

No. 657,161.

Patented Sept. 4, 1900.

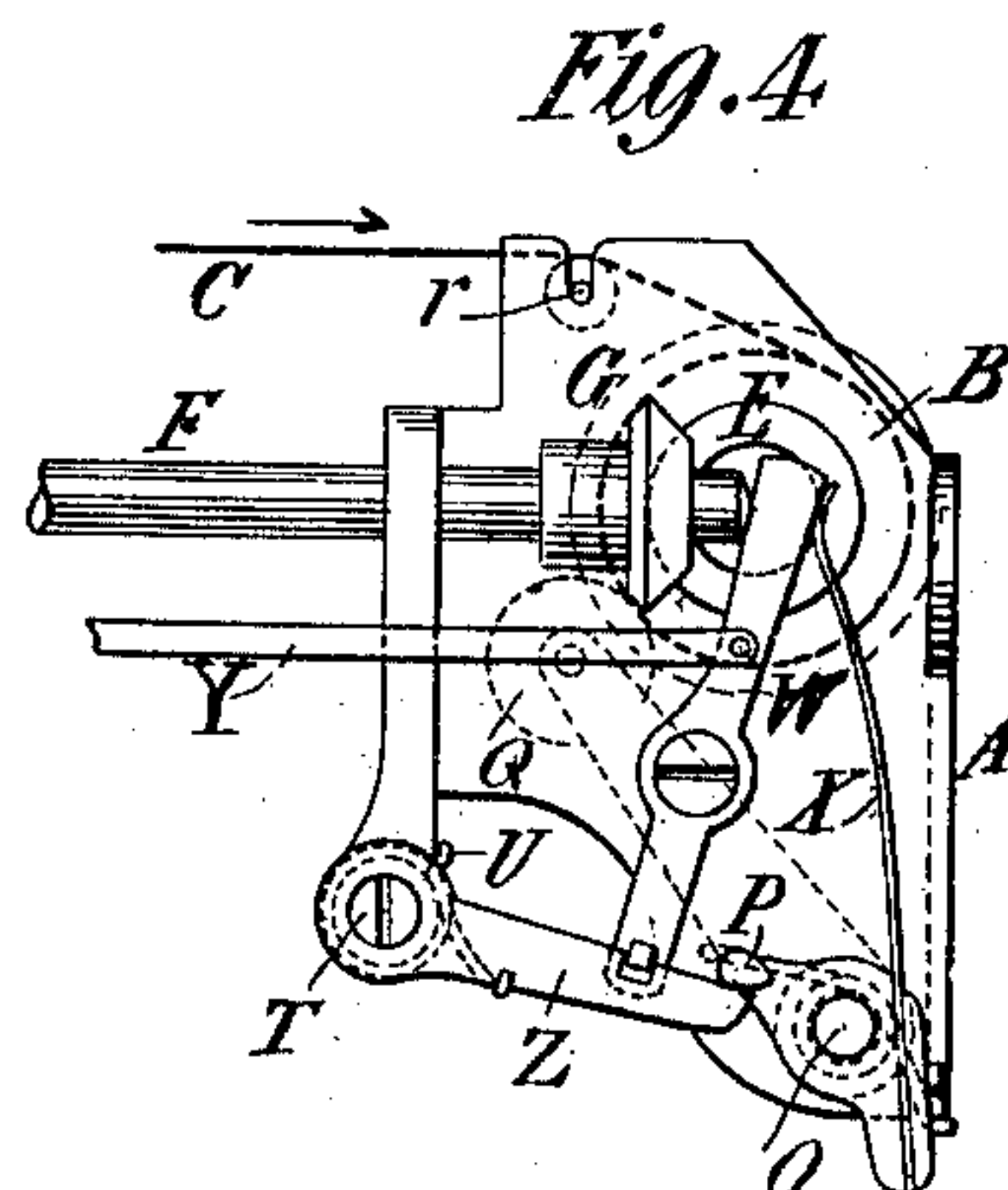
