

(No Model.)

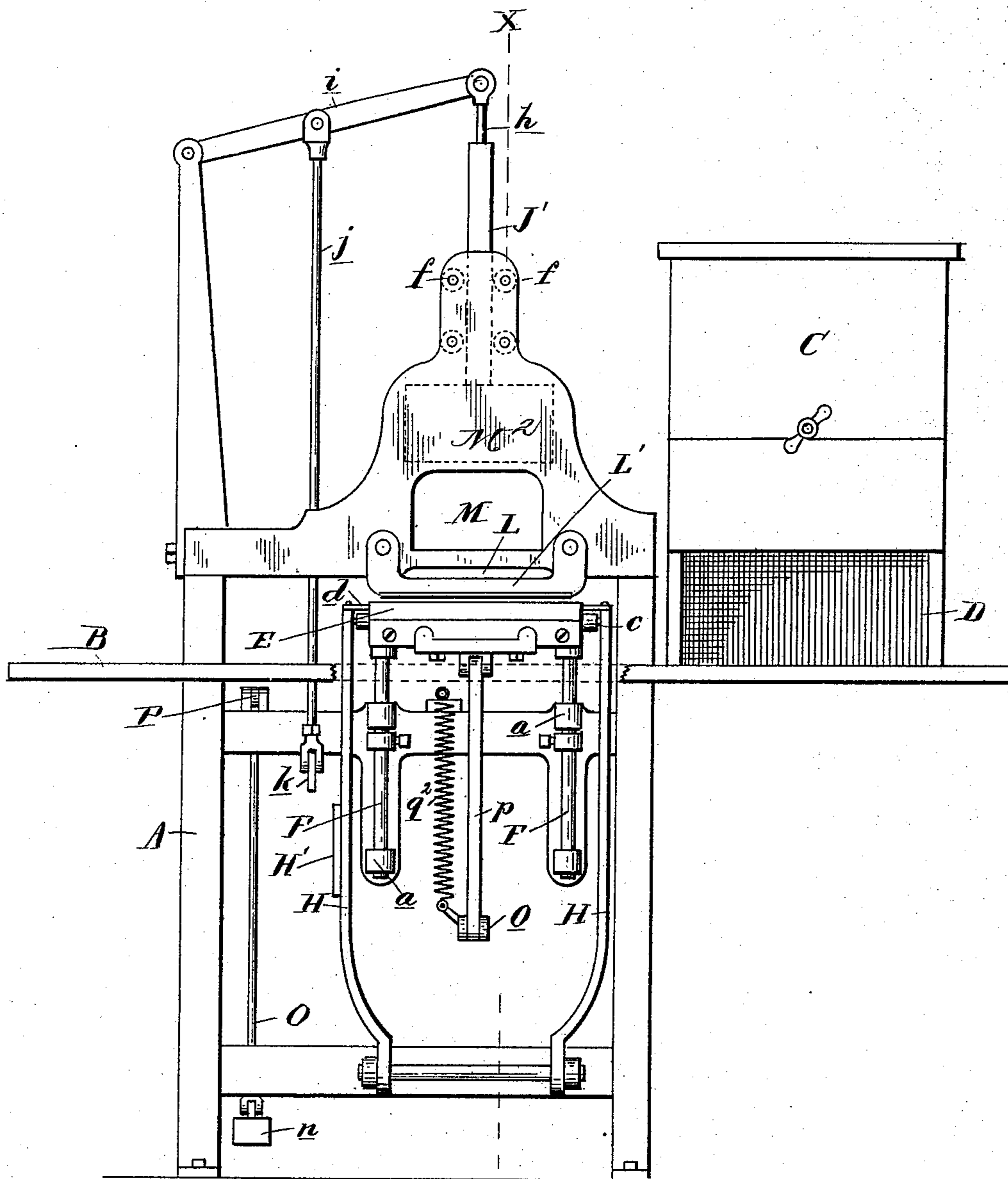
3 Sheets—Sheet 1.

A. GORDON.  
CIGAR BUNCHING MACHINE.

No. 486,249.

Patented Nov. 15, 1892.

Fig. 1.



