

(No Model.)

W. H. LEWIS.
ROLL HOLDER.

2 Sheets—Sheet 1.

No. 525,786.

Patented Sept. 11, 1894.

Fig. 1.

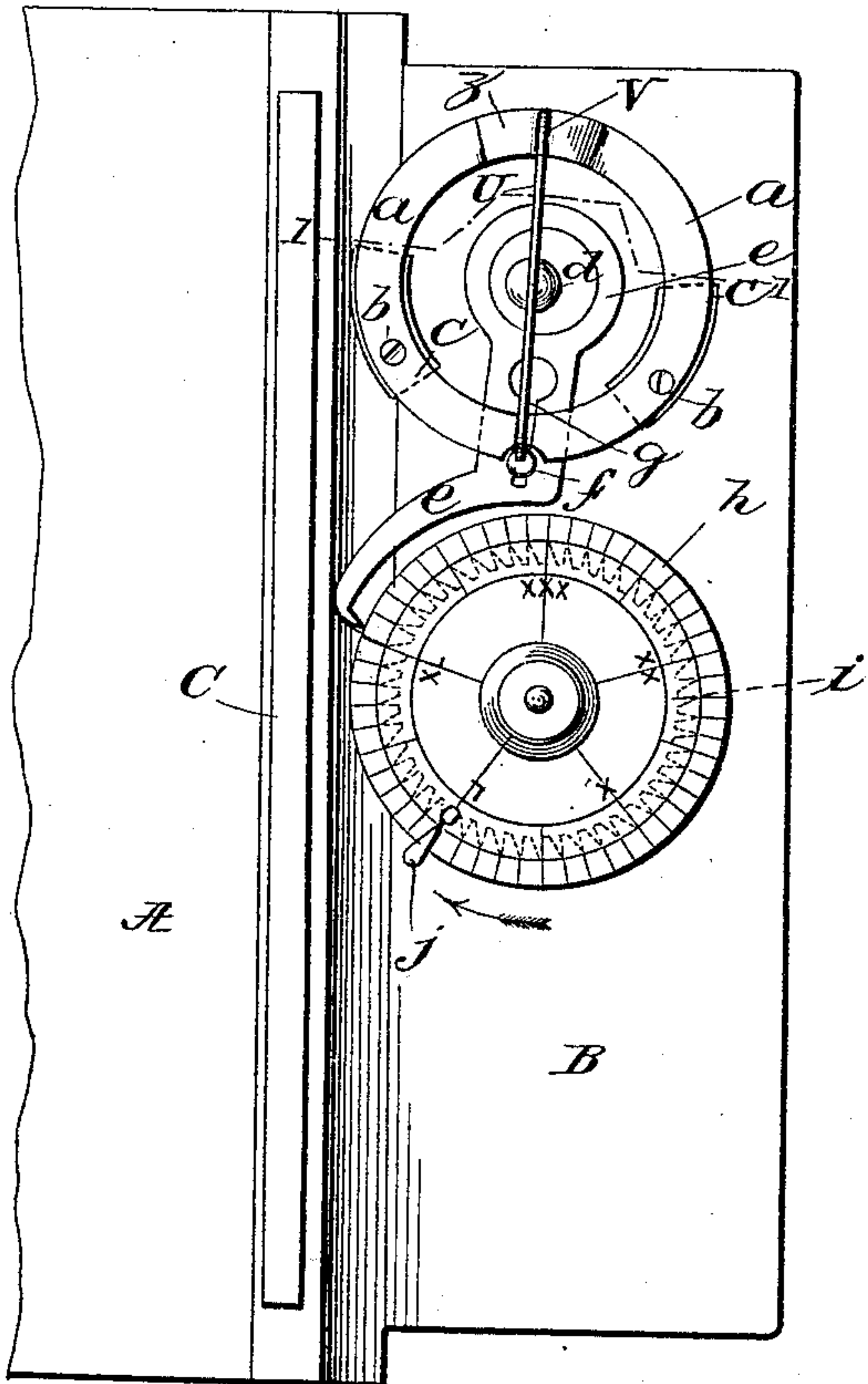
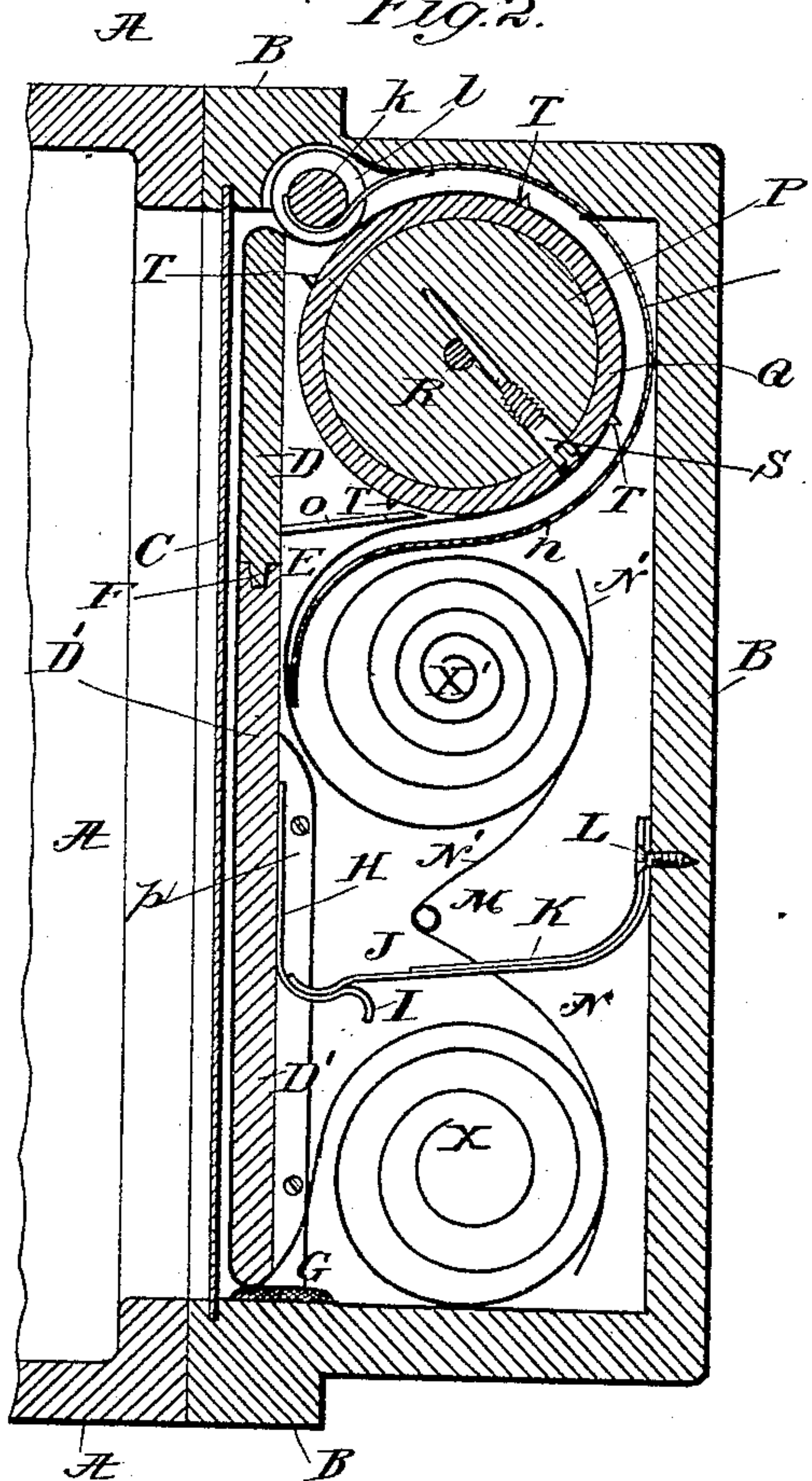


