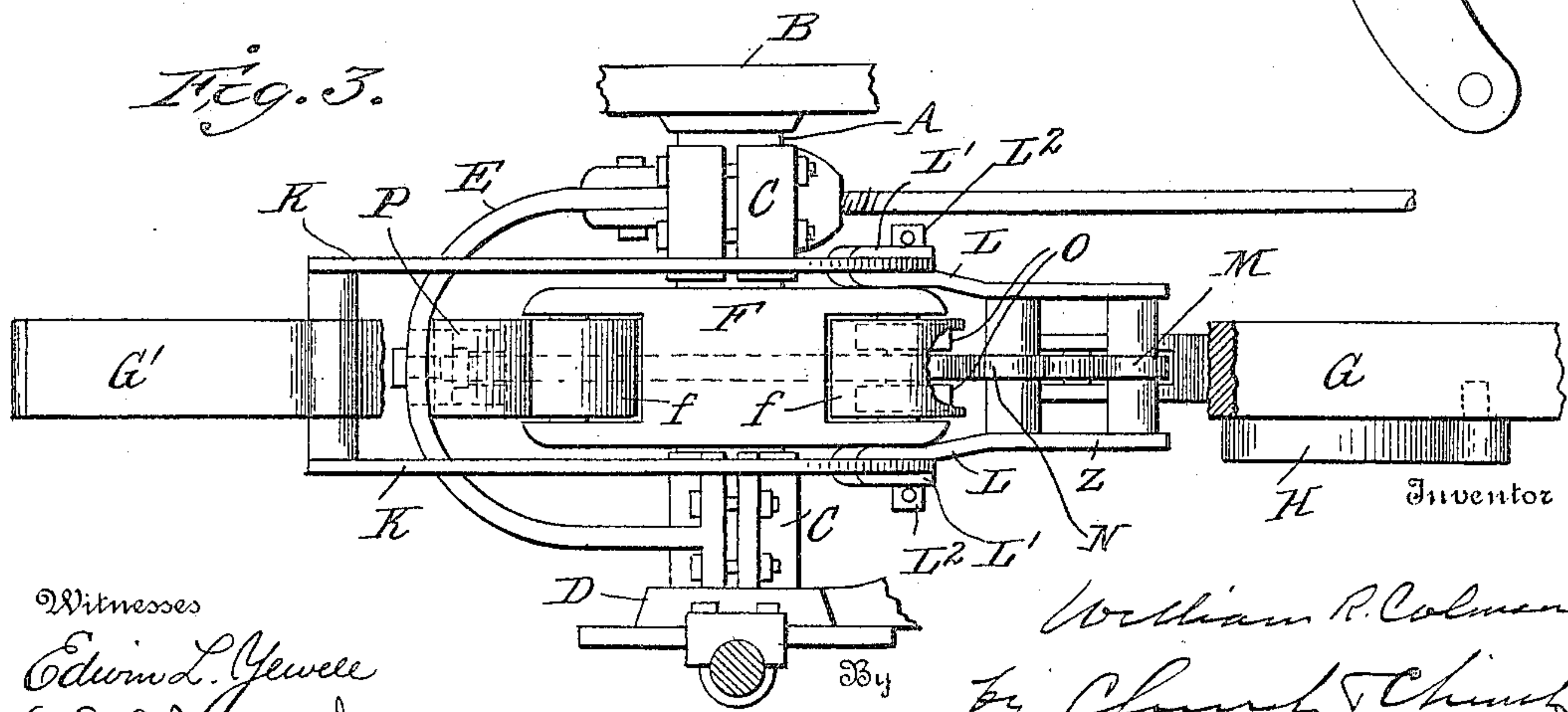
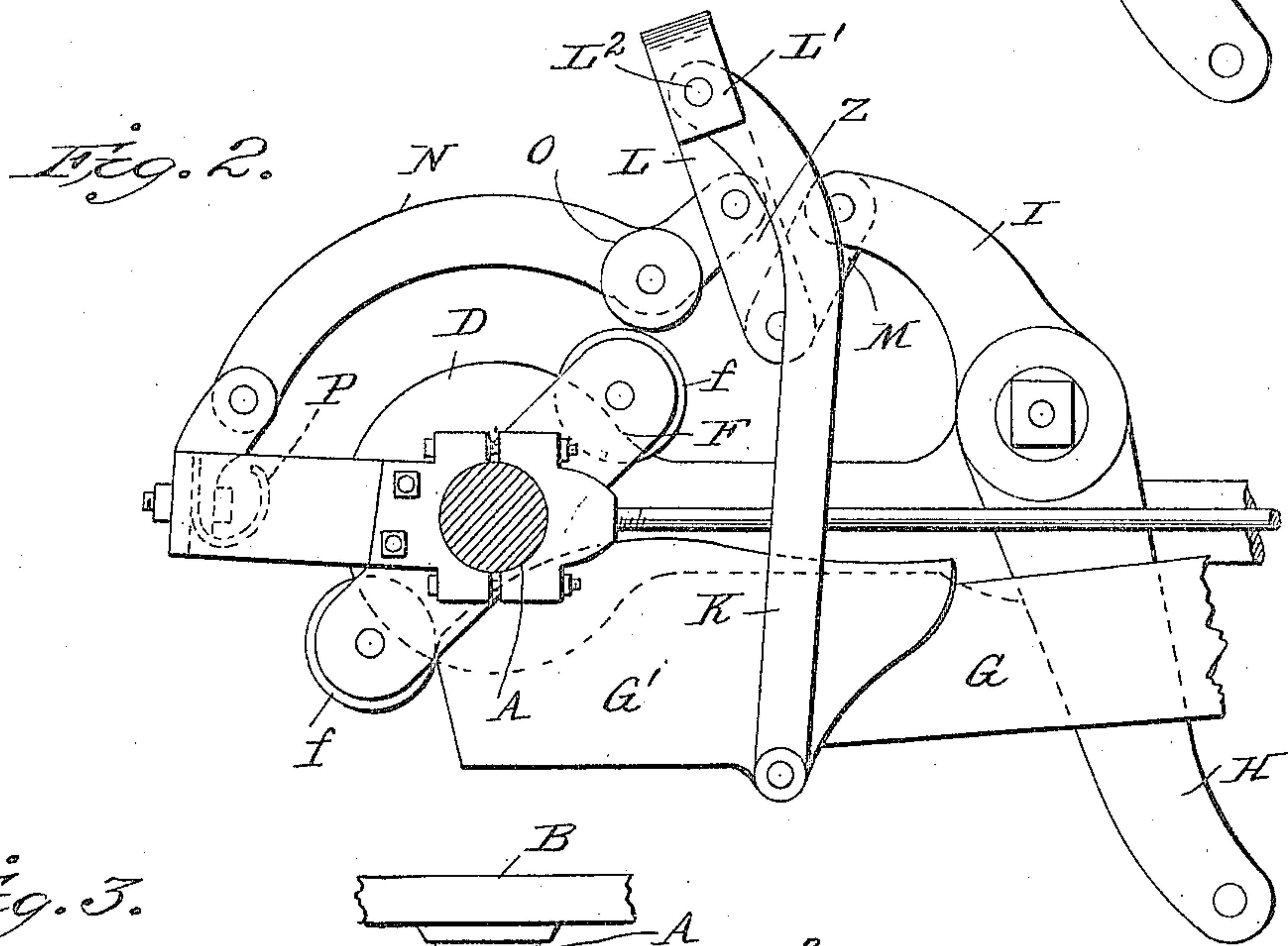