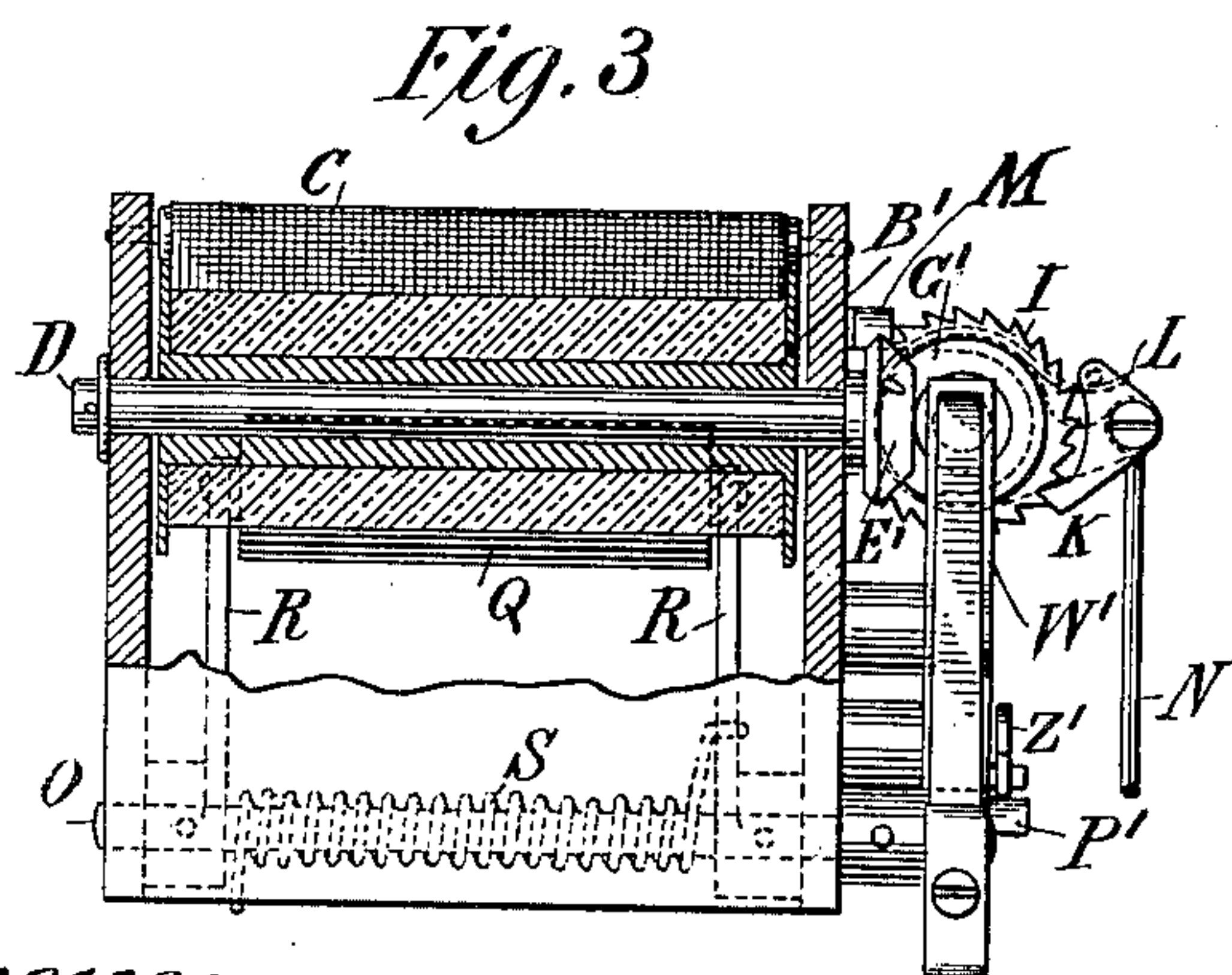
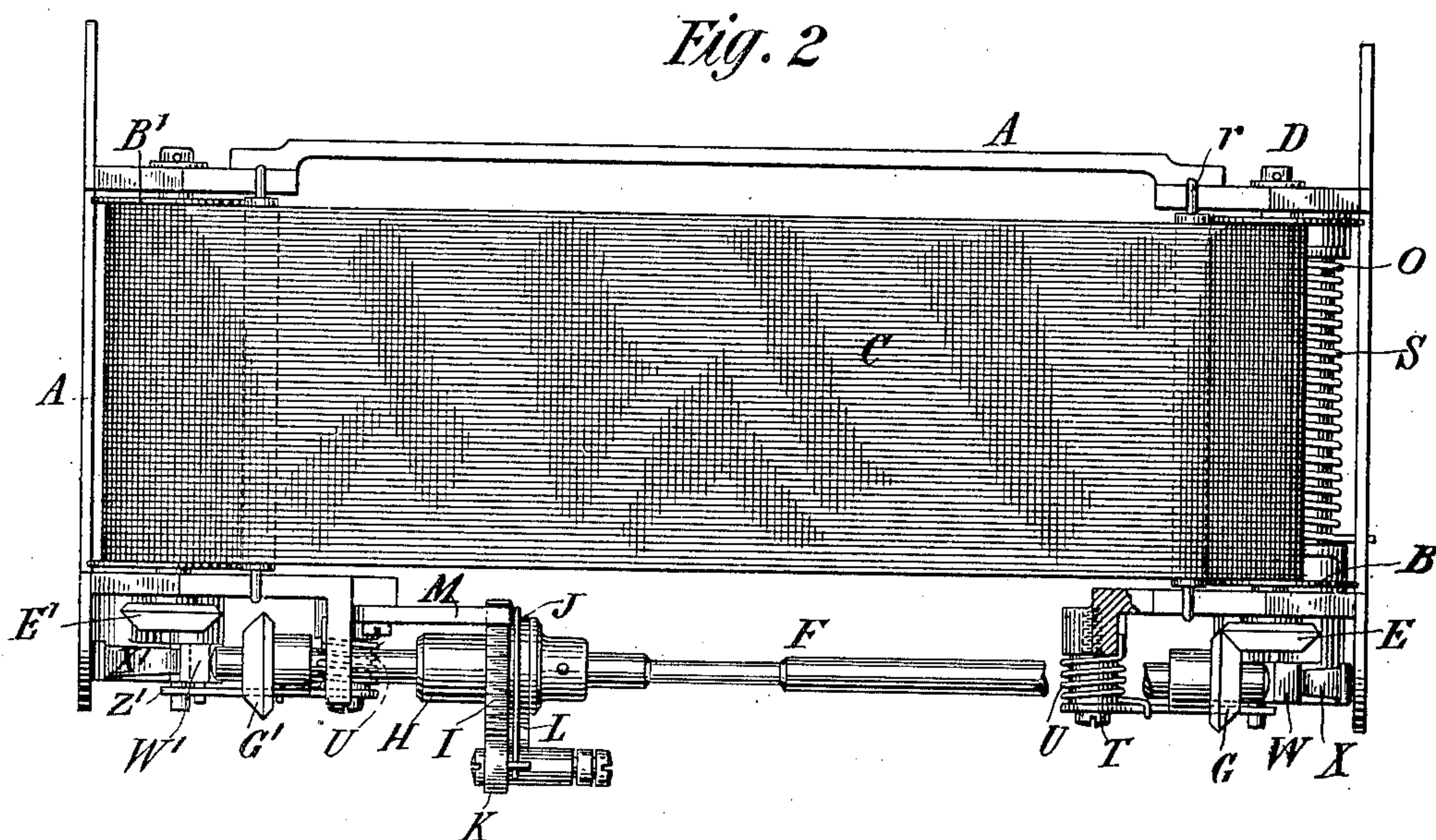
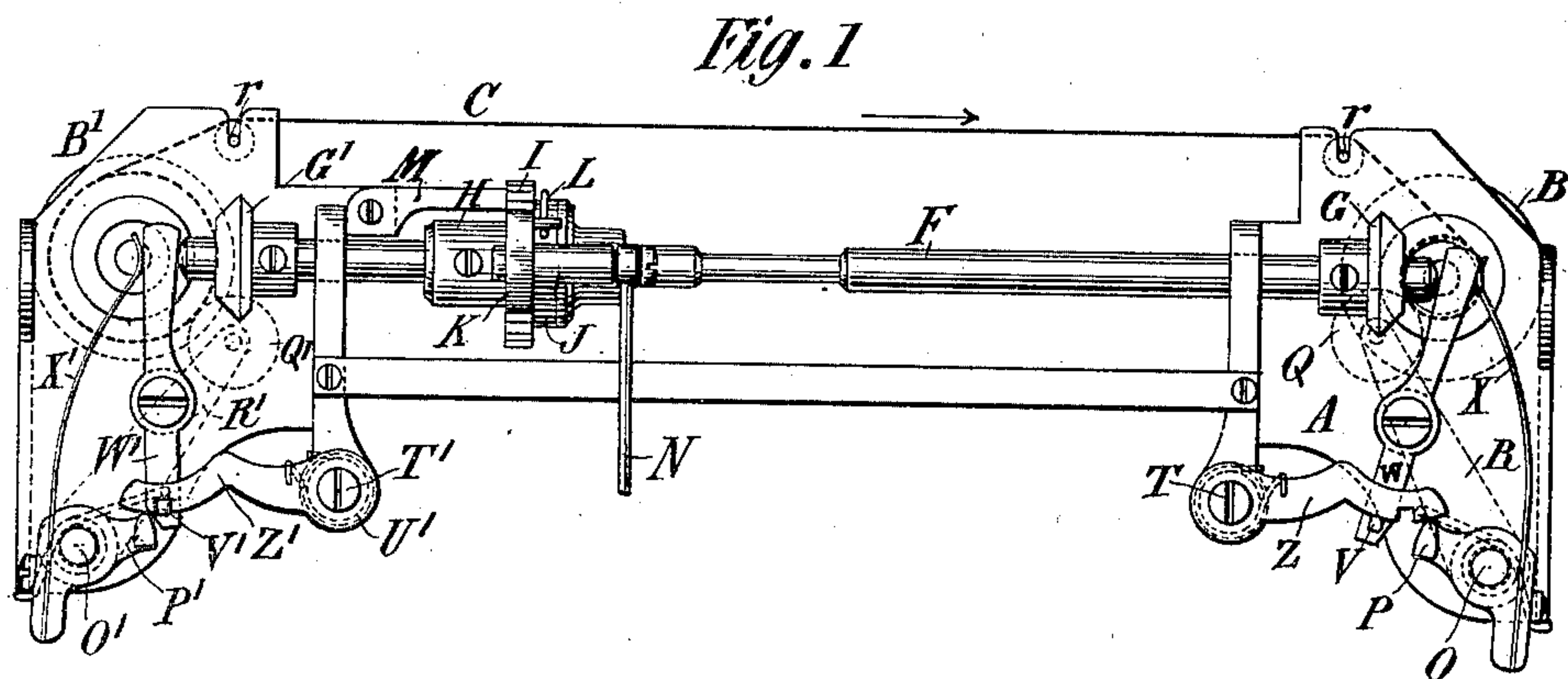
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RIBBON FEED FOR TYPE WRITERS, HAND STAMPS, &c.

