

No. 627,027.

Patented June 13, 1899.

P. & E. F. WALLIS.
PHOTOGRAPHIC SHUTTER.

(Application filed Mar. 27, 1899.)

(No Model.)

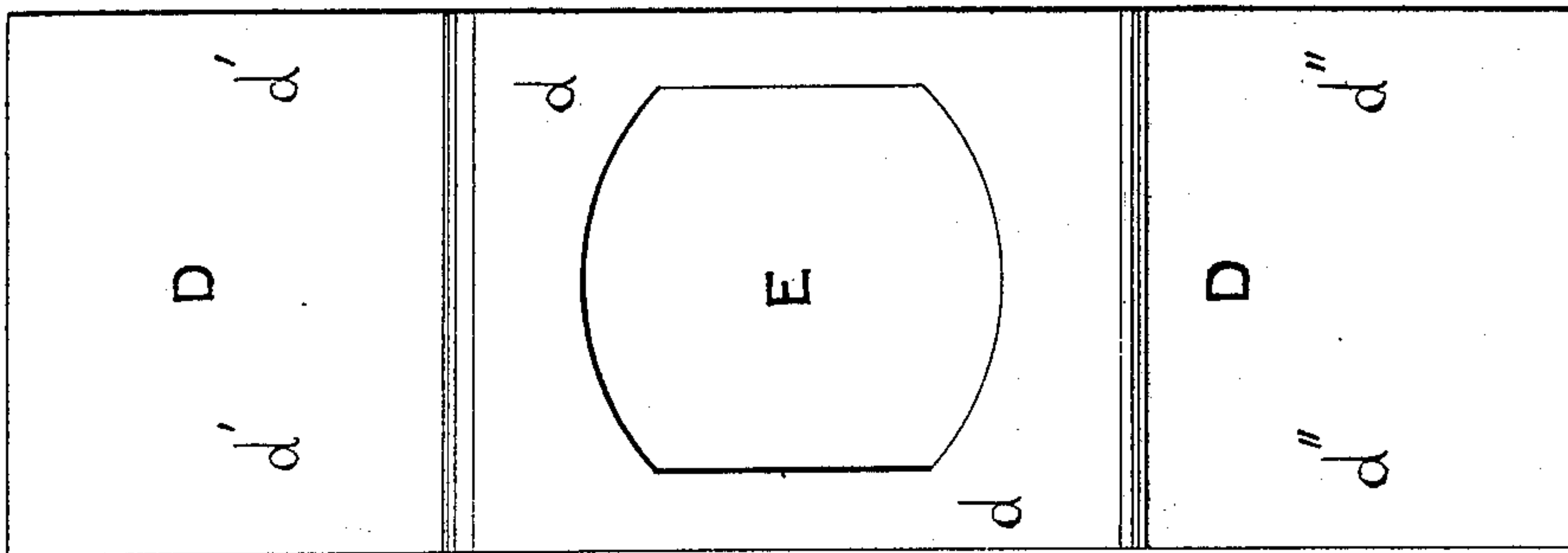


FIG. 9.