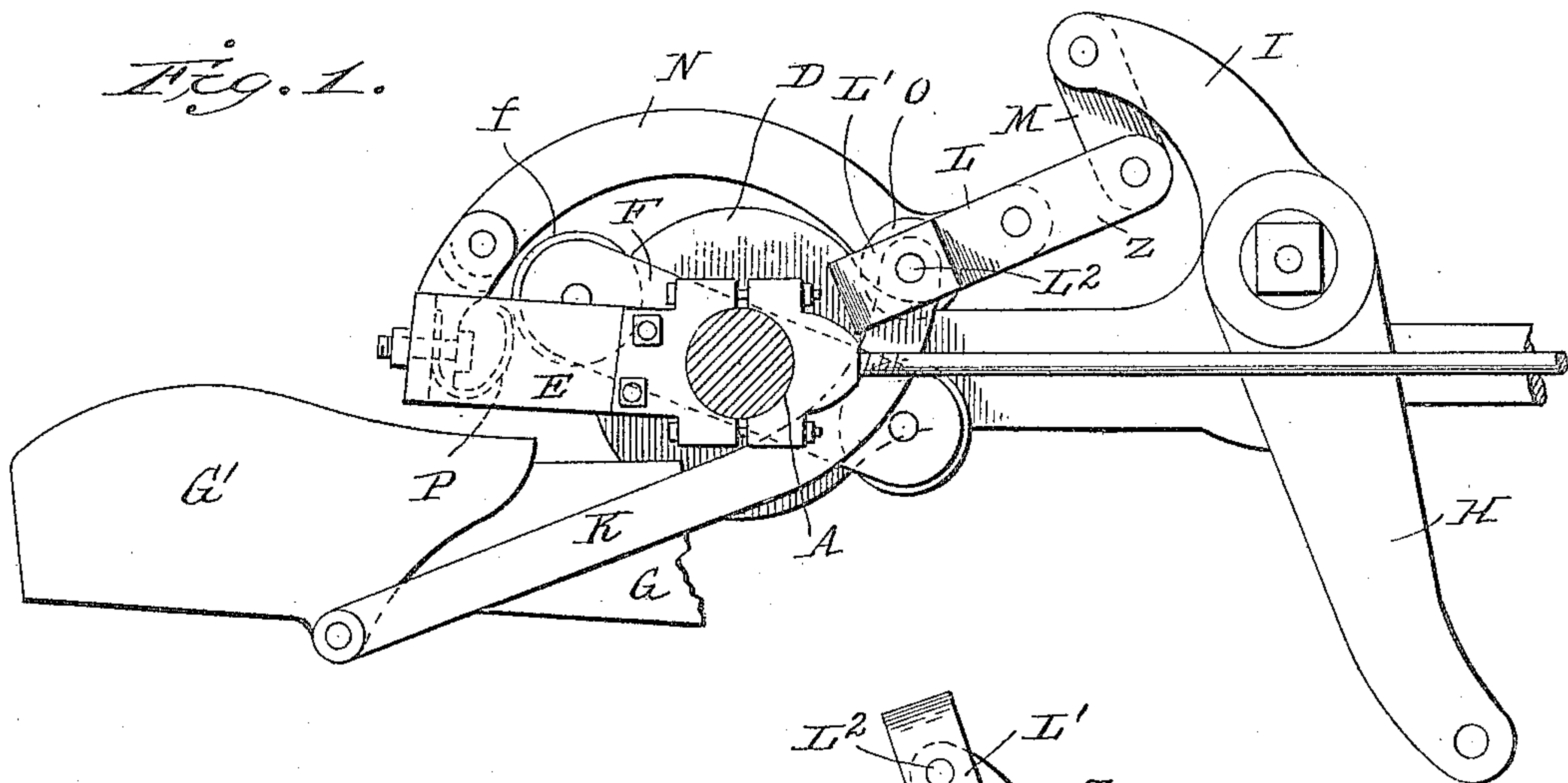


