

E. W. PERRY, Jr.  
SHUTTER FOR PHOTOGRAPHIC APPARATUS.  
No. 438,943. Patented Oct. 21, 1890.

Fig. 1.

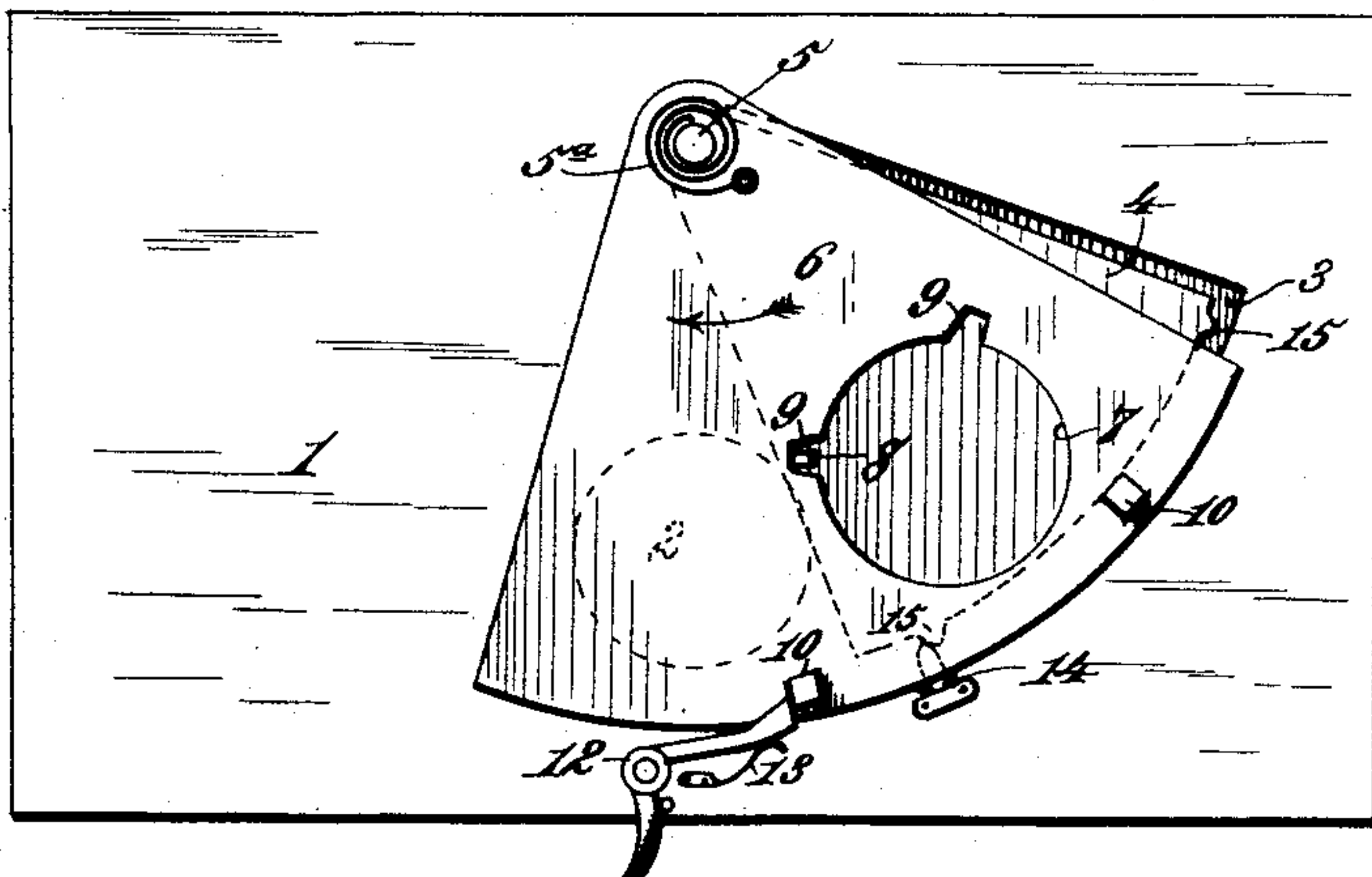


Fig. 2.

