

(No Model.)

3 Sheets—Sheet 1.

G. J. TORRANCE.

MACHINE FOR BALLING SLIVERS.

No. 370,574.

Patented Sept. 27, 1887.

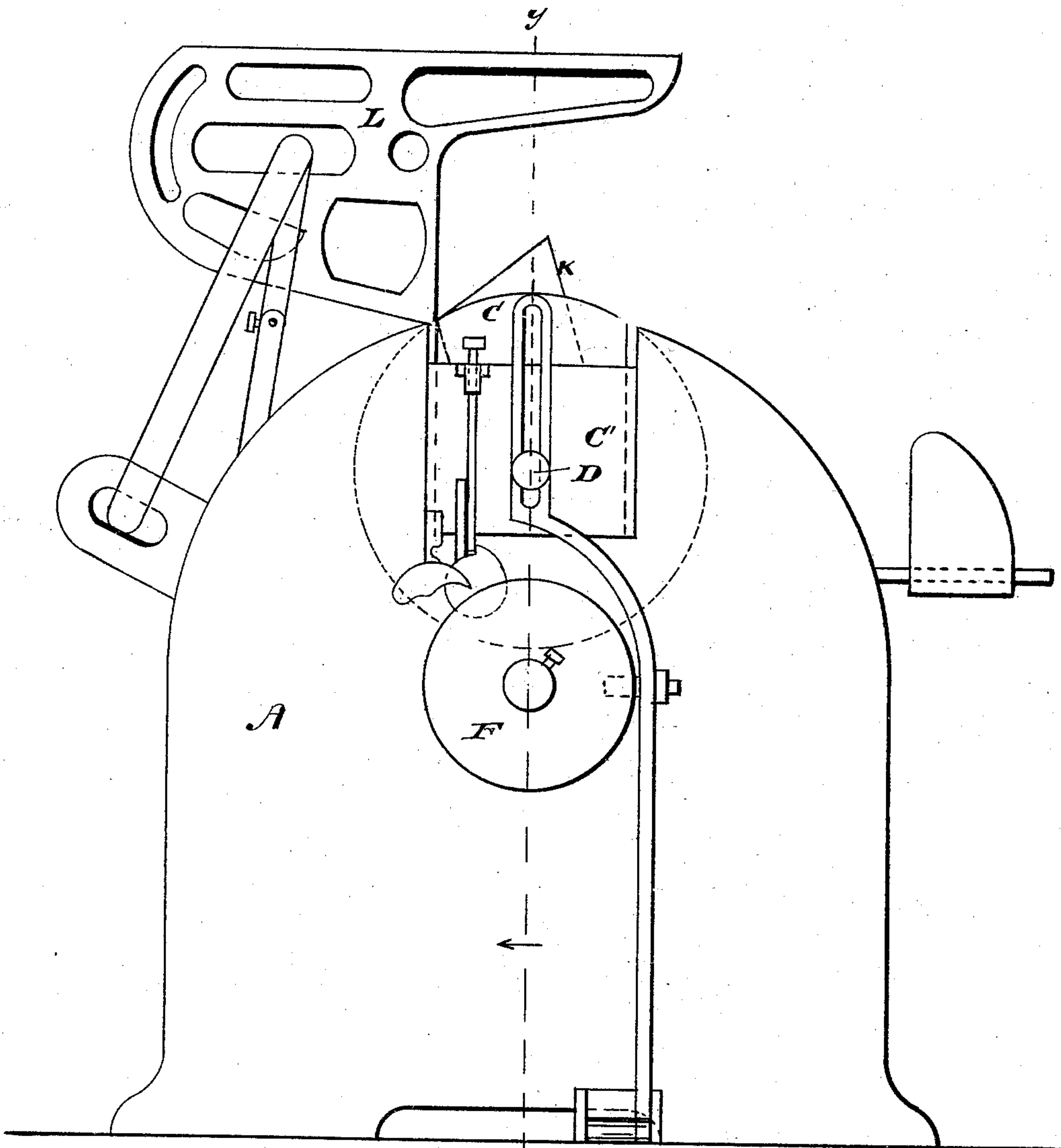


Fig. 1.

