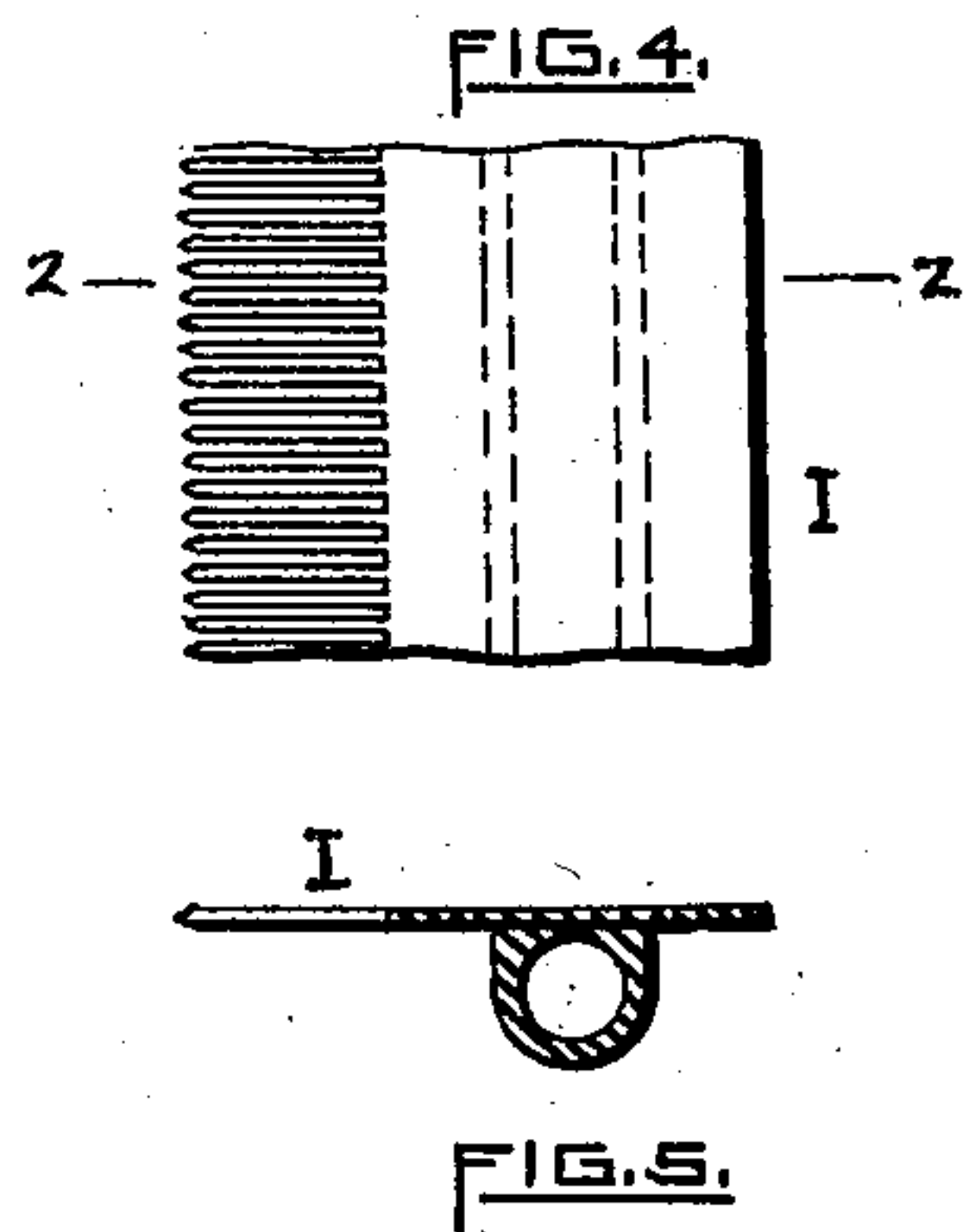
