

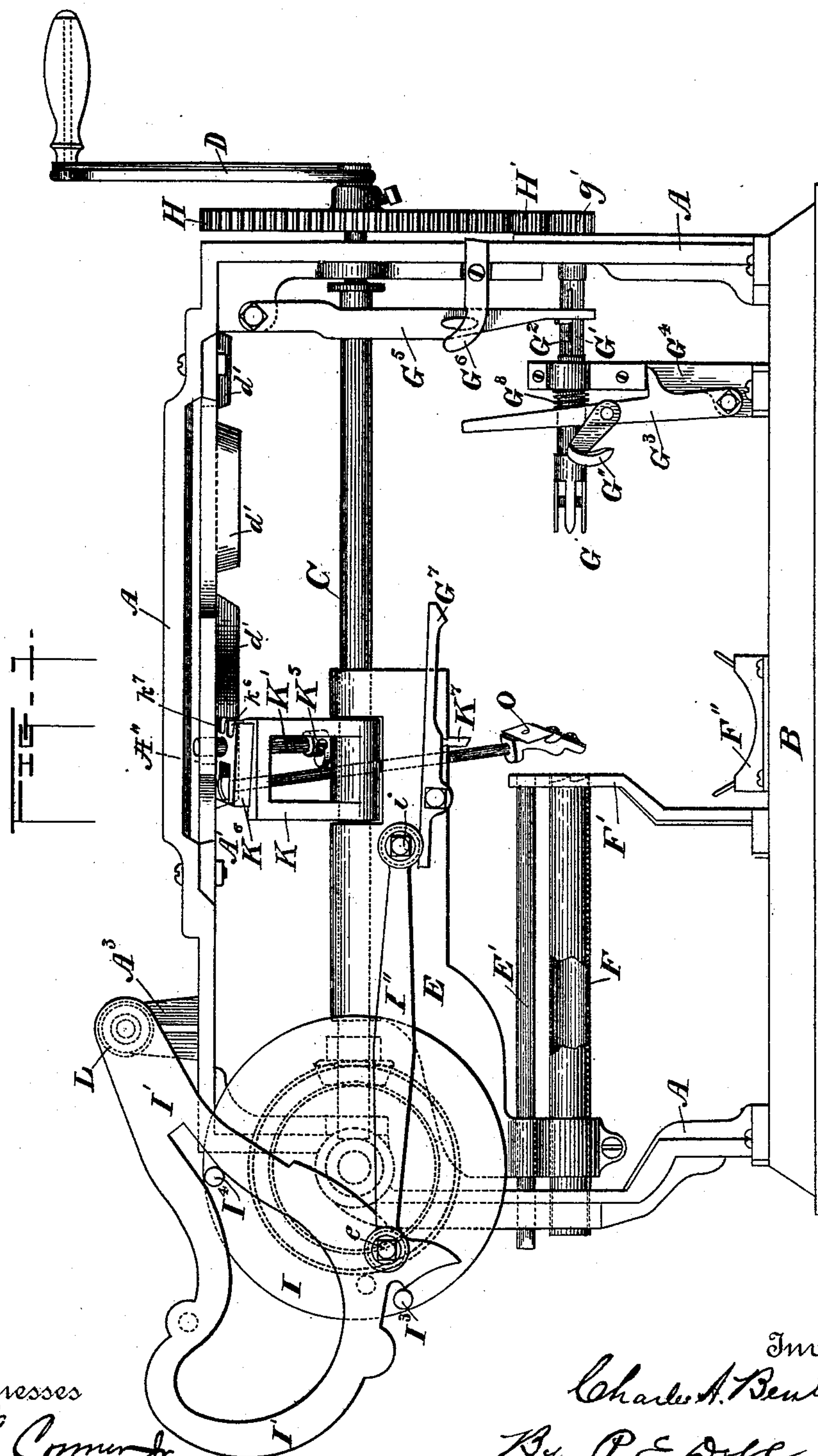
(No Model.)

3 Sheets—Sheet 1.

C. A. BENTON.  
APPLE PARER AND CORER.

No. 486,424.

Patented Nov. 22, 1892.



