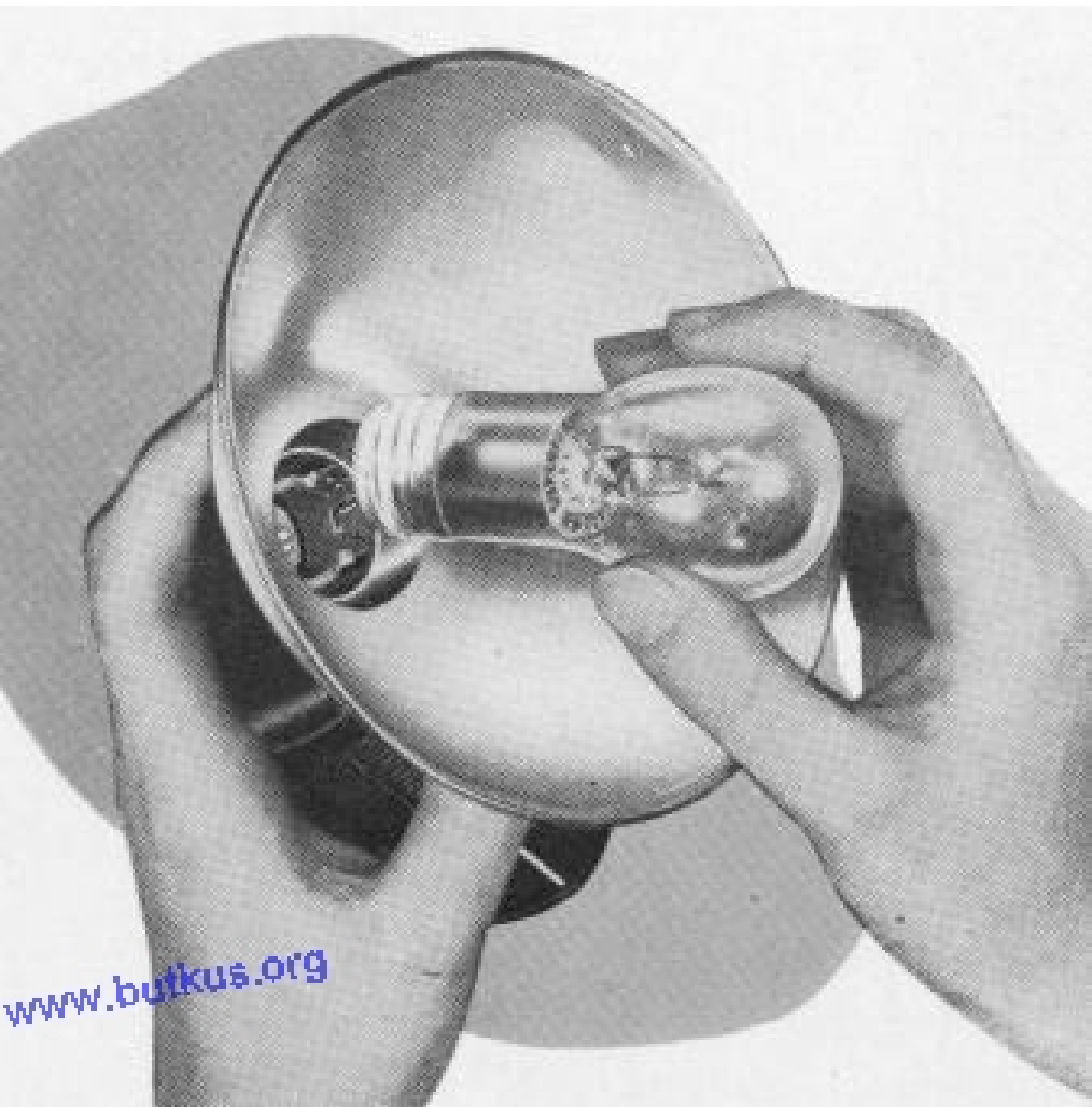


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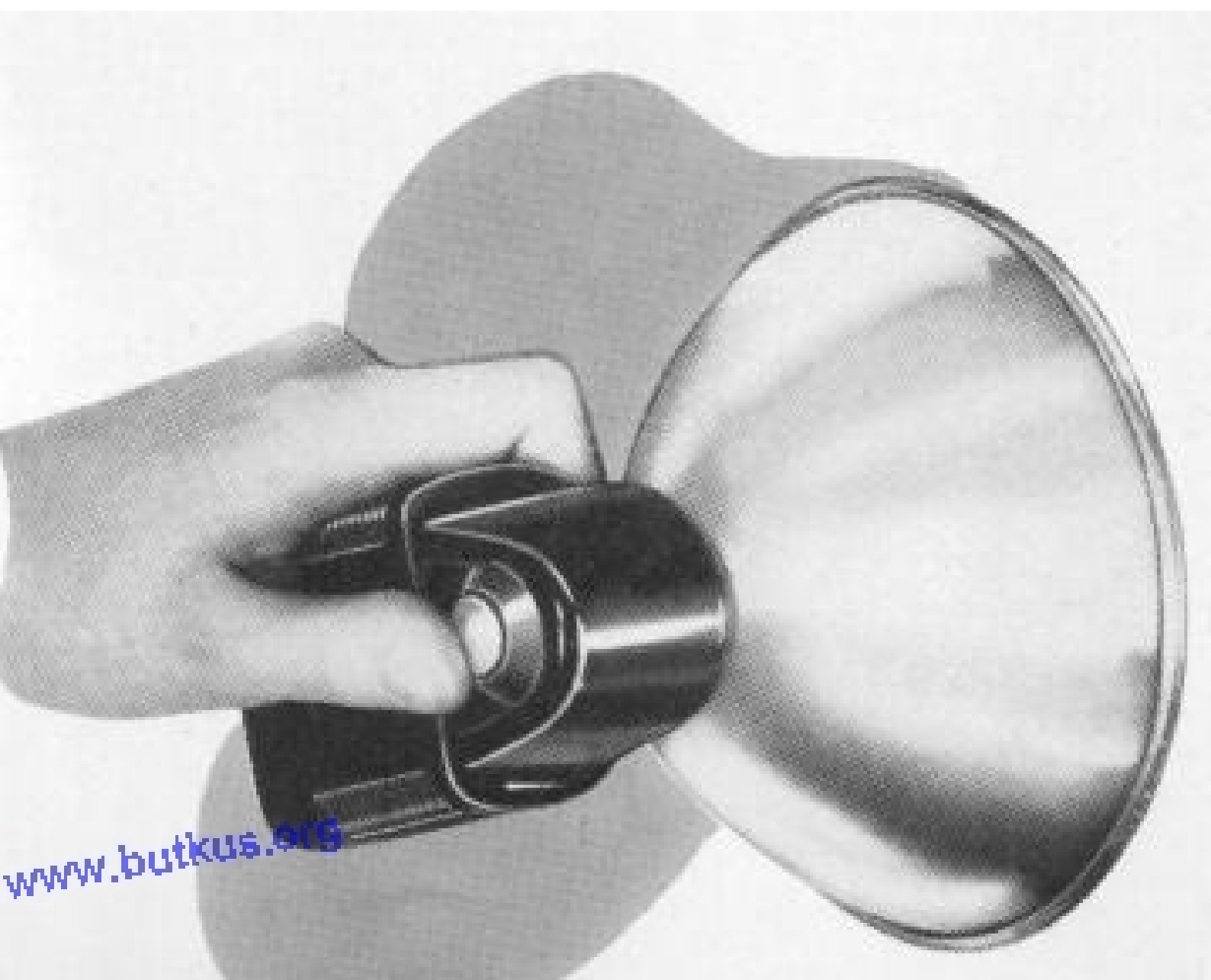