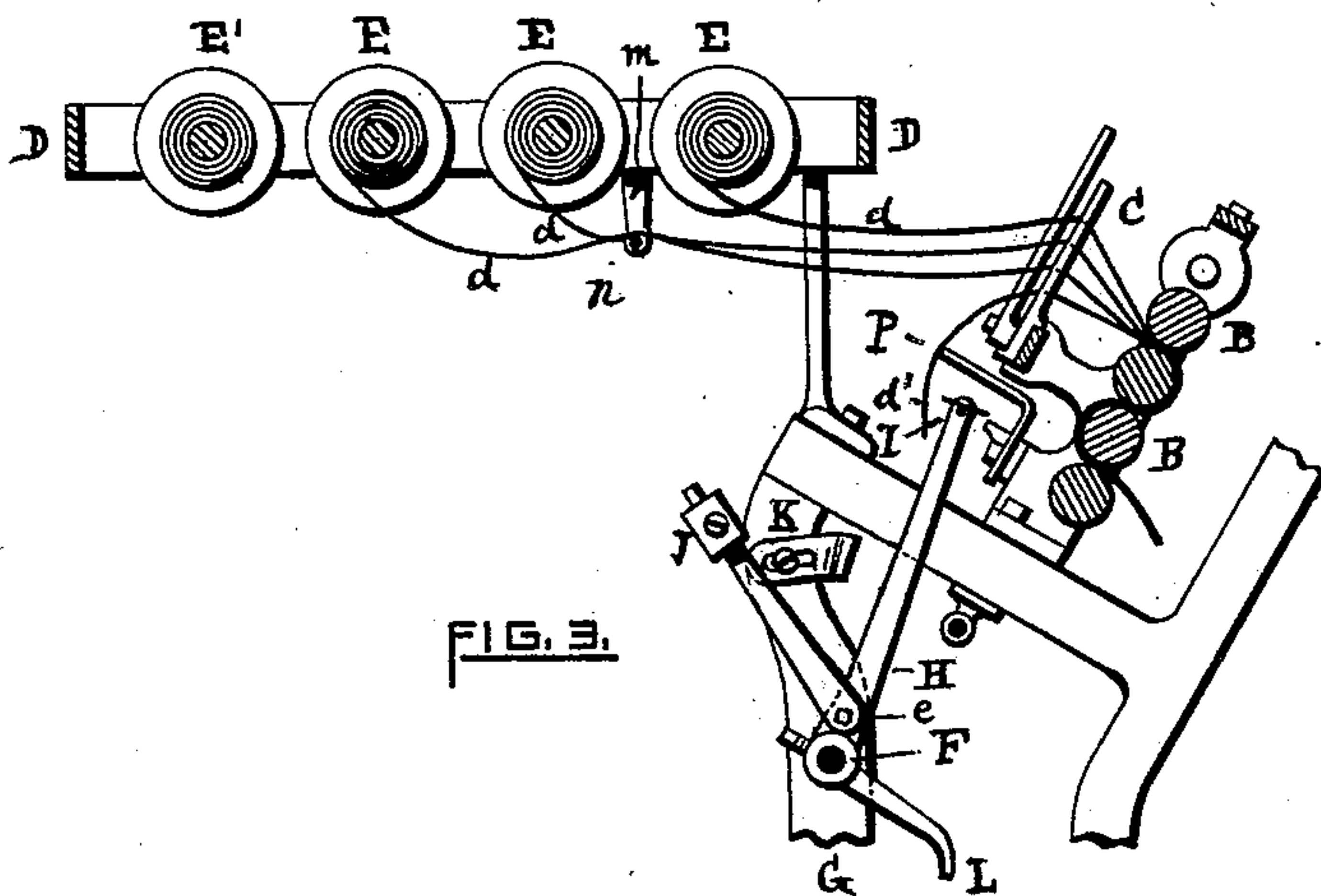
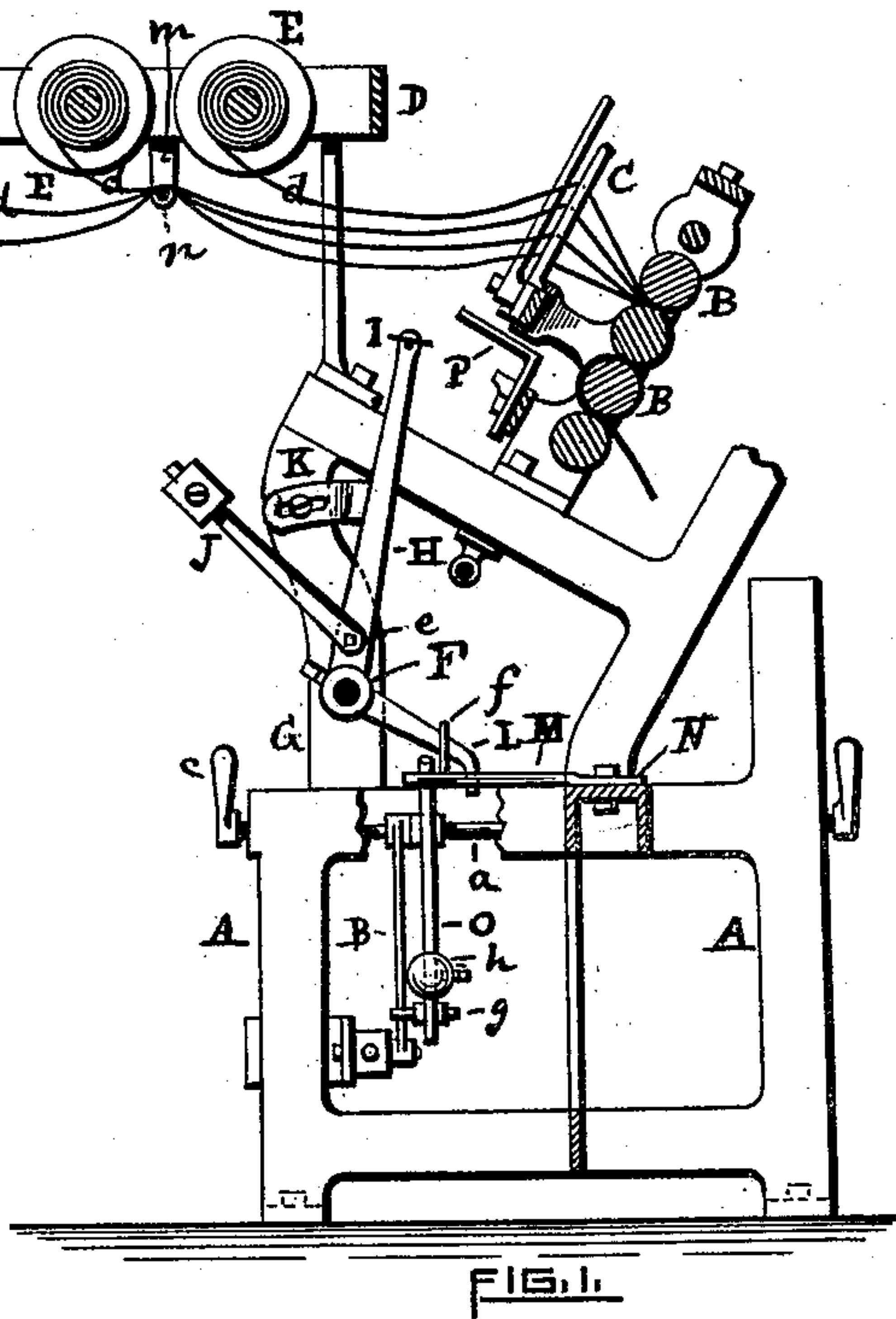