Witnesses  
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M. A. Sherman

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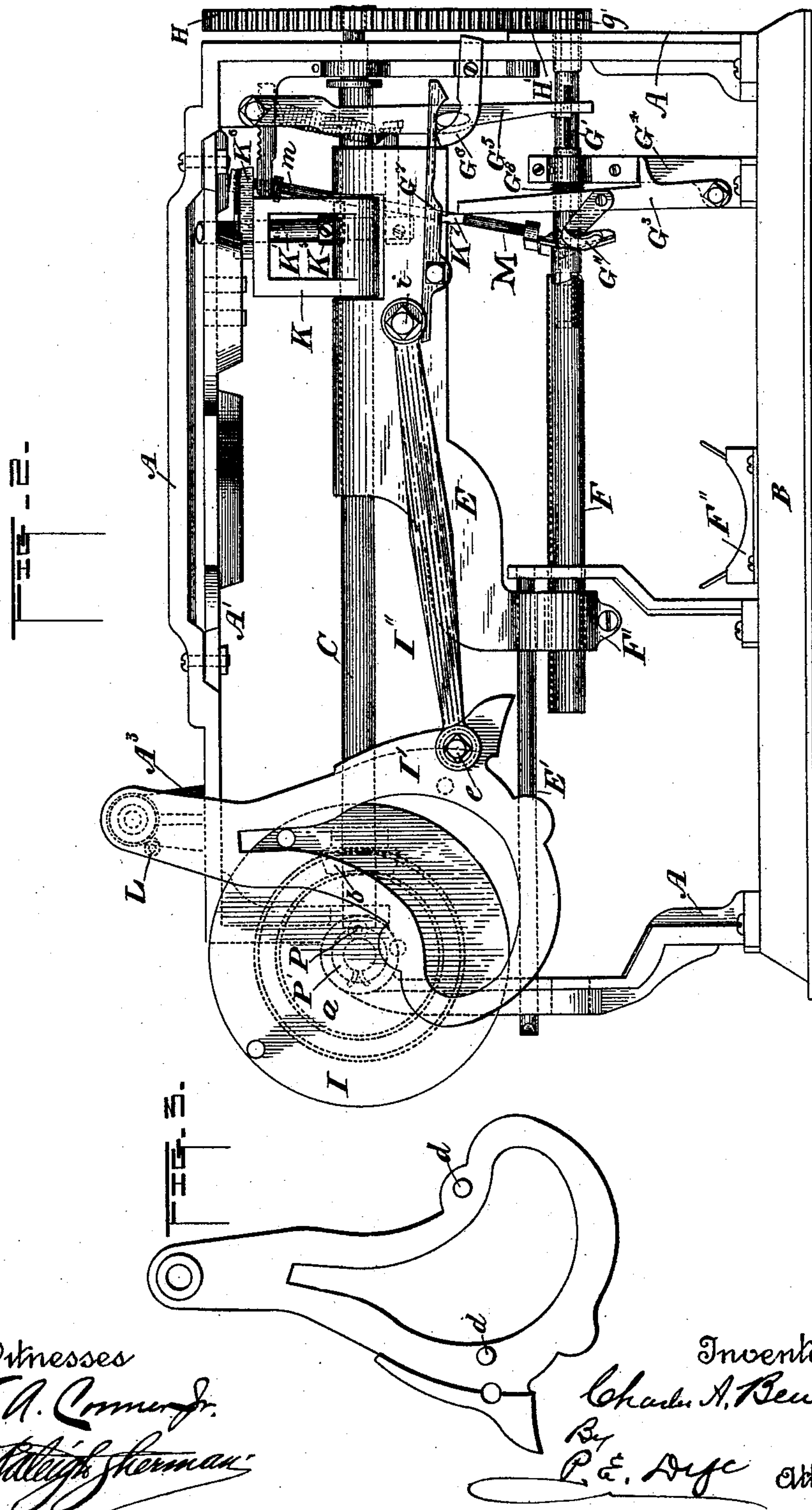
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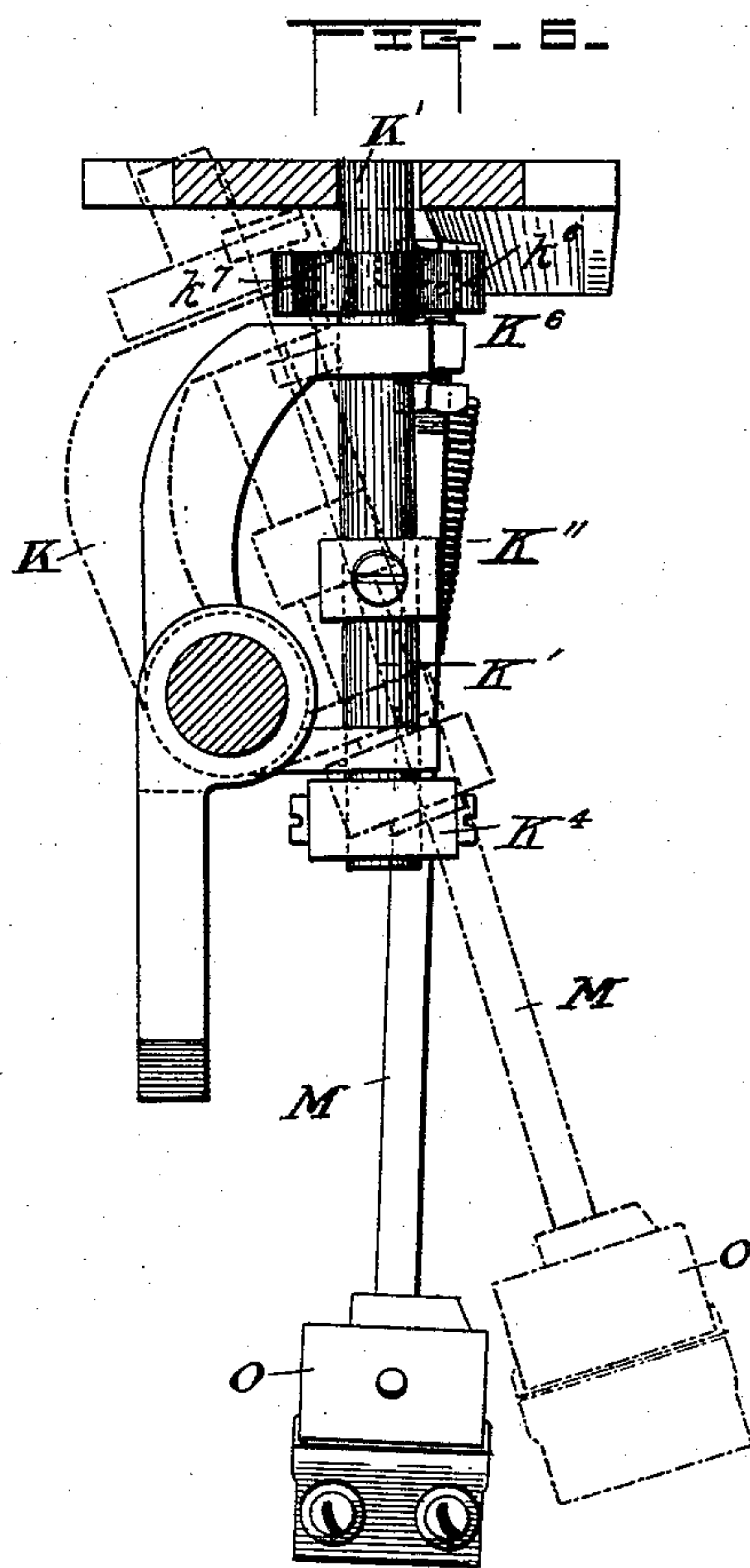