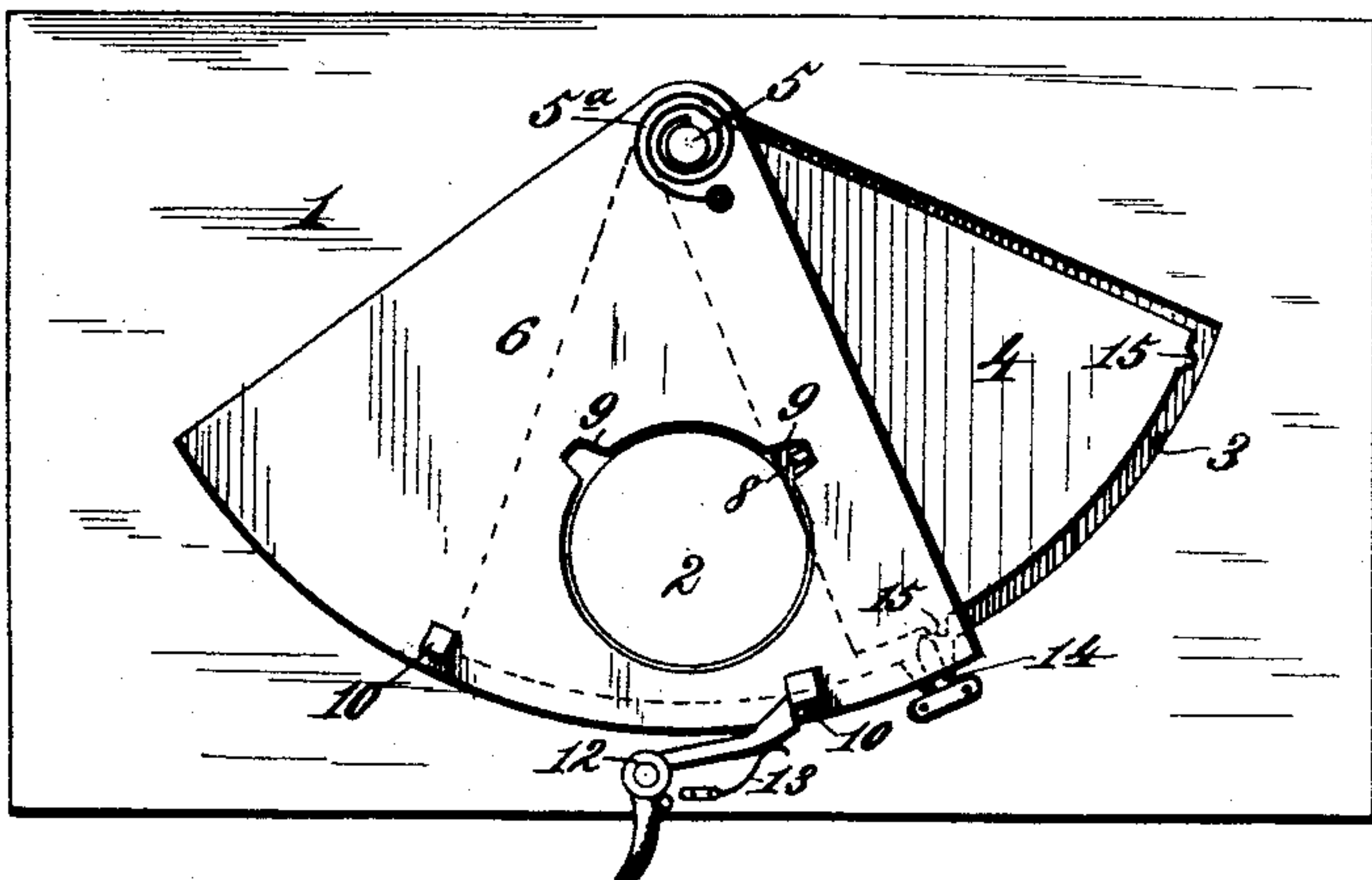
