

H.C. Lockwood. Sheet 1. 2 Sheets.
Paper Bag Mach.
Nº 87.689 Patented Mar. 9, 1869.

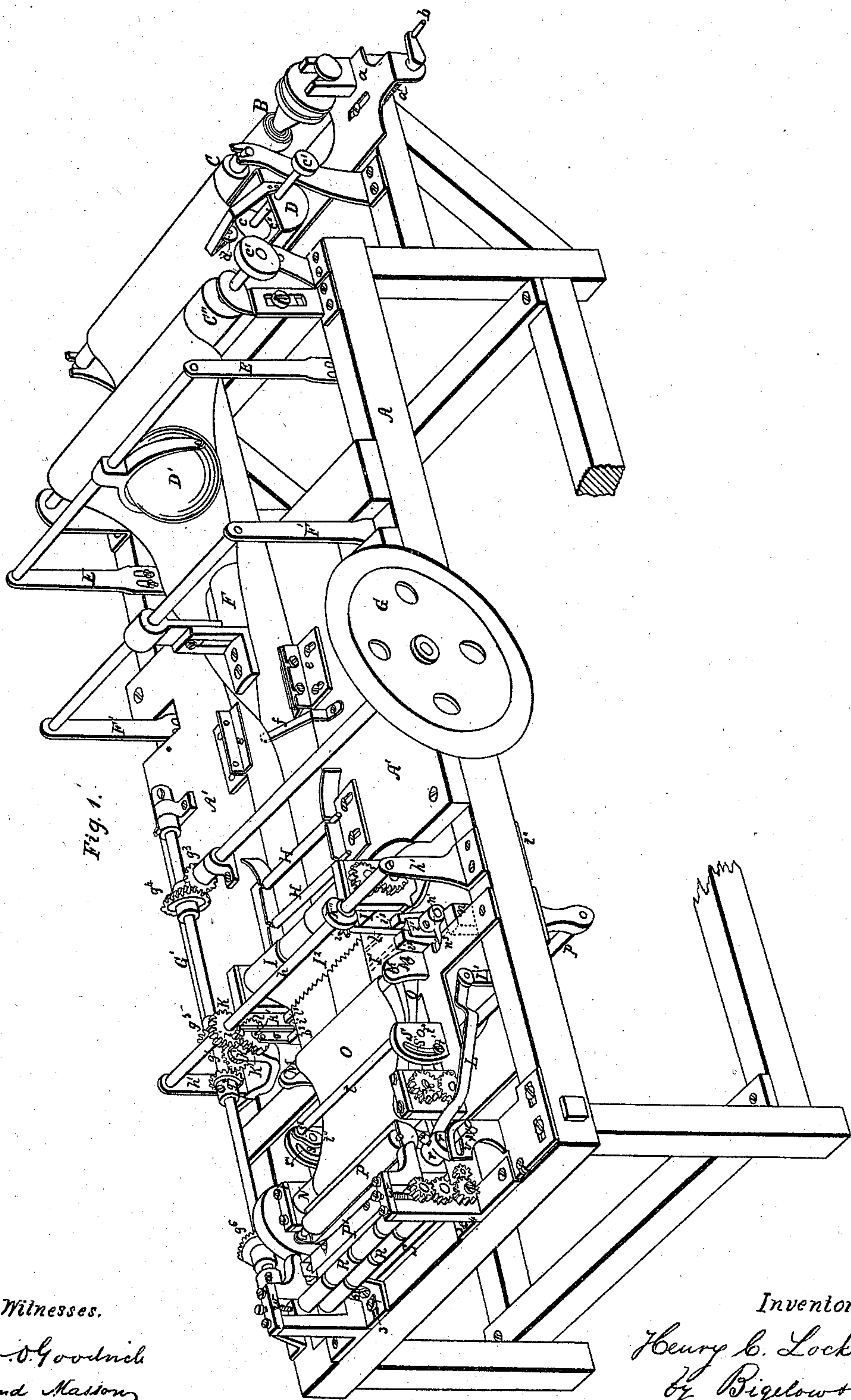


Fig. 1.