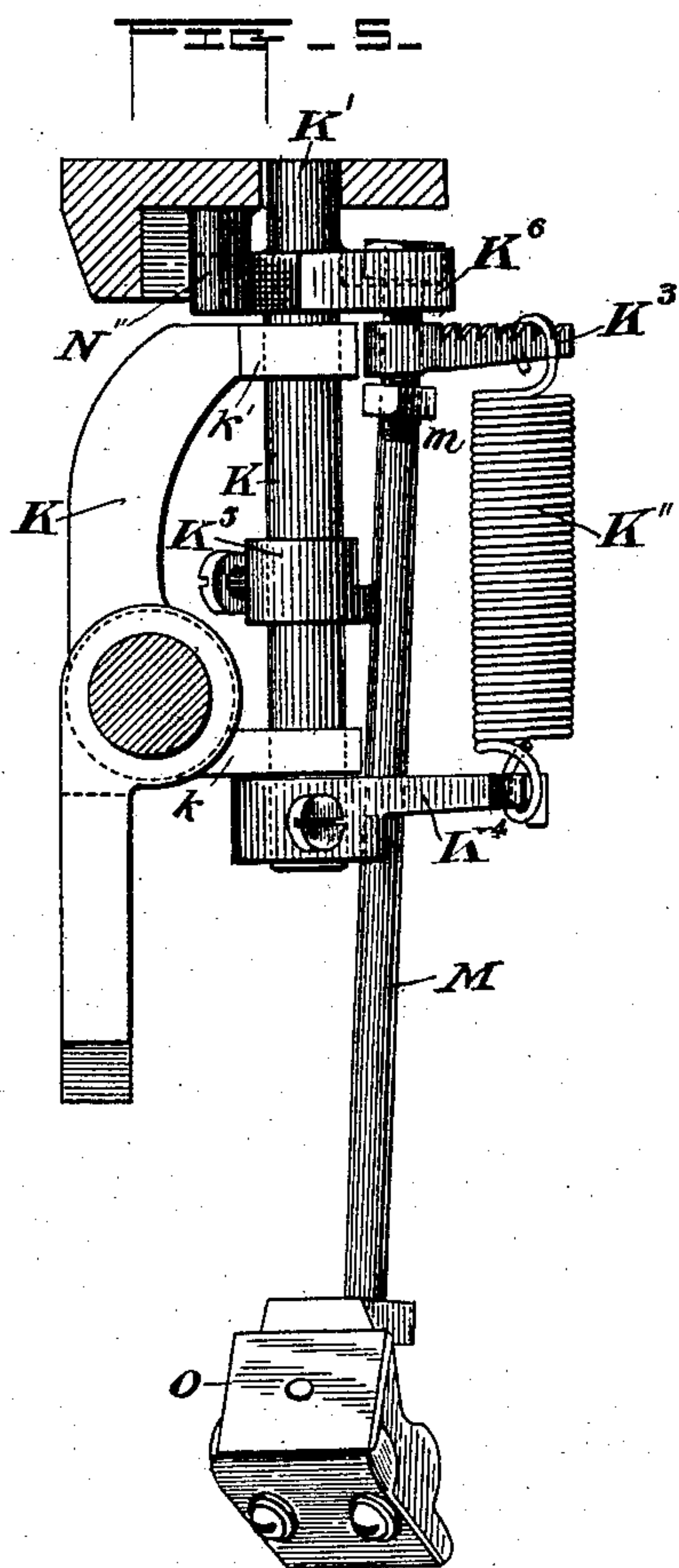
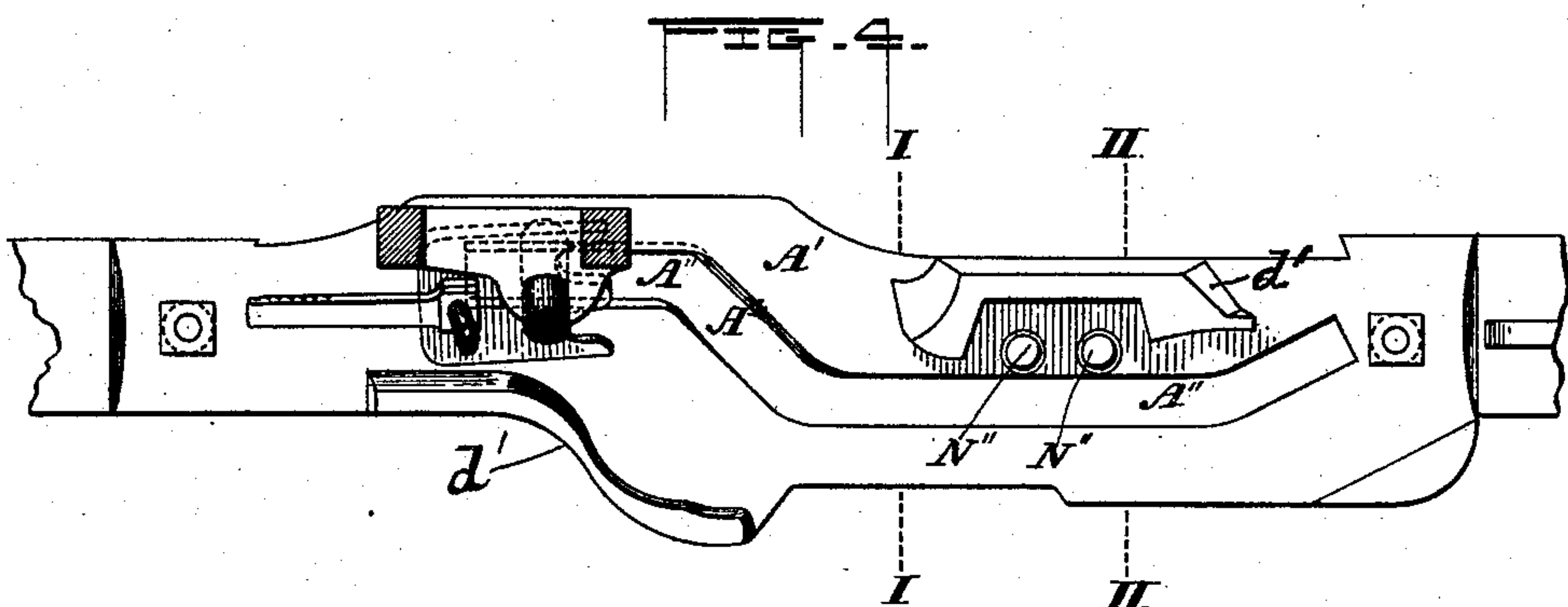
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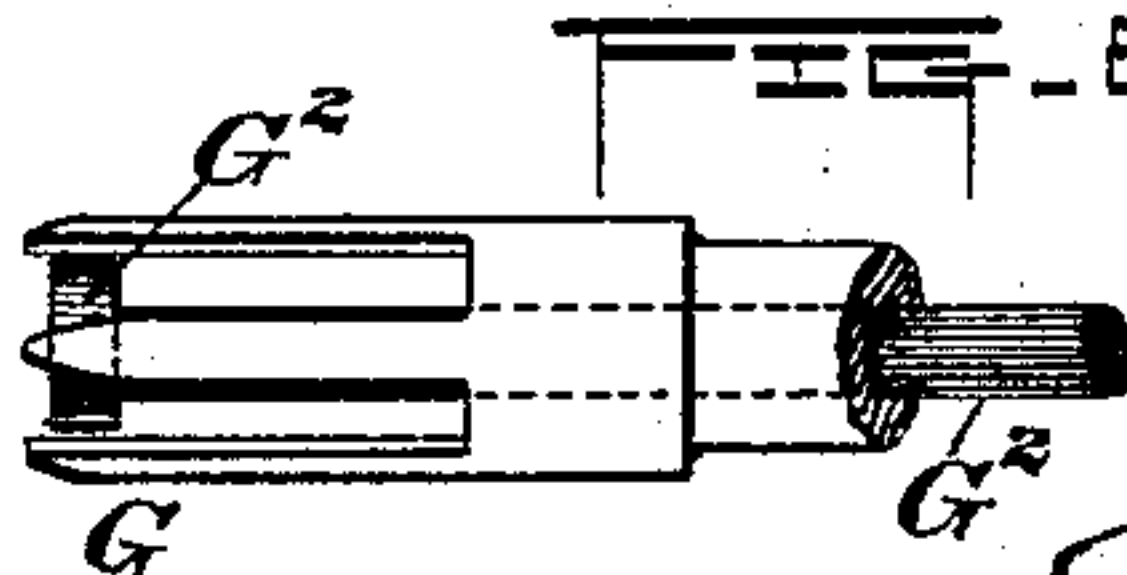
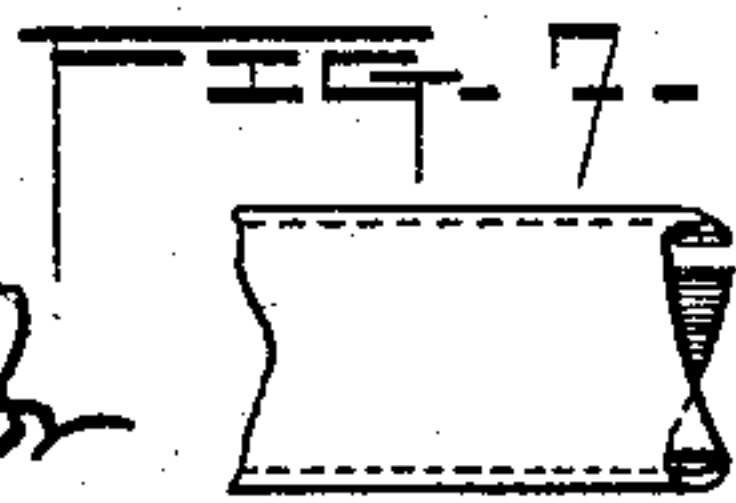
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# UNITED STATES PATENT OFFICE.