WITNESSES:

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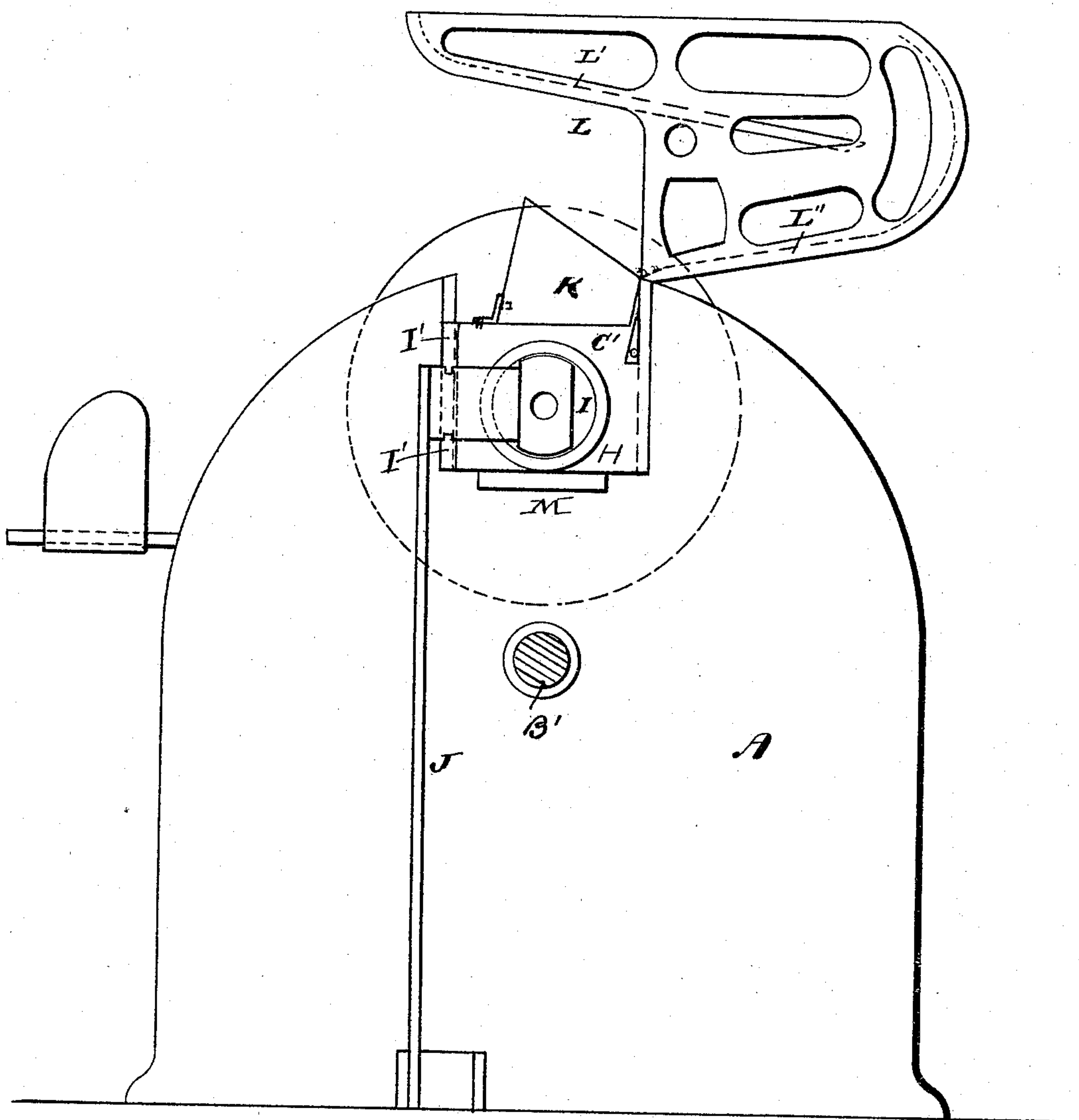


Fig. 2.

WITNESSES:

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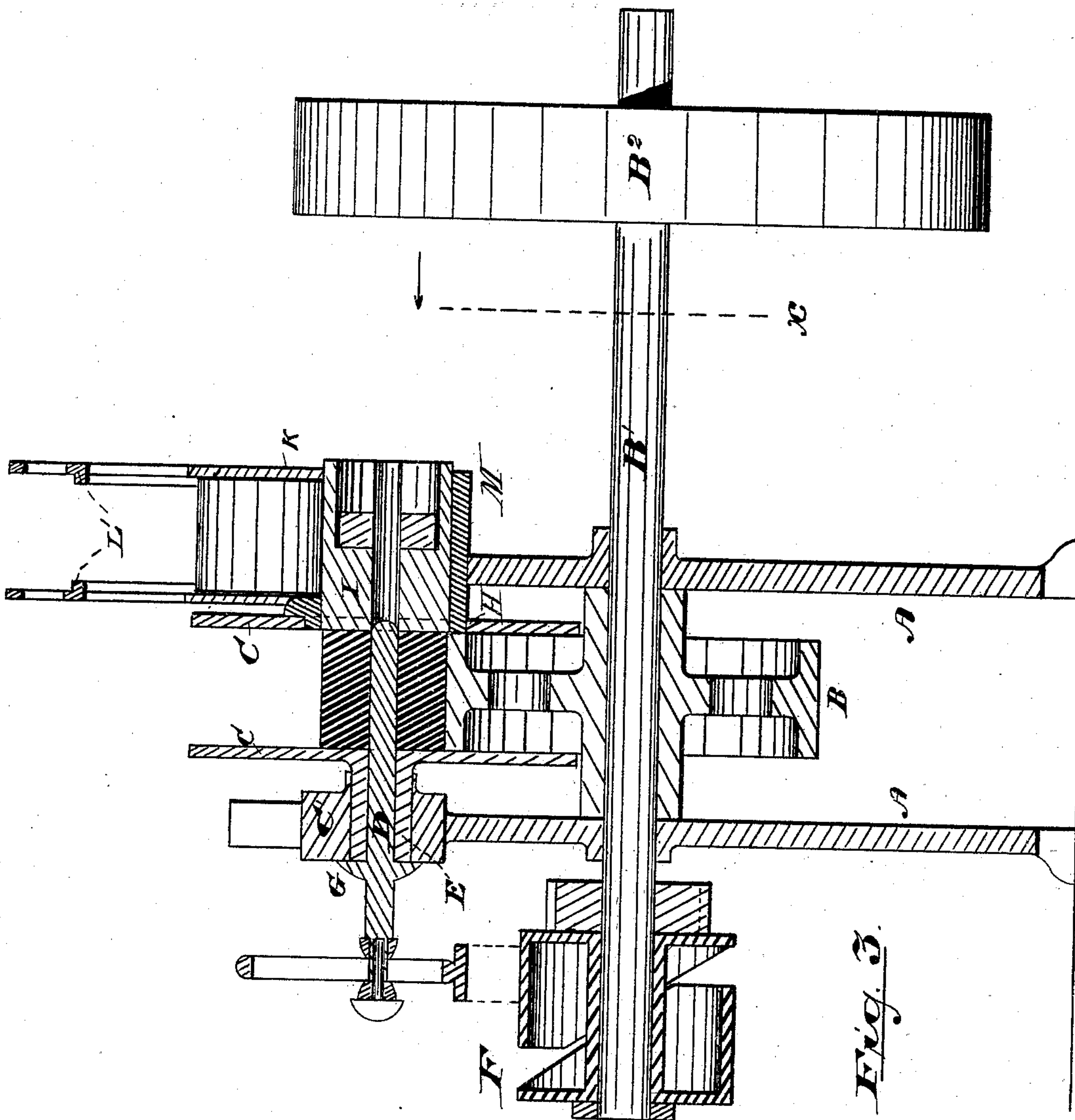


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE JAMES TORRANCE, OF NEWARK, NEW JERSEY.

MACHINE FOR BALLING SLIVERS.

SPECIFICATION forming part of Letters Patent No. 370,574, dated September 27, 1887.

Application filed April 6, 1887. Serial No. 233,884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE JAMES TORRANCE, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Balling Slivers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to certain improvements in that class of machines illustrated in United States Patent No. 141,434, of August 5, 1873, and English Patents Nos. 2,071 of 1863, 529 of 1867, and 547 of 1869, the object of the invention being to secure a more perfectly automatic action in the spooling or balling portion of the process of manufacturing woolen yarn, to enable the filled spool to be liberated from the flanges, between which it is wound, more easily, so that all strain will be taken from the pushing mechanism, and to simplify the construction of the machine and prevent disarrangement of parts.

The invention consists in the arrangement and construction of parts, substantially as will be hereinafter set forth, and finally be embodied in the clauses of the claims.

Referring to the accompanying drawings, in which like letters of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of a balling or spooling machine. Fig. 2 is a side elevation from the opposite side of the machine, a section being taken through the driving-shaft on line *x*, Fig. 3. Fig. 3 is a vertical section taken through line *y* of Fig. 1, parts being shown in elevation.

In said drawings, A A are side plates of the balling head or device, between which a drum or wheel, B, revolving with a driving shaft and wheel, B' B², is arranged. At the sides of the upper portion of said drum are flanges C C, which extend above the periphery thereof and receive the spool upon which the wool or "sliver" is wound. Said spool is given motion on the spindle D by engaging the periph-

ery of the drum, and as the wool is wound upon it the wool passes between the said spool and drum, and is compressed so that the wound wool is compact on said spool. The flanges and spindle work vertically with the sliding bearings C', so that as the spool fills the space between it and the drum may be increased. When the spool is full, the spindle is automatically withdrawn therefrom in the ordinary manner, when an automatically-operating pusher or bat (not shown in detail, because of its being old) comes into play and throws the filled spool from between the flanges. Heretofore the flanges between which the spool revolves have had a fixed distance between them as a result when the spool had received its complement of wool and the said pusher or bat was brought into play against the side thereof to throw it from between said flanges. The closeness with which the compact wool hugged the said flanges required an exertion of great force on the part of the pusher to dislodge the spool. In consequence, the pusher and co-operating parts of the machine were often disarranged and broken. To avoid this defect, I have so constructed the said flanges and combined them with adjacent parts that when the spool is filled with wool and about to be thrown from between the flanges one of said flanges will yield laterally, separating from the other, to increase the space therebetween, and thus free the spool, so that there will be no binding when the pusher is actuated. To this end I form on one of the said flanges a hub, E, which extends entirely through the corresponding sliding bearing, C', so that when it lies flush with the outer side of said bearing it is in its normal position to operate in connection with the winding-spool, and space remains between the outer face of the flange and the inner side of the bearing C' to allow for lateral movement.

