

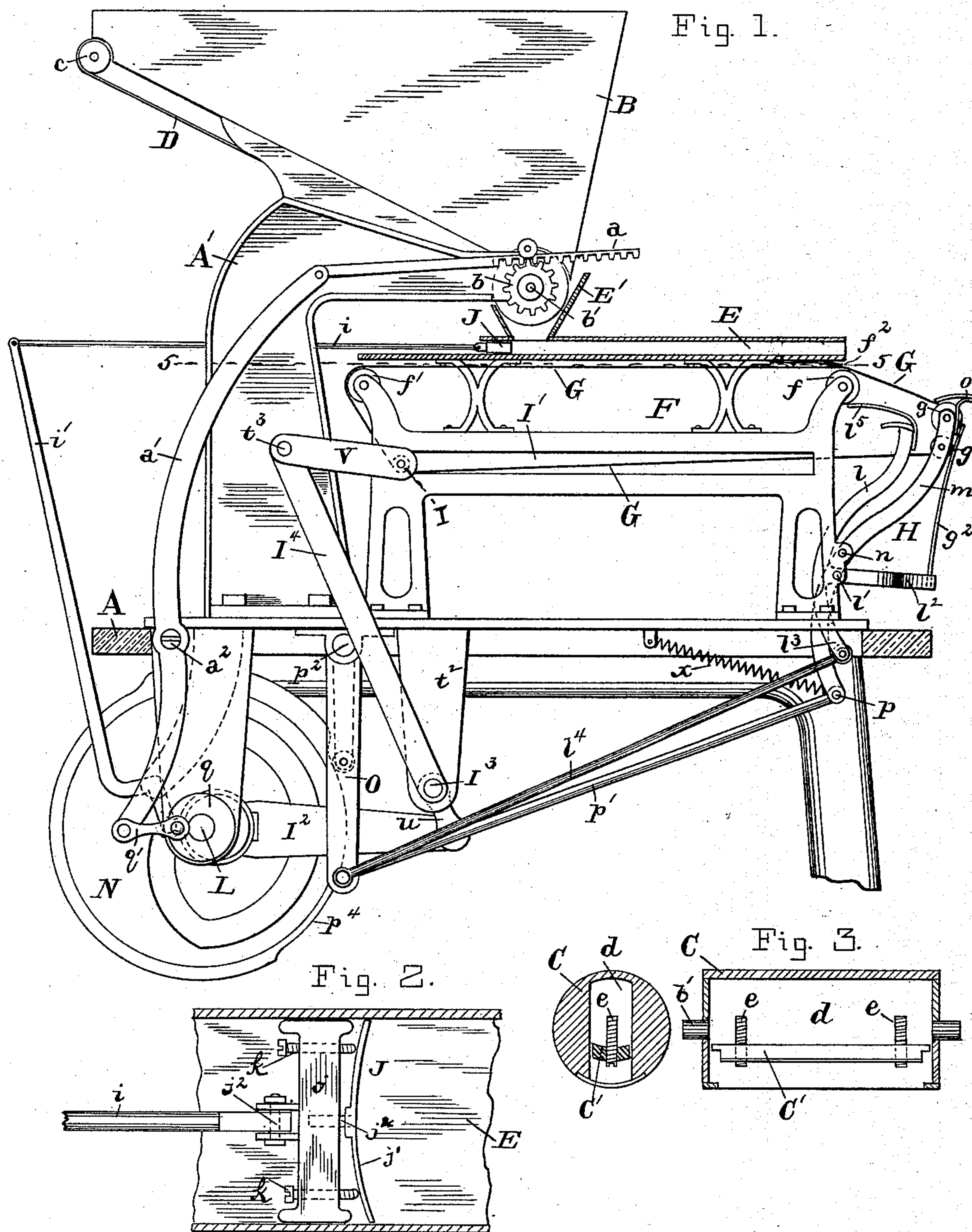
(No Model.)

3 Sheets—Sheet 1.

M. GREENSFELDER.  
CIGAR BUNCHING MACHINE.

No. 384,757.

Patented June 19, 1888.



WITNESSES:

Robert L. Clemmitt.  
John E. Morris.

INVENTOR:

M. Greensfelder.

BY

Chas B. Mann.