CHARLES A. BENTON, OF AURELIUS, MICHIGAN.

## APPLE PARER AND CORER.

SPECIFICATION forming part of Letters Patent No. 486,424, dated November 22, 1892.

Application filed June 4, 1892. Serial No. 435,580. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES A. BENTON, a citizen of the United States of America, residing at Aurelius, in the county of Ingham and State

of Michigan, have invented certain new and useful Improvements in Apple Paring, Coring, and Trimming Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to apple paring, coring, and trimming machines.

The object of my improvements is to produce a machine which will accomplish all the work automatically after the apple is placed upon the fork, separating the dressed fruit from the parings and trimmings and leaving the fruit ready for use. I accomplish this by means of the mechanism hereinafter described, in which—

Figure 1 is an upright elevation of the machine as it appears with all its parts in combination and ready for use, as may be said, the machine in its first position. Fig. 2 is the second position of the machine as it appears after it has done its work. Fig. 3 is a plan view of the pivoted cam-lever I', showing the flange and lugs thereon. Fig. 4 is an under side plan view of the slotted bracket A', and d' d' d' are flange-bearings along the side of the slot A<sup>2</sup> to support and guide the lug K<sup>6</sup> front and rear. Fig. 5 is a view showing section in line through I I, Fig. 4. Fig. 6 is a view showing section through the line H H, Fig. 4, dotted lines showing first position of the knife. Fig. 7 is a detail view showing the construction of the end of the coring-tube. Fig. 8 is a detail of the fork, showing the plunger to eject the core.

A is the frame cast in one piece and attached to the base B.

A' is a bracket provided with a slot A'', said slot being adapted to receive the upper end of the cam-bolt K', said cam-bolt being connected to the swinging frame K.

C is the main shaft.

D is the crank attached to the end of the main shaft by which the machine is driven.

E is the movable carriage upon the main shaft by which the swinging frame is actuated and carrying the coring-tube F.

E' is a parallel guide-rod and support to

the movable carriage and directs the end of said carriage E.

F is the coring-tube. F' is a guide for said coring-tube.

F'' is the chute to receive the fruit after it is pared.

G is the fork.

G' is the hollow fork-spindle journaled in the frame A and the post G<sup>4</sup> and having a small cogged wheel g', which is attached to its end outside of said frame A.

G'' is the plunger within said hollow spindle, its function being to push the core of the apple from between the tines. Said plunger is actuated by the swinging dog or lever G<sup>5</sup>, one end of said dog or lever being attached to the frame A, the other end having a hole therein adapted to pass over said spindle G'.

G<sup>3</sup> is a movable arm carrying the trimming-knife G''.

G<sup>8</sup> is the spiral spring over the spindle G' between said arm G<sup>3</sup> and the post G<sup>4</sup>, the function of said spring being to force said arm G<sup>3</sup> back into place after the trimming-knife G'' has been raised.

G<sup>4</sup> is a post or standard in which one end of the spindle G' is journaled.

G<sup>5</sup> is a dog or swinging lever by means of which the plunger within the spindle is actuated.

G<sup>6</sup> is a lug on the side of the frame to raise the latch G<sup>7</sup>.

G<sup>7</sup> is a latch fastened by a bolt to the side of the carriage E, by means of which the swinging dog or lever is actuated.

H H' are cogged wheels adapted to operate the cogged wheel g' at the end of the spindle, by means of which said spindle-fork is driven, the said cogged wheel H being journaled and securely fastened by a set-screw upon the end of the main shaft C outside of the frame A.

I is a disk drive-wheel, which actuates the pivoted cam-lever I' by means of the lugs I<sup>3</sup> I<sup>4</sup>.

I' is a cam-actuated lever pivoted upon the arm A<sup>3</sup> and adapted to move in front of the disk drive-wheel, by which motion at proper times is imparted to said carriage E.

I'' is the pitman, one end being connected to the cam-lever I' by the bolt e and the other end to the carriage E by a bolt i, by which said carriage E is actuated.



K is a swinging frame hinged upon the shaft C within a notch in the carriage E.

K' is a cam-bolt secured in lugs  $k$   $k'$  at the top and bottom on the side of the swinging frame K, by means of which the knife and its accessories are actuated.

K'' is the spiral spring, its upper end being attached to the notched arm K<sup>3</sup> and its lower end to the slotted arm K<sup>4</sup> upon the cam-bolt K', and is adapted to govern the knife so as to accommodate the size of the apple.

