

No. 720,417.

PATENTED FEB. 10, 1903.

A. C. GAYNOR.
AUTOMATIC STROPPER.

APPLICATION FILED OCT. 20, 1902.

NO MODEL.

Fig. 1.

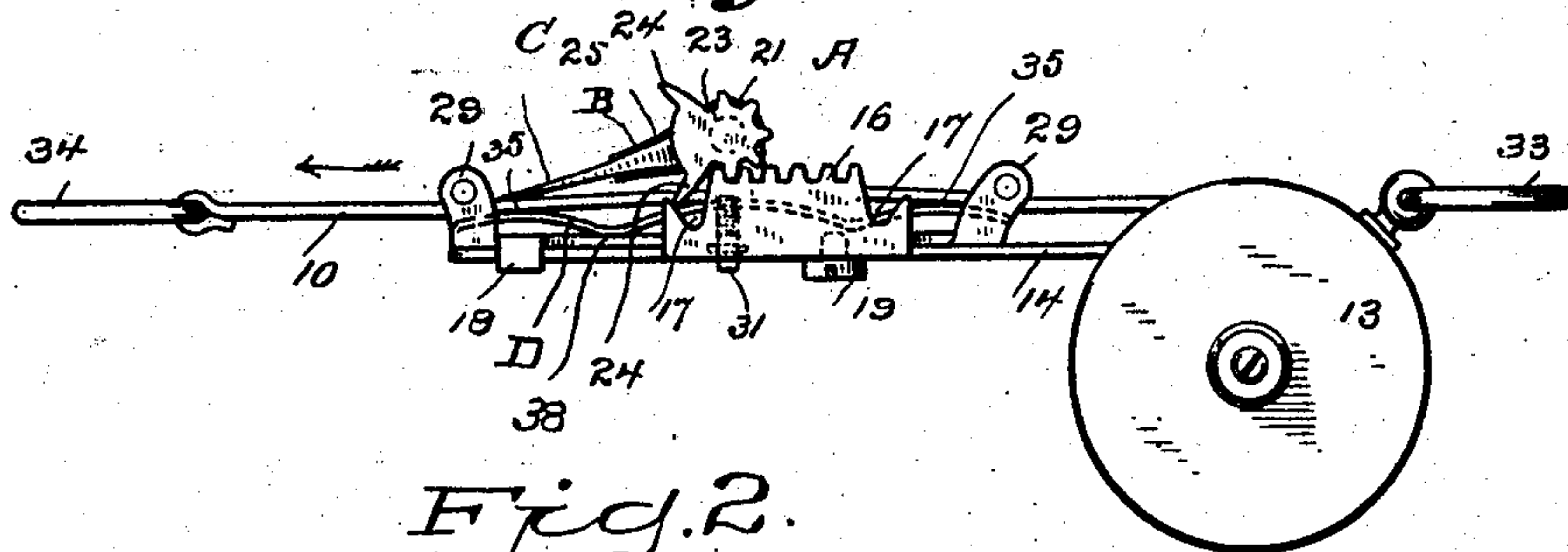


Fig. 2.