ATTORNEY.

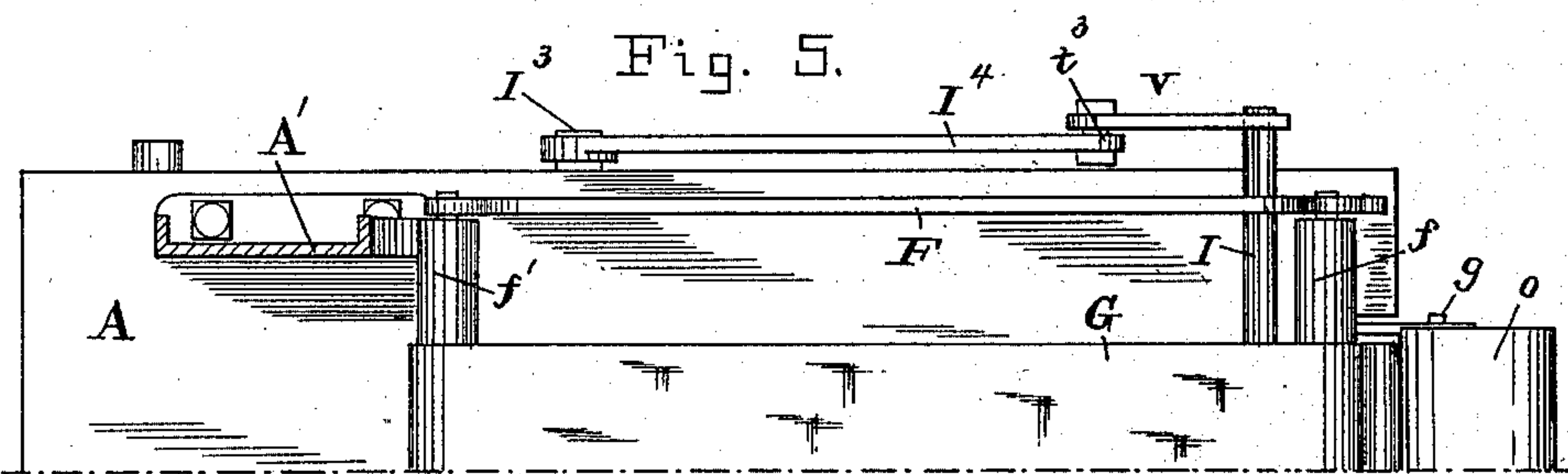
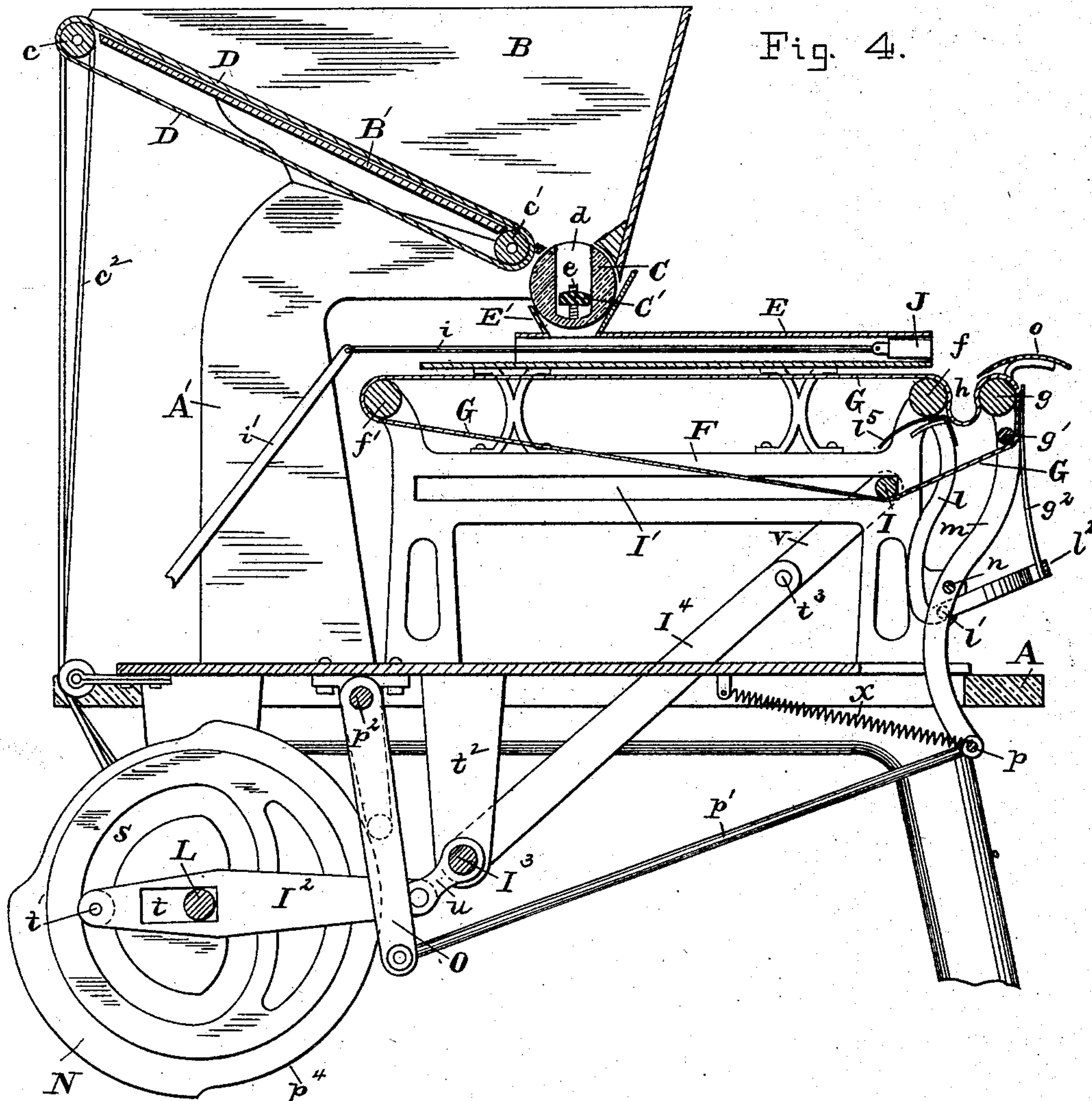