(Application filed Oct. 14, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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Fig. 5

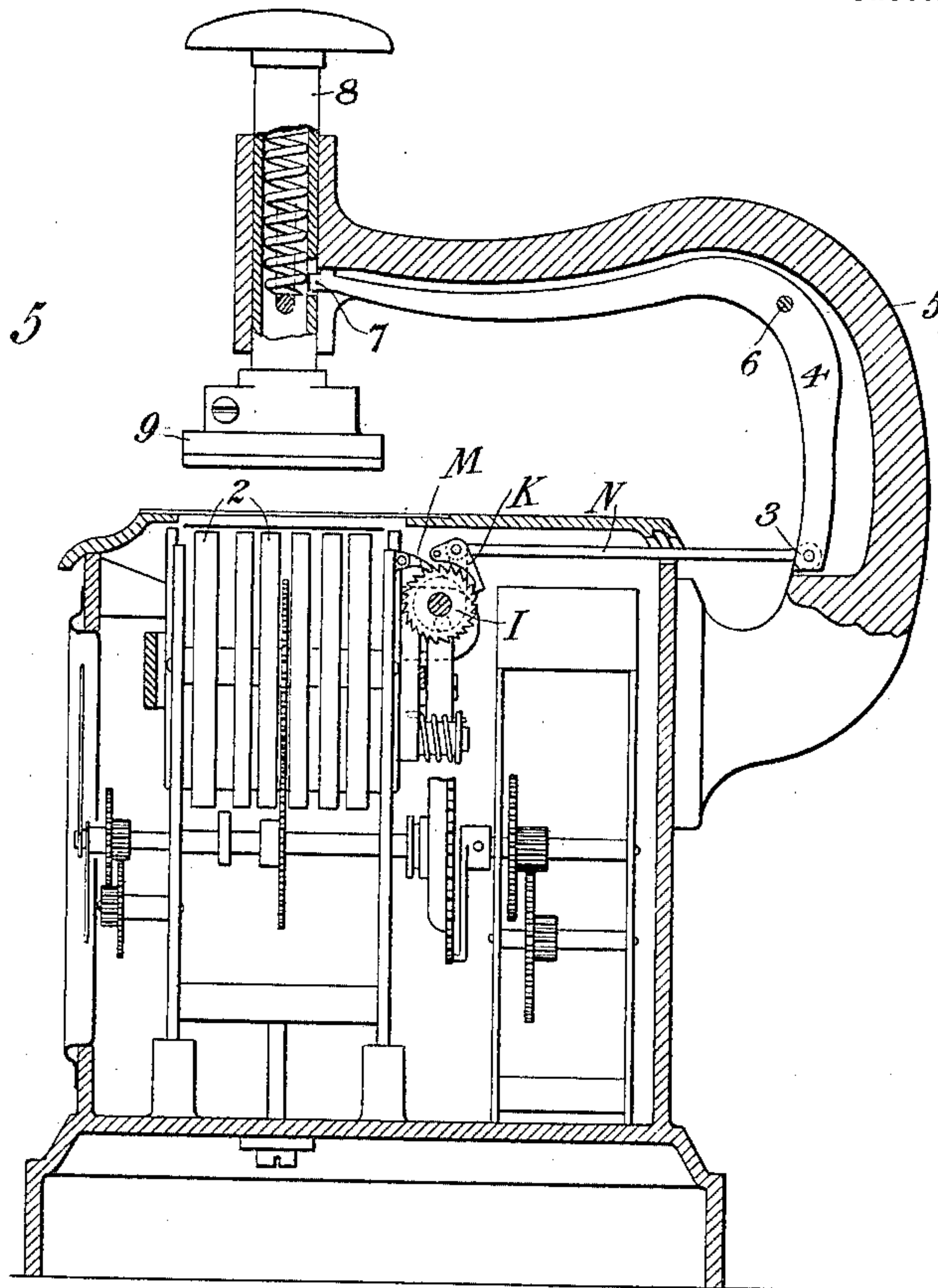
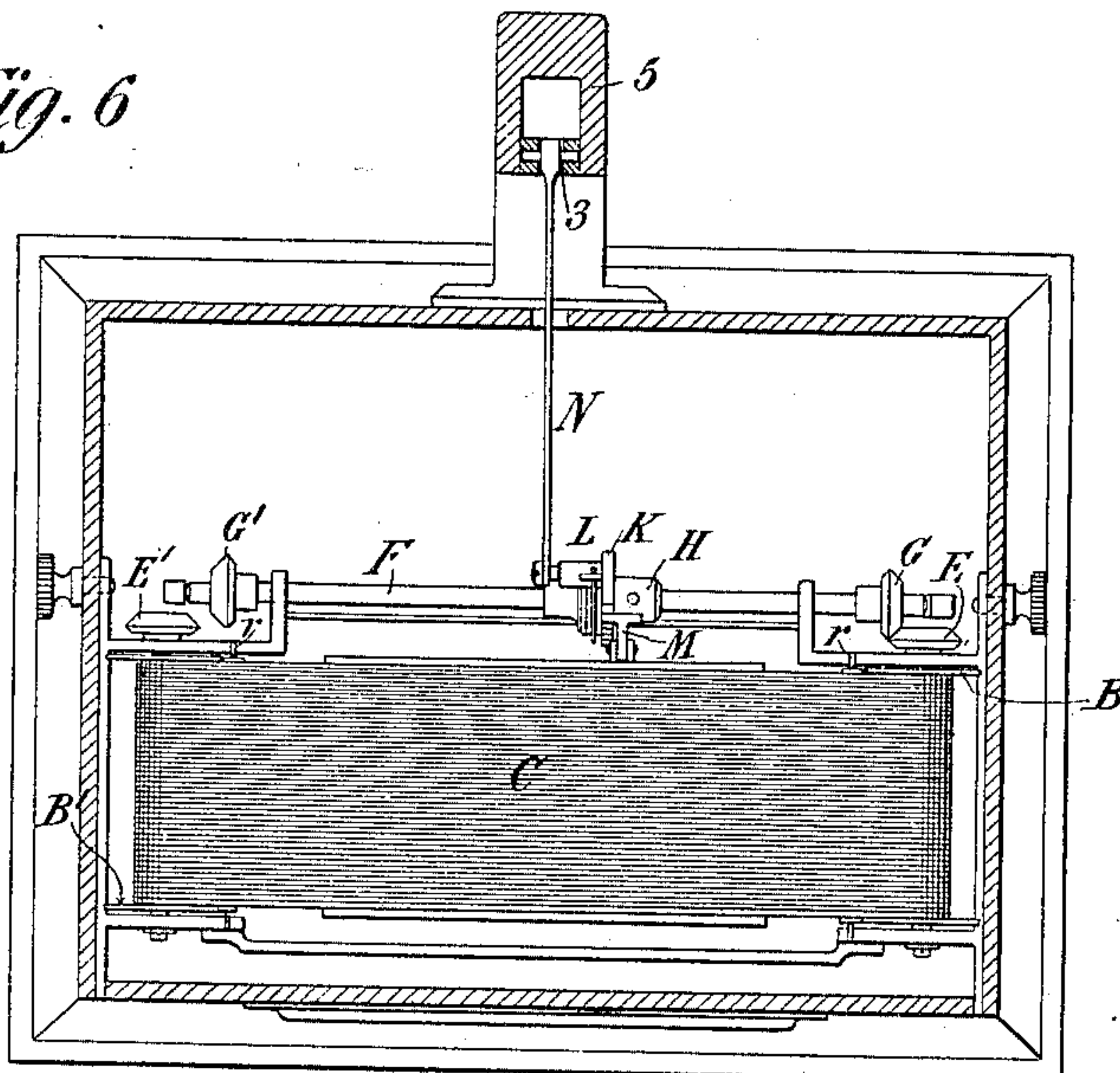