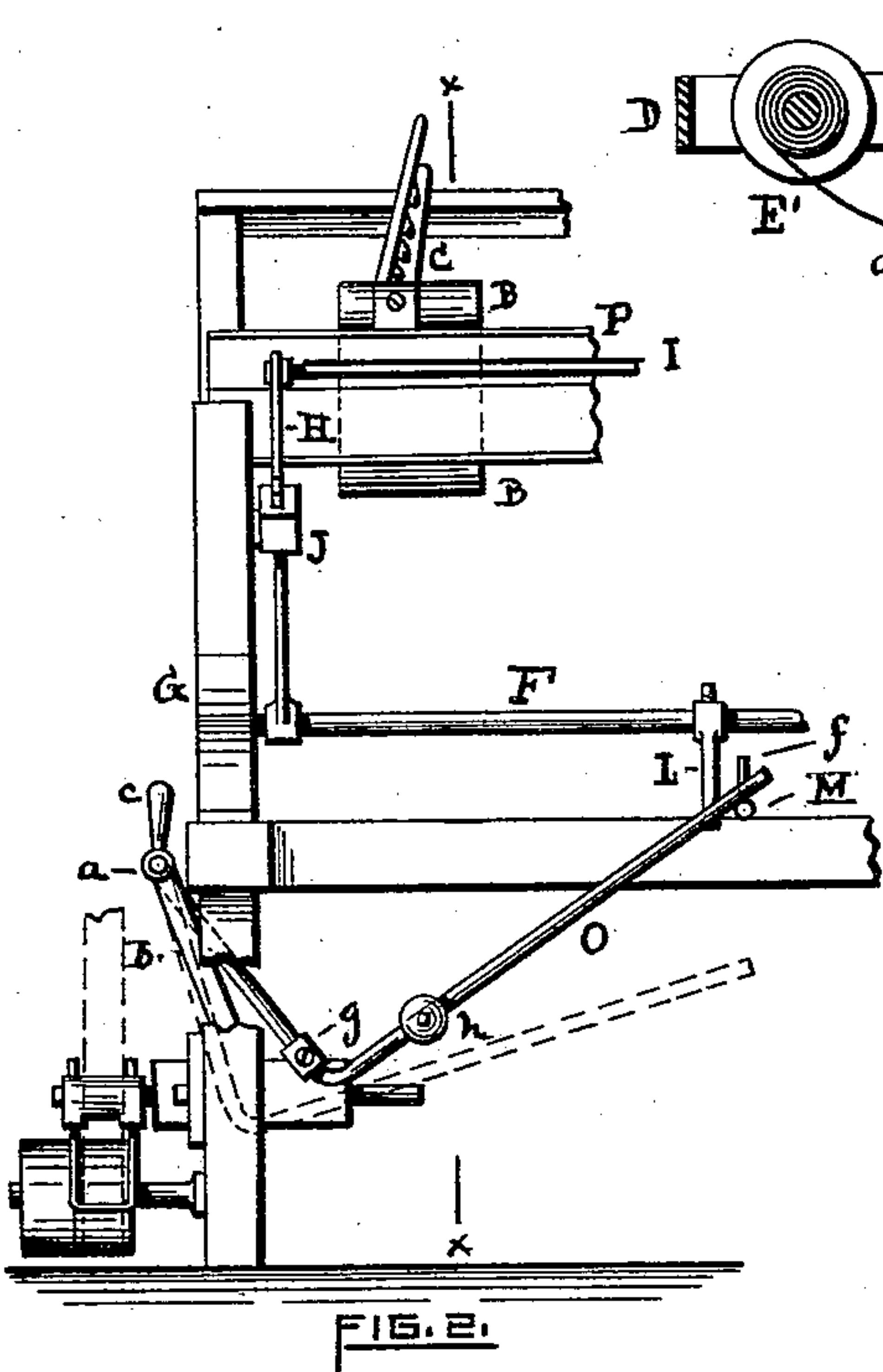


