

W. H. LEWIS.

ROLL HOLDER FOR SENSITIVE FILMS.

No. 391,167.

Patented Oct. 16, 1888.

Fig. 1.

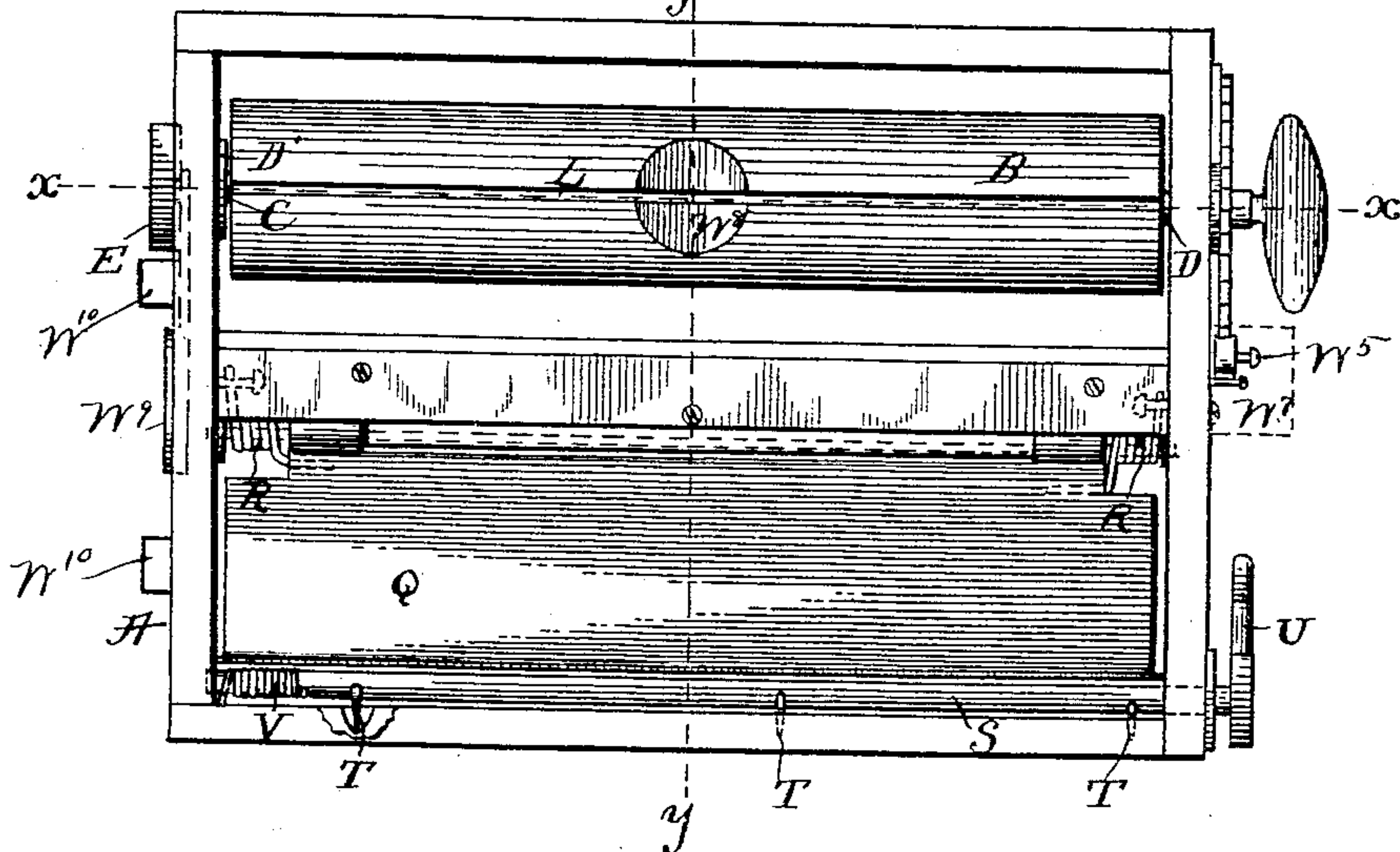


Fig. 2.