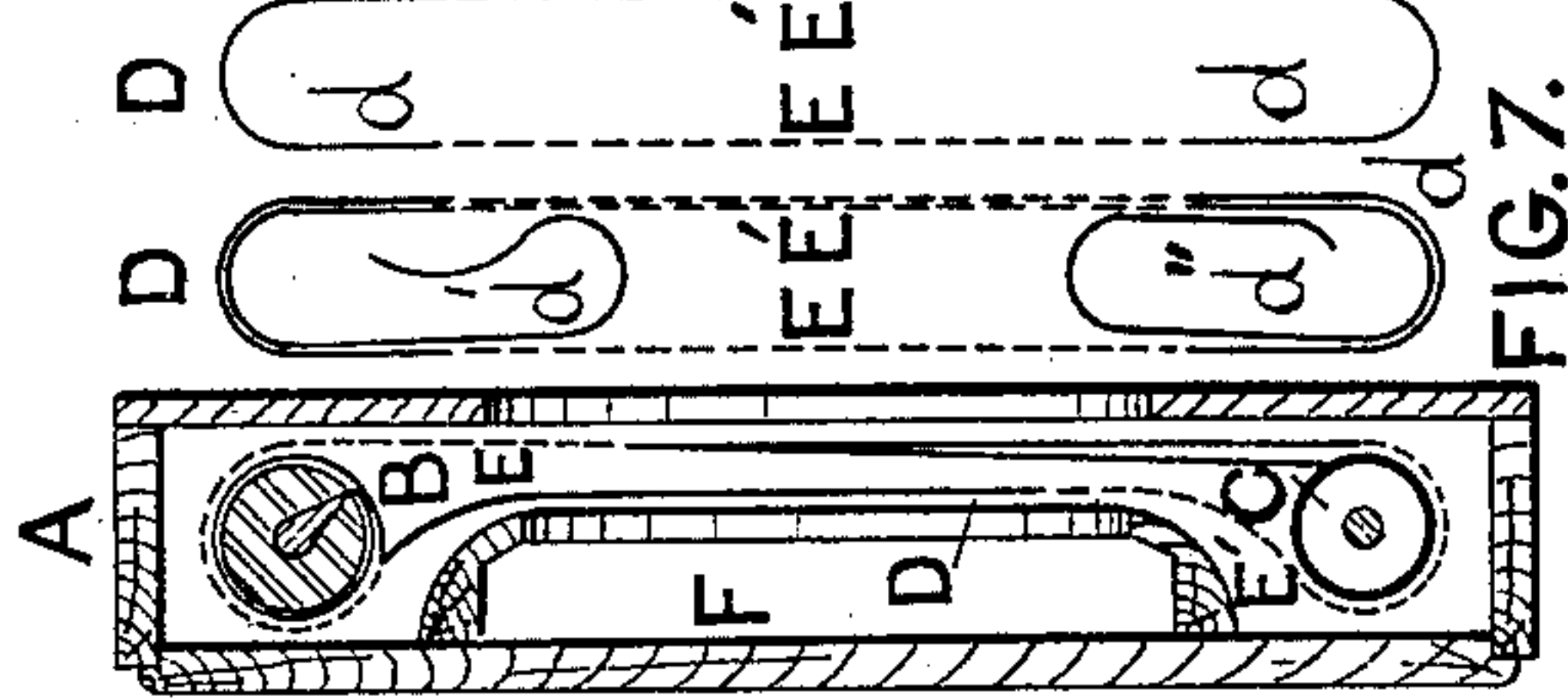


FIG. 7.

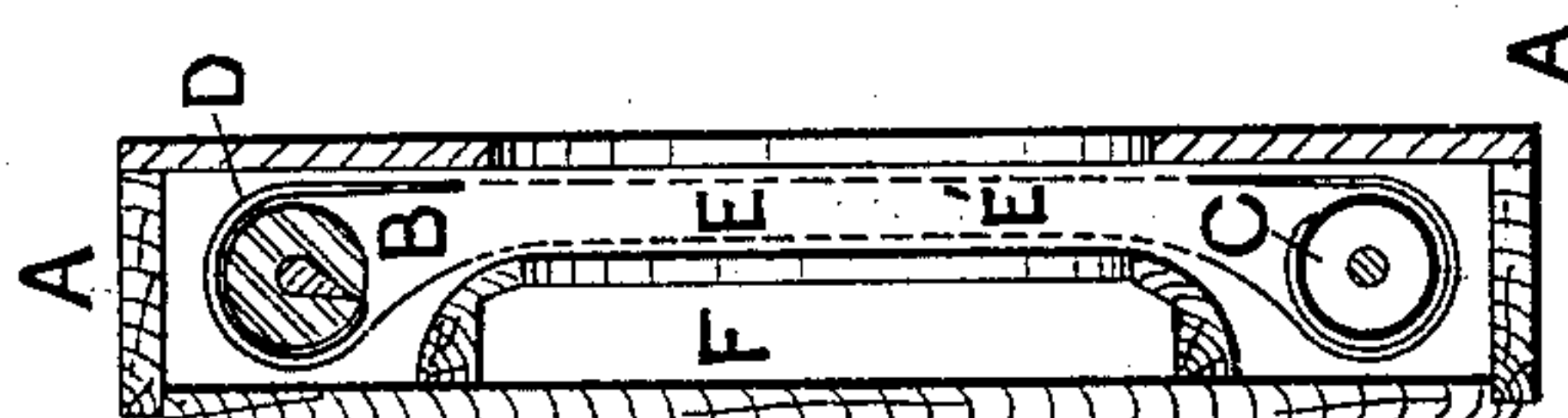


FIG. 6.