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H.C. Lockwood. Sheet 2, 2 Sheets.
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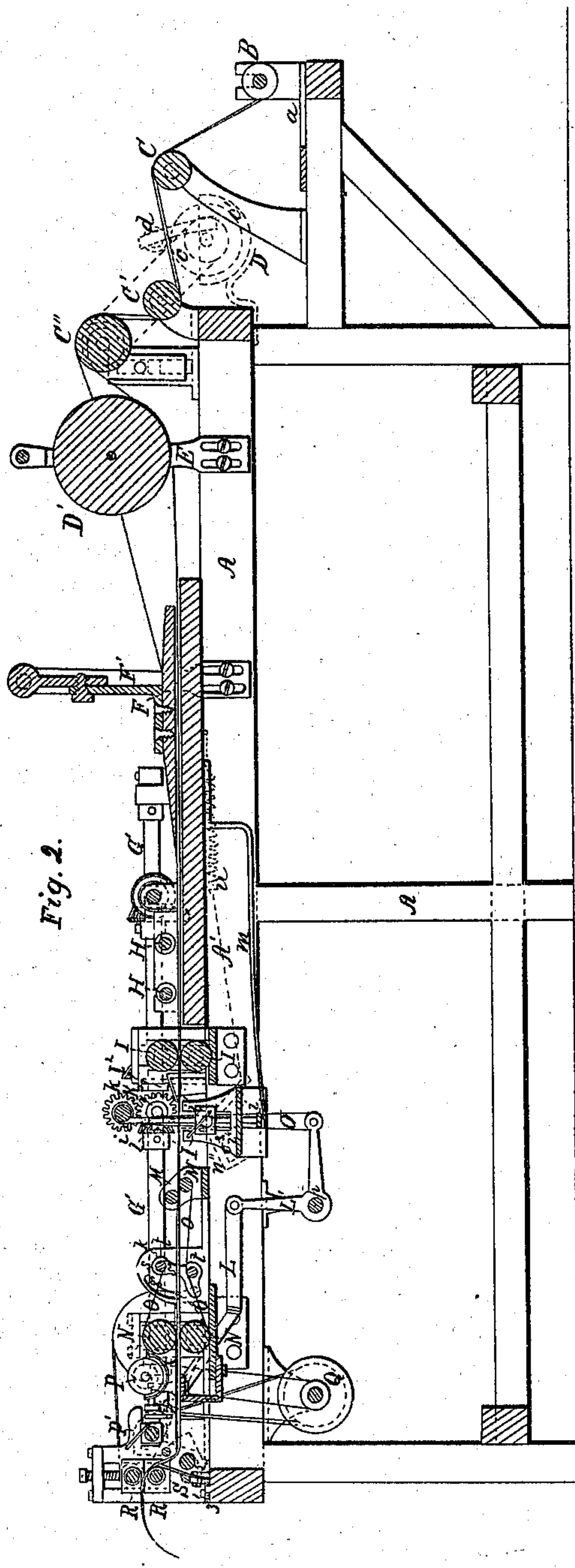


Fig. 2.