Fig. 2.



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Fig. 3.

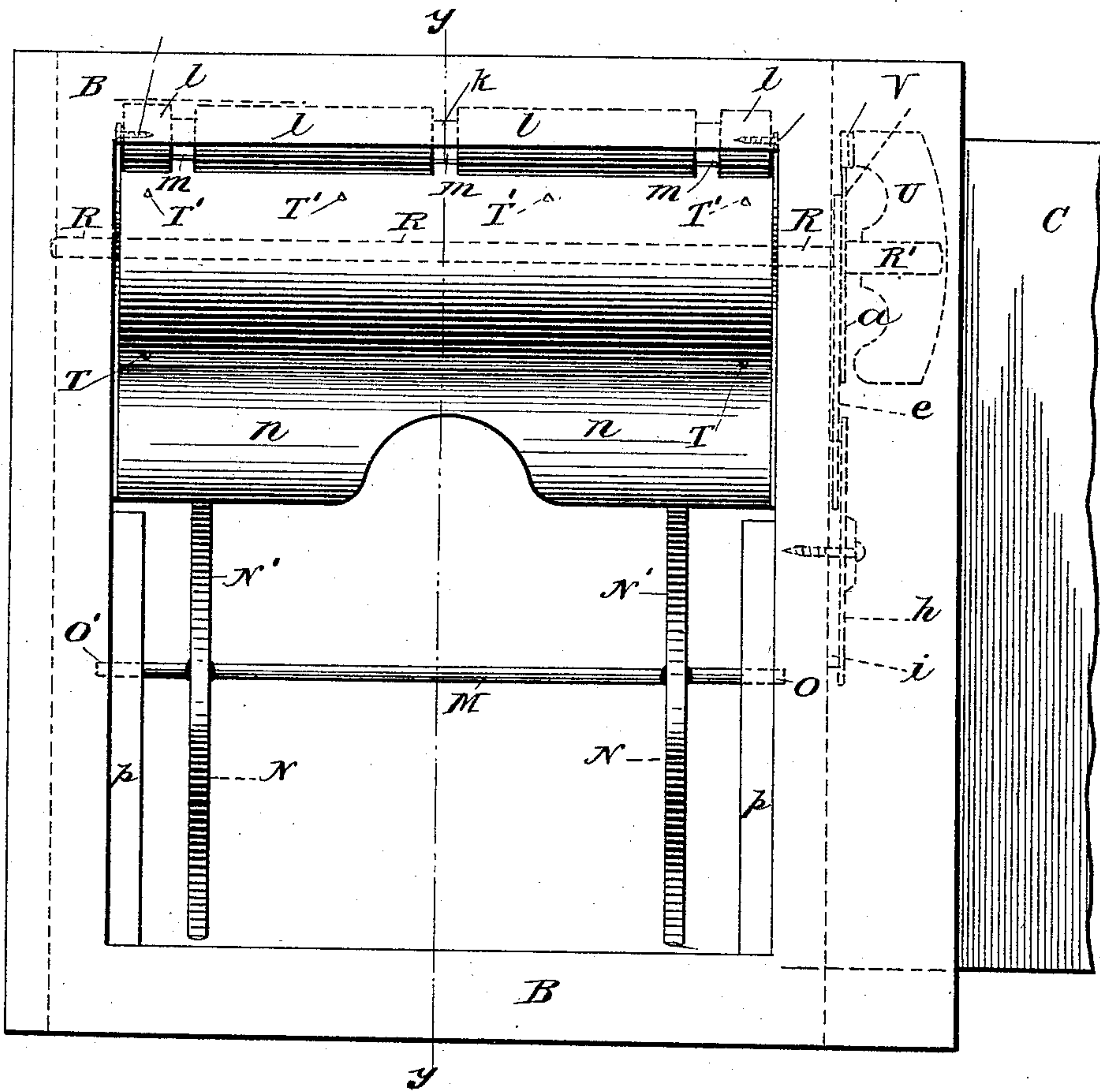
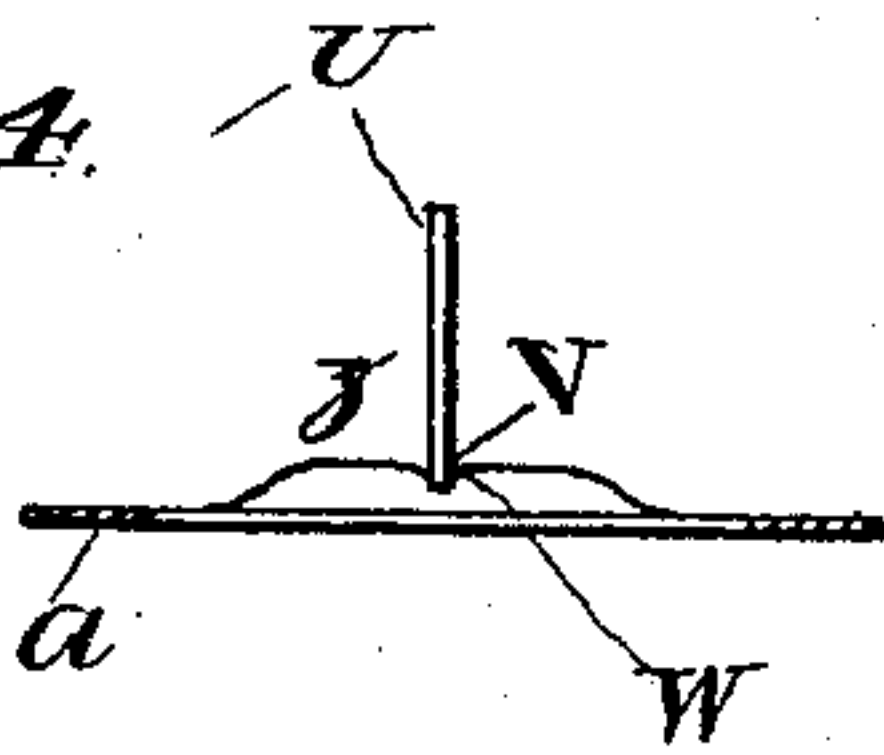