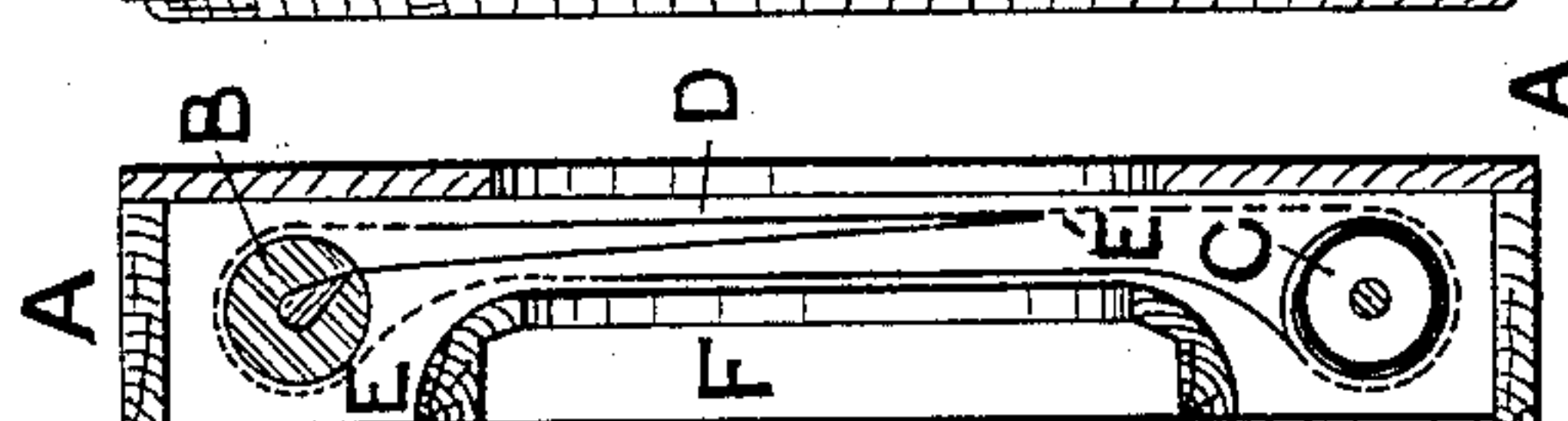


FIG. 5.

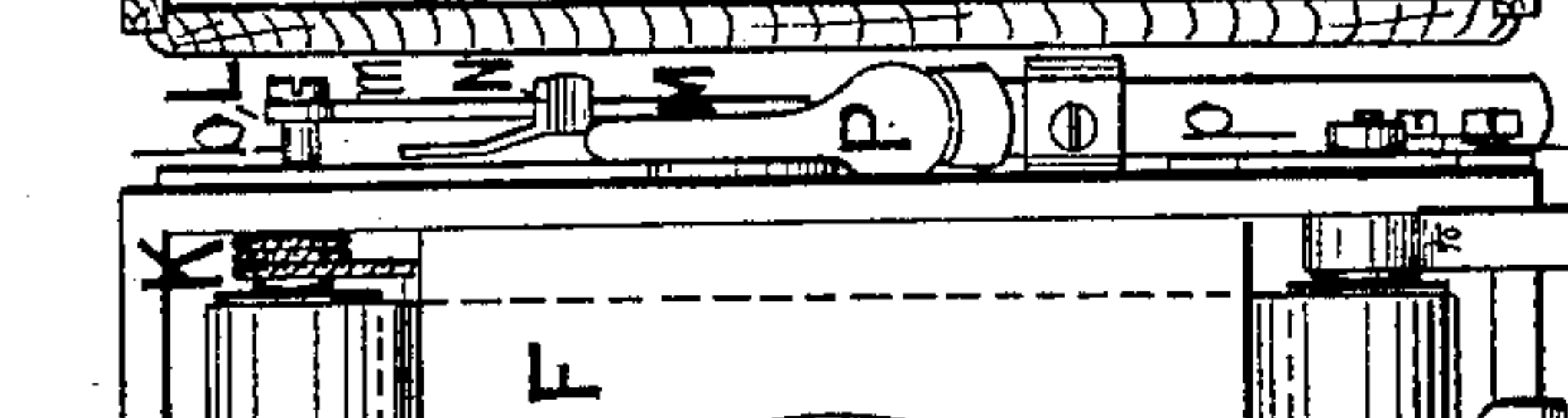


FIG. 4.