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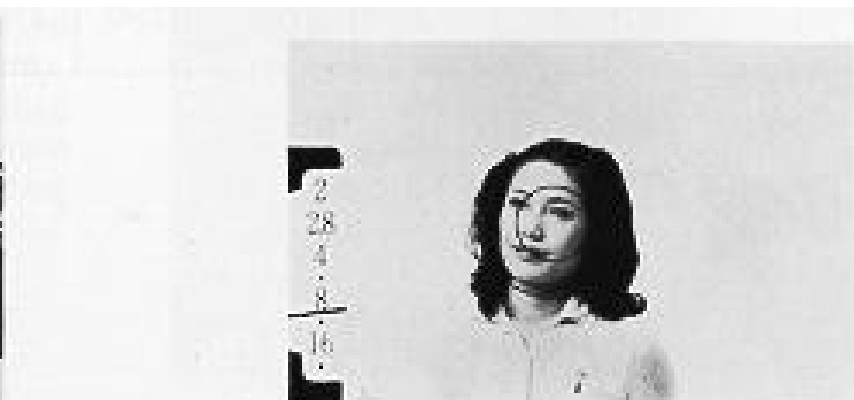
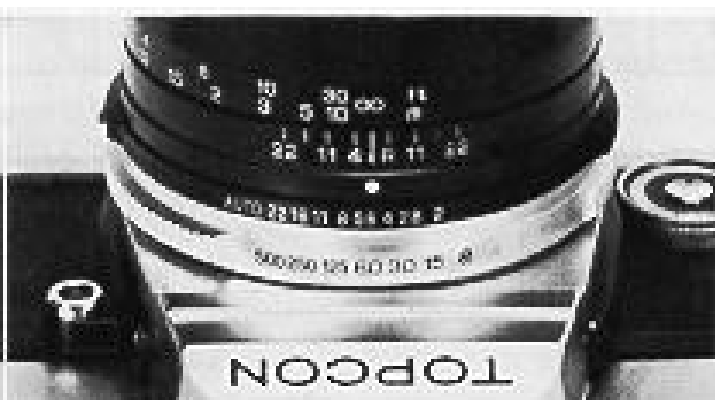