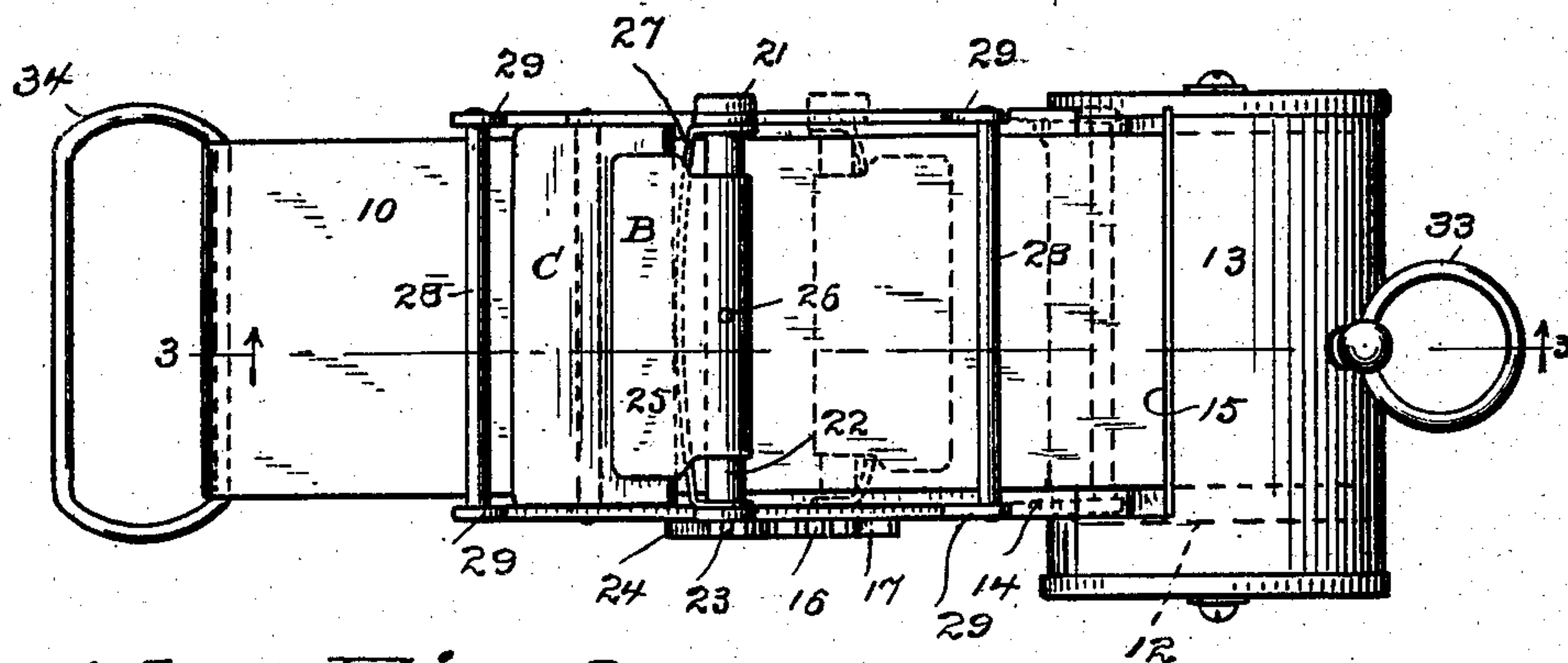


Fig. 5.