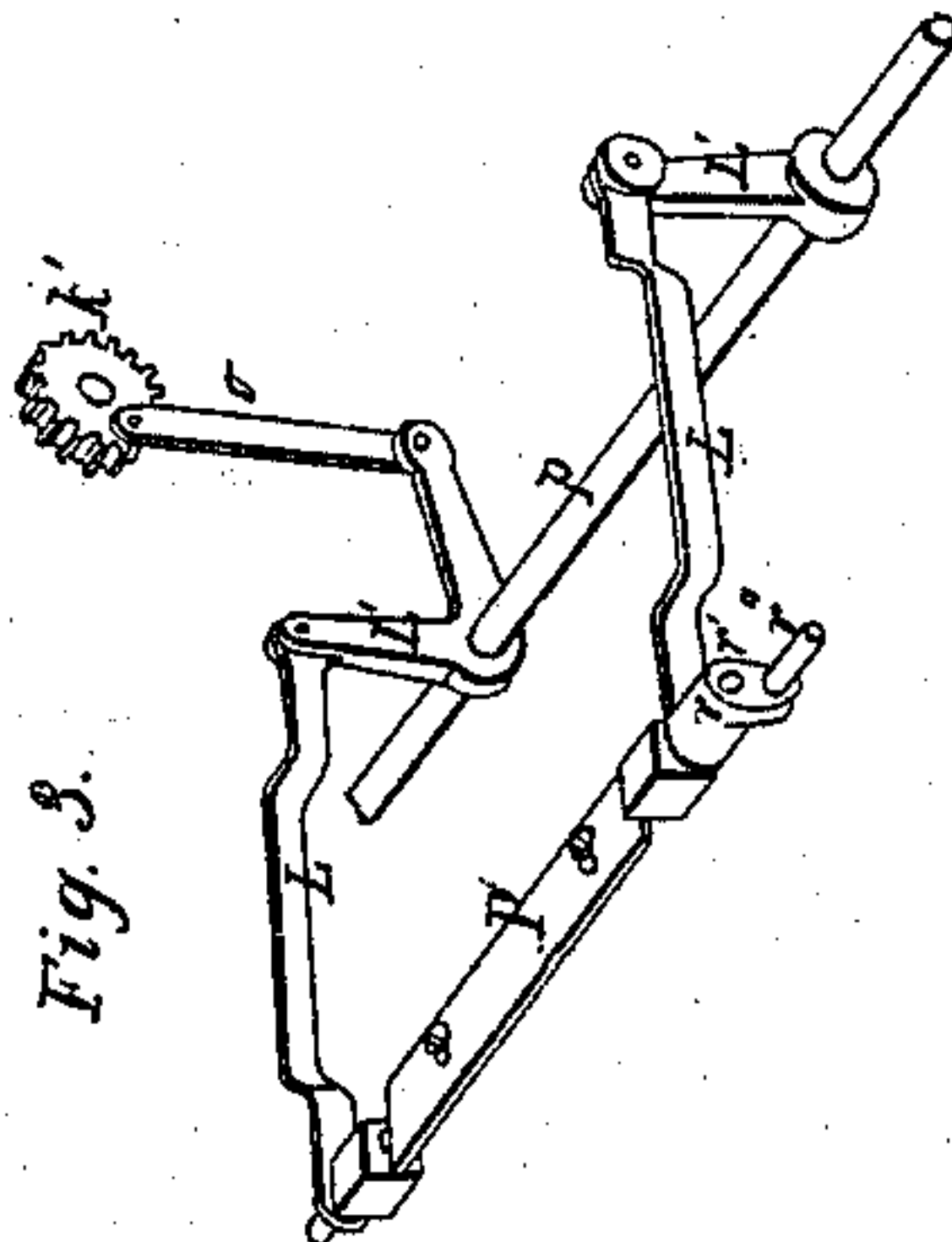


Fig. 3.