Witnesses  
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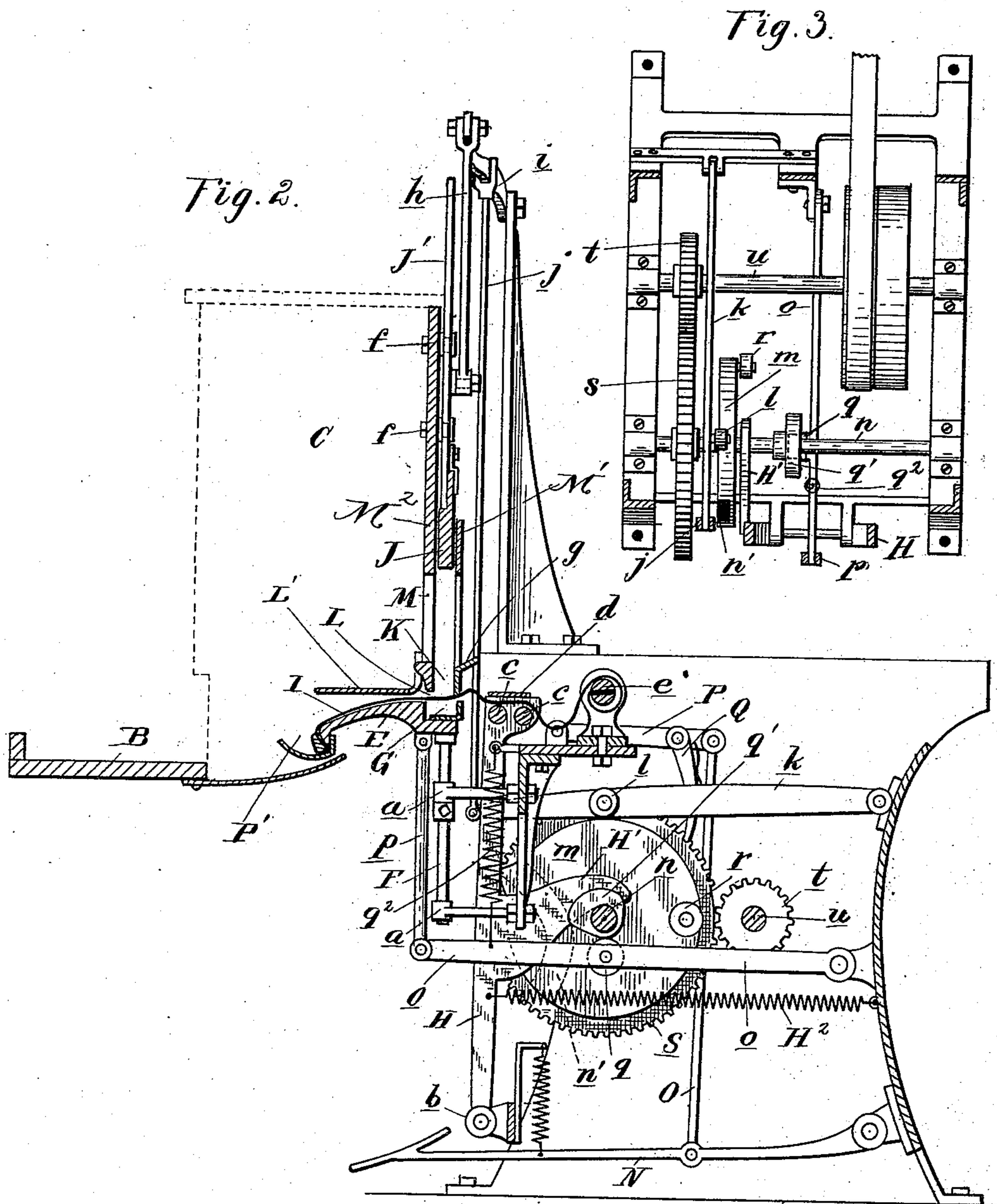
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