No. 818,543.

PATENTED APR. 24, 1906.

A. LEISTENSCHNEIDER.

EXPOSURE APPLIANCE.

APPLICATION FILED OCT. 26, 1905.

3 SHEETS—SHEET 1.

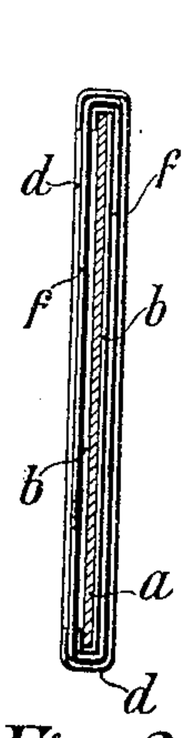

Fig. 2

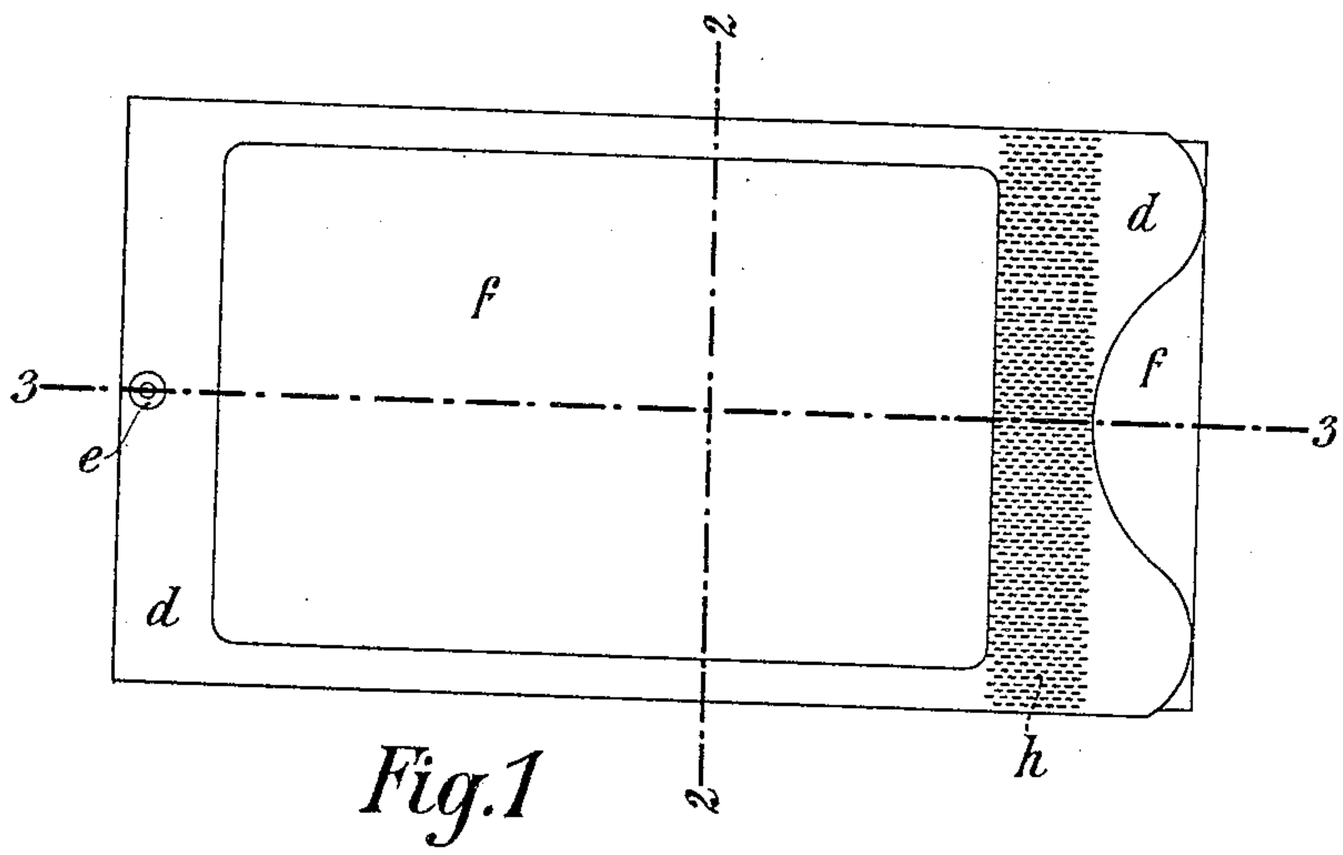

Fig. 1