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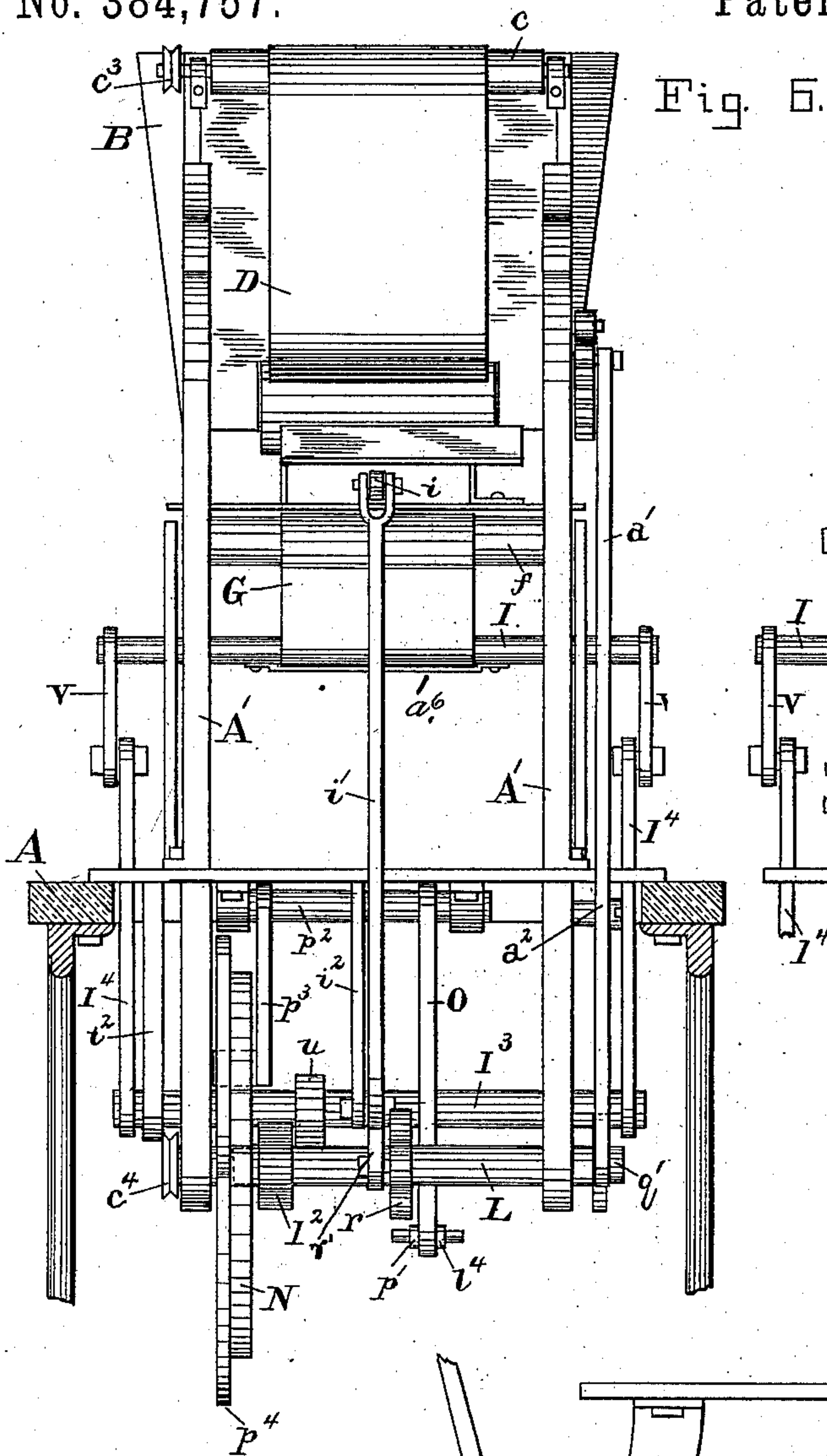