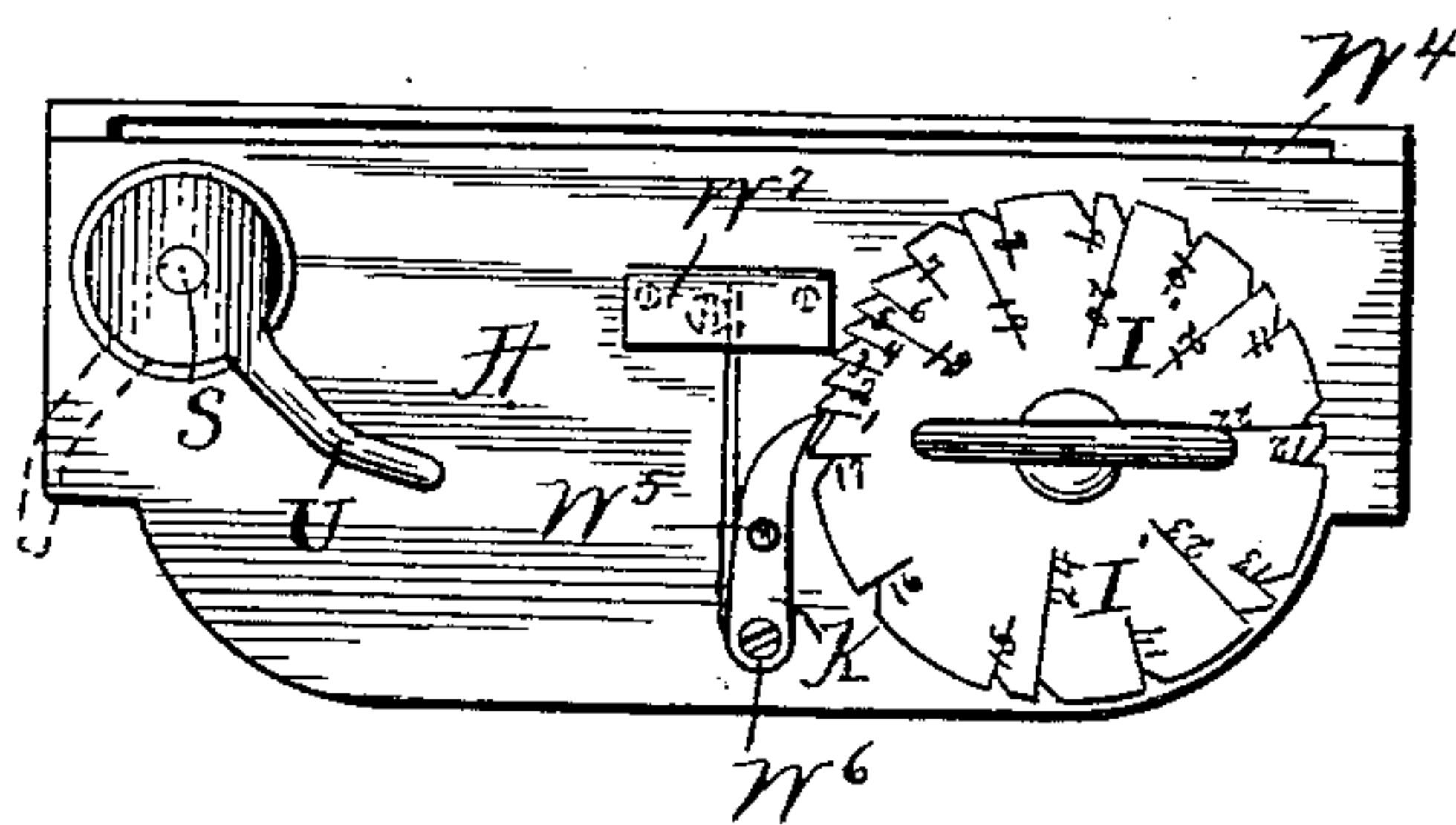
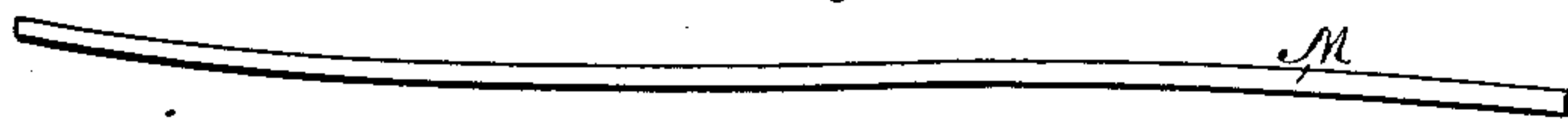


Fig. 5.