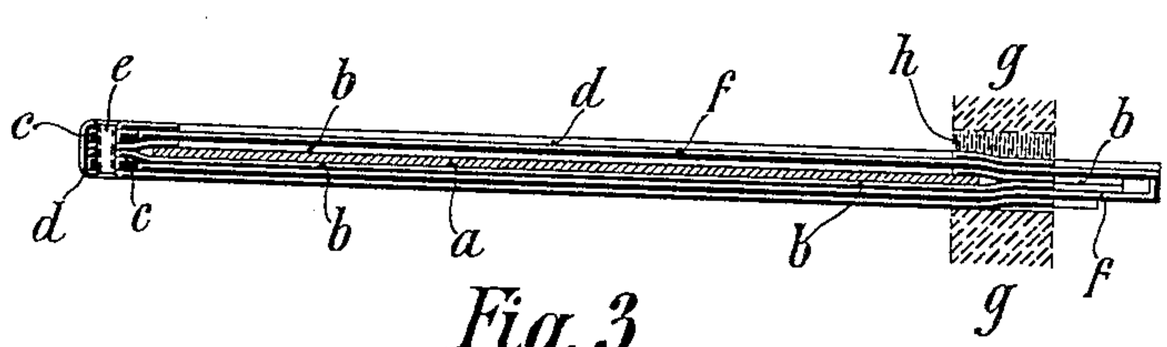

Fig. 3

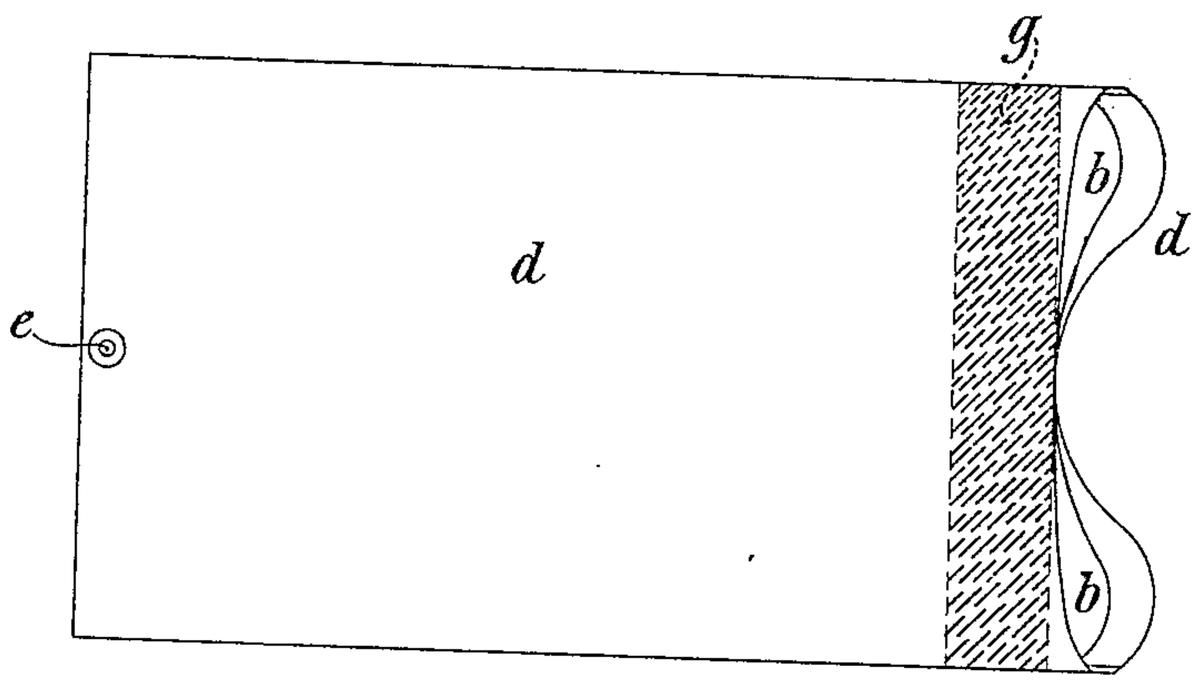

Fig. 4

Witnesses:

Paul Krüger

Fritz Lander

Inventor:

August Leistenschneider

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3 SHEETS—SHEET 2.