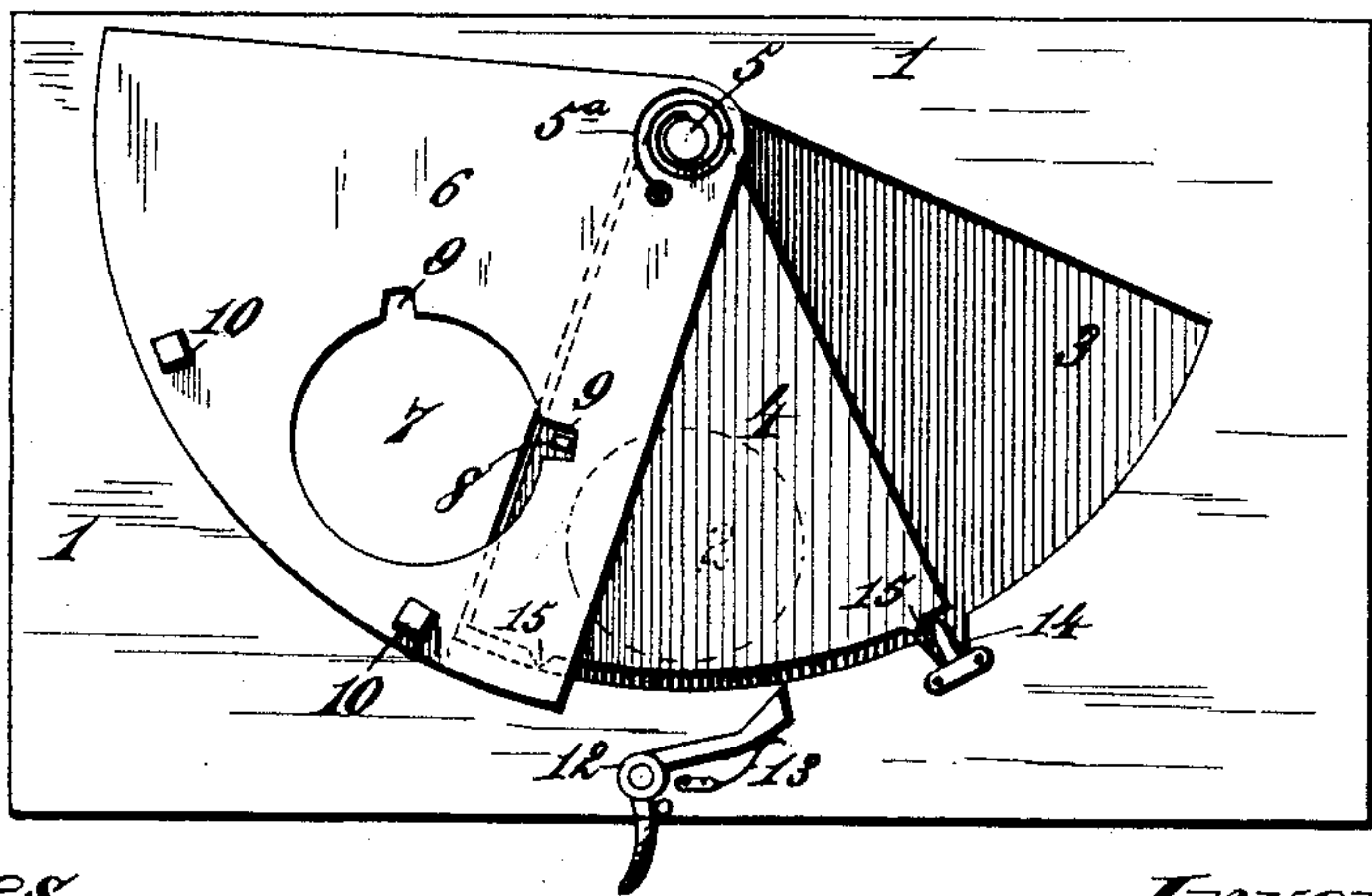