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W. E. Bowen.  
George M. Borchers

Inventor:  
William H. Lewis.  
by Phillips Abbott.  
his Attorney.

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Fig. 3.

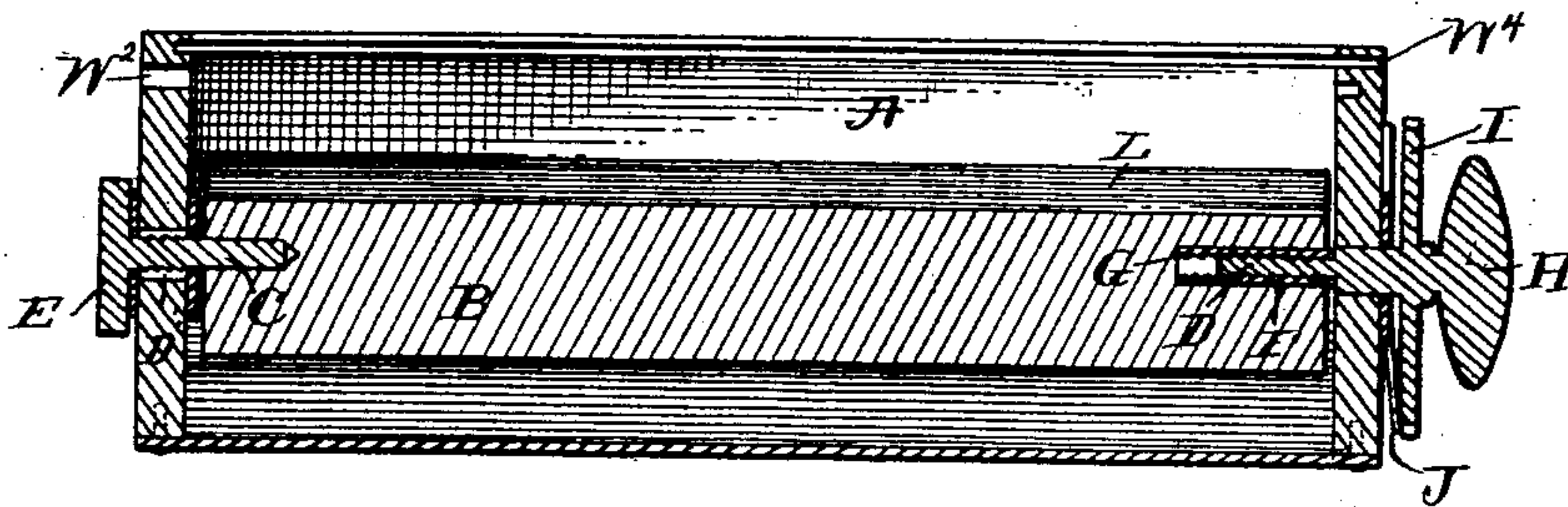
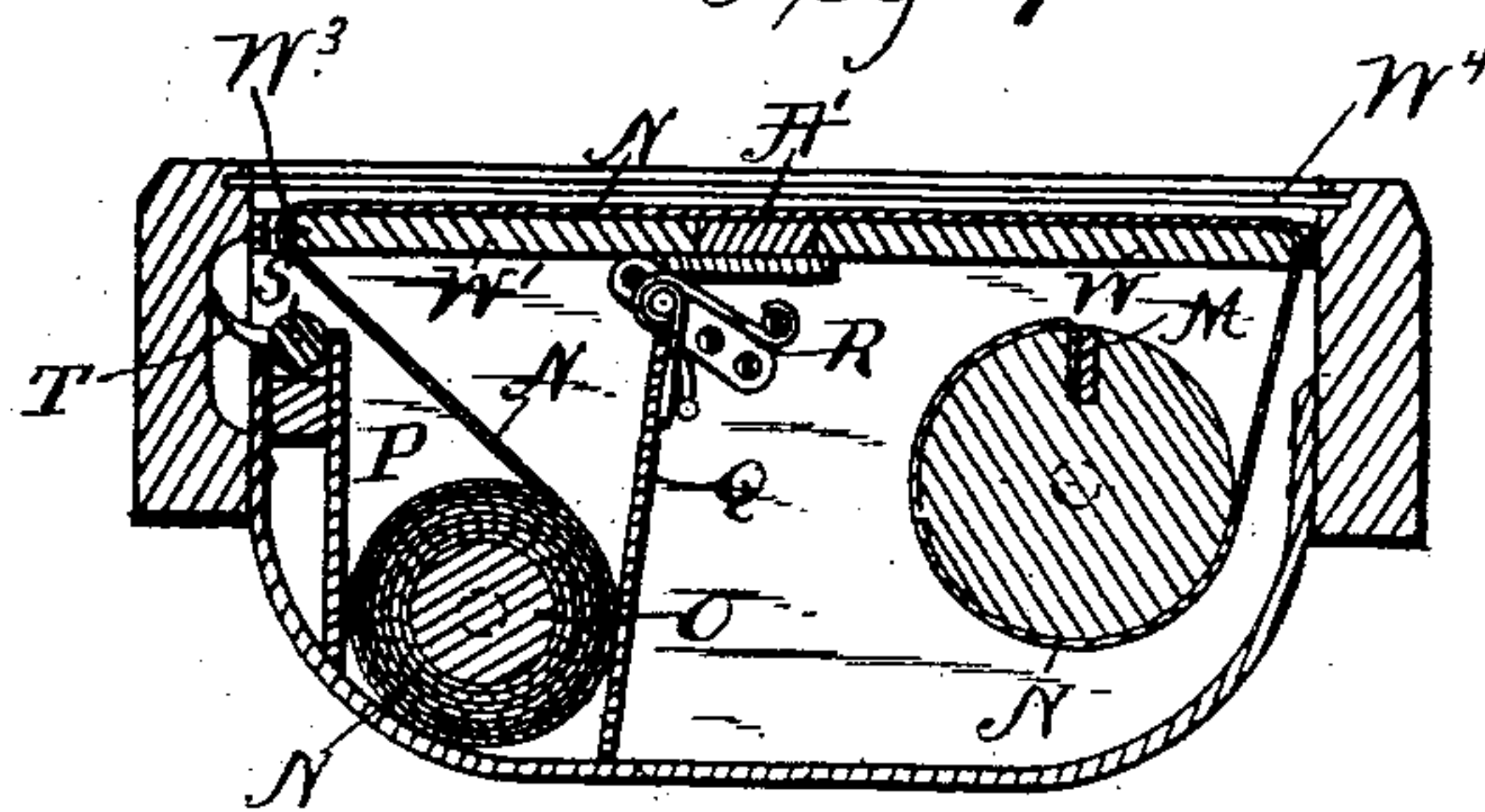