Fig. 6.

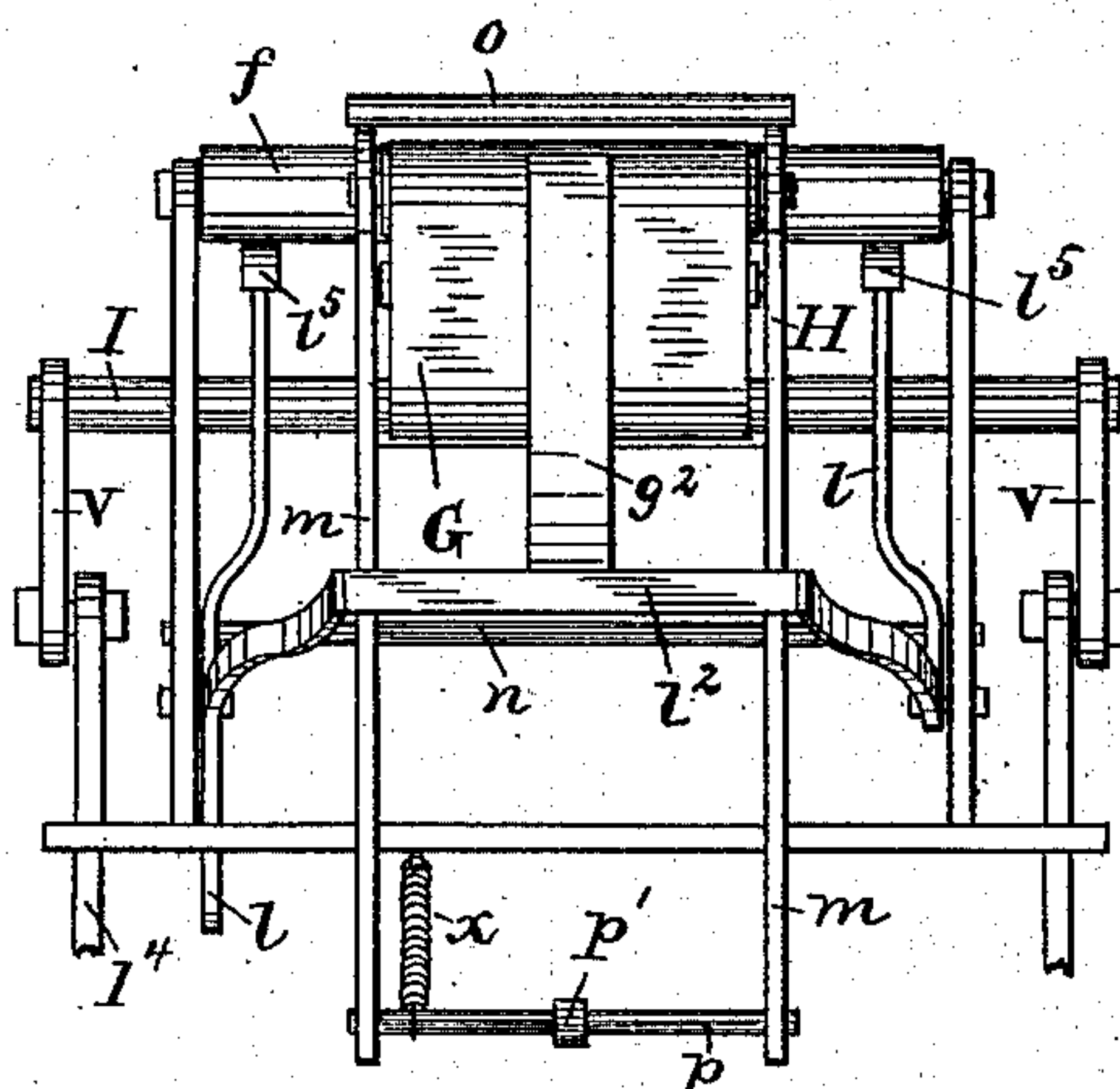


Fig. 7.