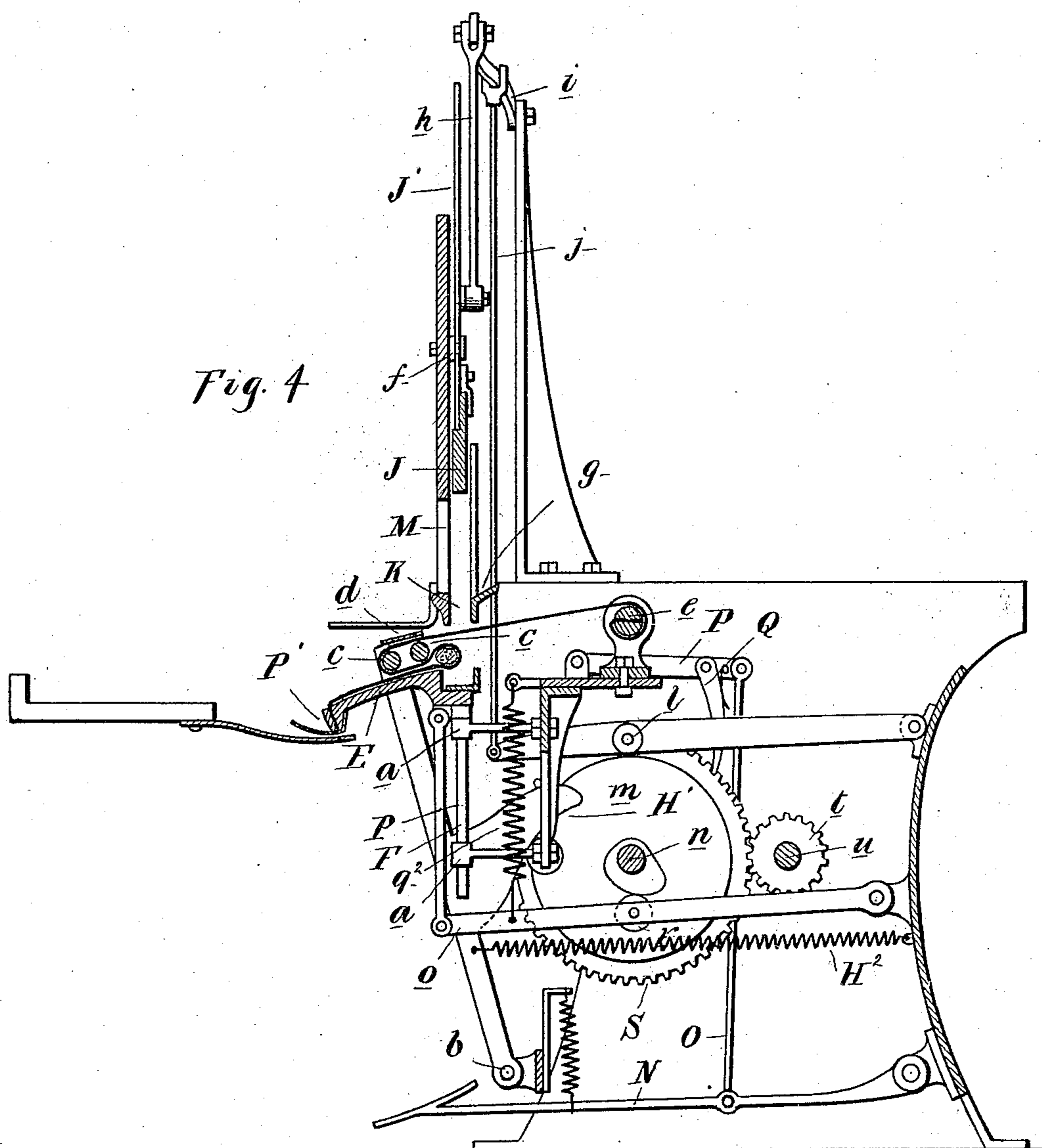
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3 Sheets—Sheet 3.