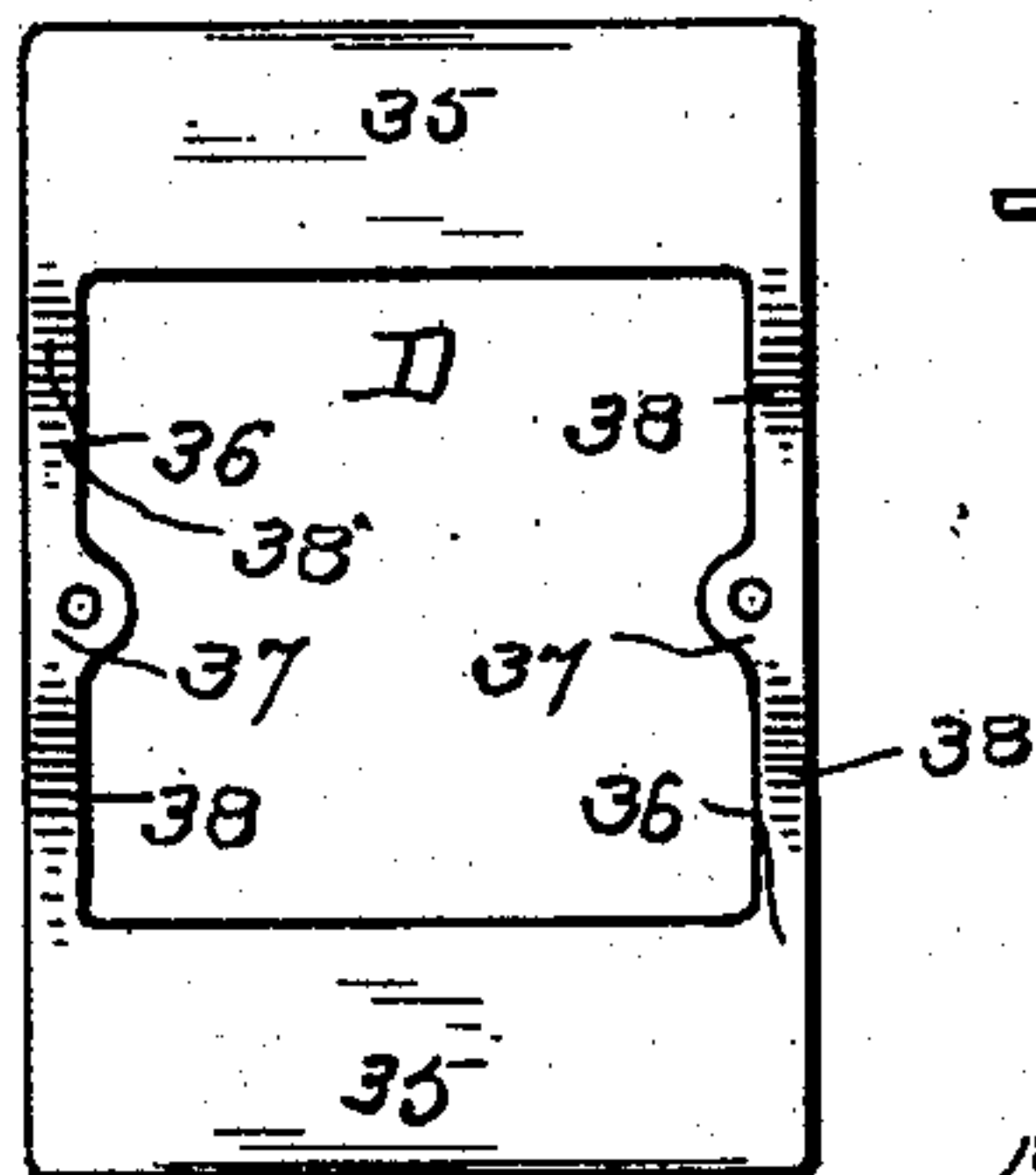


Fig. 3.