(No Model.)

J. C. BALDWIN.
STOP MOTION FOR DRAWING MACHINES.

No. 465,332.

Patented Dec. 15, 1891.



WITNESSES.

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MESNE ASSIGNMENTS, TO ELIZABETH BALDWIN, OF SAME PLACE.

STOP-MOTION FOR DRAWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 465,332, dated December 15, 1891.

Application filed July 3, 1891. Serial No. 398,410. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. BALDWIN, a subject of the Queen of Great Britain, and a resident of the town of North Providence, in the county of Providence, in the State of Rhode Island, have invented a certain new and useful Improvement in Stop-Motions for Drawing-Machines; and I declare the following to be a specification thereof, reference being had to the accompanying drawings.

Like letters indicate like parts.

Figure 1 is a view of my invention and such parts of a drawing-machine as are necessary to illustrate the location and action of the same, said view being partly in side elevation and partly on line *xx* of Fig. 2. Fig. 2 is a rear elevation of my invention and said parts of a drawing-machine. Fig. 3 is the same as the upper half of Fig. 1, except that Fig. 1 shows the parts in position, as seen when the drawing-machine is in operation, and that Fig. 3 shows the position of the parts when the stop-motion has acted, as hereinafter specified. Figs. 4 and 5 are enlarged views of the comb, Fig. 5 being shown as seen on line *zz* of Fig. 4.