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. LEWIS, OF HUNTINGTON, ASSIGNOR TO THE E. & H. T. ANTHONY
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ROLL-HOLDER.

SPECIFICATION forming part of Letters Patent No. 525,786, dated September 11, 1894.

Application filed January 15, 1894. Serial No. 496,846. (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 Huntington, in the State of New York, have
5 invented certain new and useful Improvements in Roll-Holders, of which the following is a specification.

My invention relates to improvements in holders for sensitized films, and it consists
10 more particularly in improvements in the devices which indicate the number of exposures made, and to improvements in the interior construction of the holder, whereby the tension is applied to the film, also whereby it is
15 fed, also whereby it is coiled after exposure, and also in devices whereby the film, after exposure, is coiled without the employment of a roller or shaft upon which the exposed film is rolled.

20 My invention also comprises certain details of construction, which will be referred to in the description.

In the drawings, Figure 1, illustrates an elevation of the roll holder, shown as applied
25 to the rear of a camera box. Fig. 2, illustrates a vertical section of that which is shown in Fig. 1, it being taken on the line Y, Y in Fig. 3. Fig. 3, is a view looking into the holder, the table over which the film passes, and upon
30 which it rests and also the slide being removed. Fig. 4, illustrates a detail section taken on the line I, I, of Fig. 1.

A illustrates the rear of the end of the camera.

35 B is the roll holder box or casing. It may be made in any preferred manner and of any preferred material. I ordinarily make it of wood, and I have the back permanently attached to the sides, because thereby I get
40 better finish and appearance and greater strength.

C is the slide.

D is one part of the table and D' is another part of the table. The part D may be fixed
45 within the holder, if desired, although I prefer to make it removable in any preferred manner, so that, in the event of repairs being necessary to the devices beneath this part, it may be removed without injury to the holder.
50 The part D', however, is made removable and

is provided with a groove E on one edge, into which fits a tongue F made on the part D.

G is a pad or cushion adapted to exclude light.

H is a piece of metal fastened to the part 55 D' of the table which has an outwardly extending part I, which engages with a spring J, which is preferably reinforced by a leaf K, the two together being attached as at L in any suitable way to the case of the holder. 60

M is a cross shaft upon which are two or more springs, N, N, which extend on one side of the shaft M, and two or more, N', N', which extend on the other side of this shaft. These
65 springs N and N' are preferably made all in one piece and are simply soldered or brazed to the shaft M. The shaft rocks in arms O, O' made on the side of the case. There may be one pair of these springs only, i. e., one spring N and one spring N' located anywhere 70 on the shaft and there also may be more than two sets of them, but I prefer the construction shown in Fig. 3, in which there are two springs N, N and two N', N', near the ends of the shaft M. 75

P is a roller covered with a facing of rubber Q, which turns on an axis R, the roller being fastened to the axis by a pin or screw S. On the face of the roller near its ends are
80 prick points T, T, T, T, which aid in feeding the film, and at one place a line of prick points extends across the face of the roller as at T', T', T', T', (Fig. 3.) The shaft R is journaled in bearings in the side of the case, and at one end is extended as at R', and is provided with 85 a thumb piece U. This thumb piece is preferably thin in cross section, and one end of it, V, is made somewhat in the shape of a knife edge, which engages with a depression W made in a raised block Z, which is soldered to a ring 90 shaped spring a, which is fastened by screws b to the side of the case, being supported upon thin blocks c, which lift it somewhat from the side of the case, so that the part of it, upon which the piece Z is soldered has a springing 95 action toward and away from the case.