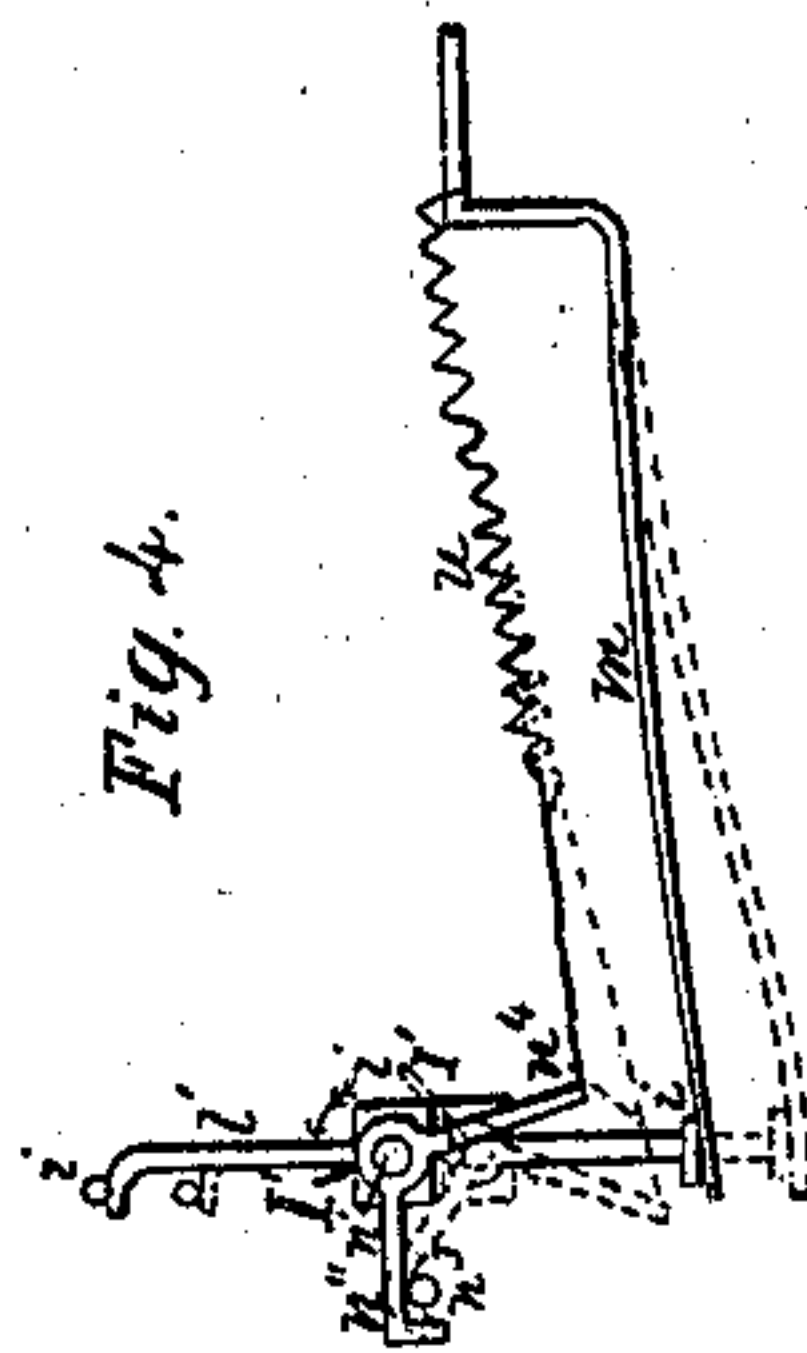


Fig. 4.

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H. C. LOCKWOOD, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN PAPER-BAG MACHINES.

Specification forming part of Letters Patent No. 87,689, dated March 9, 1869.

To all whom it may concern:

Be it known that I, HENRY C. LOCKWOOD, of the city of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and useful Machine for Making Paper Bags; and I do declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a longitudinal vertical section. Fig. 3 is a sectional view of the device for operating the paster-knife and end-folder. Fig. 4 is a detached view of the devices for operating the cutting-knife.

The nature of my invention consists in the combination of a paper-roll to supply paper continuously, the pasting device, shaping-ball, bag-former, cutting-knives, adjustable gears, pressing-rollers, endless belts, pasting and folding devices, for the purpose of making paper bags from continuous rolls of paper.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

In the drawings, letter A is the frame on which the machine rests. B is the spindle upon which a continuous roll of paper is placed. C C' C'' are cylinders for conducting the paper to the machine. D is the paste-trough, with paste-wheel *c*. D' is a revolving ball, for breaking down the paper, suitably attached to the frame A. E E are the standards which support the ball D'. F is the former. F' F' are the standards to hold the former. G is the driving-wheel. G' is the longitudinal shaft. H H are rollers to hold down the papers acting as presses. I I are draft-rollers to draw the paper through the machine. I' is the cut-off blade. I'' is the stationary blade. K is the gear which works the rods; K', the short shaft with wheel *k'* on one end and cog-wheel *g'* on the other. L L are the arms that work the paste-knife and end-folder. M M are the rollers that guide the retaining-belts. N N are the rollers that drive the retaining-belts. O O are the retaining-belts. P is the paste-roller and paste-pa. P' is the paste-knife and end-folder. Q is the roller under the machine for driving the paste-

roller. R R are rollers for pressing the bottom of the bag. S is the adjustable guide for the formation of the bottom of the bag.