Fig. 6



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UNITED STATES PATENT OFFICE.

WILLIAM JAMES ENGLISH, OF NEW YORK, N. Y., ASSIGNOR TO JAMES S. MACCOY, OF SAME PLACE.

RIBBON-FEED FOR TYPE-WRITERS, HAND-STAMPS, &c.

SPECIFICATION forming part of Letters Patent No. 657,161, dated September 4, 1900.

Application filed October 14, 1899. Serial No. 733,579. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM JAMES ENGLISH, a citizen of the United States, residing at New York city, borough of Manhattan, in the county and State of New York, have invented certain new and useful Improvements in Ribbon-Feeding Attachments for Time-
5 Stamps, Type-Writers, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which like characters of reference indicate corresponding parts.

My invention is applicable to any printing or stamping device in which a ribbon is arranged to travel over or coöperate with the
15 face of the type or other printing-surface, the ribbon being arranged to be wound from one spool upon another.

It consists generally of mechanism which advances the ribbon progressively from one
20 spool to the other, said mechanism being actuated intermittently by a spacing-key or other suitable means, and means for automatically reversing the direction of motion of the ribbon-feed before it is completely un-
25 wound from one spool.

In the drawings, Figure 1 represents a front elevation of my invention detached. Fig. 2 is a top plan view of Fig. 1, partly broken
30 away. Fig. 3 is an end view of Fig. 2, partly in section. Fig. 4 is a detail of a modified reversing mechanism. Figs. 5 and 6 illustrate my invention applied to a time-stamp.

Upon a frame A A are mounted the reels or spools B B', which carry the inking-
35 ribbon C, which may be arranged to pass over friction-rollers r r. The reels B B' are carried by shafts D D, upon the corresponding ends of which (see Figs. 2 and 6) are mounted bevel-gears E E'.
40

Parallel with the length of the ribbon and revolubly mounted upon the outside of the frame A A is a shaft F, at the ends of which are carried bevel-gears G G'. The shaft F is
45 so supported that it may be shifted lengthwise to bring the gear G into mesh with the driving-gear E or gear G' into mesh with driving-gear E' alternately. Thus one at a time the ribbon-spools B B' are driven by
50 the revolution of shaft F.

The shaft F carries a drum or collar H, fix-

edly mounted upon it, and upon the drum H, in turn, is mounted the actuating device for the shaft F, which comprises a ratchet I, which may be integral with the drum H, and a collar J, which is loosely mounted upon the
55 drum H and which carries a pawl K. As shown at Figs. 3 and 5, pawl K, which is normally pressed into contact with the ratchet I by a spring L, is pivotally mounted upon the
60 collar J. A rod N, Figs. 1 and 3, attached to the collar J, will by being raised revolve collar J and pawl K about shaft F and by being depressed will revolve the ratchet I, and with it the shaft F, the pawl K being
65 forced into contact with the ratchet I by the spring L. A stop M may be provided to keep the ratchet I from moving when the pawl K is raised.

It is evident from the foregoing that in the
70 arrangement of the parts shown in Figs. 1 and 2 the alternate raising and lowering of the arm or rod N will through pawl K and ratchet I tend to revolve the shaft F, and with it the bevel-gears G G', mounted upon
75 its ends, to a greater or less extent, subject to proper regulation and adjustment. If the shaft F be thrown to the right, as there shown, it will through gears G E tend to rotate the ribbon-spool B, so as to wind the rib-
80 bon upon it, and thus pull it from the other ribbon-spool B', thereby revolving it also. In other words, the direction of travel of the ribbon will be from left to right.