Upon the spindle D, which moves longitudinally in the usual manner under the influence of the cam F to withdraw from the central perforation in the spool and allow the said spool to be pushed from between the flanges C C, is formed a flange or bearing, G, which moves with said spindle to and from the side of the sliding bearing C'. When the said spool is being filled with wool, said flange lies in en-

gagement with the end of the hub and holds one spooling-flange in proper relation to its co-operating flange. When the spool is full and ready to be forced from between the flanges and the spindle is being withdrawn under the influence of the ordinary cam mechanism, as above referred to, the flange G moves from holding engagement with the end of the hub, so that the latter and the flange connected therewith is free to yield sidewise, as described.

Another feature of the invention consists in improved mechanism for automatically throwing the empty spool to a position between the flanges to receive the wool. One of the said flanges, preferably the one that has no lateral movement, such as has been described, is provided with a central opening, H, at the point opposite the spindle, of a size about equal to the diameter of the empty spool. Adjacent to said opening is a pushing-head, I, adapted, when the empty spool drops from a certain frame and pocket, hereinafter described, to a point opposite said opening, to push said spool through said opening. Said head slides on tracks I', projecting from one of the sides A, and is preferably operated by means of a lever, J, or system of levers in the ordinary manner. The bearing for the flange, provided with the spool-opening, is also provided with a bottomless pocket, K, which receives the spools from the frame or holder L and guides them to the said opening, the said bearing, to which the said flange is secured, being provided with a stop projection, M, upon which the spools drop and rest prior to the operation of the head I. The said plate A, on which the pockets and bearings move, is also provided with a frame, L, above referred to, provided with oppositely-inclined ways, L' L'', down which the spools roll to the pocket, the sides of said frame or holder lying about the width of the spool apart. The empty spools are placed in said frame, and roll, first, over the way L' in one direction and then over the other way, L'', in a return direction to the pocket, as will be understood upon reference to Figs. 1 and 2.

By this construction the attendant may supply the machine with a large number of spools at once, and constant attention is rendered unnecessary.

The pocket slides with the vertically-moving flange C and its bearing independent of the frame L, so that the latter is not necessarily lifted and the weight thereof brought upon the winding-spool; but the pocket lifts with the flange and bearing, and consequently receives the spools only when in its lowest position.

The machine will in practice be provided with mechanism adapted to distribute the wool or sliver laterally on the spool; but as such mechanism is not novel and has no intimate relation to this improvement the same is not shown.

Having thus described the invention, what I claim as new is—

1. In combination, in a balling or spooling machine, sides A A, drum B, shaft B', vertically-sliding bearings C, flanges between which the spool revolves under the influence of the drum, one of said flanges being laterally movable and the other of said flanges being centrally open, as at H, a bottomless pocket to receive the spool from the oppositely-inclined ways, and said oppositely-inclined ways and the pushing-head I, substantially as and for the purposes set forth.

2. In combination, in a balling or spooling machine, a frame, vertically-sliding bearings, a laterally-movable flange having a centrally-perforated hub, a spindle, D, a flange having no lateral movement and open at the center to allow the insertion of the spool, and means, substantially as described, for inserting the spool between the flanges, actuating the same while winding the wool, and for relieving the laterally-movable flange, substantially as herein set forth.

3. In combination with suitable sides, A, an actuating drum or wheel, vertically-sliding bearings C', flanges C C, one of which is provided with a hub, E, working in one of said sliding bearings, and a longitudinally-moving spindle, D, having a flange, G, which engages said hub at the outer side of the said one of the sliding bearings, all said parts being arranged and adapted to operate substantially as and for the purposes set forth.

4. In a spooling or balling machine, the combination of flanges, one of which is provided with a central opening, a head, I, and means for operating the same, vertically-moving bearings, a pocket attached to and moving vertically with one of said flanges and bearings, and a holder having oppositely-inclined ways L' L'', adapted to feed the spools to the pocket, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 5th day of March, 1887.

GEORGE JAMES TORRANCE.

Witnesses:

CHARLES H. PELL,
OLIVER DRAKE.