A is the frame, made of any suitable form and material, in the sides of which are placed the bearings for all the shafts and rollers. B is the spindle upon which a continuous roll of paper to be made into bags is placed, from whence it is carried forward over and under the rollers C C' C'', the latter being made adjustable by means of a set-screw. The spindle B is supported by standards fixed to a plate, *a*, which is held on the sides of the frame A by set-screws in slots to admit of a transverse-movement adjustment, which adjustment is effected by a screw, *a'*, working into a fixed nut in the side of the frame A, underneath the plate, having a crank-handle, *b*, fixed in a flange in the end of said plate *a*, so that should the roll of paper not be exactly in position with reference to the axial line of the machine, by this screw *a'* the plate, with the spindle, can be properly adjusted. The paper, after passing over the roller C, is carried over the paster D, which paster is a wheel, *c*, fastened to a shaft that is turned by a band around the pulleys *c'* *c'* on the ends of the cylinder C'' and shaft of paste-wheel *c*. The wheel *c*, revolving in a trough, *c''*, in which the paste is deposited, thus takes the paste from the trough and applies it to the edge of the under side of the paper, and is adjustable by means of a screw to any sized bag to be made, the paper being held to said wheel *c* by a small pressure-wheel, *d*, revolving on the upper side thereof, as seen in Fig. 1. The paper, with the paste applied, is then carried under roller C', thence over C'', and under the revolving forming-ball D'. This ball is held in position by being rigidly fastened by means of a semicircular armature to a horizontal bar, supported on standards E, as shown in Fig. 1. This revolving ball breaks down the paper, and peculiarly adapts it for entrance under the former F.

The former F is constructed in the manner usual in machines of this nature, and is removable and adjustable by means of a set-screw working into a plate fastened to the horizontal bar held by the standards F' F', with guides *e e* upon each side, which are ad-

justable horizontally in reference to the width of the bags to be made, and vertically in reference to the thickness of paper used. The finger *f* keeps down the pasted edge of the paper from contact with the other edge until they are pressed together by the pressing-rollers *H H* in advance. Thence the now-formed tube is carried between the draft-rollers *I I* to the cutting-knives *I' I'*. These draft-rollers are driven by gearing, operated upon by the driving wheel *G*, having a beveled gear, *g³*, at the end of its shaft, which works into the beveled wheel *g⁴* on the longitudinal shaft *G'*, placed upon the top of the table *A'*, having beveled gearing *g⁵*, to work the rollers *I I*, a beveled pinion, *g²*, which works into a beveled gear, *g¹*, on the end of a short shaft, *K'*, which gear *g¹* can be changed to make the cut-off blade *I'* work faster or slower to suit the size of the bag to be made. The other end of this shaft has a cog-wheel, *k'*, which works into another cog-wheel, *K*, on a transverse horizontal shaft, *h*, supported by standards *h' h'* on the sides of the frame *A*, said horizontal shaft *h* having on it a disk, *k''*, to correspond with the cog-wheel *K* on the other side of the central line of the machine. From the inside of the cog-wheel *k'* and corresponding disk *k''* are pins *i i*, which, by the revolution of the said shaft *h*, force down the rods *l l* on the heads *i i* of the cut-off blade or brake, which work in appropriate guides, *i' i'*, attached to a plate, *l''*, fastened to the under side of the frame *A*, through which plate *l''* also are holes for the rods above mentioned, the rods being connected below this plate by a horizontal bar, *l'*, which serves as a rest for the ends of the springs *m m*, the operation of which will be more fully explained hereafter. On this plate *l''* also is a standard, *n*, Fig. 1, having a horizontal pin, *n'''*, which serves the purpose of turning an arm, *n''*, on the end of the shaft *n'* of the cut-off blade. On the inside of the pinion *K'*, Figs. 3 and 2, is a wrist, from which a connecting-bar, *o*, depends, and which is attached to a bell-crank lever on a horizontal shaft, *p*, under the table, supported in brackets from the frame *A*, which bell-crank levers are connected to crooked lever-bars *L L*, which move the shaft *r* horizontally in guides at both ends of it by means of hollow, square journal-boxes, which boxes permit the rotary motion of the shaft *r*, on one end of which is a crank, *r'*, the pin *r''* of which works in a cam-shaped groove, *v*, which serves the purpose of turning the paste-knife and end-folier *P'* from the paster *P*, where it has been supplied with paste by the operation of the machine, to apply it to the end of the bag, and at the same time force it between the pressure-rollers *R R*, which rollers, by their action, carry the bag from the machine. Near the end of the horizontal longitudinal shaft *G'* is a beveled gear, *g⁶*, which works into the gear of the roller *N*, on the other end of which is a cog-wheel, *n⁶*, which works into a