Fig. 6

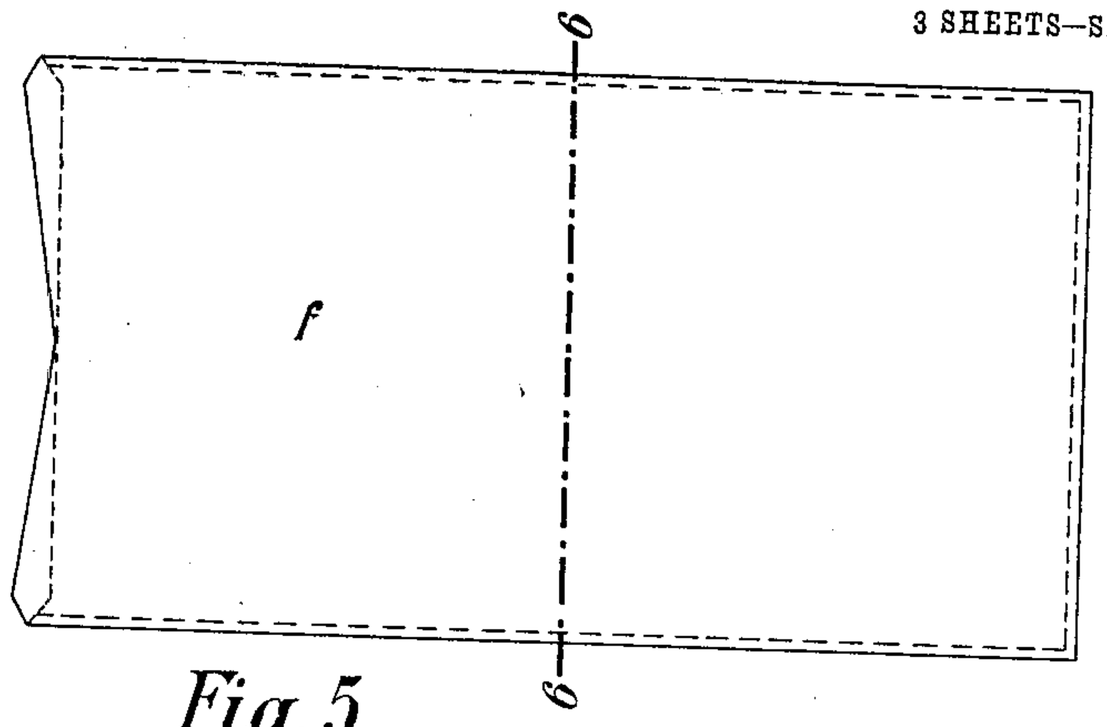

Fig. 5

Fig. 8

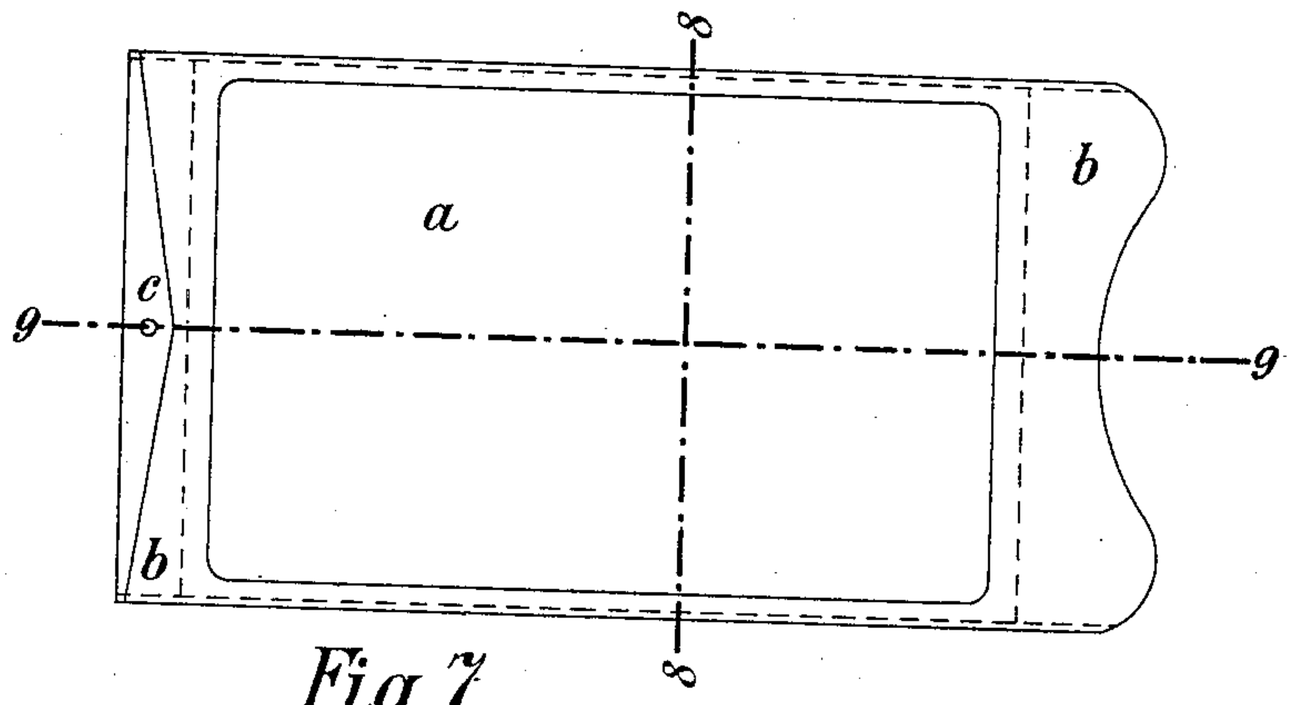

Fig. 7

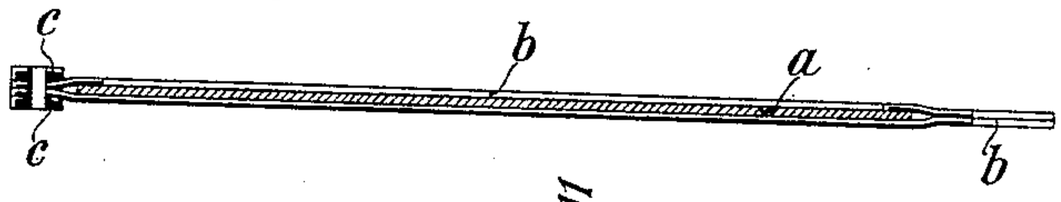

Fig. 9

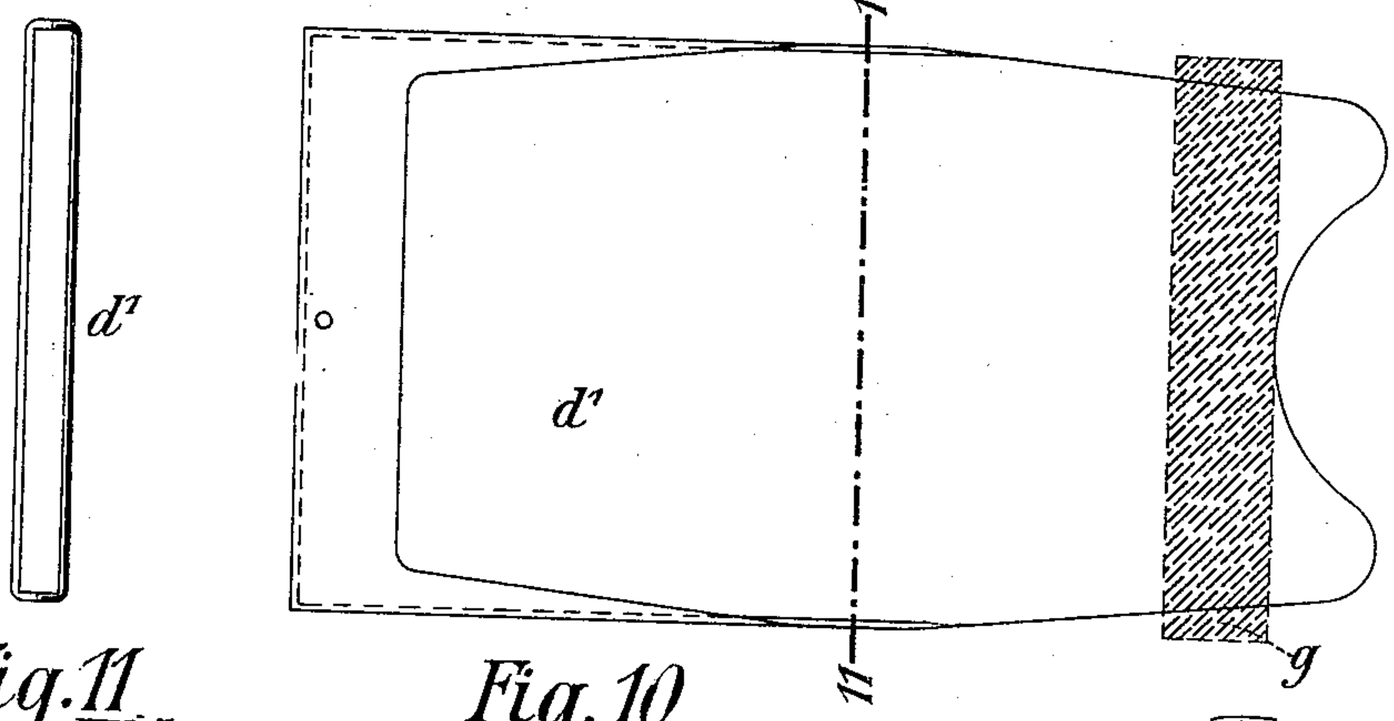

Fig. 11

Fig. 10

Witnesses:
Paul Krüger
Fritz Sander

Inventor:
August Leistenschneider

No. 818,543. PATENTED APR. 24, 1906.

A. LEISTENSCHNEIDER.

EXPOSURE APPLIANCE.

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3 SHEETS—SHEET 3.