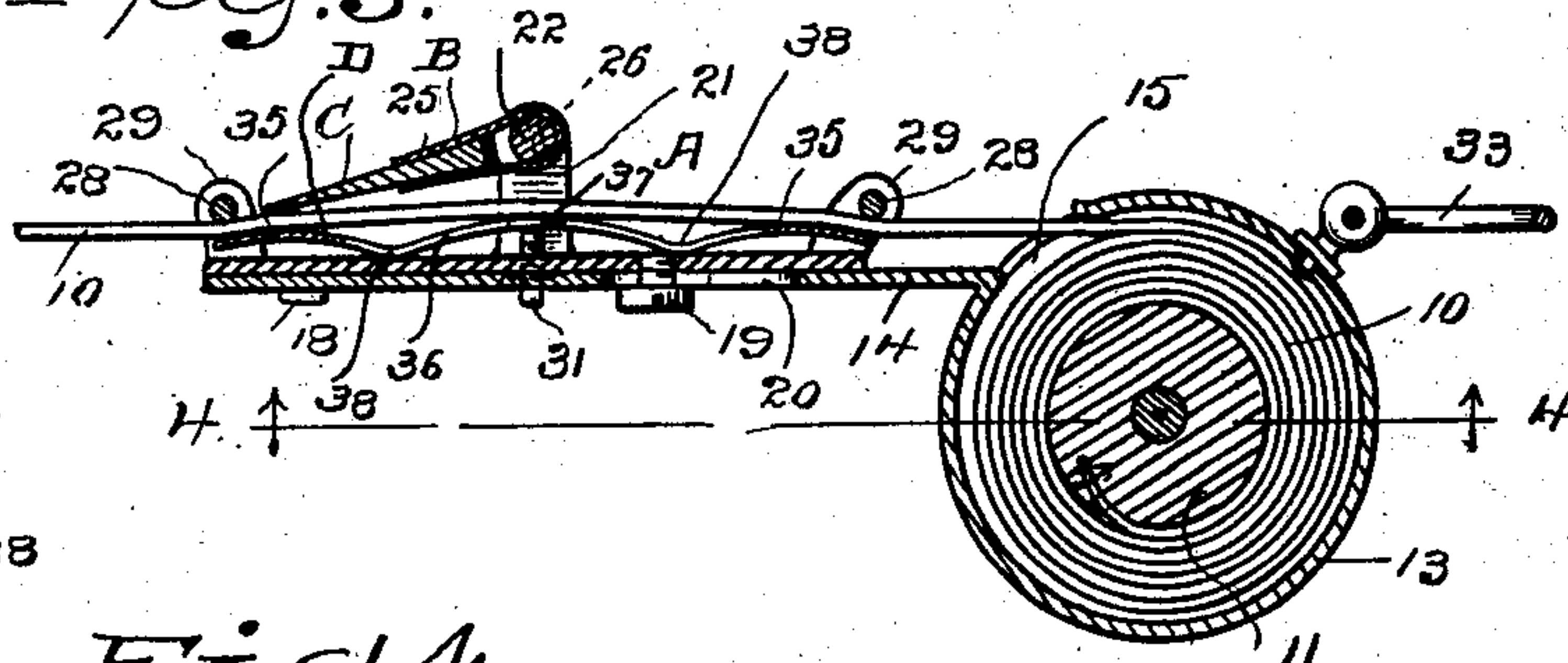
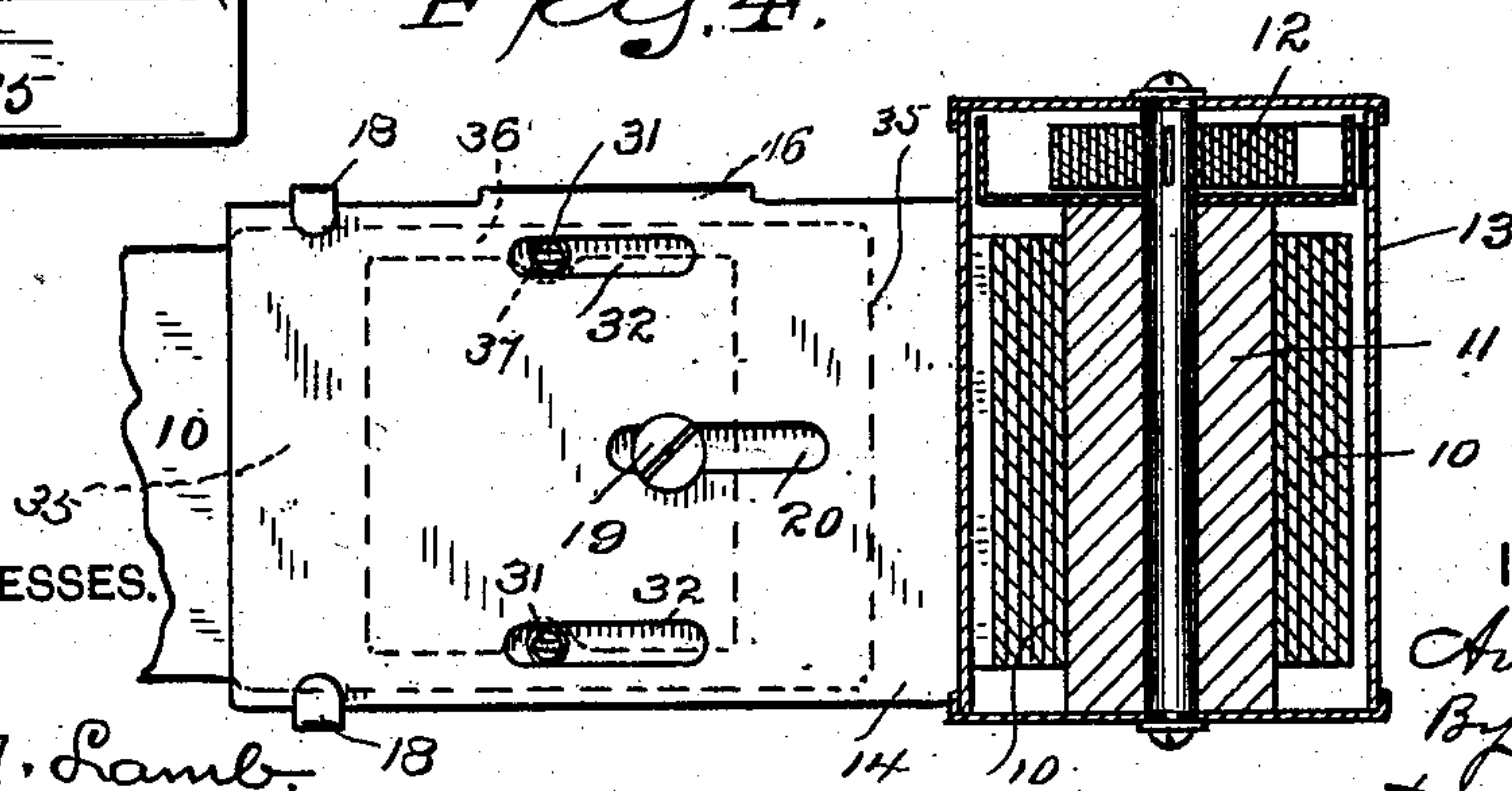