Fig. 3.



Witnesses:  
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*J. A. Kutherford*

Inventor:  
*Enoch Wood Perry Jr.*  
By *James L. Norris,*  
Atty.

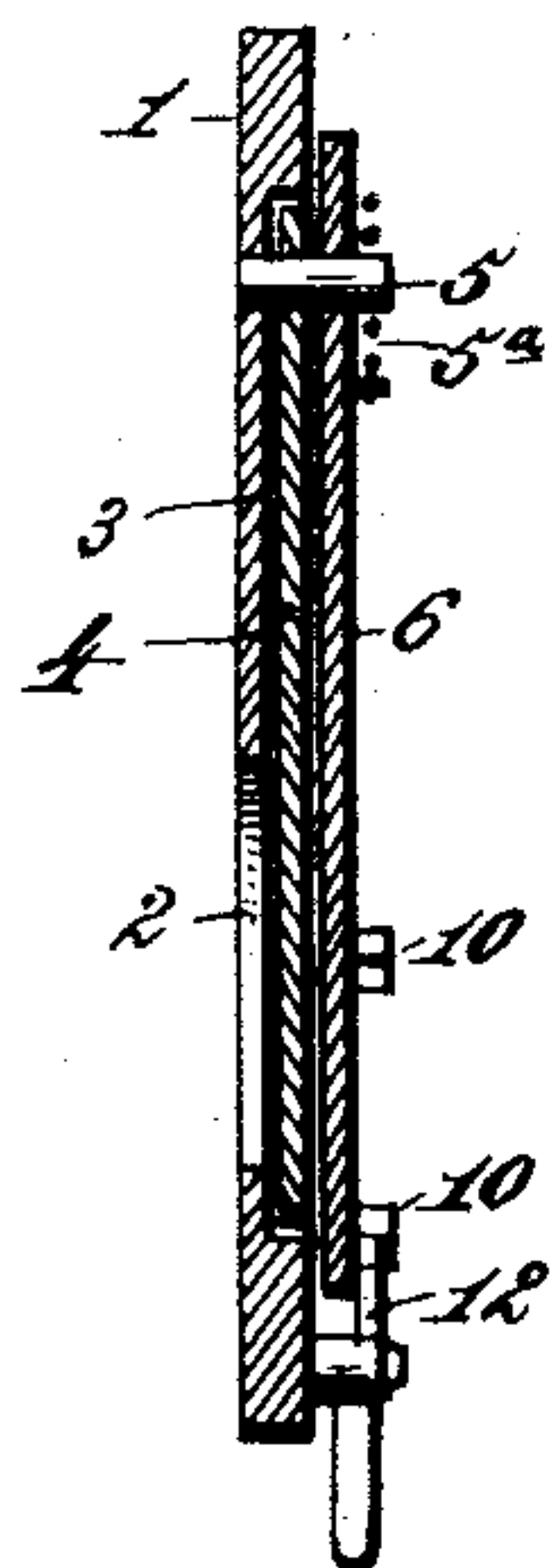