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W. R. COLMAN.
BALING PRESS.

APPLICATION FILED AUG. 14, 1905.



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UNITED STATES PATENT OFFICE.

WILLIAM R. COLMAN, OF QUINCY, ILLINOIS.

BALING-PRESS.

No. 818,232.

Specification of Letters Patent.

Patented April 17, 1906.

Application filed August 14, 1905. Serial No. 274,096.

To all whom it may concern:

Be it known that I, WILLIAM R. COLMAN, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented certain new and useful Improvements in Baling-Presses; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

The present invention relates to improvements in baling-presses, particularly such as are adapted for baling fibrous materials and to be operated by horse-power, although the invention is by no means restricted to this type of press.

The objects of the invention are to provide an improved power mechanism with which the very desirable variable movements may be imparted to the traverser without undue losses in the power mechanism and whereby a long, easy, and quick preliminary movement merging gradually into the final and proportionately slower and more powerful traverser movement may be effected with few and simple mechanical elements, none of which are liable to be broken or their effectiveness impaired by the heavy and rough usage to which this class of apparatus is subjected.

The invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be hereinafter described, and pointed out particularly in the appended claims.

In the accompanying drawings, Figures 1 and 2 are plan views of the power end of a press embodying the present improvements, the power-shaft being in section and the sweep removed. Fig. 3 is a side elevation of the power end, portions being broken away and in section to better illustrate features of the present invention.

Similar letters of reference indicate the same parts in all the views.

The power-shaft A, carrying the sweep B, is, as usual, journaled in bearings C, carried by a frame D, and said bearings are connected by a yoke or arch E, preferably arranged longitudinally of the press and of sufficient size to permit the free passage of the power-head F, located on the shaft A between the said bearings C. This power-head F may also be of usual construction, save that in the present invention the arms may, if desired,

be somewhat shorter than usually employed without sacrificing traverser travel and with a considerable gain in power.

The pitman G and its head G' are connected, as usual, with the traverser (not shown) and are normally supported by a carrier-arm H, mounted on the frame and preferably held in fixed position by its attaching bolt or stud, although, obviously, it may be an integral part of the frame. Projecting from the frame on the opposite side from the carrier-arm is a bracket or extension I, usually curving somewhat toward the power end of the press and serving as the fixed support for one end of a system of links, arms, or levers, through which the rapid initial movement is imparted to the pitman and traverser. This system of arms or levers embodies two link-arms K, pivotally connected at one end to the head of the pitman and at the opposite end to the arms L of a bifurcated lever Z, the latter in turn being connected with the bracket I through a link M. The pivotal connection between the links K and ends of the lever is preferably made by turning the ends L' of the lever back over the ends of the link-arms and passing pins L² through the assembled parts, as best shown in Figs. 2 and 3.