My invention is applicable to all drawing-machines using sheep's wool, alpaca wool, mohair, camel's hair, or other fibrous material where two or more doublings or slivers are run through back rolls to be drawn.

My invention consists in the combination, with a drawing-machine which has the usual shipping-rod and lever to shift the driving-belt from a fast pulley to a loose pulley, of a fixed clearing-strip, two lever-arms rigidly mounted on a rock-shaft and extending upward, provided with a comb which is supported by the upper ends of said arms, means for balancing said arms and appurtenances so as to keep them in proper position while the sliver is properly passing to the rolls, but which means permit the unbalancing and movement of said arms and appurtenances when the sliver breaks, a bent finger secured to said rock-shaft, a weighted lever supported normally upon a bracket or rod and in engagement with said bent finger, but adapted to be knocked off of said bracket by said finger whenever the lever-arms and appurtenances are unbalanced, whereupon said

weighted lever falls by gravity and moves the shipper so as to shift the belt and stop the machine.

In the drawings, A represents the frame of a drawing-machine. It has the usual shipping-rod *a*, shipping-lever *b*, shipper-handle *c*, and the other common belt-shifting devices.

B B are the rolls; C, the guide; D, the creel; E E', the bobbins, and *d d'* the sliver passing from the bobbins through the guides and to and between the rolls.

F is a rock-shaft extending along the machine from side to side and mounted in the upright standards G of the frame. On each end of the rock-shaft F a lever-arm H is firmly mounted thereon by a collar and set-screw, and a comb I is fastened to each arm H on the top end thereof and extends the entire distance between said arms. A counterpoise or weighted arm J is secured to one of the arms H and is set at such an angle thereto as to normally keep the arms H in the position shown in Fig. 1. The counterpoise J being pivotally connected with the arm H can be thus angularly adjusted and set in position by the nut *e*. A stop-plate K is fixed upon the upright G of the frame and is adjustable thereon by the screw and slot, as seen in Figs. 1 and 3. The counterpoise J draws the arm H to the edge of said stop-plate K, so as to abut the same. A bent finger L is secured to the rock-shaft F by a collar and set-screw, as shown. A bracket or supporting-rod M, having a guide-pin *f*, is fastened to a rail N of the frame. A bent lever O is loosely mounted on the shipping-rod *a* and its free end is supported on the bracket M at the end thereof. Said bent lever O has a dog *g* secured thereon by a collar and set-screw, and, if desired, a weight *h* is placed on said lever O. By adjustment of the weight thereon toward or from the end of the lever the force of the fall of said lever when released can be regulated. A clearing-strip P is secured to the machine and extends from side to side. Hangers *m* extend down from the creels D, and a supporting-rod *n* extends therefrom at a right angle from side to side.

The operation of my improved stop-motion is as follows: When the counterpoise J has been properly adjusted and set, the lever-

arms H abut lightly against the stop-plate K, being quite evenly balanced. The parts remain in this position as long as the slivers d d' pass properly to the rolls; but when a 5 sliver d' , as in Fig. 3, has entirely run off, so as to leave the bobbin E' empty, or when for any cause the sliver breaks, the end of the sliver, as soon as it passes the supporting-rod n , falls by its weight and catches on the 10 toothed edge of the comb I. The draft of the drawing-rolls continuing, pulls in the sliver as before; but the end of the sliver so caught in the comb pulls the comb toward the rolls, and this draft is sufficient to unbalance the 15 arms H and their appurtenances and to overcome the resistance of the counterpoise J. This causes the parts to fall into the position shown in Fig. 3, where it is seen that the arms H have oscillated toward the rolls and 20 have carried the comb I beneath the clearing-strip P, (so that the end of the sliver d' is stripped from the comb,) and as the rock-shaft F is partially rotated by this movement of the arms H the bent finger L strikes forcibly 25 against the free end of the bent lever O, and knocks it off of its support on the bracket M. The lever O then falls by its own weight (augmented by the weight h) from the position indicated in said Fig. 1 by solid lines to the po- 30 sition indicated in said figure by dotted lines. The dog g on said lever O is thus brought with great force against the shipper-lever b , and the latter shifts the belt in the usual manner from the fast to the loose pulley, thus stop- 35 ping the machine. The break in the sliver d' is then mended by the operative, as usual, and the mended sliver runs over the supporting-rod n , as before. The free end of the bent lever O is lifted by hand and placed again on 40 its support M, the pin f serving as a guide or stop, so that the end of said lever cannot be set or accidentally misplaced too far from the end of the bracket M for the suitable engagement of the finger L therewith. The finger 45 L is again put into proper position relatively to the lever O, and the arms H, with the counterpoise J and comb I, are returned to the position indicated in Fig. 1, the stop-plate K preventing the arms H from swinging back 50 too far.