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Aperture
(F) Number

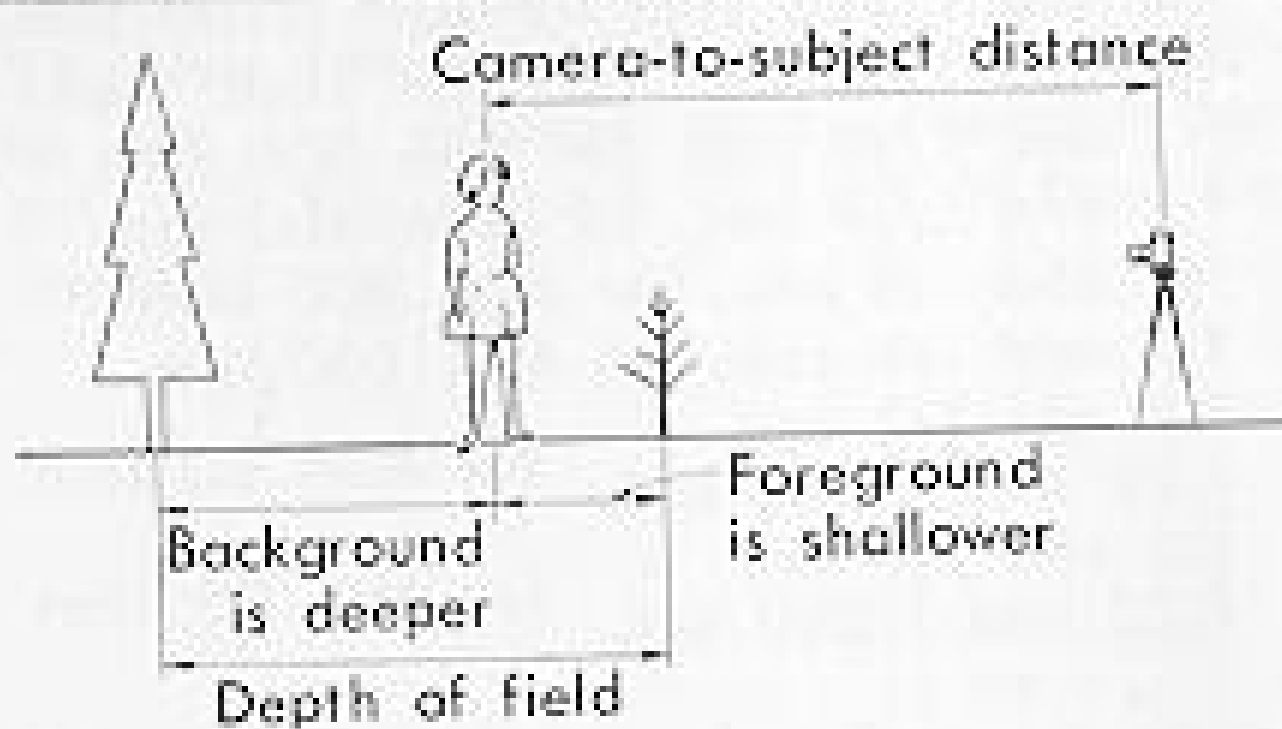