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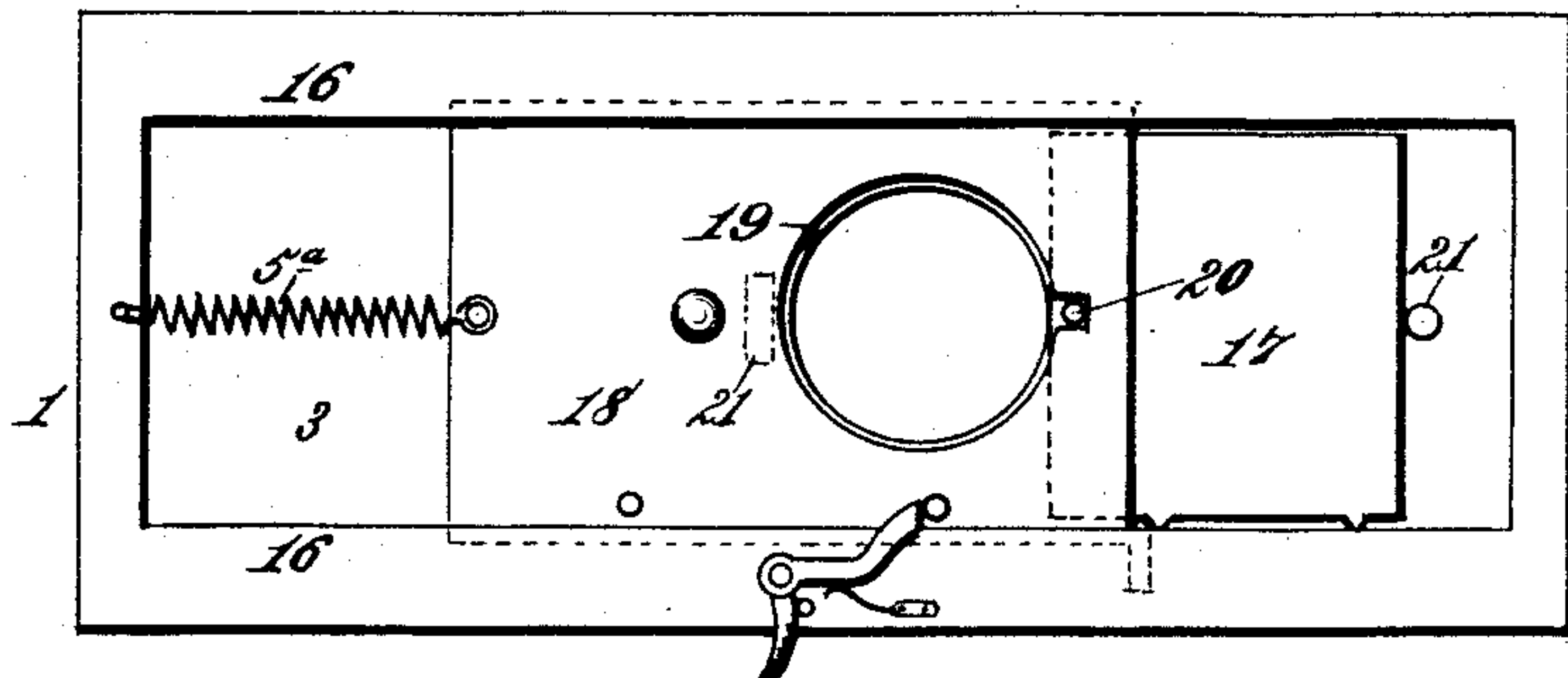
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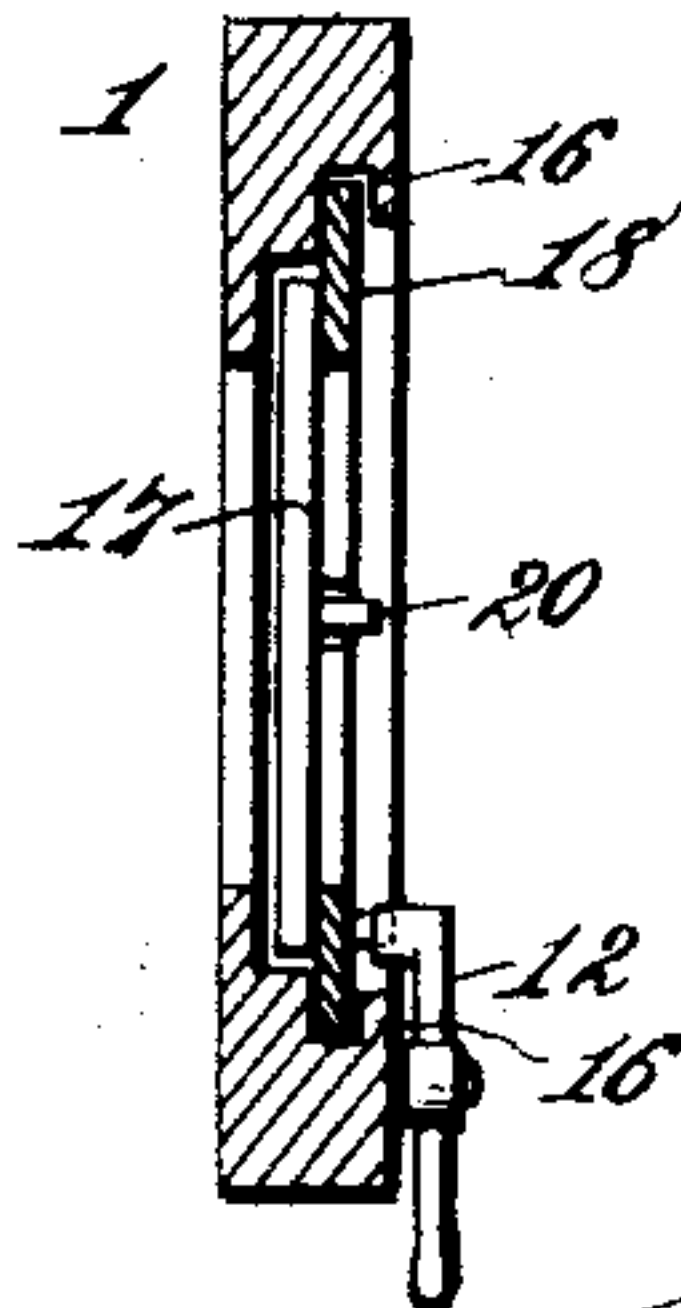
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