No. 486,249.

Patented Nov. 15, 1892.



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# UNITED STATES PATENT OFFICE.

ALEXANDER GORDON, OF DETROIT, MICHIGAN.

## CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 486,249, dated November 15, 1892.

Application filed June 16, 1890. Serial No. 355,634. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER GORDON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and useful improvements in cigar-bunching machines; and the invention consists in the novel construction, arrangement, and operation of the bunching-table and in a device for feeding and compressing the bunch, and, further, in the mechanical devices whereby the two are made to co-operate, all as more fully hereinafter described, and shown in the accompanying drawings, in which—

20 Figure 1 is a front elevation of my improved bunching-machine. Fig. 2 is a vertical central cross-section substantially on the line  $xx$  in Fig. 1. Fig. 3 is a plan view of the operating mechanism. Fig. 4 is a vertical section, partly in elevation, of a machine.

25 A is the supporting-frame of the machine. B is a table supported in front thereof for the convenience of the operator, to one side of which is placed a suitable inclosed receptacle C for containing a supply of the filler, arranged in convenient proximity to the operator to enable him to procure the material for the bunch through a small opening D at the bottom of the receptacle, the material being thereby prevented from becoming dry.

30 The bunching-table E projects in front of the machine at a little distance above the table B and is held in vertical guides in any suitable manner, such as by means of sliding rods F, secured at the rear end of the table and engaging in vertical guide-bearings  $a$ , which are attached to the frame. In the rear end of the bunching-table is formed the pocket G, the rear side of which is preferably adjustable to increase or decrease the capacity of the pocket for forming bunches of different sizes. The table in front of the pocket is curved on the radius having its center at  $b$ , said center forming the center of movement of the oscillating frame H, which carries the bunching-rollers  $c$ . This frame H is pivotally secured at its lower end to the frame A and

provided at the upper end with a cross-bar  $d$ . Underneath this cross-bar the two bunching-rollers  $c$  are journaled transversely, sufficient space being left between the cross-bar and the bunching-rollers for the free passage of the bunching-cloth I. The front end of this bunching-cloth is attached to the front end of the bunching-table, and its rear end after passing above the bunching-rolls is secured to a stationary roller  $e$ , which is provided with any suitable means for regulating the amount of slack in the bunching-cloth. Vertically above the bunching-pocket in the table is secured in vertical guides a vertically-reciprocating plunger J, the plunger-rod  $J'$  of which is preferably guided between suitable antifriction-rollers  $f$ . Vertically above the pocket G is formed a corresponding receptacle K, which has an open bottom, but by its proximity to the bunching-cloth is practically closed at the bottom by said cloth. This receptacle is of a size to admit the plunger, and its front side is cut away at the lower edge to form an aperture L large enough to permit of inserting a portion of the binder underneath the receptacle, the rest of the binder being supported upon a swell-table  $L'$  in front of said aperture. This table is also suitably cut away at the rear edge and secured high enough above the bunching-table to clear the same. The rear side of this filler-receptacle is preferably provided with an inclined shield  $g$ , and an aperture M is formed in the guide-frame of the plunger for the convenient access of the operator to the receptacle, which is preferably formed by securing the cross-bar  $M'$  and the back plate  $M''$  to the front and rear side of said guide-frame, respectively. The plunger is vertically-reciprocatingly actuated by a plunger-rod  $h$ , pivotally secured to a lever  $i$ , which is actuated by a vertical connecting-rod  $j$ , the lower end of which is pivotally connected to the free end of a lever  $k$ . This lever is pivotally connected at its rear end to the rear side of the frame and carries a roller  $l$ , which is adapted to ride on top of a cam  $m$ , secured upon the transverse shaft  $n$ . This cam is circular for a large portion of its circumference and is provided with a cam-groove  $n'$ , (shown in dotted lines in Fig. 2 and also in Fig. 3,) the arrangement of the roller  $l$  being such

that during the revolution of the cam  $m$  the roller will be engaged into said cam-groove, and thereby impart during such engagement a vertical up-and-down movement to the lever  $k$ , which, transmitted through the connections described to the plunger, causes the latter to descend between its guides to the bottom of the filler-receiving pocket and then back again to its upper position above the aperture  $M$ .

The bunching-table is vertically controlled by means of the lever  $o$ , pivotally secured at its rear end to the rear side of the frame and at its front end by a connecting-rod  $p$  to the under side of the bunching-table. The lever  $o$  carries a roller  $q$ , adapted to ride on the under side of a cam  $q'$  on the shaft  $n$ , the roller being held in contact with the said cam by the tension of the spring  $q^2$ .