Mounted upon the frame A and preferably
85 extending beneath and parallel to the length of the ribbon-spool, although this is not essential, is a rock-shaft O, which carries at one end a short trigger or trip P. The rock-shaft also carries (at the outer ends of arms
90 R) a roller Q, which is pressed against the ribbon-spool B by the pressure of the coiled spring S upon shaft O. The ribbon-spool B' is similarly provided with a roller Q' and other connected and related parts. Any ap-
95 propriate bearing-surfaces may be substituted for rollers Q Q'. The rock-shaft O, lever P, arms R, and roller Q act as a reversing-lever for the driving mechanism of the ribbon-feed, as I shall describe.

As the ribbon C being wound upon spool B is drawn from spool B' the roller Q' being
100

pressed farther and farther to the left as the size of the roll of ribbon diminishes rocks the shaft O' to the left, thereby raising the trip or trigger P'. This trigger P' contacts with an arm or locking-lever Z', which is pivoted at T' and is normally pressed downward by a spring U', so as to hook over and retain a projection V' upon the rocking lever W', thereby locking the latter in the position shown in Fig. 1 until the arm Z' is raised out of contact with V' by the rocking upward of trigger P'. This movement is caused by the roller Q' moving upward beyond a predetermined point as the ribbon C leaves the roller B'. When this has taken place, the spring X', which is also mounted upon rock-shaft O', as shown, is thrown somewhat to the left, so that its stress, which is normally against the rock-shaft W', is lessened. The rocking lever W' is normally pressed against the end of shaft F by the spring X'. When, then, the stress of spring X' is lessened or removed and the lower end V' of the rocking lever W' is released from the locking-arm Z' by the backward rotation of O', the shaft F is free from stress at its left-hand end. A spring X at the right end of F, which corresponds in situation and relation to similar moving parts to spring X', now exerts its stress to throw the rocking lever W over to the left, thereby pushing the shaft F to the left, thus shifting that shaft to the left. Thereby the gear G at the right of shaft F is moved out of engagement with gear E of reel B, and gear G' at the left of shaft F is moved into engagement with gear E' of reel B'. By this latter means the reel B' is now made to revolve from right to left, thus winding the ribbon C upon itself and unwinding it from reel B. Thus the direction of feed of ribbon C is reversed.

By providing each ribbon-spool with reversing-gear such as I have described the ribbon is made to travel progressively forward and backward, its direction of motion being reversed as it approaches complete unwinding from each spool.

It is obvious that the rock-shafts O O', with their connected and attendant parts, can be so arranged as to shift the driving-shaft F at any desired point—as, for example, when the ribbon is half unwound from either of the spools or not until it is entirely unwound, &c.

In Fig. 4 I have shown a modification of the reversing-gear whereby the reversal of movement is effected by the spool upon which the ribbon is winding, not that from which it is unwound, as above described. In this case the trigger P, mounted on the shaft O, which is rocked by the movement of roller Q, is located above the arm Z, and the latter hooks upward over the stud or catch V in the lever W. By this means the roller Q, being pressed downward as the ribbon-roll B increases in size, rocks the shaft O to the left, thereby carrying down the outer end of arm P, so that at the proper or prearranged time lever Z is thrown out of connection with the stud

V upon arm W, releasing the latter, which under the stress of spring X, which is pressed forward by its own tension and, in addition, by the rocking forward of shaft O, pushes shaft F to its other position, so as to operate the gears and ribbon-spool at its other end, as described above. In this form of device I may, although it is not essential, employ a link Y, connecting the two rocking levers W, so as to insure their simultaneous movement.

I have explained how the shaft is rotated by the alternate elevation and depression of the rod N, Figs. 1 and 3. It will be apparent that this rod may be attached, for example, to the spacing-key of a type-writer, so that whenever that key is struck the ribbon is advanced one unit of its length, or I may have a connection with all of the type-writer keys, so the ribbon is advanced one unit whenever any key is struck. Since the method of connecting it in a type-writer or of otherwise employing it may be widely varied, and inasmuch as such attachment is not essential to my invention, I have not illustrated it. I have, however, in Figs. 5 and 6 shown its emplacement and operative connections in a time-stamp or workman's time-recorder. Here the ribbon-spools B B' are placed at opposite sides of the casing, near the front, so that the ribbon may run over the type-wheels 2 2. The operating or actuating rod N extends horizontally from the pawl K and is joined at 3 to a lever 4, which preferably follows the contour of the arm 5 of the stamp, being contained within it and pivoted at 6. The outer end 7 of this lever is in the line connected to the plunger 8, so that as the latter is moved down and up to operate and withdraw the printing-platen 9 the lever 4 moves the arm N forward and back, thus rotating the shaft I, as in the arrangement shown in Figs. 1 and 3.