*Witnesses.*  
*Robert G. Smith*

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# UNITED STATES PATENT OFFICE.

ENOCH WOOD PERRY, JR., OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF  
TO EMIL KIPPER, OF ADAMS, MASSACHUSETTS.

## SHUTTER FOR PHOTOGRAPHIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 438,943, dated October 21, 1890.

Application filed April 28, 1890. Serial No. 349,746. (No model.)

*To all whom it may concern:*

Be it known that I, ENOCH WOOD PERRY, Jr., a citizen of the United States, residing at New York in the county of New York and State of New York, have invented new and useful Improvements in Shutters for Photographic Apparatus, of which the following is a specification.

My invention relates to shutters for photographic cameras, the purpose thereof being to enable the shutter to be reset after exposure without uncovering the lens-opening.

The invention consists to this end in the several novel features of construction and new combinations of parts fully set forth hereinafter, and then definitely pointed out in the claims which follow this specification.

To enable others skilled in the art to practice my invention, I will describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of a shutter, showing the parts in position for operation. Fig. 2 is a similar view showing the parts in the position which they occupy when the exposure is made. Fig. 3 is a similar elevation showing the position of the parts after the exposure is made and the lens-opening closed. Fig. 4 is a vertical cross-section taken through the axis of the shutter. Fig. 5 is a front elevation showing a modified construction. Fig. 6 is a cross-section of Fig. 5.

In the said drawings, the reference-numeral 1 denotes the front of the camera-box, in which is formed a portion or space 3, either cut away or recessed, making a segmental space, the lens-opening 2 being formed at or near the lower angle of the segment. Within this recessed or depressed portion 3 is arranged a segmental plate 4, cut upon substantially the same radius and pivoted upon a pin 5 at the apex of the segmental space 3. This plate is of such width that when swung in one direction it will wholly uncover the lens-opening 2, and when swung in the other direction will entirely cover said opening. The plate 4 is of such thickness that it lies in the recessed portion 3 with its outer face a little less than flush with the outer surface of the front of the camera-box.

Pivotally mounted on the pin 5 is a seg-

mental plate 6, of such dimensions as to cover the whole of the recessed space 3. In this plate 6 is formed a lens-opening 7 of substantially the same size as the opening 2 and located upon one side of the center of said plate 6.

Coiled upon the pivot 5 is a spring 5<sup>a</sup>, by which the plate is swung in the direction indicated by the arrow in Fig. 1.

Mounted upon the plate 4 is a small stud, pin, or projection 8 near one edge of the plate and lying within the lens-opening 7 of the large plate 6, said opening 7 being provided with opposite notches 9, which receive the stud 8 as the plate 6 swings in opposite directions.