Fig. 4.



WITNESSES.

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UNITED STATES PATENT OFFICE.

ARTHUR C. GAYNOR, OF BRIDGEPORT, CONNECTICUT.

AUTOMATIC STROPPER.

SPECIFICATION forming part of Letters Patent No. 720,417, dated February 10, 1903.

Application filed October 20, 1902. Serial No. 127,914. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR C. GAYNOR, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented a new and useful Automatic Strop-
5 per, of which the following is a specification.

My invention has for its object to provide a simple, inexpensive, and thoroughly practical automatic strop-
10 per for razor-blades more especially adapted for stropping the blades of safety-razors, although a larger-sized strop-
per made in accordance with the principle of my invention is equally adapted to the strop-
15 ping of ordinary razor-blades.

With the above end in view I have devised the simple and novel razor-strop-
per which I will now describe, referring to the accompanying drawings, forming part of this specifi-
20 cation, and using reference characters to indicate the several parts.

Figure 1 is a side elevation of my novel strop-
per complete, the strop being partly drawn out; Fig. 2, a plan view thereof, the
25 normal position of the blade-holder and blade being indicated by dotted lines; Fig. 3, a section on the line 3 3 in Fig. 2; Fig. 4, an inverted plan view, the case being in section on the line 4 4 in Fig. 3; and Fig. 5 is a plan
30 view of the bearing-spring detached.

10 denotes the strop, which may be a strip of leather or canvas and is made self-winding on a roller 11, controlled by a spring 12, the roller and the strop in its normal or wound
35 position being inclosed in a suitable case 13.

14 is a plate or table which is made integral with or rigidly secured to the case and extends outward therefrom contiguous to a slot 15, through which the strop passes in
40 winding and unwinding.

16 denotes a rack at one side of the table, which may be made integral with the table or rigidly secured thereto. At each end of the rack is an enlarged space or depression
45 17, adapted for engagement by a tooth much larger than the teeth which engage the rack itself.

A denotes a carrier which is adapted to reciprocate upon the table. The carrier is
50 shown as retained in operative position by means of lugs 18 on the carrier, which are curved about the edge of the table, and a

screw 19, which passes through a slot 20 in the table and engages the carrier, the head of the screw lying on the under side of the
55 table, as clearly shown in Fig. 3. It should be understood, however, that these details of construction are of little importance and do not affect the principle of the invention.

21 denotes bearings which extend upward
60 on opposite sides of the table in which the shaft 22 of an oscillatory blade-holder B is journaled.

23 denotes a segment-pinion at one end of the shaft, which engages the rack on the ta-
65 ble and is provided with two enlarged teeth 24, which are adapted to engage the spaces or depressions 17, respectively, at the ends of the rack. The action of the enlarged teeth 24 in connection with the spaces or depres-
70 sions 17 is to greatly increase the leverage upon shaft 22, the effect being to press a blade carried by the blade-holder down firmly upon the strop as it is drawn outward by hand or drawn inward by the spring, as will be
75 more fully explained. By using a small segment-gear and corresponding rack to oscillate the blade-holder and enlarged rack-teeth and corresponding spaces or depressions when in-
80 creased leverage is required upon the blade-holder I secure a maximum leverage, and consequently maximum pressure of the blade upon the strop, while at the same time the construction of the instrument as a whole is
85 as compact as it could be made even without the increased leverage. The essential features of the blade-holder are spring side plates 25, which may be made from a single piece of metal curved about the shaft and se-
90 cured thereto, as by a rivet 26, and a back spring 27, against which the back of a blade C rests while being stropped. The ends of the back spring may be secured to the shaft in any suitable manner. In the present in-
95 stance I have shown the ends of the back spring as bent substantially at right angles to the body thereof, the ends of the shaft being passed through holes in the ends of the back spring. These details of construction, however, as well as those above referred to,
100 are not of the essence of the invention. The strop after leaving the case passes under cross-bars 28, whose ends are rigidly secured in lugs 29 on opposite sides of the ends of the