Fig. 4.



Attest:

W. E. Bawen  
George W. Bochar

Inventor:  
William H. Lewis.  
by Phillips Hobott.  
his Attorney.



# UNITED STATES PATENT OFFICE.

WILLIAM H. LEWIS, OF BROOKLYN, ASSIGNOR TO E. & H. T. ANTHONY & COMPANY, OF NEW YORK, N. Y.

## ROLL-HOLDER FOR SENSITIVE FILMS.

SPECIFICATION forming part of Letters Patent No. 391,167, dated October 16, 1888.

Application filed January 23, 1888. Serial No. 262,302. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. LEWIS, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Roll-Holders for Sensitive Films, of which the following is a specification.

My invention relates to improvements in holders for sensitized photographic films; and it consists in an indicator which determines the number of pictures taken and the amount of sensitized paper left in the apparatus unused; also, in a device whereby the dividing-line between contiguous pictures can be determined prior to the development of the pictures; also, to improved means whereby the end of the roll of sensitized paper may be attached to the take-up roller, and also to the details of construction hereinafter set forth.

In the drawings the same reference-letters indicate the same parts in all the figures.

Figure 1 illustrates a top view looking into the holder, the shield and the paper-sustaining table being removed. Fig. 2 illustrates an end view of the holder, showing the indicator. Fig. 3 illustrates a cross-section on the line *x x* of Fig. 1. Fig. 4 illustrates a cross-section on the line *y y*, Fig. 1. Fig. 5 illustrates an edgewise view of the paper clamping spring-strip.

A is the external case of the holder. It, as well as all the other parts of the apparatus, may be made of any material preferred.

B is the take-up roller, on which the sensitized film is wound as the pictures are taken. It turns on spindles C and D. The spindle C is threaded and provided with a bushing, D', and head E, whereby it may be turned back for releasing the roller B, and the spindle D is likewise provided with threads F, which engage with corresponding threads in a tubular bushing, G, set into the end of the roller B, and it has also a thumb-piece, H, whereby it may be turned back to release the roller B.

I is the indicator. It is fastened on the shank of the spindle D and turns with it.

J is a spring placed under the indicator, whereby it is subjected to friction, which prevents it from turning too easily.

The exposed face of the indicator is scored with lines I', which are numbered in rotation. These lines are separated from each other on the periphery of the indicator by successively-increasing spaces to compensate for the increase in the size of the take-up roller B as the paper is gradually wound upon it.

K is a spring-actuated indicating stop or pawl which engages with notches on the edge of the indicator, which are made coincident with the numbered score-lines before referred to.

L is a slot cut radially in the roller B from end to end.

M, Figs. 4 and 5, is a piece of metal or equivalent material, curved as shown, which may be sprung into the slot L, leaving space enough between it and the sides of the slot for the snug reception of the end of the strip of sensitized paper.

N, Fig. 4, is the roll of sensitized paper, which may be rolled up on a coil, O, as shown, or simply rolled up on itself. It is placed in the recess P opposite the take-up roller B.

Q is a friction-plate operated by springs R, which bears on the periphery of the roll of sensitized paper, preventing it from unrolling too easily.

S is a shaft running across the holder and provided with prick-points T. One end of the shaft projects through the side of the holder, and is provided with a small crank or lever, U, whereby it may be operated from the exterior of the holder.

V, Fig. 1, is a spring which normally retracts or turns back the prick-points away from the paper.

W W' are two slides, which are removable endwise from the holder through the slot W". When in position, as shown in section in Fig. 3, they constitute the table or support, over the edges and across the face of which the sensitized paper is stretched during the taking of the pictures. I make this table in the two parts W W', as shown, so that each half can be introduced independently of the other, and I provide a rigid piece or bar, A', between them, whereby the crowd of the paper on the edges of the table is prevented from moving the table, which might cause it to assume an



angling position relative to the paper, thus interfering with its proper movement from the supply-roll to the take-up roller. In the outer edge of the slide W', coincident with the prick-points, are small holes W<sup>3</sup>, into which the prick-points may enter for the more perfect puncturing of the paper.

W<sup>4</sup> is a slot through which the light-excluding slide or shield is passed.

The indicating stop or pawl K is provided with a little knob, W<sup>5</sup>, set on a small spindle attached to the pawl, whereby it may be lifted up or away from the side of the holder, and thus freed from engagement with the notches in the edge of the indicator; and in order that this may be done the pivot W<sup>6</sup>, on which the pawl works, is extended beyond the outerside of the pawl the requisite distance.

W<sup>7</sup> is a metallic or other finger-piece by which the entire holder may be pulled out from the camera after taking the pictures.

W<sup>8</sup> shows a cut-away portion of the take-up roller, so that the strip M can be taken hold of by the finger and thumb for removal from the slot L.

W<sup>9</sup> is a latch pivoted on the spindle C, which, being turned up, confines the slides W and W' when in position.

W<sup>10</sup> are pull-straps for the slides W and W'.