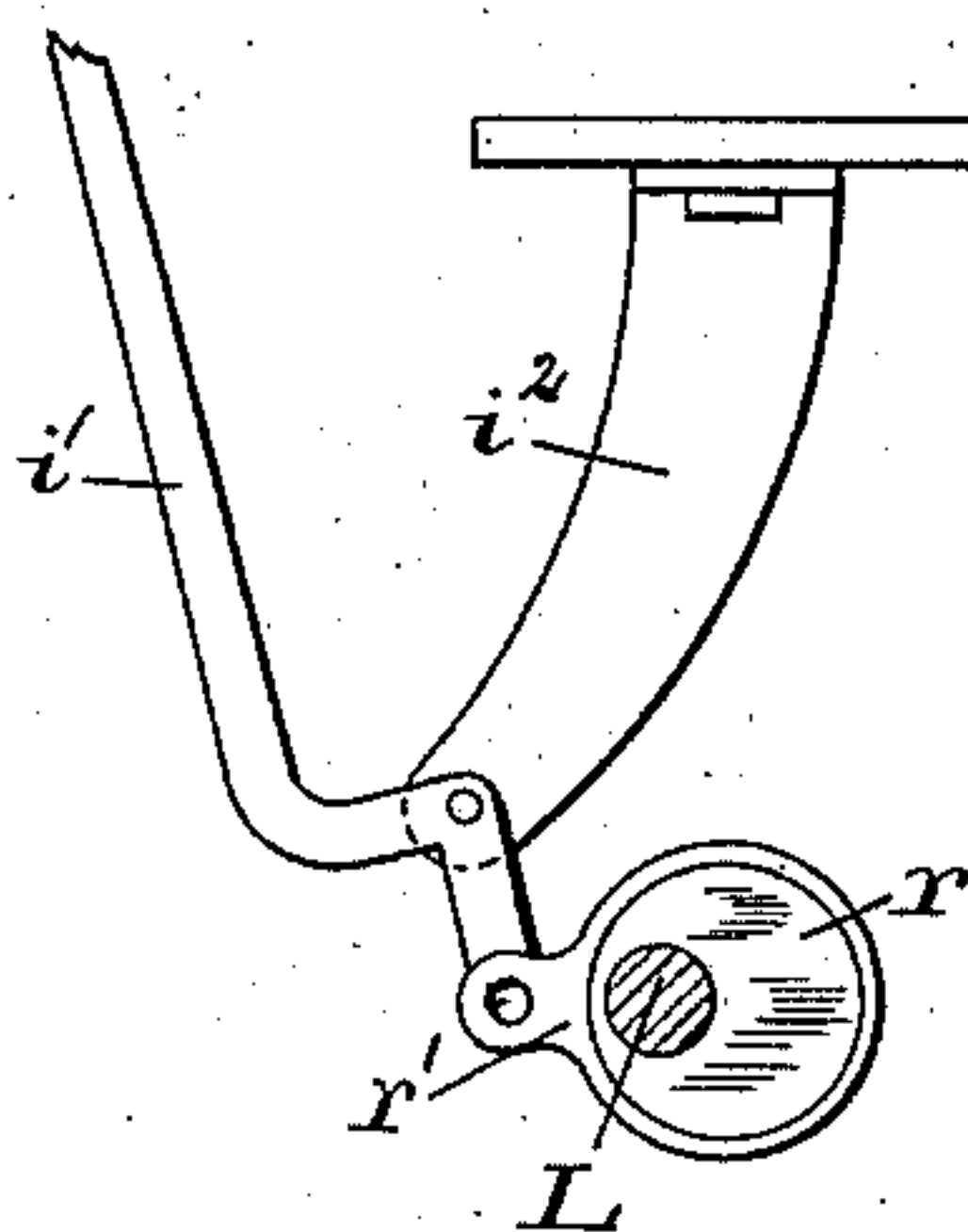


Fig. 8.

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# UNITED STATES PATENT OFFICE.

MOSES GREENSFELDER, OF BALTIMORE, MARYLAND.

## CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 384,757, dated June 19, 1888.

Application filed July 18, 1887. Serial No. 244,590. (No model.)

*To all whom it may concern:*

Be it known that I, MOSES GREENSFELDER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

My invention relates to a cigar-making machine, and has particular reference to a machine for forming the bunch and filler and applying the wrapper thereto.

The invention consists in novel parts, combinations, and features of construction, and is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the machine, except the bunch-slide and table, which are in section. Fig. 2 is a horizontal section of the bunch-slide and pusher. Fig. 3 shows two sectional views of the feed-cylinders. Fig. 4 is a vertical longitudinal section of the machine. Fig. 5 is a plan or top view of one-half of the apron and related parts on line 5 5, Fig. 1. Fig. 6 is a rear side elevation of the machine. Fig. 7 is an elevation of the front end of the machine. Fig. 8 is a view of the eccentric and rod-hangers.

The machine is supported on a suitable table, A, and standards A' on the table sustain a hopper, B, which has in its bottom a feed-cylinder, C, to which an oscillating motion is imparted by a rack-bar, a, engaging with a pinion, b, mounted on the journal b' of the cylinder. An endless feed-belt, D, is mounted on two rollers, c c', at the upper and lower edge of the hopper-bottom B', and one side of the belt travels above the bottom and one side below it. The scrap-tobacco which is put into the hopper rests on the said feed-belt, and is