2 2.8 4 5.6 8 11 16 22

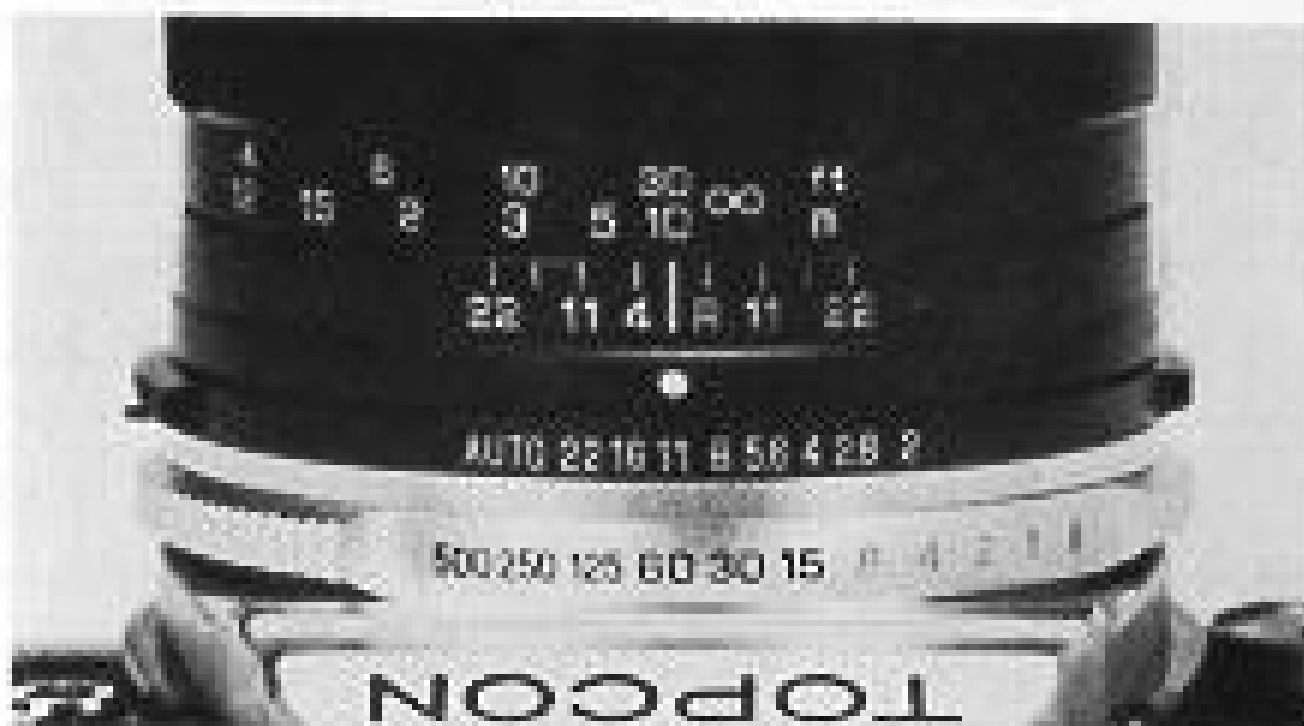
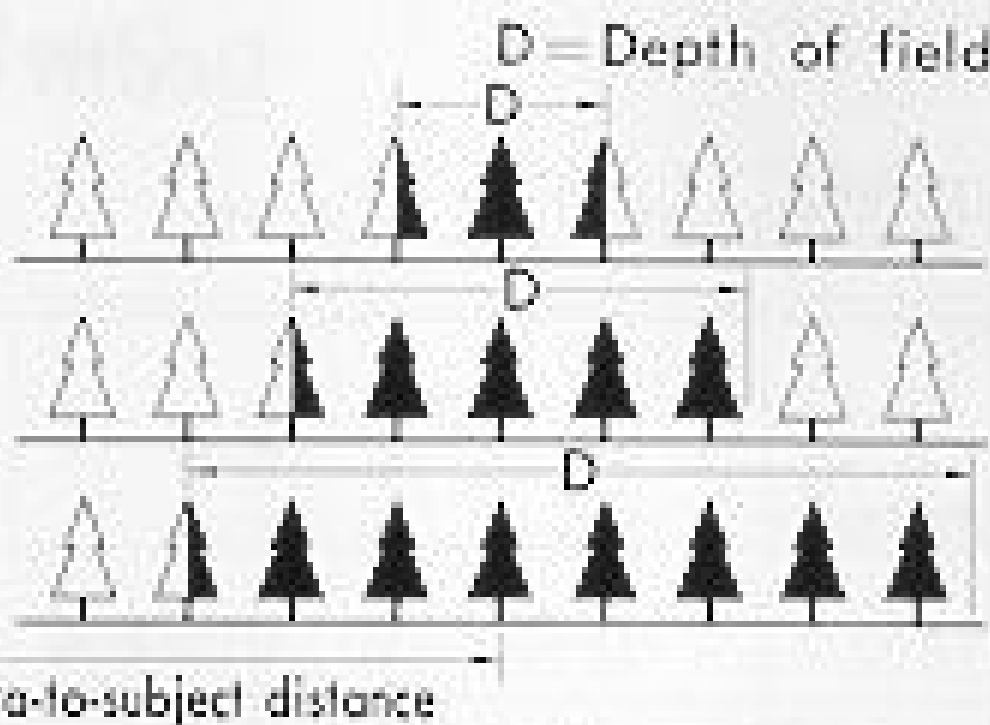
Exposure
Ratio