table and over a bearing spring or springs 30. The form of bearing-spring which I preferably use may be formed from a single piece of metal or may, if preferred, be formed in parts and be rigidly secured together. It consists of bearing-pieces 35 and side strips 36 by which they are connected. The side strips have raised central portions 37 and contact-points 38 intermediate the central portion and the bearing-strips. The bearing-springs are adjustably secured to the carrier by means of screws 31, which pass through slots 32 in the table and engage central portions 37 of the side strips. When screws 31 are turned in, the effect will be to draw down central portions 37 of the side strips, and consequently to correspondingly tilt bearing-pieces 35 through the engagement of the contact-points with the plate or table. I have shown the case as provided with a ring 33 for convenience in suspending in use and the end of the strop as provided with a loop 34, also for convenience in use.

The operation is as follows: Having placed the blade to be stropped in the blade-holder the operator suspends the stropper in any convenient manner, as by engaging ring 33 with a convenient hook, and alternately draws the strop out of the case by means of loop 34 and allows the spring-controlled roller to draw it in again. Suppose the strop to be in its normal position—that is, drawn fully in and wound upon the self-winding roller—and the stropper to be suspended from a hook or any fixed object. As the operator pulls upon loop 34, owing to the fact of the strop being gripped with a yielding pressure between cross-bars 28 and the bearing-pieces of spring D carrier A will at first move outward with the strop, and segment-pinion 23, carried thereby, will engage the rack on the table, the effect of which will be to oscillate the blade-holder and carry the blade from its normal position (indicated by dotted lines in Fig. 2) to the position shown in full lines in Figs. 1, 2, and 3. As soon as the blade comes in contact with the strop it will stop the oscillation of the blade-holder and make it impossible for the carrier to move outward any farther. The pull upon the strop, however, both in drawing out and winding will cause the strop to slip through the carrier freely, and thus strop the blade. It should be noted as an important feature of this invention that the engagement of one of the large teeth 24 of the pinion with one of the enlarged spaces or depressions 17 in the rack will exert the same leverage upon shaft 22 and will press the blade down upon the strop with just as much power as if the teeth and spaces of the rack and pinion were all made the same size as teeth 24 and spaces or depressions 17. Continued pull upon the strop draws it along over the side of the blade, thereby stropping it as effectively as it could be done by hand and very much more easily and quickly, the blade being pressed down firmly, as already described, on the strop, which it-

self rests upon one of the bearing-pieces of spring D. As soon as the strop has been drawn outward to its full length or as far as convenient the pull thereon is relaxed, and spring 12 is allowed to rotate roller 11 and wind the strop thereon, the same action being repeated as when the strop was drawn outward. Owing to the grip of the bearing-pieces and cross-bars of the carrier upon the strop the carrier will commence to move inward with the strop, which through the engagement of the pinion with the rack will oscillate the blade-holder and blade and swing the latter from the position shown in full lines in Figs. 1, 2, and 3 to the position shown in dotted lines in Fig. 2, in which position it will remain while the strop is being drawn inward over the opposite side of the blade and until the strop is again drawn outward and the blade-holder oscillated to place the side of the blade first operated upon again in contact with the strop. This operation of drawing out the strop and then letting it rewind may be repeated in use as long as may be necessary to strop the blade, it being understood that the blade-holder will be reversed, so as to place the opposite side of the blade in contact with the strop each time the movement of the strop is reversed.