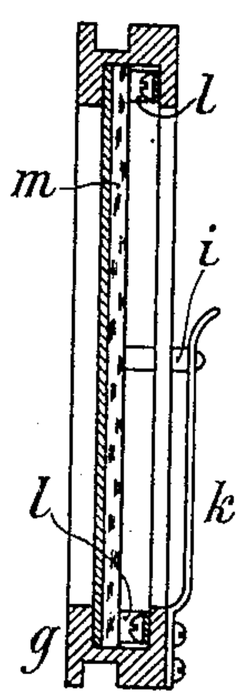

Fig. 13

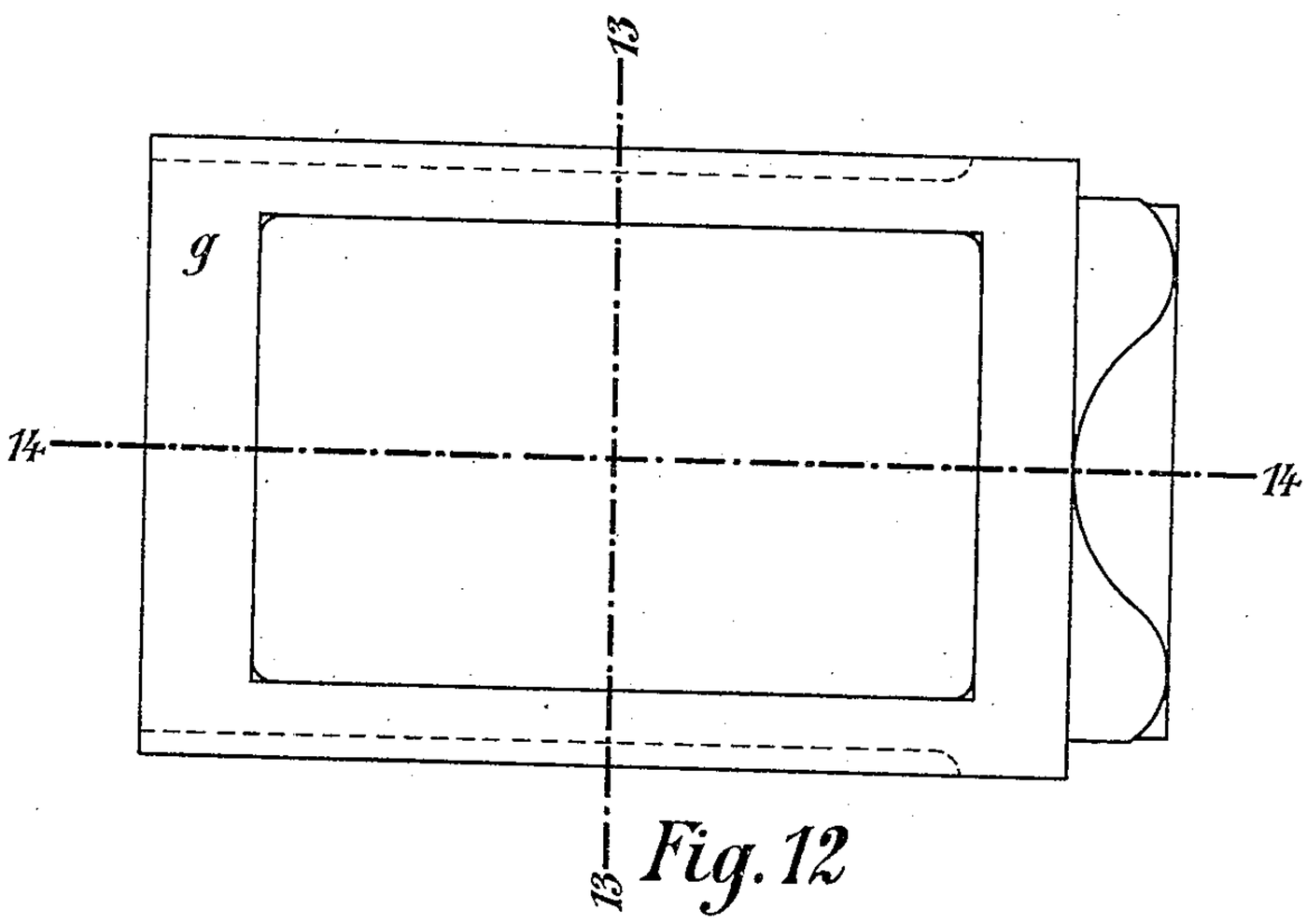

Fig. 12

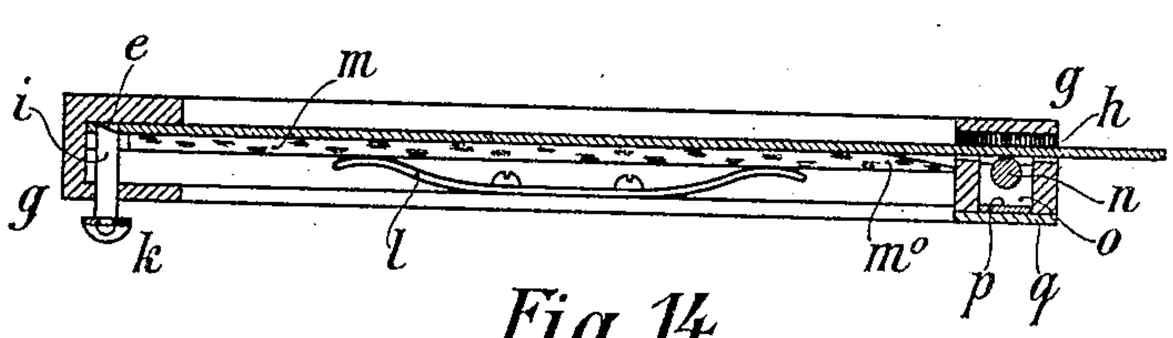

Fig. 14

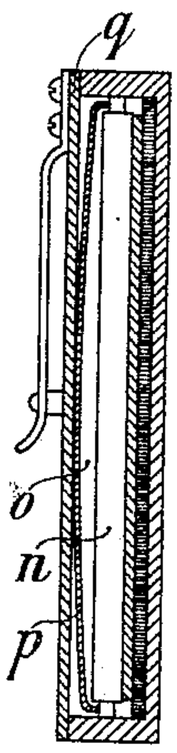

Fig. 16

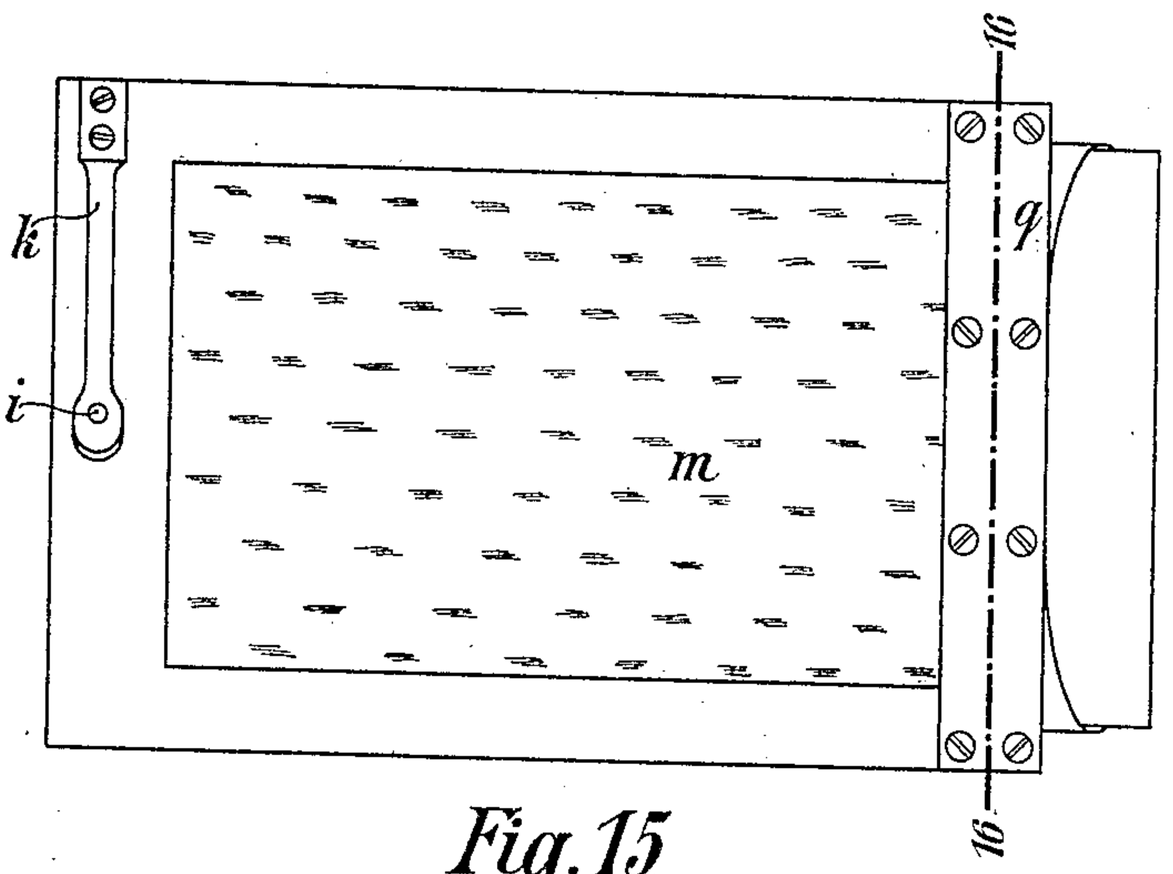

Fig. 15

Witnesses:
Paul Knight
Fritz Sander

Inventor:
August Leistenschneider

UNITED STATES PATENT OFFICE.

AUGUST LEISTENSCHNEIDER, OF JENA, GERMANY, ASSIGNOR TO THE FIRM OF CARL ZEISS, OF JENA, GERMANY.

EXPOSURE APPLIANCE.

No. 818,543. Specification of Letters Patent. Patented April 24, 1906.

Application filed October 26, 1905. Serial No. 284,536.