corresponding cog-wheel, *n⁶*, of the roller *N* immediately under it. Around each of these rollers *N N* is an endless band, *O O*, which may be made of cloth or other suitable material, which also works around the smaller rollers *M M*, having between the rollers *M* and *N* a standard, *s*, on each side, in which standards are two rollers, *t t*, working in the ends of levers *s' s'*, pivoted in said standards, the lower ends of which levers having set-screws *t' t'*, working in concentric slots *s'' s''* in the standard *s s*, the purpose of which rollers *t t* is to tighten or bring together these endless bands *O O* with friction sufficient to draw along the tube which has been severed by the cut-off blade *I'* immediately in the rear, and at the same time to hold the tube while the cut-off blade is operating.

To the end of the arm *n⁴*, coming from the shaft of the cut-off blade *I'*, is attached the end of a spiral spring, *u*, Fig. 2, the other end being suitably attached to the under side of the table *A'*, the operation of which will be hereafter more fully explained.

In the revolution of the transverse horizontal shaft *h*, the pins *i i* strike the top of the rods *l l*, attached to the cut-off blade *I'*, which forces them down, taking with them the cut-off blade *I'*, when the rods, under pressure from the pins, are released in a moment from the pressure incited during the revolution of the shaft *h*, and the cut-off blade *I'* is again forced quickly up by means of the two springs *m m*, while the blade *I'* receives a cutting motion by the operation of the spiral spring *u*, heretofore described, and is also thrown forward out of the way of the advancing tube.

The adjustable guide *S*, for the formation of the bottom of the bag, is fastened to the frame *A* by two screws, 1 and 2, movable in slots in the brackets 3 and 4, which brackets have also vertical slots, in which two screws, 5 5, work, they being fastened to the guide *S*, which arrangement gives a horizontal movement to the brackets 3 and 4, and a vertical adjustment of the guide *S*.

The pressing-rollers *R R* may be moved closer or farther apart by means of set-screws *w w*, placed in the center of the cross-bars supporting the standards.

Upon the ends of the rollers *N* and *R* are pulleys, by which motion is communicated, in the usual way, to the pressing-rollers *R R*.

The pasting-roller *P* is driven by a roller, *Q*, placed under the frame *A*, in connection with a pulley on the end of the longitudinal shaft *G'*. (Not seen in the drawing.)

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

1. The arrangement of the spindle *B*, roller *C*, trough *D*, paste-wheel *c*, presser-roller *d*, and roller *C'* with pulley *C'* on its end, whereby the connection is made upon the pulleys *c'* by a band for operating the paste-wheel *c*, substantially as described.

2. The revolving ball D' , in combination with the roller C'' and former F , substantially as and for the purpose described.

3. The combination of the knife or cut-off blade I' , with the stationary knife I'' , the shaft h , and its rods l , slides $i' i''$, operated upon by the pins i , with the hub n' , lever n'' , and springs m and spring u , all constructed to operate substantially as and for the purpose described.

4. The combination of the adjustable beveled gear-wheel g^2 upon the main shaft G' with the removable bevel-wheel g^1 upon the shaft K' , so as to enable the knife I' to cut the paper tube to produce a longer or shorter bag, substantially in the manner described.

5. The combination of the endless webs $O O$, rods t , connected by bent levers $s' s'$, moving on pivots $t'' t''$ in standards $S S$, and slots $s'' s''$ and tightening-screws $t' t'$, all substantially as and for the purpose described.

6. The arrangement of the paste-bar P' , revolving in sliding boxes movable in slots horizontally, with crank-pin r'' , moving in a cam-shaped groove, v , and connecting-bars $L L$ and bell-crank L' , substantially as and for the purpose described.

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Witnesses:

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