The oscillating frame, which carries the bunching-rollers, is actuated by means of a roller-wrist  $r$ , secured to one side of the cam  $m$ , which in the revolution of the shaft  $n$  strikes against a curved arm  $H'$  on one of the arms of the oscillating frame, all so arranged that in the revolution of the shaft  $n$  the roller-wrist  $r$  in striking the curved arm  $H'$  moves the oscillating frame so as to carry the rollers  $c$  over the bunching-table, the return movement being accomplished by the tension of a suitable spring  $H^2$ . Motion is communicated to the shaft  $n$  through the medium of a gear-wheel  $s$  on said shaft, which in turn receives the power through a gear-wheel  $t$  on the counter-shaft  $u$ . To this counter-shaft motion is communicated from any suitable source of power by any of the usual connections, permitting the power to be connected or disconnected. Near the bottom of the frame is secured a foot-lever  $N$  which projects at the front end into proximity to the foot of the operator and is pivotally connected by the connecting-rod  $O$  with the lever  $P$ , which carries the pawl  $Q$ , adapted to engage into the cogs of the gear-wheel  $s$ . This gear-wheel has a few teeth cut away, whereby it is thrown out of engagement with the gear-wheel at every revolution, the parts being so arranged that by depressing the foot-lever  $N$  the pawl  $Q$  is forced to communicate the necessary rotation to the gear-wheel  $s$  to throw the parts again into gear.

The parts being arranged and constructed substantially as shown and described, the operation is as follows: The operator or his assistant places first a suitable binder onto the table  $L'$ , so as to project through the aperture  $L$  into the filler-receptacle. Then the operator, having supplied himself from the receptacle  $C$  with a suitable amount of filler to form a bunch, (the machine being calculated to work with long filler,) introduces the same through the aperture  $N$  into the filler-receptacle  $K$ , the shield at the rear acting as a guide for the ready introduction and to prevent waste. Motion is now given to the parts by the operator depressing the foot-lever, which throws the gear-wheel  $s$  into gear with the gear-wheel

$t$  on the counter-shaft, and the shaft  $N$  begins to revolve. This causes first the actuation of the plunger  $J$  by the engagement of the roller  $l$  into the cam-groove  $n'$ , and in descending the plunger pushes the filler through the receptacle  $K$  into the bunching-pocket  $G$ , the parts being so arranged that the plunger moves far enough downwardly to compress the filler in such pocket by the tension of the spring  $q^2$ , which resists the forcing down of the bunching-table by the movement of the plunger. Meanwhile the revolution of the shaft  $n$  causes the cam  $q'$  to bear against the roller  $q$ , and the bunching-table is thereby not only prevented from rising when the plunger withdraws, but is depressed sufficiently low to allow the bunching-rollers to pass over the table and hold the same down until the bunching-rollers have done their work. As soon as the bunching-table is fully depressed the frame  $H$ , through the connection of the roller-wrist  $r$  and curved arm  $H'$ , is now oscillated forwardly in such a manner as to envelop the bunch in the pocket into the bunching-cloth in the well known manner of rolling the bunch with this class of device. The movement of the oscillating frame is ample enough to allow the bunch to fall into a suitable trough  $P'$  formed on the front edge of the bunching-table. During this movement the binder has been drawn in through the aperture  $L$  and become wrapped around the bunch, the desired pressure being provided by the proper adjustment of the bunching-cloth. The return of the bunching-rollers to their normal position is accomplished by the tension of the spring  $H^2$ . All the parts having returned to their normal position, the motion of the shaft  $n$  stops as soon as the cut-away portion of the gear-wheel  $s$  throws the wheels out of gear.

It will be observed that the plunger in its downward stroke not only forces the filler (and that portion of the binder introduced beneath) into the pocket  $G$  of the bunching-table, but also depresses the bunching-table, and thereby compresses the filler by a pressure equal to the tension of the spring  $q^2$ , which pressure can be regulated by regulating the tension of said spring; and it is obvious that instead of a spring a counter-weight may be used as an equivalent. The compression of the bunch in my construction is not altered by any variation in the amount of filler, and this is an important advantage not obtained in other machines and at once dispenses with the necessity of measuring or weighing the amount of filler for the bunch, which, while it has been done with more or less success with short filler, has been a failure with long filler, and as the latter is by far the more desirable, from considerations understood by every practical cigar manufacturer, I deem my invention to be of great importance in this class of machines.