$\frac{1}{4}$ $\frac{1}{2}$ 1 2 4 8 15 30



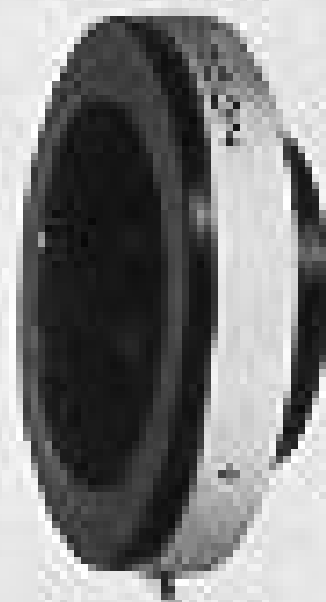




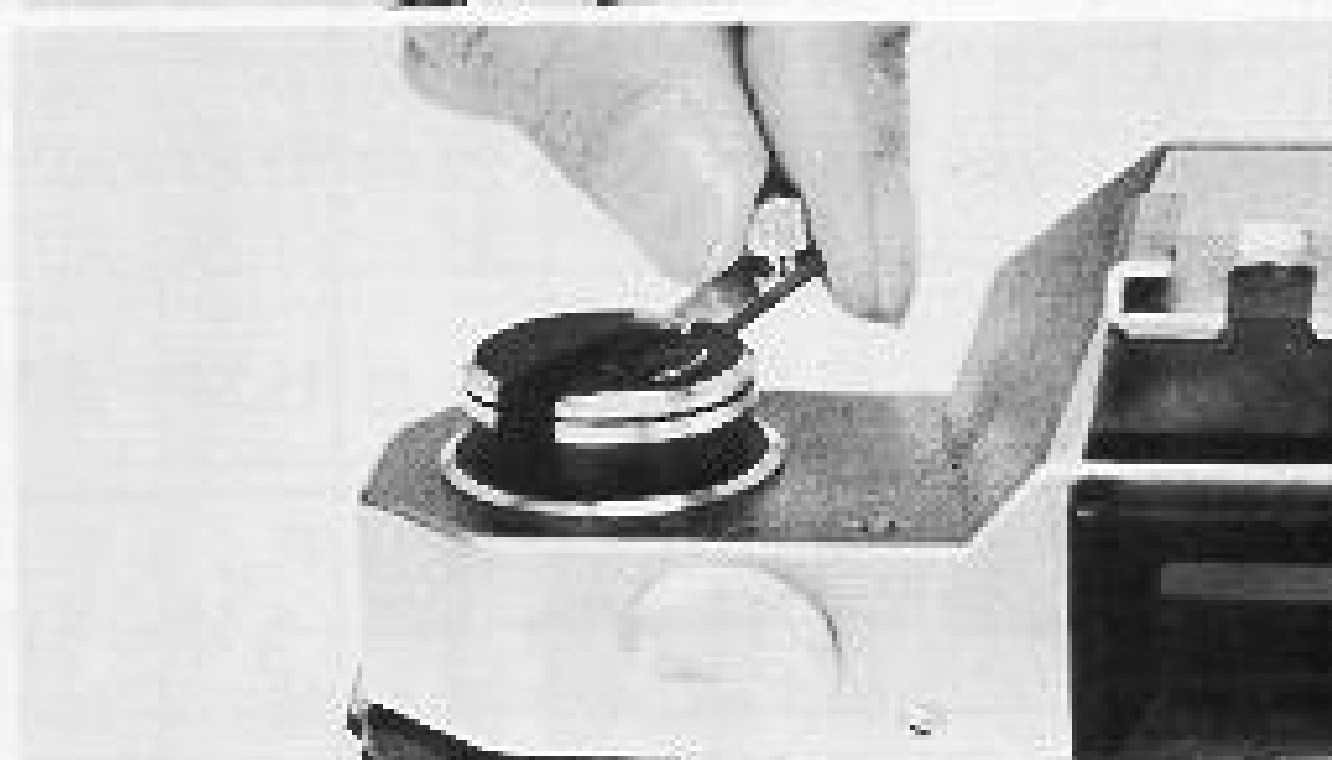
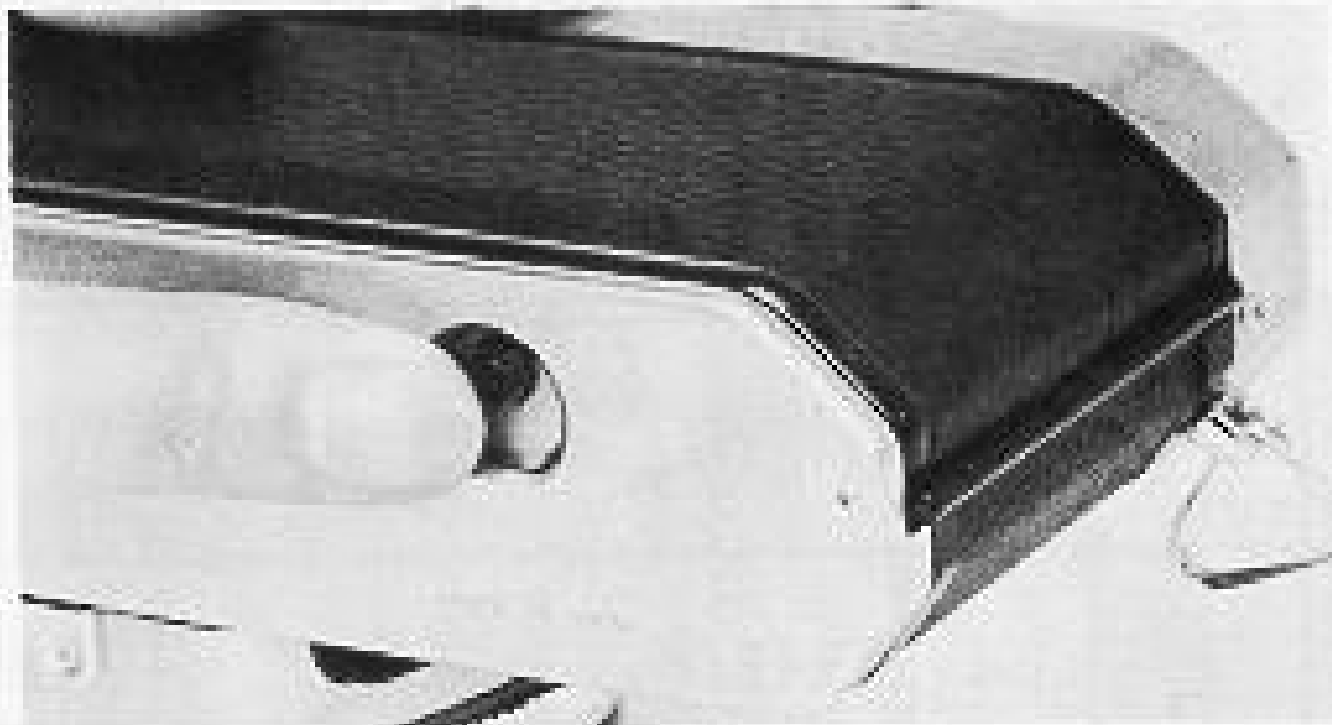