At a point intermediate the link connections referred to the lever Z is pivotally connected with the end of a pressure-receiving link or arm N, having its opposite end pivotally connected with the arch E. When the arch is located substantially in line with the longitudinal center of the press, as shown, the pressure-receiving link is curved to pass around the power-head and the extreme end extends in a more or less radial direction from the power-shaft. At an intermediate point pressure-receiving rollers O are journaled on the link in position to be engaged by the rollers f in the power-head F. The rollers f in the power-head are also adapted to engage the end of the pitman-head to effect the final traverser movement, as usual in this class of press.

Any suitable form of friction-brake may be employed to check the rebound of the traverser, and, as shown, a friction-spring P is secured in the arch E in position to be engaged by the rollers f for checking the movement of the power-head immediately after the pitman is released, thereby preventing any forward throw of the sweep or overthrow of the power-head when the pressure is suddenly relieved.

The operation is as follows: Assuming that the pitman is in the position shown in Fig. 1, the forward rotation of the power-head brings the roller in one arm into contact with the pressure-receiving rollers of the link N, swinging the latter on its pivotal center and causing its outer end to push the intermediate lever Z from the position shown in Fig. 1 to that shown in Fig. 2. This movement of the intermediate lever acting through the link-arms K draws the pitman forward and presents its end in position for the engagement of the roller *f* in the other arm of the power-head. A continued rotation of the power-head effects the final movement of the traverser by the application of pressure directly to the pitman. The pitman may be guided during its final movement by the link connections or by the base of the bracket I or projection to which the bracket and carrier-arm are connected. It will be noted that the end of the intermediate lever to which the arms K are connected has a longer range of movement than the throw of the pressure-receiving link and that the power of the lever increases as the pitman advances, owing to the fact that the load-line and fulcrum approach each other, giving a toggle effect to the parts. The result of the arrangement is that with a short-arm power-head the traverser may be given a long travel, the initial advance movement of the traverser is very rapid, and the power with which it is advanced by the link-and-lever connections progressively increases until the pitman-head is engaged by the power-head, there being no sudden variation in the power required during the advance of the traverser.

The mechanism described is simple, not liable to be broken or become inoperative through wear or hard usage, and to a large extent may be formed from stock materials.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a power mechanism for presses the combination with the pitman and double-ended rotary power-head adapted to engage the pitman to impart the final advance movement thereto, of a mechanism for giving the pitman its initial movement embodying links pivotally connected with the pitman and a fixed support respectively, an intermediate lever pivotally connecting said links and a pressure-receiving link pivotally connected with said lever and movable into and out of the path of the arms of the power-head; substantially as described.

2. In a power mechanism for presses the combination with the pitman and rotary power-head, of link-arms pivotally connected

with the pitman and a fixed support respectively, an intermediate lever pivotally connecting said link-arms, and a pressure-receiving link pivotally connected at one end with said intermediate lever and at the opposite end with a fixed support, said pressure-receiving link being movable into and out of the path of the power-head; substantially as described.

3. In a power mechanism for baling-presses the combination with the rotary power-head and pitman, of link-arms pivotally connected with the pitman, a link-arm pivotally connected with a fixed support, an intermediate lever pivotally connecting said link-arms and a pressure-receiving member pivotally connected with said lever intermediate the link-arm connections and movable into and out of the path of the power-head; substantially as described.

4. In a power mechanism for baling-presses the combination with the rotary power-head and pitman, of link-arms pivotally connected at one end with the pitman and at the opposite end with an intermediate lever, a link pivoted at one end to a fixed support and at the opposite to said intermediate lever, a pressure-receiving link pivoted on a fixed support and pivotally connected with said lever intermediate the first-mentioned link connections, and cooperating rollers on the pressure-receiving link and power-head; substantially as described.

5. In a power mechanism for baling-presses, the combination with the double-ended power-head and the reciprocatory pitman, of link-arms pivotally connected with the pitman and a fixed support respectively, an intermediate lever pivotally connecting said link-arms, and a pressure-receiving link pivoted at one end to a fixed support and having its end substantially radial to the power-head and pivotally connected with the intermediate lever, the intermediate part of said pressure-receiving link being movable into and out of the path of the power-head; substantially as described.

6. In a power mechanism for baling-presses, the combination with the rotary power-head and reciprocatory traverser, of three link-arms two pivotally connected with fixed supports and one pivotally connected with the pitman and an intermediate lever with which said link-arms are pivotally connected at different points, one of said link-arms being movable into and out of the path of the power-head; substantially as described.

WILLIAM R. COLMAN.

Witnesses:

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H. S. LEE.