Mounted on the face of the plate 6, near the lower edge thereof, is a stop 10, of any suitable form, with which a trigger 12 engages when the plate is turned into the position shown in Fig. 1, the trigger being thrown into engagement by a light spring 13. Upon the front plate of the camera is mounted any simple form of spring-actuated detent 14, adapted to engage a lug or projection 15 on the plate 4. Two of these lugs or projections are formed upon the said plate at or near the extremities of its curved edge, their purpose being as follows: The parts being in the position shown in Fig. 1, if the trigger 12 is pulled or disengaged from the stop 10 on the plate 6 the latter will spring quickly under the impulse of the spring in the direction of the arrow, and in its course it will momentarily uncover the lens-opening 2, the opening 7 in said plate coinciding for an instant with the opening 2 in the front of the camera-box. As the plate 6 begins to turn upon its pivotal axis, the plate 4, lying in the recessed segmental space 3, remains stationary, its surface being removed from contact with the inner face of the plate 6 and said plate 4 being held, moreover, by the spring-detent 14. As the plate 6 reaches the position shown in Fig. 2, the notch 9 engages the projection or pin 8, and the detent 14 being instantly sprung or disengaged from the lug 15 the plate 4 swings with the plate 6 and instantly covers the lens-opening 2, the parts assuming the position shown in Fig. 3. At this point the plate 6 stands at its limit of movement under the impulse of the



spring, while the second lug or projection 15 has made engagement with the detent 14, holding the plate 4 over the lens-opening. It will now be seen that in resetting the shutter 5 it is only necessary to swing the plate 6 by a suitable lever or finger-piece back to the position shown in Fig. 1. In so doing the opening 7 in said plate will completely pass the lens-opening 2 before the notch 9 engages the pin 10 or projection 8. As this engagement is made, the plate 4 begins to move and is restored to its original position, as shown in Fig. 1; but the lens-opening 2 is at no time uncovered.

I may substitute for the spring by which the 15 plate 6 is turned any other form of spring arranged at any other suitable point. The detent 14, also, may be of any preferred form. I may also use any suitable means for operating the trigger or latch 12 and for returning the segmental plate 6 to its normal position. I may also substitute for the pivotally-mounted plates shown and described the sliding plates shown in Figs. 5 and 6. In this modified construction the front plate of the 25 camera is provided with parallel guides 16 of any suitable form, in which an inner plate 17 is arranged to move, and an outer plate 18, the latter having a lens-opening 19. The two plates are connected by a pin or stud 20 on 30 the inner plate, which lies within the opening 19 of the outer plate. The movement is limited in both directions by stops 21, and the shutter is operated by a weight, a spring, or by pneumatic devices of any suitable form.

35 What I claim is—

1. The combination, with the main shutter-plate of a camera, of an auxiliary shutter-plate having a loose connection with the main shutter-plate and moved by the direct action of the 40 said main shutter-plate after the exposure to its reset position, substantially as described.

2. The combination, in a shutter for a photographic camera, of a main shutter-plate and an auxiliary shutter-plate loosely engaged 45 with and positively moved in both directions by the direct action of the main shutter-plate,

whereby the latter resets the auxiliary shutter-plate, substantially as described.

3. In a photographic camera, the combination of a main shutter-plate having a lens- 50 opening, the edge of which is provided with notches 9, and an auxiliary shutter-plate having a stud 8, movable across said lens-opening to engage either of the notches, said auxiliary plate being thereby moved by the direct ac- 55 tion of the main shutter-plate after exposure to its reset position, substantially as described.

4. In a photographic camera, the combination, with a camera-box having a lens-opening, of an imperforate plate arranged to cover 60 and uncover said opening, a plate having an opening arranged to coincide during a portion of the movement of said plate with the lens-opening, a connection between said plate and the imperforate plate, said connection 65 consisting of a pin or stud on the imperforate plate lying in an opening of the other plate, and a spring-detent tripped by the imperforate plate and holding it at its two limits of movement, substantially as described. 70

5. In a photographic apparatus, the combination, with the camera-box, of a pivotally-mounted imperforate plate arranged to swing over the lens-opening and engaging with a tripping spring-detent at each extremity of 75 its movement, a plate pivoted upon the same axis and having an opening arranged to coincide at each movement with the lens-opening, said plate being connected with the imperforate plate by a pin or projection on the latter lying in the lens-opening of the other plate, means for imparting a swinging or pivotal movement to the latter plate, and a latch or trigger holding the said plate in normal position, substantially as described. 85

In testimony whereof I have affixed my signature in presence of two witnesses.

ENOCH WOOD PERRY, JR.

Witnesses:

C. SEDGWICK,  
H. KRONFELT, Jr.