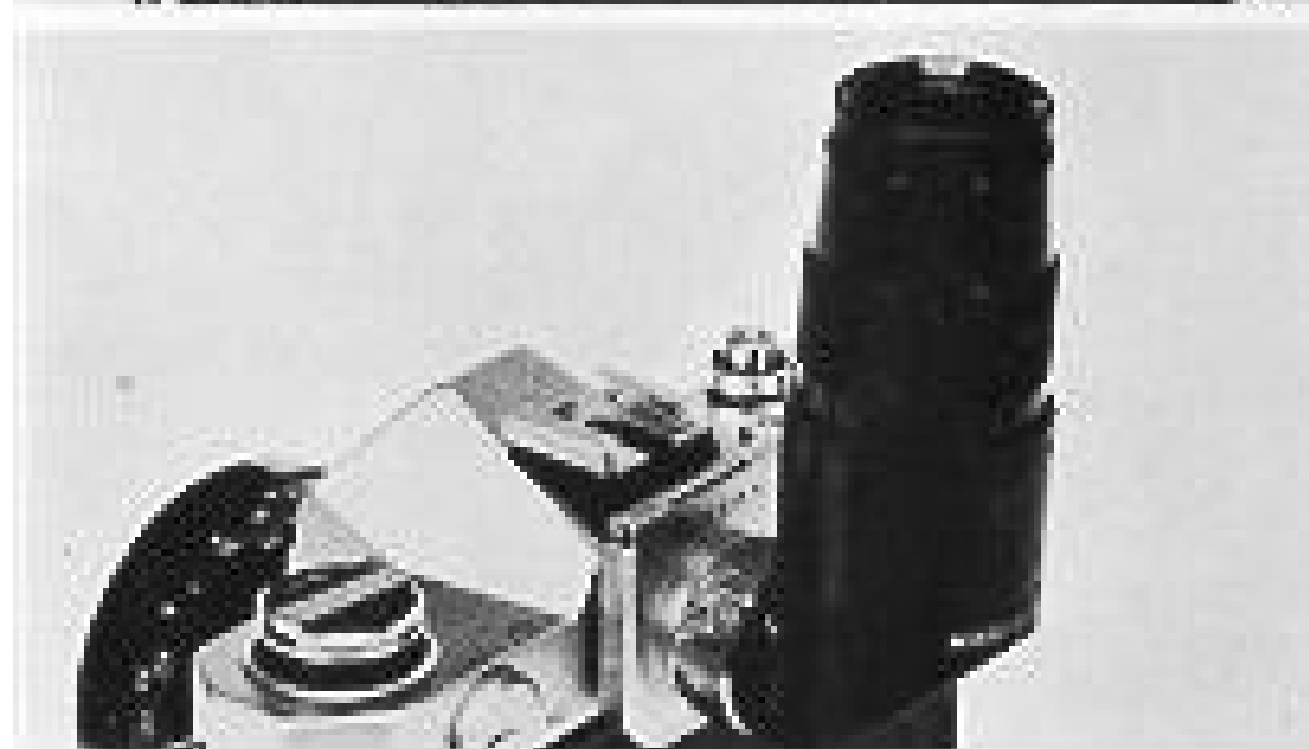


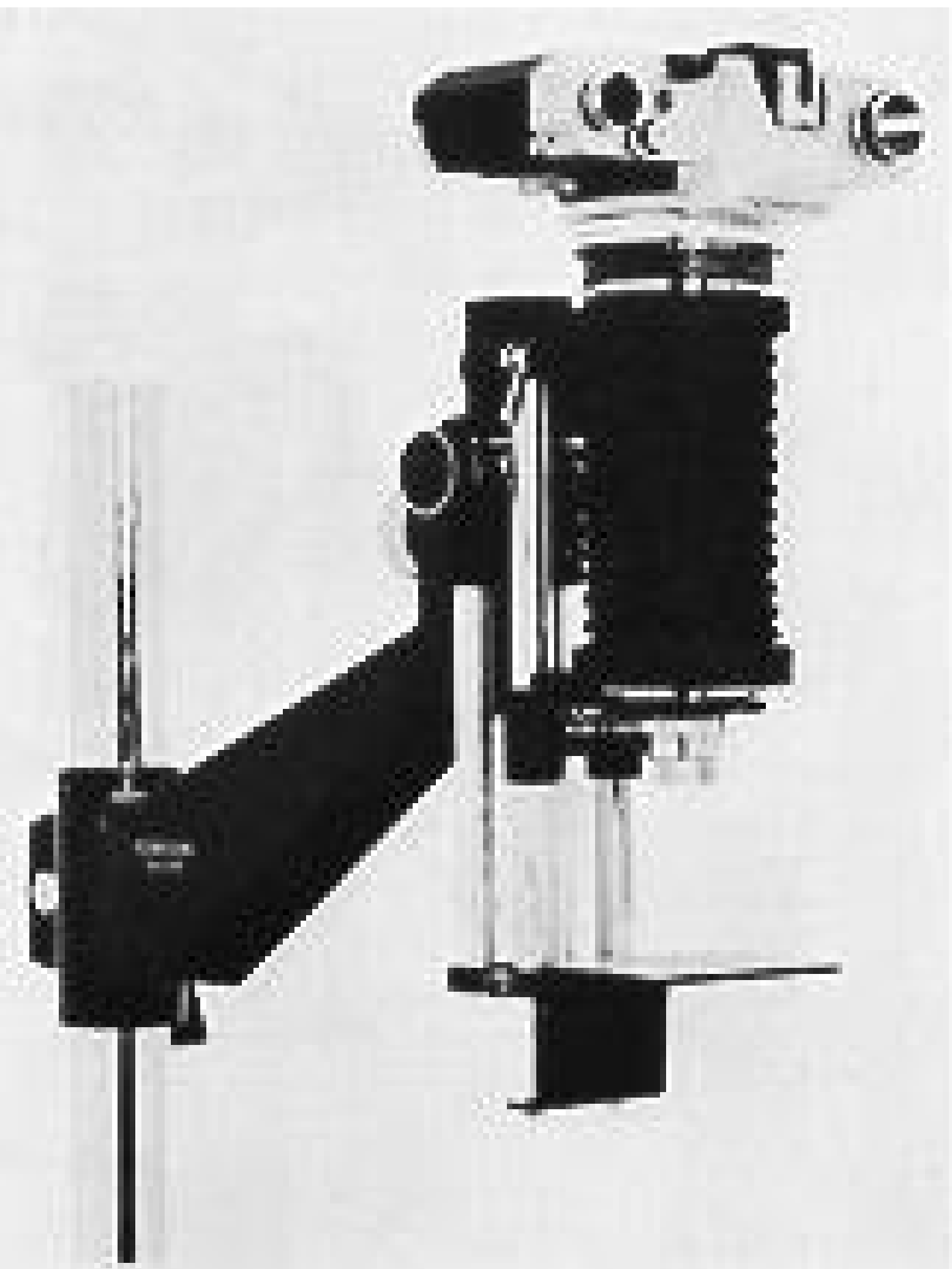










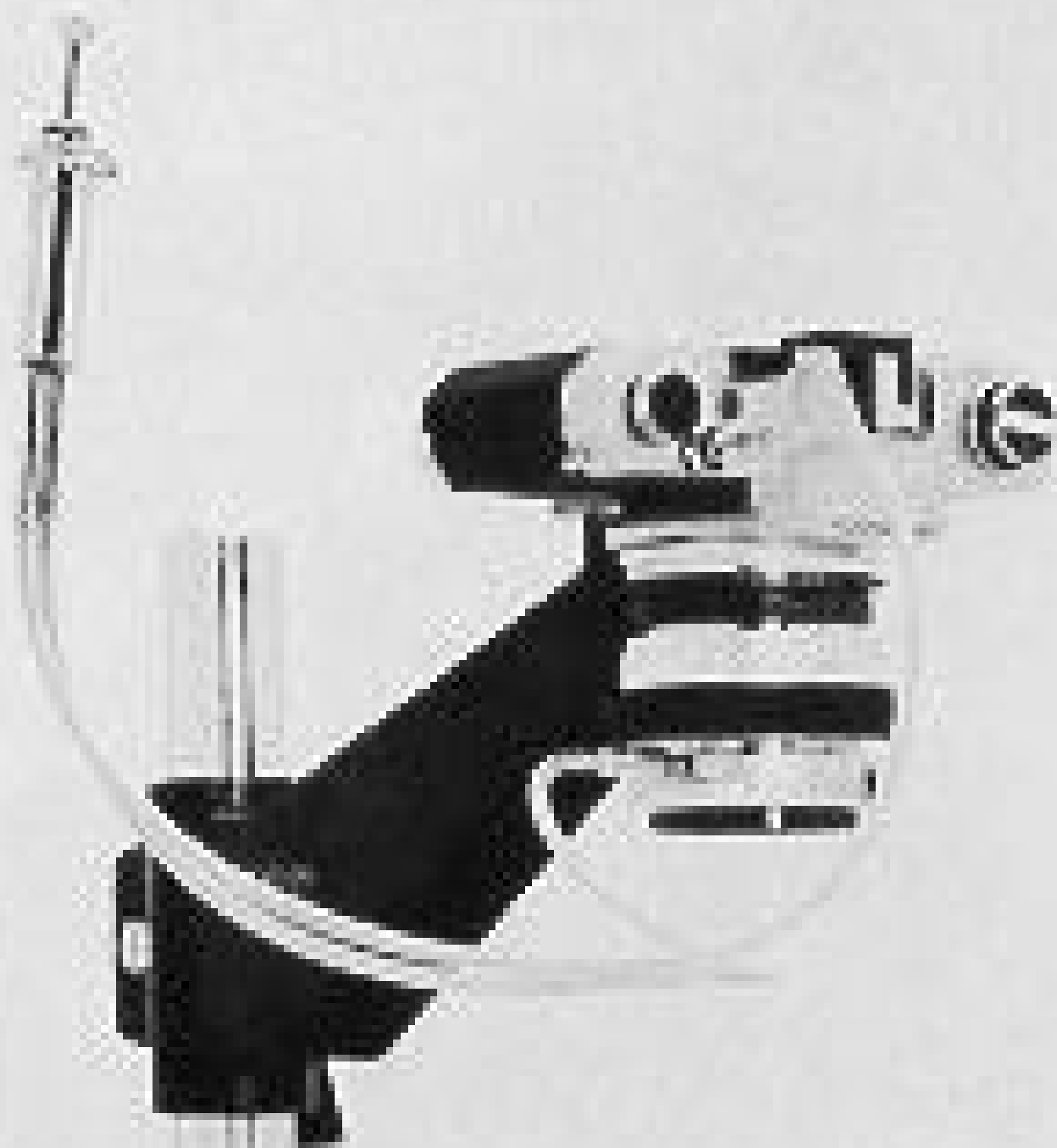


the