To all whom it may concern:

Be it known that I, AUGUST LEISTENSCHNEIDER, merchant, a citizen of the German Empire, residing at Carl Zeiss strasse, Jena, in the Grand Duchy of Saxe-Weimar, Germany, have invented a new and useful Exposure Appliance, of which the following is a specification.

The invention consists in improvements in the subject-matter of the British specification No. 16,821 of 1898. In this specification a cheap combined envelop or wrapper and plate or film holder made of paper or other suitable material for any flat support of a photographic sensitive surface, principally for flat films, has been shown and described, together with a camera-back adapted to receive such a plate or film holder.

Particularly the invention relates to the film-holder and the camera-back, which have been described, page 4, lines 10 to 19, of the said specification. According to that construction the sheath-like shutter is made of comparatively stiff material and its closed end projects through a velvet-lined slit between the removable back board and a side board of the camera-back. The front of the shutter carries a projecting stop adapted to come against the side board when the shutter is withdrawn for exposing the film. Preventing by such means the shutter being removed is admitted to be necessary, for the reason that it would be impossible to reinsert the shutter through the slit into the film-holder.

In realizing the proposed plate or film holder just referred to two defects would occur, which it is the object of the present invention to remedy. In the first place as long as the shutter is outside the camera-back adapted to receive it or the special adapter inserted into the camera-back, both hereinafter being embraced by the term "receiver," the stop forms a very inconvenient projection—for instance, when the user wishes to carry a number of film-holders in his coat-pocket. Secondly, the shutter is much in the way while projecting from the camera-back during exposure. The user might then easily crease it through inadvertence, in which case it would lose the stiffness requisite for being pushed back again.

The remedy provided by the present invention consists in making the sheath-like shutter completely withdrawable or removable by omitting the stop and its return possible by such a construction of the plate or film holder that in addition to the shutter also in case, for instance, of a film-holder, the film, or film-carrier, (or an extension attached to the film or film-carrier,) and the frame in which the film or film-carrier is housed and in which also the shutter is guided, extend into and beyond the slit of the receiver.

In order that the operator be enabled conveniently to insert the shutter into the frame, so as to receive the film or film-carrier within the shutter, the frame may partly project beyond the film or its carrier. It should be understood that it is not necessary that both sides, back and front, of the frame project through the slit. One of them may even be too short to reach the slit.

It is evident that the present improvement applies also to double plate or film holders, of which two types have been described in the above-cited specification, page 3, lines 12 to 15 and 18 to 20. Such application presents the same advantages as above stated with reference to single-film holders and in addition thereto does away with the drawback that because of a stop being at least in one of the two operative positions of the double-film holder in the rear the back board of the receiver could not be fitted with the convenient spring-pressed plane-adjusting plate which secures the double-film holder in a position in which the sensitive surface lies in the focal plane.

The omission of the shutter-stop renders an improvement of the receiver feasible. The back board, hitherto removable, may now be fixed, as the film-holder is no longer prevented by the stop from being inserted through the slit into the receiver. For the convenience of such insertion it is desirable to diminish the friction between the film-holder and the slit without prejudicing the light-tight closure of the slit on the front side of the film-holder, such closure being necessary as soon as the shutter is removed. To attain this object, an antifriction-roller or a set of such rollers may be fitted on the back or on the front or on both sides of the slit.

In the annexed drawings, Figure 1 is a front view of a single-film holder constructed according to the invention. Fig. 2 is a transverse section on line 2 2 of Fig. 1. Fig. 3 is a

longitudinal section on line 3 3 of Fig. 1. Fig. 4 is a back view of the filmh-older, the shutter being removed. Fig. 5 is a front view of the shutter. Fig. 6 is a transverse section on line 6 6 of Fig. 5. Fig. 7 is a front view of the film-carrier with the film. Fig. 8 is a transverse section on line 8 8 of Fig. 7. Fig. 9 is a longitudinal section on line 9 9 of Fig. 7. Fig. 10 is a front view of a modified frame of the film-holder. Fig. 11 is a transverse section on line 11 11 of Fig. 10. Fig. 12 is a front view of an adapter containing a single-film holder as shown in Figs. 1 to 9. Fig. 13 is a transverse section on line 13 13 of Fig. 12. Fig. 14 is a longitudinal section on line 14 14 of Fig. 12. Fig. 15 is a back view of the adapter with the film-holder. Fig. 16 is a section on line 16 16 of Fig. 15.

The material of the film-holder is supposed to be paper. The sheath-like shape of the parts is produced by the edges overlapping each other and being pasted together or otherwise united. For the sake of clearness the thickness of the paper has been exaggerated in the drawings, and the edges which overlap one another have not been represented.