d is an eccentric fastened on the shaft R which sets in a circular recess in what I call a "rocking pawl" e. It is guided and controlled in its movement by a pin f, which 100

passes through a slot *g* made in the pawl, so that this pawl has both a rocking and a longitudinal movement on that pin.

h is a circular index, scored on its exterior surface with marks indicating the number of exposures made, and it is soldered to a toothed wheel *i*, which lies beneath it, and with the teeth of which the pawl *e* engages.

j is a fixed pointer fastened in the case.

k is a shaft which is covered with tubular rubber sections, *l, l, l, l*, and has springs *M*, which are fastened to the side of the case, and which rest against and partially encircle the shaft *k* in the recesses between the rubber sections *l*.

n is a metallic guide for the film and *o* is a stripper which removes the film from the roller *P*.

pp are two ledges on the sides of the holder, upon which the movable part *D'* of the table rests when in position.

The operation is as follows: The removable part *D'* of the table is taken out, the slide *C*, of course, being first drawn. The roll of sensitized film is placed in the lower portion of the holder as represented by *X*. The end of the film is drawn outwardly and leaned over the end of the holder. The removable part *D'* of the table is then replaced and when pressed down in its proper position upon the ledges *p*, the metal piece *I* engages with the spring *J* in such manner as to press the edge of the table *D'* with considerable pressure against the pad *G*, thus applying the necessary friction or retarding action to the film, and also locking the part *D'* in place by reason of the interlocking of the free end of the spring with the concave part of the metal piece *I*. The film is then drawn farther out, and its end being properly squared, is introduced downwardly between the part of the table marked *D*, and the roller *k-l*. The thumb piece *U* is then turned, which carries the roller *P* around and the prick points on it immediately carry the end of the film between the rollers *k* and *P*, or rather between their rubber faces. As soon as this takes place, the thumb piece *U* is turned until the knife edge *V* on it engages with the groove *W* (see Fig. 4). Then the index is observed, because from this point the exposures are to be registered. An exposure being now made, the thumb piece *U* is then given a complete revolution, so that the knife edge moves out from the groove *W* and again enters it (the sides of the groove *W* being rounded or inclined, so that a light pressure applied upon the thumb piece *U* will depress the spring *a*) and during this revolution of the thumb piece, the eccentric *d* has caused the pawl *e* first to advance, so as to engage the next tooth of the wheel *i*, then to rock or descend, so as to engage with that tooth, and then to recede and turn the wheel *i* and consequently the index *h* around in the direction of the arrow, as seen in Fig. 1. Thus a registry is made of the exposure, which has

been made and the apparatus is in condition for another exposure. The adjustment of the parts is such that the transverse line of prick points *T'*, &c., always registers with the end of the table, so that the line of prick points when seen running across the film, indicates the place of severance between pictures. The other prick points, which are on the ends of the roller *P* are employed merely to hold and aid in feeding the film. They, however will ordinarily not be necessary, because the rubber coverings *Q* and *l* of the feed rolls, will feed the film in any event. The film is carried around by the rollers and guided by the guide *n*, being stripped off from the roller *P* by the stripper *o*, if it should have a tendency to adhere to that roller, and passing over the end of the guide *n*, coils itself up, as shown at *X'* (see Fig. 2). The springs *N* and *N'* materially aid in uncoiling and coiling the film, because as the roll grows less in size on one side of the shaft *M*, it, of course, increases on the other side, and these springs *N* and *N'* exert a continuing pressure upon the rolls, the shaft *M* rocking slightly as the relative size of the two rolls changes. Thus they are kept compact and rolled up snugly, and I avail myself of the peculiar quality which photographic film, as ordinarily made, has, to coil itself up snugly when unrolled and released. Thus by reason of the instrumentalities employed, the roll or coil of exposed film is practically as compact and snug as the unexposed film, when first introduced into the holder.

My feed rollers secure the transit of the film and render it unnecessary that it should be positively attached to anything. This I regard as a material improvement in these devices, because thereby much vexatious adjustment is avoided.

It will be obvious to those who are familiar with this art that certain improvements may be made in the details of construction and still the essentials of my invention be employed.