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Distance scales







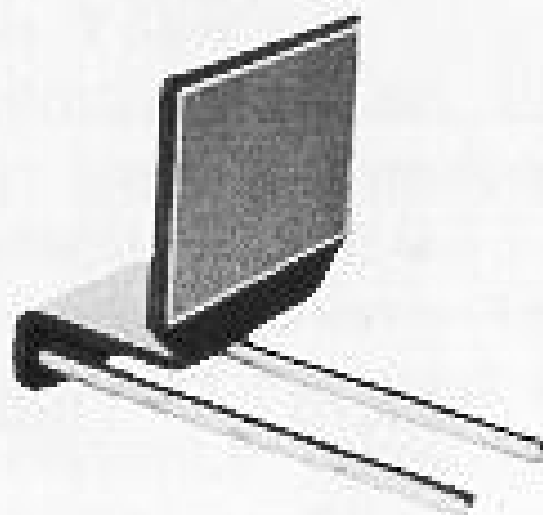
www.btlk.org Auto Tele Converter with UV Topcor f/4 135mm



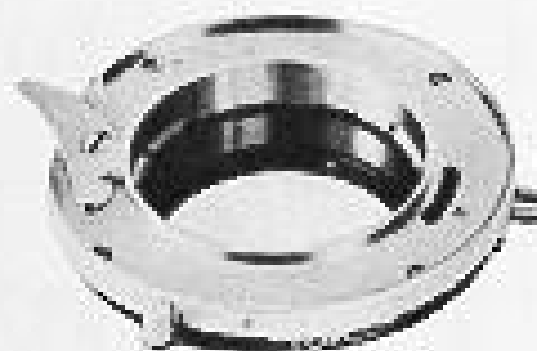
f



i



g



j



h



k



Infrared index



www.bellandson.com