The operation is as follows: The slides W and W' are removed from the holder and the roll of sensitized paper is pushed into the recess P, which crowds back the friction-plate Q. The end of the paper is then pulled outwardly and laid outwardly over the edge of the holder. The slide W' is then pushed into place and the paper is bent over its edge, and the end of it is fastened in the slot L in the roller B by means of the spring-strip M. The slide W is then shoved into place underneath the paper, and the thumb-screw H is turned once or twice to give the paper a firm hold on the roller B, and the indicating stop or pawl K is left in the notch numbered 1. The light-excluding slide is of course shoved into place over the face of the paper. The first exposure may now be made and a picture be taken, after which the lever U is operated, which causes the prick-points to puncture the paper. The thumb-piece H is then turned until the roller B has made a complete revolution, which brings the indicating stop or pawl into notch numbered 2, by which act enough of the sensitized paper will have been unrolled from the roll N and carried across the table W W' for a second exposure, which, having been made, the prick-points are again operated, thus indicating by the punctures in the paper the dividing-line between contiguous pictures. In this manner all the paper is used up, the indicator showing at any and all times how many pictures have been taken and also the amount of unused paper left in the roll N. After all the paper has been used up and wound upon the take-up roller B, the indicating stop or pawl K is lifted out of

contact with the indicator, and the spindle D is turned backward, unscrewing it from the bushing G, and the spindle C is in like manner unscrewed from the bushing D', thus freeing the take-up roller B, which is then lifted out of the holder. The slide W having been removed and being taken into the dark room the paper is cut across on the lines of the punctures and the pictures developed as usual. A new roll of sensitive paper is then placed in the machine and the take-up roller replaced ready for further use.

I do not limit myself to the details of construction shown and described, since they may be somewhat departed from and still my invention be employed.

Having described my invention, I claim—

1. The combination of a removable take-up roller, an indicator-plate, and an indicating-stop, which prevents backward turning of the take-up roller and acts as a pointer coacting with indicia on the indicator, substantially as and for the purposes set forth.

2. The combination of a take-up roller, an indicator-plate, and an indicating-stop, which prevents backward turning of the take-up roller and acts as a pointer, coacting with the indicia on the indicator, substantially as and for the purposes set forth.

3. The combination of a take-up roller and removable spindles on which it turns, which pass through the side of the holder and enter the end of the roller, one of said spindles being fastened to the roller and provided with a thumb-piece whereby it may be turned, and an indicator-plate having graduated indicia on its exposed surface, which will show the number of exposures, said indicator being attached to the spindle which turns with the roller, substantially as set forth.

4. The described improvement in take-up rollers, consisting of a slot cut longitudinally in the roller and a laterally-curved removable spring strip or bar adapted to be sprung into the said slot, whereby the paper is held between the strip and the sides of the slot, substantially as set forth.

5. The combination, in a roll-holder, of a shaft operated externally of the holder-case and provided with prick-points, and a surface over which the sensitized fiber passes, against which surface the prick-points may press the sensitized fiber, substantially as set forth.

6. The combination of a take-up roller, an indicator placed on the shaft of the take-up roller and provided with graduated indicia to determine the quantity of paper on the take-up roller, which moves contemporaneously with the take-up roller, a supply-roll, and a friction device to retard the unwinding of the sensitized film, substantially as set forth.

7. The combination of a take-up roller provided with an indicator externally of the holder-case, a supply-roll, prick-points mounted on a shaft provided with a thumb-screw or



crank operated from the exterior of the case, and a friction device to retard the unwinding of the supply-roll, substantially as set forth.

5 8. The combination, in a roll-holder, of a fiber-supporting table made in two parts and having a rigid dividing strip or bar between them, said two parts being removable from the holder-case, substantially as set forth.

10 9. The combination, in a roll-holder, of prick-points operated from the exterior of the holder-case, and a film-supporting table having recesses or holes in the edge thereof which register with the prick-points, substantially as set forth.

15 10. The combination of a take-up roller, a supply-roll, and a fiber-supporting table removable from the holder-case by sliding laterally through a slot in the case, substantially as set forth.

11. The combination of a take-up roller, a 20 supply-roll, and a film-supporting table made in two parts and having a rigid piece or bar between them, substantially as set forth.

12. The combination of a take-up roller, a 25 film-supply roll, prick-points operated from the exterior of the case, a friction device which retards the unrolling of the film, and a film-supporting table made in two parts and constructed and arranged to slide laterally through slots in the case of the holder, 30 substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 27th day of January, A. D. 1888.

WILLIAM H. LEWIS.

Witnesses:

PHILLIPS ABBOTT,  
S. B. ROGERS.