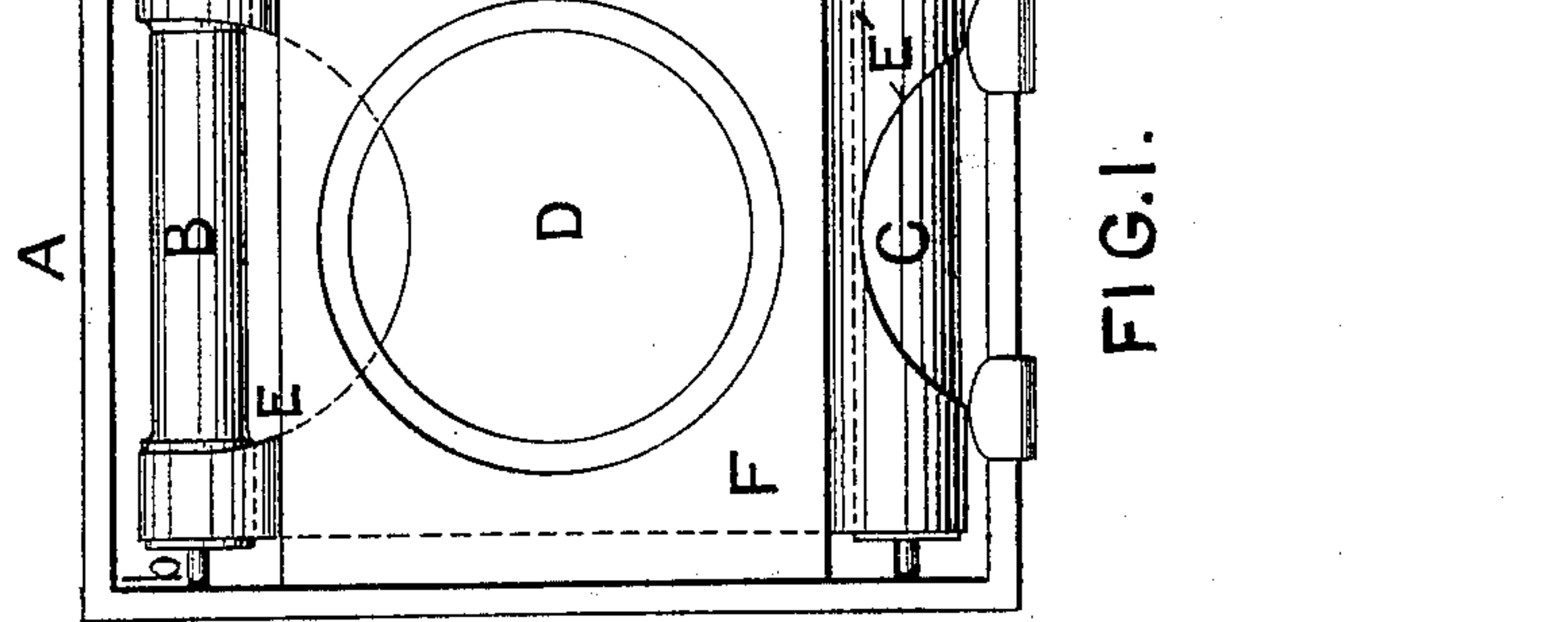


FIG. 1.