K<sup>3</sup> is a notched arm upon the knife-arm, to which one end of the spiral spring K'' is attached, the opposite end of said spiral spring being attached to the slotted arm K<sup>4</sup> on the cam-bolt.

K<sup>7</sup> is a lug upon the under side of the frame E, its function being to trip the arm G<sup>3</sup> and to force it to the right, thus raising the trimming-knife to prevent its striking the corer.

The disk drive-wheel I has a series of beveled cogs  $a$  upon its side, which are placed about equal distance between its center and circumference and are adapted to receive the corresponding cogs from the beveled wheel  $b$  upon the main shaft C, said beveled wheel being fastened by a set-screw upon said shaft C.

A<sup>3</sup> is a lug or arm cast upon the frame A, upon which the cam-lever I' is pivoted.

L is a spiral spring attached to said arm A<sup>3</sup> and said cam-lever, its function being to keep the slot within said cam-lever bearing against the pin I<sup>4</sup> upon the face of the disk drive-wheel.

The cam-bolt K' is held in bearing-lugs  $k$   $k'$ , which are cast on the side of the swinging frame K, one bearing at the top and one at the bottom of said frame K. Said cam-bolt has three lugs K<sup>4</sup>, K<sup>5</sup>, and K<sup>6</sup>. K<sup>4</sup> and K<sup>5</sup> are adjustable and are held in position upon said bolt by set-screws. K<sup>6</sup> near the top is nearly square, has two notches at one end and a slot at the other, and is cast solid upon said bolt. The lower lug K<sup>4</sup> forms a projecting slotted arm adapted to receive the pendent knife-arm. The upper end of the cam-bolt projects above the upper lug K<sup>6</sup> and is adapted to move in the slot A'' in the bracket A'.

The cam-bolt K' is adapted to revolve in lugs  $k$   $k'$  upon the side of the swinging frame and makes a half-revolution from right to left and from left to right, thereby carrying along the lugs K<sup>4</sup>, K<sup>5</sup>, and K<sup>6</sup> and the notched arm K<sup>3</sup> with the spiral spring K'', as the carriage moves from left to right and from right to left during the movement of the machine. The rotary motion is imparted to said cam-bolt by means of the notches  $k^6$  and  $k^7$  on the side of the lug K<sup>6</sup>, engaging the lugs N'' on the under side of the bracket A'. The cam K<sup>6</sup> on said bolt is nearly square and has two notches  $k^6$   $k^7$  in its side or end, (see Figs. 1 and 6,) which are adapted to engage the pins N'' on the side of the slotted bracket A' as the swinging frame K and the carriage E pass to the right over the shaft C, the upper

end of said cam-bolt K' passing along through the slot A'', the cam K<sup>6</sup> being alternately supported from front then rear by the flanges  $d'$   $d'$ .

M is the knife-arm passing through the slot  $k''$  in the lug K<sup>4</sup> upward into the square lug K<sup>6</sup>, where it is secured in a slot having a knife-bearing, so as to allow motion to the knife-arm in two directions. Said arm M has the jam-nut  $m$  below the notched arm K<sup>3</sup>, said notched arm being firmly attached to the knife-arm M nearly at right angles, as shown in the drawings. The lug K<sup>5</sup> is attached by a set-screw to the cam-bolt and may be raised or lowered, so as to bring the knife nearer the fork or throw it therefrom, as may be desired. By lowering the lug K<sup>5</sup> the knife will be brought nearer the fork; but raising said lug the knife will be thrown farther away from the fork.

O is the paring-knife.

The disk drive-wheel I is journaled on the frame A and is held thereto by the spring-pin P over the friction-washer P'.