Having thus described my invention, I claim—

1. In a device of the character described the combination with a strop and a self-winding roller therefor, of a table having a fixed relation to the winding-roller, a carrier adapted to reciprocate thereon and having frictional engagement with the strop, an oscillatory blade-holder on the carrier and connections intermediate the blade-holder and the table, whereby the blade-holder is oscillated each time the movement of the strop is reversed, the carrier moving with the strop until oscillation of the blade-holder is stopped, substantially as described.

2. In a device of the character described the combination with a strop and a self-winding roller therefor, of a table having a fixed relation to the winding-roller, a carrier adapted to reciprocate thereon and having frictional engagement with the strop and an oscillatory blade-holder journaled on the carrier, reciprocation of the carrier and oscillation of the blade-holder being produced through frictional engagement of the carrier with the strop.

3. In a device of the character described the combination with a strop and a self-winding roller therefor, of a case inclosing the roller and having a slot through which the strop may pass, a table contiguous to the slot and having a fixed relation to the winding-roller, a reciprocating carrier having frictional engagement with the strop, an oscillatory blade-holder on the carrier and operating connections intermediate the blade-holder and the table, whereby when the carrier commences to move through frictional engagement with

the strop the blade-holder will be oscillated to place the opposite side of a blade in engagement with the strop.

4. In a device of the character described the combination with a strop and a self-winding roller therefor, of a table having a rack and at the ends thereof enlarged spaces and having a fixed relation to the winding-roller, a carrier adapted to reciprocate on the table and having frictional engagement with the strop, and an oscillatory blade-holder having a segment-pinion engaging the rack and enlarged teeth adapted to engage the respective spaces, the additional leverage of the enlarged teeth and spaces acting to increase the pressure of a blade upon the strop.

5. In a device of the character described the combination with a strop and a self-winding roller therefor, of a table supported in fixed relation to the winding-roller, a reciprocating carrier having a bearing-spring comprising bearing-pieces and side strips having raised central portions and contact-points, cross-bars above the bearing-pieces and means for adjusting the pressure of the bearing-pieces to regulate the tension on the strop and an oscillating blade-holder journaled on the carrier.

6. In a device of the character described the combination with a strop, a self-winding roller therefor and a case for the roller having a slot through which the strop may pass, of a fixed table extending outward from the case contiguous to the slot and having a rack, a carrier adapted to reciprocate on the table, a blade-holder journaled on the carrier and having a pinion engaging the rack and means upon the carrier for providing frictional engagement with the strop, substantially as described.

7. In a device of the character described the combination with a strop and a self-winding roller therefor, of a table supported in fixed relation to the winding-roller, a carrier adapted to reciprocate on the table, a blade-holder journaled on the carrier, connections intermediate the blade-holder and the table whereby the blade-holder is oscillated by movement of the carrier and means upon the carrier for engaging the strop frictionally so that the car-

rier will move in either direction with the strop until the oscillation of the blade-holder is completed.

8. In a device of the character described the combination with a strop and a self-winding roller therefor, of a table supported in fixed relation to the winding-roller, a carrier adapted to reciprocate on the table, a blade-holder journaled on the carrier, connections intermediate the blade-holder and the table, whereby the blade-holder is oscillated by movement of the carrier, and cross-bars and a bearing-spring on the carrier between which the strop passes and which engage it frictionally.

9. In a device of the character described the combination with a strop and a self-winding roller therefor, of a table supported in fixed relation to the winding-roller, a carrier adapted to reciprocate on the table, a blade-holder journaled on the carrier, connections intermediate the blade-holder and the table, whereby the blade-holder is oscillated by movement of the carrier, cross-bars on the carrier and a spring over which the strop passes and which consists of bearing-pieces and side strips having contact-points with the carrier and raised central portions engaged by screws, whereby the pressure of the bearing-pieces upon the under side of the strop may be regulated.

10. A device of the character described, comprising a table, a self-winding roller mounted in bearings having a fixed relation to the table, a strop connected to the roller and extending over the table, a blade-holder pivotally supported above the strop, and means for automatically oscillating the holder, whereby a blade may be stropped by one hand alternately pulling and releasing the strop, without liability of contact of the fingers with the blade.

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

ARTHUR C. GAYNOR.

Witnesses:

A. M. WOOSTER,
S. W. ATHERTON.