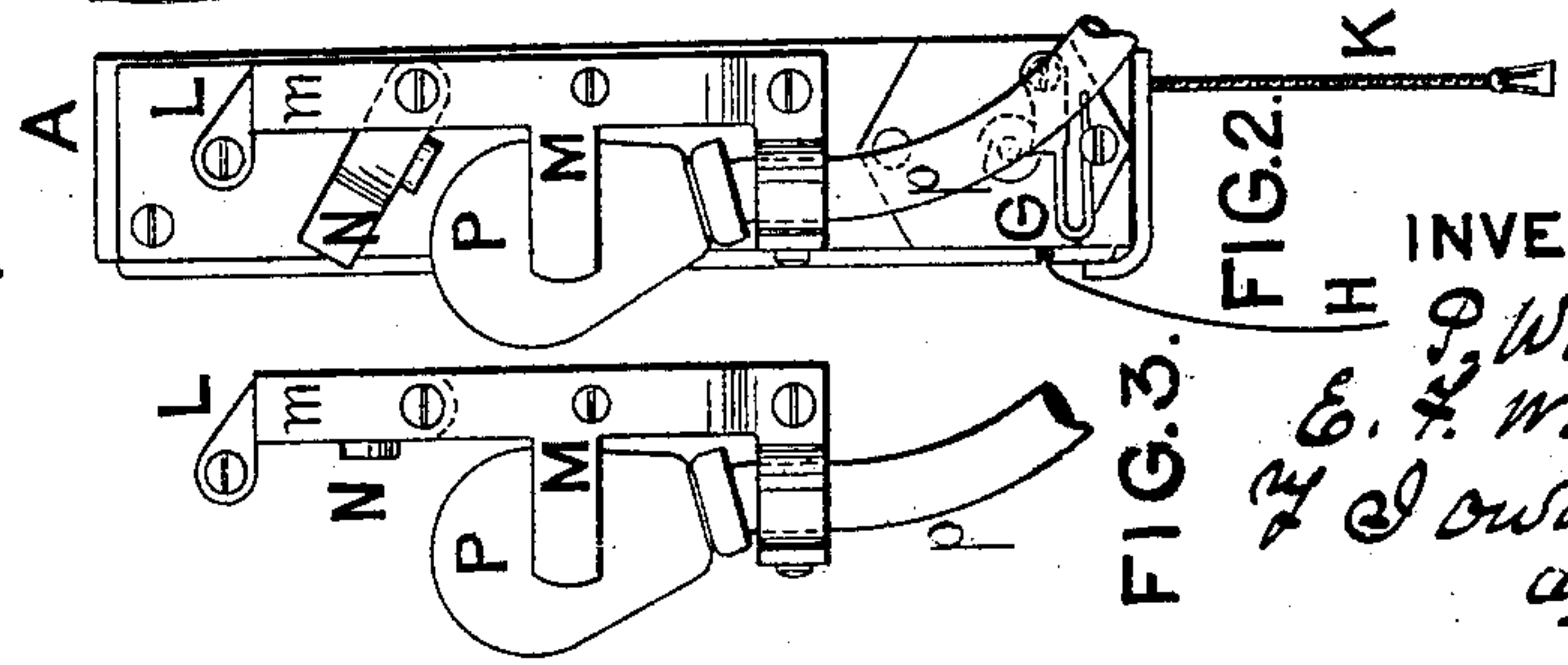


FIG. 3.

FIG. 2.

WITNESSES.
E. Howard.
J. Prates

INVENTORS.
P. & E. F. Wallis.
J. Owsen O'Brien
att'y.

UNITED STATES PATENT OFFICE.

PERCY WALLIS AND EUSTACE FREDERIC WALLIS, OF KETTERING,
ENGLAND.

PHOTOGRAPHIC SHUTTER.

SPECIFICATION forming part of Letters Patent No. 627,027, dated June 13, 1899.

Application filed March 27, 1899. Serial No. 710,673. (No model.)

To all whom it may concern:

Be it known that we, PERCY WALLIS and EUSTACE FREDERIC WALLIS, subjects of the Queen of Great Britain, residing at Kettering, in the county of Northampton, England, have invented certain new and useful Improvements in Photographic Shutters, of which the following is a specification.

This invention relates to photographic shutters of the roller-blind type and is designed to obtain a very much quicker traverse of the blinds across the lens or a quicker closing of the shutter after being opened than was possible with a blind closing or traversing in one direction only.

By this invention we obtain a blind traversing in two directions across the lens, which greatly increases the rapidity of exposure.

It consists, essentially, in constructing the blind of a continuous band of light-tight material running over two rollers, to which ends or tabs on the blinds are securely attached, with two apertures, one of which passes across the other as the blinds are drawn from one roller to the other consequent upon the movement of the rollers, and in mechanism for drawing up and releasing the blinds. It will be fully described with reference to the accompanying drawings.