Operation: The parts having been all arranged and in position, as described and set forth, and the machine standing in the position as shown in Fig. 1, an apple is placed upon the fork. In pushing the apple upon the fork the plunger within the spindle will be crowded back by the apple. The crank, it will be observed, is standing in a perpendicular position. The crank may be turned to the right almost one quarter of a revolution before the carriage and the parts carrying the knife begin to move. The disk drive-wheel I, which actuates the cam-lever I', and the fork begin to move as soon as the crank is turned, for the reason that the crank imparts a positive motion to the main shaft. As the crank passes one quarter of the first revolution the carriage E begins to move toward the right, carrying with it all of the connected parts—viz., the latch G<sup>7</sup>, the coring-tube F, and all the mechanism by which the knife is operated—viz., the swinging frame K, the cam-bolt K', and all the other accessories by which the knife is actuated, as hereinbefore described. When the crank has made three-quarters of the first revolution, the carriage has advanced to the right, the lug K<sup>6</sup> passing the flange on the side of the slot. The end of the cam-bolt K', moving in said slot A'', now obliquely to the rear through the offset slot A<sup>4</sup>, bringing the swinging frame and knife-arm perpendicular, with the knife O against the end of the apple, the flange on the front side of the slot A'' supporting said lug K<sup>6</sup>. At this point the front notch  $k^7$  in the lug K<sup>6</sup> engages the left-hand pin N'', giving said cam-bolt a rotary motion and carrying the knife O about one-half way round the apple, the crank at this point having made an entire revolution. Continuing to turn the crank, the notch  $k^6$  in the lug K<sup>6</sup> engages the right-hand pin N'' and continues to turn the cam-bolt K', so that the paring of the apple is au-



tomatically completed, said bolt having made one-half revolution from left to right during the movement. As the crank makes one and one-half revolution, the latch  $G^7$  will have advanced over the lug  $G^6$ , engaging the swinging dog or lever  $G^5$ , the lug  $K^7$  on the under side of the carriage E will have engaged the end of the arm  $G^3$ , forcing back the trimming-knife  $G''$ , and the coring-tube F will have been brought forward in the movement and passed through the apple over the fork. As the movement continues, the pitman  $I''$ , actuated by the cam-lever  $I'$  on the face of the disk drive-wheel I by the return motion, withdraws the carriage and the accompanying parts, the latch engaging the swinging dog or lever  $G^5$ , throwing back plunger  $G'$  on the inside of the hollow spindle, the cam-bolt  $K'$  passing back in the slot to the left and the notches in the lug  $K^6$  engaging the pins and the flanges in the same manner in reverse order as in the advanced movement, the several parts coming back into the same position as when the movement began. As the coring-tube withdraws through the guide  $F'$ , the apple will be slipped off and fall into the chute  $F''$  and roll into a basket. The skins and the cores fall into an appropriate receptacle through the holes in the table.

The operation of all the parts is automatic, so that to pare and dress an apple requires three revolutions of the crank to the right and the work is accomplished and the machine will be left standing in its first position. The only limit of speed is the facility with which the apples can be placed upon the fork.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, in a fruit-paring machine, is—

1. The combination of the main shaft journaled in the upright frame, the movable carriage, the swinging frame, the cam-bolt, and the lugs  $K^4$ ,  $K^5$ , and  $K^6$  on said cam-bolt, the slotted bracket with offset slot, the pins  $N''$ , and the flanges  $d$   $d$  upon the side of said slotted bracket, the knife O, and pendent knife-arm M, and the notched arm  $K^3$ , the spiral spring  $K''$ , the swinging dog or lever  $G^5$ , the movable arm  $G^3$ , the trimming-knife  $G''$ , the spiral spring  $G^8$ , the disk drive-wheel I, the cam-lever  $I'$ , the spiral spring L, and the pitman  $I''$ , as and for the purposes substantially as set forth and described.

2. The combination of the main shaft journaled in the upright frame and driven by a crank, the beveled cogged wheel  $b$ , the cogged drive-wheel H, and the cogged wheel  $H'$ , and the cogged wheel  $g'$ , the disk drive-wheel I, the cam-lever  $I'$ , and the spiral spring L, the movable carriage E, the pitman  $I''$ , the swinging frame K, the cam-bolt  $K'$ , with the lugs  $K^4$ ,  $K^5$ , and  $K^6$ , the knife and pendent knife-arm, the notched arm  $K^3$ , the spiral spring  $K''$ , the slotted bracket provided with pins  $N''$  and flanges  $d'$   $d'$  and offset slot, the trimming-knife  $G''$ , the spiral spring  $G^8$ , the movable arm  $G^3$ , the swinging dog or lever  $G^5$ , the lug  $G^6$ , and the latch  $G^7$ , the parallel guide  $E'$ , the coring-tube F, the guide  $F'$ , the chute  $F''$ , the fork G, the plunger  $G^2$ , the spindle  $G'$ , and the post or standard  $G^4$ , as and for the purposes substantially as set forth and described.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES A. BENTON.

Witnesses:

LAWTON T. HEMANS,  
WALTER J. CARRIER.