thereby carried down to the feed-cylinder C, which has a cavity or opening, d, to receive the scrap-tobacco, which is to form a cigar bunch or filler. A gage-ejector, C', loosely occupies the cylinder-cavity d, and is provided with two screws, e, (see Fig. 3,) which regulate the depth in the cavity to which the said ejector may drop. In the present instance the ejector C', it will be understood, acts by gravity—that is to say, when the feed-cylinder C is turned so that its cavity d opens upward, as in Fig. 4, the ejector C' will drop into the cavity as far as

the regulating-screws e will allow. The scrap-tobacco in the hopper will then fall into the said cavity and rest on the ejector C'. The feed-cylinder will now turn over to the position shown in Fig. 3, where the cavity opens downward, and the gravity of the ejector will cause it to drop and thereby expel the bunch of scrap-tobacco from the cavity into the guide E, which latter is a broad flat tube provided with a funnel, E', below the feed-cylinder.

The guide E is supported on a stationary frame, F, and immediately below the said guide is an apron, G, which passes over two rollers, f f', mounted on the stationary frame F, and two rollers, g g', on a pivoted frame, H, at the front of the machine. The apron is connected to a bar, I, by means of clip a' thereon, which incloses and keeps the apron in position on the bar. The bar I fits and moves in horizontal slots I' in the two sides of the stationary frame, and the bar I is moved back and forth in the slots and draws the apron G back and forth with it each way. Between the roller f on the stationary frame and the roller g on the pivoted frame the slack of the apron sags down to form the bight h, wherein the bunch or "filler" is received, rolled, and wrapped.