Figure 1 is a front elevation of the shutter with the casing removed; Fig. 2, an end elevation showing releasing mechanism in position for "instantaneous" exposure; Fig. 3, an end elevation of releasing mechanism when in position for "time" exposure; Fig. 4, a transverse section showing position of the roller-blind when the shutter is closed after exposure; Fig. 5, a transverse section showing position of the roller-blind when the shutter is open during exposure; Fig. 6, a transverse section showing position of the roller-blind when the shutter is closed before exposure; Fig. 7, a transverse section showing position of blind before applying to the rollers; Fig. 8, a transverse section showing shape of blind when extended; Fig. 9, a front elevation of blind extended before being attached to the rollers.

The frame or box A and the rollers B and C are of any ordinary shape or construction

employed for roller-blinds of photographic shutters.

The blind D is made of three parts or portions, a central portion d , which is in the form of an endless or continuous loop, and two end portions d' and d'' . The central or endless part d of the blind is formed with two apertures E and E', and the end part d' is attached to the winding-on roller B and the other end part to the spring-roller C.

The blind before being secured to the rollers is turned with the end portions d' d'' inside loop or endless part d , as shown in Fig. 7. The rollers B and C are also placed inside the loop d and the ends d' d'' secured to them by a suitable wedge or otherwise.

The two sides of the looped portion d of the blind D, which are at the opposite sides of the rollers, are made to travel close to each other by curved guide F, inserted in the frame or box A, and when in motion the aperture E is traveling in one direction, while the aperture E' is traveling in the reverse direction.

The spring-roller C is held in tension by the pawl G in the usual way, and it is rotated to increase the tension of the spring by a graduated tape H, wound around one end. The winding-on roller is rotated to wind the blind upon it by the cord K, wound around one end of it.

The blind D is held wound upon the roller B against the pull of the spring-roller C by a catch L on the end of the roller-spindle b , placed outside of the box or frame A, which catch L engages with the end m of the spring-lever M. The spring-lever M is moved out of the path of the catch L by a pneumatic bulb P at the end of a tube p to release the blind D. To the lever M is pivoted a second lever N, which when in the same plane as M, as shown in Figs. 1 and 3, stops the catch L when the blind has traveled half its distance and reached the position shown in Fig. 5, with both apertures d' d'' opposite one another, exposing the lens of the camera until the bulb P is deflated, when the levers M N spring back to the position shown in Fig. 1, thus giving what is known as a "time" exposure. For an instantaneous exposure without stoppage

of the blind in its travel the second lever N is moved out of the path of travel of the catch L into the position shown in Fig. 3.

In operation as the blind D travels either
5 when being wound onto the roller B or from the roller B to the spring-roller C the apertures E E' therein move simultaneously in opposite directions, thus uncovering and again covering the lens in half the time that is the
10 case where a blind with a single aperture is employed in the ordinary way.

What we claim as our invention, and desire to protect by Letters Patent, is—

1. A photographic shutter comprising in its
15 construction the box A the rollers B and C and a blind D with a central endless looped portion d provided with two apertures E E' two end portions d' d'' by which it is attached to the rollers and a guide F to bring the two
20 portions of the blind together substantially as described.

2. In a photographic shutter the combination with the box A the winding-on roller B and spring-roller C of the endless blind d provided with two openings E E' and the end
25 vided with two openings E E' and the end

portions d' d'' for attaching to the rollers B and C substantially as described.

3. In a photographic shutter the combination with the box A, the winding-on roller B and spring-roller C of the endless blind d provided with two openings E E' and the end portions d' d'' for attaching to the rollers B and C and the guide F to bring the two sides of the blind together substantially as described. 30

4. In a photographic shutter the combination with the box A, the winding-on roller B and spring-roller C of the endless blind d provided with two openings E E' and the catch L on the roller-spindle b the spring-lever M, pivoted lever N and pneumatic bulb P for
40 moving the levers M and N substantially as described.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

PERCY WALLIS.

EUSTACE FREDERIC WALLIS.

Witnesses:

I. OWDEN O'BRIEN,

R. OVENDALE.