In the single-film holder shown in Figs. 1 to 9 the film *a* is inserted into a carrier *b*, whose front is cut out, as required for exposure. The front and the back of the carrier are pasted together at both ends. On the inner end, both in front and at the back, pads *c* are pasted, so that at this end the thickness of the film-carrier is equal to the internal diameter back to front of the frame *d*. The front of this frame is also provided with an exposure-aperture. Both the carrier *b* and the frame *d* are extended into and beyond the slit in the receiver *g*, which at the front side is made light-tight by means of the lining *h*. The corners of the carrier project less than the front corners (and more than the back) of the frame, so that the shutter *f* may be easily introduced. An eyelet *e* connects the frame *d* and the carrier *b* and may serve as a means for retaining the film-holder when the shutter *f* is being removed. For such removal the shutter is seized at the middle part of its projecting end, where the carrier *b* and the frame *d* are cut out, whereas one of the two projecting corners of the film-holder must be seized when the film-holder is to be removed from the receiver. Where, as in the modified frame *d'*, (shown in Figs. 10 and 11,) no part of the front reaches into the slit in the receiver-wall *g*, it may be convenient to have the back at both corners, or at least at one, more projecting than the film-carrier.

The adapter (represented by Figs. 12 to 16) is shown to include the single-film holder of Figs. 1 to 9, which is now represented (in the section Figs. 13, 14, and 16) as one solid sheet, its thickness being no longer exaggerated. The film-holder is secured in the adapter *g* by means of a stud *i*, fastened to a spring *k*. When the film-holder is introduced into the adapter, its inner end temporarily represses the stud *i*, the facing surface of which is inclined, whereupon the stud enters the eyelet *e*, so as to catch the film-holder. By raising the spring *k* by its free extremity the stud *i* may be disengaged, so that the film-holder can be withdrawn. In order that the sensitive surface accurately occupies the focal plane, the adapter carries two springs *l*, the pressure of which is transmitted to the film-holder through an adjusting-plate, the ground glass *m*, which serves as a focusing-screen before the introduction of the film-holder. The adjusting-plate is beveled at m^0, so as not to obstruct the said introduction.

The slit is represented to be padded at the front with a light-excluding lining *h*, but which might also be dispensed with. At the back of the slit a roller *n* is fitted in a compartment *o*. A flat spring *p*, the middle part of which is supported by the cover *q* of the compartment, embraces with its ends, which are bent at right angles and forked, the journals of the roller *n*, so as to press this roller against the film-holder.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. An exposure appliance consisting of a holder and a receiver for the holder, said holder comprising an outer frame, a flat member housed by the frame and carrying a sensitive surface, and a sheath-like shutter adapted, when inserted within the frame, to envelop the member; and said receiver being provided with a slit, through which the frame and the member extend outwardly, when the holder is inserted in the receiver.

2. An exposure appliance consisting of a holder and a receiver for the holder, said holder comprising an outer frame, a flat member housed by the frame and carrying a sensitive surface and of which frame one end is fastened to one end of the member and the other end partly projects beyond the other end of the member, the holder comprising further a sheath-like shutter adapted, when inserted within the frame, to envelop the member; and said receiver being provided with a slit, through which the frame and the member extend outwardly, when the holder is inserted in the receiver.

3. An exposure appliance consisting of a holder and a receiver for the holder, said holder comprising an outer frame, a flat member housed by the frame and carrying a sensitive surface and of which frame one end is fastened to one end of the member and the other end partly projects beyond the other end of the member, the holder comprising further a sheath-like shutter adapted, when inserted within the frame, to envelop the member; and said receiver being provided with a slit, into which the holder is adapted

to be introduced and through which the frame and the member are adapted to extend outwardly, when the holder is inserted in the receiver.

4. An exposure appliance consisting of a holder and a receiver for the holder, said holder comprising an outer frame, a flat member housed by the frame and carrying a sensitive surface, and of which frame one end is provided with a perforation and fastened to one end of the member and the other end partly projects beyond the other end of the member, the holder comprising further a sheath-like shutter adapted, when inserted within the frame, to envelop the member; and said receiver being provided at one end with a releasable spring-catch adapted to engage the perforation in the frame and at the opposite end with a slit, into which the holder is adapted to be introduced and through which the frame and the member are adapted to extend outwardly, when the holder is inserted in the receiver.

5. An exposure appliance consisting of a holder and a receiver for the holder, said holder comprising an outer frame, a flat member housed by the frame and carrying a sensitive surface, and of which frame one end is provided with a perforation and fastened to one end of the member and the other end partly projects beyond the other end of the member, the holder comprising further a sheath-like shutter adapted, when inserted within the frame, to envelop the member; and said receiver being provided at one end with a releasable spring-catch adapted to engage the perforation in the frame and at the opposite end with a slit, into which the holder is adapted to be introduced and through which the frame and the member are adapted to extend outwardly, when the holder is inserted in the receiver, this slit being provided with an antifriction-roller.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AUGUST LEISTENSCHNEIDER.

Witnesses:

PAUL KRÜGER,

FRITZ SANDER.