Manifestly many other changes and modifications besides those described and illustrated in the construction and arrangement of the parts of my invention and in its application may be made without departing from the essence of my invention.

What I claim as my invention is—

1. In a reversing-gear for ribbon-feed, the combination of the reels upon which the ribbon is wound and between which it passes, independent reversing-levers bearing upon the ribbon wound upon the two reels, respectively, means for holding the said reversing-levers in engagement with the ribbon on the reels independently one of the other, mechanism for rotating the reels to feed the ribbon from one reel to the other, a shifting mechanism for connecting the said rotating mechanism with one or the other of the reels, and means for locking the said shifting mechanism, the said locking means being operated by the reversing-levers whereby the reversal of the ribbon-feed may be determined by the decrease in the bulk of the ribbon upon one of the reels, substantially as set forth.

2. In a reversing-gear for ribbon-feed, the combination of the reels upon which the ribbon is wound and between which it passes, reversing-levers arranged to bear upon the ribbon as it is wound upon the reels, independent springs for holding the reversing-levers yielding in engagement with the ribbon on the said reels, respectively, mechanism for rotating the reels adapted to be engaged with one or the other thereof, shifting mechanism for said rotating mechanism whereby the latter is brought into operative connection with one or the other of the reels, independent springs for giving motion to the shifting mechanism, connections between the said springs and the reversing-levers whereby the springs are put under tension as the reversing-levers are moved by the ribbon accumulating upon the reel, means for locking the shifting mechanism, and independent tripping devices for the locking means operated by the reversing-levers, substantially as set forth.

3. In a reversing-gear for ribbon-feed, the combination of two independent and disconnected reversing-levers operated respectively by the variation in the bulk of ribbon upon the ribbon-reels, locking mechanism for the feed operatively connected with the said reversing-levers, respectively, rocking levers normally engaged by the said locking mechanism, independent springs for pressing the said rocking levers in opposite directions against the sliding shaft of the reel-rotating mechanism, and means for increasing and diminishing the pressure of said springs according as the reversing-levers are moved, substantially as set forth.

4. In a reversing-gear for ribbon-feeds, the combination of the ribbon-reels, rollers bearing against the portions of the ribbon wound upon the said reels, respectively, rock-shafts provided with arms in which the said rollers are mounted, trips carried by the said rock-shafts, locking-levers arranged to be operated by the trips, rocking levers connected with the shifting operating devices for the reels arranged to bear thereupon in opposite directions, and springs bearing against the said rocking levers, the tension of the springs being varied as the position of the rollers bearing upon the ribbon wound on the reels varies, substantially as set forth.

5. In a reversing-gear for ribbon-feeds, the combination of a rock-shaft carrying suit-

able arms upon which is mounted a roller spring - pressed against one of the ribbon-reels, a trip operated by said rock-shaft, a lock adapted to be opened by said trip, and means independent of the means for spring-pressing the roller against the ribbon-reel for shifting the operating-shaft of the ribbon-feed when said lock is open, substantially as described.

6. In a ribbon-feed for type-writers, &c., the combination of two ribbon-reels, a main operating-shaft, connections at each end of said operating-shaft for rotating one of said ribbon-reels, and independent and disconnected means which are held in spring engagement with the ribbon-reels and are controlled by a predetermined decrease in the bulk of the ribbon upon one of said reels for shifting the said operating-shaft out of connection with that reel and into connection with the reel at the opposite end of the shaft, substantially as and for the purposes described.

7. In a reversing-gear for ribbon-feeds, the combination of the ribbon-reels, rocking frames carrying rollers adapted to bear upon the ribbon wound upon the reels, the springs for holding the rollers in engagement with the ribbon on the reels, a reversing-shaft for giving motion to the ribbon-reels, a lock for holding the shaft in working connection with the reel it is driving, a trip for operating such lock, the trip being operated by predetermined positions of the roller-carrying rocking frames, and springs, independent of the springs for holding the rollers against the ribbon on the reels, carried by the said rocking frames and arranged to move the reversing ribbon-driving mechanism when the trip is released, substantially as set forth.

8. In a reversing-gear for ribbon-feeds, the combination of the ribbon-reels, a reversing-lever operated by a predetermined variation in the bulk of ribbon upon one of the ribbon-reels, the sliding and operating shaft of the ribbon-feed mechanism, a rocking lever connected with the said sliding shaft, a lock for the said rocking lever, and a trip for said lock carried by the reversing-lever, substantially as set forth.

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