The supporting-rod n not only prevents the unsightly sagging of the slivers d , but, being hung in a position between the first and second rows of bobbins, practically regulates the 55 length of the broken ends of the slivers to about twelve inches, being the distance between the top roll and the first row of bobbins, for any sliver from the other rows of bobbins will be supported, though broken, until it 60 passes off from the rod n . I thus insure a uniform length of sliver, which has not yet reached the roll, so that the broken end may be easily pieced.

As an operative is expected to tend several 65 drawing-machines at the same time, and the rolls and bobbins on each machine are numerous, it is very difficult and practically im-

possible for him to watch so carefully as to detect every break of the sliver or every emptying of the bobbins. The consequence is that 70 the machine is liable to go on for some time before this accident is discovered, and while it is so doing the yarn is necessarily thinner, because it has less stock, and the yarn thus imperfectly made will cause thinner places in 75 the fabric where it is afterward woven or used. By the use of my device the break or running out of the sliver from any of the bobbins causes the machine instantly to stop, thus 80 notifying the operative of the accident before any damage has been done, and enabling him to remedy the defect. The consequence is, that the yarn is more even and perfect than has been made heretofore, and the great 85 amount of waste commonly experienced is entirely prevented, and a great saving of time and labor is accomplished.

The comb I may be dispensed with in this device and a common rod or strip may be used in place of it. If the parts are properly 90 balanced, the draft of the sliver over such rod or strip will be sufficient to swing the stop mechanism, as above described.

While I prefer to use the counterpoise J to secure the balancing up of the parts, it is 95 obvious that other methods of balancing the arms H and their connections will secure the same results, so that such modifications of my device would be essentially within my in- 100 vention.

I claim as a novel and useful invention, and desire to secure by Letters Patent—

1. In a drawing-machine having the usual sliver bobbins, creels, and belt-shipping mechanism, the combination of a stop plate, 105 a rock-shaft suitably mounted, a finger attached to said shaft, arms attached to said shaft and extending upward therefrom, a device, substantially as described, to balance said arms so that they lightly abut said stop- 110 plate, a comb or strip supported at the upper end of said arms, a bracket or rest mechanism intermediate said finger and the shipping-lever adapted to be supported upon said rest while the machine is working properly, 115 but to be released therefrom by the pressure of said finger to operate the shipping-lever when the sliver is broken or ends, said arms and their connected parts being so arranged and adjusted as to be unbalanced and moved 120 by the draft of the broken sliver when engaged with said comb or strip, substantially as specified.

2. The combination, with a drawing-machine having the usual belt-shipping mechanism, the sliver bobbins E, and creels D, of the 125 stop-plate K upon the frame of the machine, the rock-shaft F, mounted as shown, the finger L, extending from said rock-shaft, the arms H, fixed on said shaft, the comb or strip I, 130 supported by the arms H, the counterpoise J, attached to one of the arms H, the bent lever O, having the dog g and loosely mounted on the shipper-rod of the belt-shipping mech-

anism, and the bracket M, all arranged and co-operating as and for the purpose specified.

3. In a stop mechanism for a drawing-machine, the combination, with a rock-shaft and
5 oscillating arms thereon which are engageable and movable by a broken sliver, of a shipper-rod, a shipper-lever, a bent lever fulcrumed on the shipper-rod and capable of moving the shipper-lever by falling against
10 the same by its own gravity when released, a rest to support the free end of the bent lever, and a knock-off device actuated by said rock-

shaft to effect such release, substantially as described.

4. In a drawing-machine, the combination, 15 with a stop-motion operated by a sliver and having a comb which is capable of oscillation, of a clearing-strip located above said comb and adapted to lift the sliver off of said comb, substantially as shown.

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Witnesses:

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DANIEL W. FINK.