I do not intend to limit myself in the use of my yielding bunching-table to its combination with a mechanical feed, but broadly

claim it in connection with any kind of feed or for feeding by hand directly into the pocket of the bunching-table, when the operator may apply his power to depress the bunching-table against the tension of the supporting-spring, and thereby compress the bunch.

What I claim as my invention is—

1. In a cigar-bunching machine, an apron and a bunching-table yieldingly supported in vertical guides and provided with a pocket for the filler, in combination with a vertically-reciprocating plunger adapted to compress the filler in said pocket, substantially as described.

2. In a cigar-bunching machine, the combination, with the apron, of a bunching-table yieldingly supported and provided with a pocket for the filler, a plunger mounted above said pocket, and means for actuating said plunger to depress the bunching-table by compressing the filler in its pocket, substantially as described.

3. The combination of a bunching-table having a pocket for the filler, a filler-receptacle mounted above said pocket and having an open bottom, and an aperture for receiving the binder projected from the binder-table, a table for supporting the binder in front of said receptacle, an apron, and a vertically-reciprocating plunger registering with the filler-receptacle and with the pocket in the bunching-table, substantially as described.

4. The combination of the vertically-yielding bunching-table supported in vertical guides and provided with a pocket for the filler, the filler-receptacle secured above said pocket, the bunching-cloth adapted to close the bottom of said receptacle, the apron, and the reciprocating plunger adapted to be projected through the filler-receptacle into the pocket of the bunching-table, substantially as described.

5. The combination of the vertically-yielding bunching-table provided with a pocket for the filler, the reciprocating plunger for compressing the filler in said pocket, the apron, and mechanical means for locking the bunching-table into position after its depression by the plunger, substantially as described.

6. The combination of a bunching-table yieldingly supported in vertical guides and provided with a pocket for the filler, a filler-receptacle secured above said pocket, means for holding the binder in proper relation to said receptacle, a reciprocating plunger adapted to depress the bunching-table by compressing the filler in the pocket of the same, means for temporarily locking the bunching-table in its depressed position, an oscillating-frame carrying the bunching-rollers, and a bunching-cloth, all arranged to operate while the

bunching-table is in its depressed position, substantially as described.

7. In a cigar-bunching machine, the combination, with the bunching-table provided with a pocket for the filler, of the filler-receptacle secured above said pocket and provided with the aperture *L* and shield *g*, the bunching-cloth forming the bottom of said receptacle above the bunching-table in front of the filler-receptacle, and the reciprocating plunger secured in a vertical guide-frame, having the aperture *M* therein above the filler-receptacle, substantially as described.

8. The combination, with the bunching-table yieldingly supported in vertical guides, of the lever *o*, carrying the bunching-table, the revolving cam *q'*, arranged to hold the bunching-table in its depressed position, the apron, and the oscillating frame carrying the bunching-rollers, substantially as described.

9. The combination, with the apron and bunching-table supported in vertical guides, of the lever *o* and spring *q<sup>2</sup>*, yieldingly carrying said table, the shaft *n*, provided with the cam *q'*, adapted to hold the lever *o* in a depressed position during a portion of the revolution of the shaft *n*, the oscillating frame carrying the bunching-rollers and provided with the arm *H'*, and the wrist-pin *r*, carried by the cam and adapted to engage with said arm, substantially as described.

10. The combination of the bunching-table yieldingly supported in vertical guides and provided with a pocket for the filler, the filler-receptacle mounted above the pocket in said bunching-table, the vertically-reciprocating plunger, the lever *k* and its intermediate connection for actuating said plunger, the roller *l* on said lever, and the revolving cam *m*, provided with the cam-groove *n'*, adapted to engage said roller *l* to actuate the plunger during a portion of the revolution of the cam *m*, substantially as described.

11. The combination of the apron, the bunching-table supported in vertical guides, the lever *o* and spring *q<sup>2</sup>*, carrying said bunching-table free to yield under pressure, the reciprocating plunger, the lever *k* and its actuating connection with said plunger, the roller *l* on said lever, the oscillating frame carrying the bunching-rollers, the arm *H'* on said frame, the revolving shaft *n*, the cams *q'* and *m* on said shaft, and the wrist *r* on the cam *m*, substantially as described.

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

ALEXANDER GORDON.

Witnesses:

GEO. A. GREGG,

M. B. O'DOHERTY.