I claim—

1. In a roll-holder, the combination of a longitudinally movable part or table, a spring to press the table endwise to clamp the film, feeding rollers, between which the film passes, and means to rotate positively one of the feed rollers from the exterior of the holder, substantially as set forth.

2. In a roll-holder, the combination of a longitudinally movable part or table, a spring to press the movable table endwise to clamp the film, feeding rollers, between which the film passes, means to rotate positively one of the feed rollers from the exterior of the holder, and an index, substantially as set forth.

3. The combination in a roll holder of a longitudinally movable part or table, a spring adapted to press the movable part endwise, and a pad at the end of the table, substantially as set forth.

4. In a roll holder, the combination of a lon-

5 longitudinally movable part or table, a spring to move the movable table, feed rollers, one of them provided with means whereby it may be turned from the exterior of the holder, substantially as set forth.

10 5. In a roll holder, the combination of a longitudinally movable part or table, a spring to move the movable table, feed rollers, one of them provided with means whereby it may be turned from the exterior of the holder, an index, and means connecting the shaft of the positively moved feed roller with the index, substantially as set forth.

15 6. The combination in a roll holder of feed rollers, prick points on one of them to indicate the divisional line between pictures, a shaft upon which one of them is mounted, provided with a thumb piece on the outside of the holder, a spring locking device for the thumb piece, an eccentric on said shaft, a pawl which engages with the eccentric, an index actuated by the pawl, a chamber adjacent to the feed roll, within which the exposed film may be coiled, and a guide to conduct the exposed film from the feed rolls into said chamber, substantially as set forth.

25 7. The combination in a roll holder of a positively driven roller, prick points upon the roller, an eccentric upon the shaft of the roller, a rocking pawl, which engages with the eccentric, and an index operated by the pawl, substantially as set forth.

30 8. The combination in a roll holder of feed rolls, a guide for the film, an eccentric upon the shaft of one of the feed rolls, means to drive said feed rolls from the exterior of the roll holder, a pawl which engages with the eccentric, an index actuated by the pawl, and a guide for the exposed film, substantially as set forth.

35 9. The combination in a roll holder of a roller to move the film forward, mounted upon a shaft, a thumb piece upon the end of the shaft outside of the case, a spring which engages with the thumb piece and locks it in position, an eccentric on the shaft of the roller, a pawl and index actuated by the pawl, substantially as set forth.

40 10. The combination in a roll holder of a table, means to move the table endwise under spring pressure, a pad at the end of the table, a roller to move the film forward, a shaft for the roller, provided with a thumb piece on

the outside of the case, a spring to lock the thumb piece, an eccentric on the shaft, a pawl 55 which engages with the eccentric and an index operated by the pawl, substantially as set forth.

11. The combination in a roll holder of a table, means to move the table endwise under 60 spring pressure, a pad at the end of the table, a roller to move the film forward, a shaft for the roller, provided with a thumb piece on the outside of the case, a spring to lock the thumb piece, an eccentric on the shaft, a pawl 65 which engages with the eccentric, an index operated by the pawl, and a rockingshaft provided with springs to aid in coiling the film, substantially as set forth.

12. The combination in a roll holder of a 70 rocking shaft provided with springs, a table having endwise movement under spring pressure, a pad at the end of the table, feed rollers, a guide for the exposed film, and means accessible from the exterior of the holder for 75 driving the feed rollers, and an index operated by an eccentric and pawl, the eccentric being on the shaft of one of the feed rollers, substantially as set forth.

13. In a roll holder, the combination of feed 80 rollers, the surface of one of which is covered with rubber, prick points running transversely across one of the feed rollers, a shaft upon which one of the feed rollers is mounted and provided with a thumb piece on the out- 85 side of the case, a spring which engages with the thumb piece and locks it in position, an eccentric upon said shaft, a pawl and index operated by the pawl, substantially as set forth. 90

14. The combination in a roll holder of feed rollers, one of them mounted upon a shaft provided with a thumb piece on the exterior of the holder, an eccentric on the shaft, a pawl, which engages with the eccentric, an 95 index operated by the pawl, and a chamber adjacent to the feed rollers, within which the exposed film may be coiled, substantially as set forth.

Signed at New York, in the county of New 100 York and State of New York, this 11th day of January, A. D. 1894.

WILLIAM H. LEWIS.

Witnesses:

PHILLIPS ABBOTT,
JOHN E. LACEY.