The charge-guide E is provided with a pusher, J, which consists of a block or cross-head, j, which fits loosely in the guide E, and has two set-screws, k, one near each end, which enter at the back, and the points of which project through at the front side of the block and press against the back of a flexible bar, j', near its ends, said flexible bar being connected at j' with the block j. It will be seen that by turning the set-screws k the curved shape of the flexible bar may be altered and the curvature of said bar may be increased or diminished. In pushing the charge of scrap-tobacco through the guide E the shape of the bar j' is imparted thereto. The bar j' may have its shape altered, and such shape may be given it as will best suit the form of the cigar which it is desired to produce. The pusher J has connected to it one end of a rod, i, the opposite end of this rod being connected to a lever, i', which is attached to a cam, N, the mechanism of which will be presently explained.

As the charge of scrap-tobacco is ejected from the guide E by the pusher J it will drop



into the bight *h* of the apron by means of the reciprocating rod *i*. This bight or loop is formed by collecting the apron-slack together between the two rollers *f* and *g*, as shown in Fig. 4. A thin plate-spring, *f*<sup>2</sup>, (see Fig. 1,) is fastened at the under side of the discharge end of the guide *E* and bears down on the apron *G* directly over the roller *f*, and serves as a brake to prevent the apron from slipping back freely. At the proper time in the movements of the machine the said roller *f* will be partly turned, so as to draw forward to the "bight" any slack that may be in the top and back of the apron. To thus partly turn this roller *f*, two upright arms, *l*, are pivoted to the stationary frame at *l'*, and the said two arms are connected by a front curved bar, *l*<sup>2</sup>. One of the arms *l* at one side has a downward projection, *l*<sup>3</sup>, to the end of which an operating-rod, *l*<sup>4</sup>, is attached. The upper end of each of said upright arms *l* carries a flat spring, *l*<sup>5</sup>, which projects forward and is in contact with the lower side of the roller *f*.

It will now be seen, by reference to Figs. 1 and 4, that when the tops ends of the two arms *l* move from right to left the flat springs *l*<sup>5</sup> will, by their frictional contact with the roller *f*, cause said roller to partly turn and thereby draw forward to the bight any slack that may be in the top of the apron.

The pivoted frame *H* comprises two levers, *m*, which are pivoted on a cross-rod, *n*. The upper ends of these levers carry the rollers *g g'*, and also carry above the upper roller a rest or support, *o*, for the leaf or wrapper of the cigar. The person operating the machine will have position at the front end adjoining the said leaf-rest *o*, and a leaf of tobacco may first be laid on the rest, and then the operator will slide the leaf back and down into the bight.

A flat spring, *g*<sup>2</sup>, is attached to the front curved bar, *l*<sup>2</sup>, and projects upward and bears against the apron *G*, as shown in Figs. 4 and 7, and presses it hard in contact with the rollers *g g'*, and serves as a brake to prevent the apron-slack which is in the bight from slipping forward freely.

The lower ends of the frame-levers *m* are connected by a cross-bar, *p*, and an operating-rod, *p'*, is attached thereto.

The rack-bar *a*, which oscillates the feed-cylinder, is moved by a lever, *a'*, which is pivoted at *a*<sup>2</sup> to the table. A crank-wheel, *q*, is on the main shaft *L*, and a link, *q'*, connects the lower end of the said lever with the crank-wheel. It will thus be readily understood how, by the revolution of the main shaft *L*, the rack-bar *a* has a back and forward motion and the feed-cylinder is oscillated.

The feed-belt *D* is driven by a cord, *c*<sup>2</sup>, which passes over a pulley, *c*<sup>3</sup>, on the upper feed-belt roller, *c*, and thence down to a pulley, *c*<sup>4</sup>, on the main shaft.

The rod *i*, which operates the pusher *J*, is moved by a lever, *i'*, which is pivoted on a hanger, *i*<sup>2</sup>, under the table. The main shaft *L* has an eccentric, *r*, and the lower end of said

pusher-rod lever *i'* is jointed to the arm *r'* of the eccentric ring, as shown in Fig. 8.

The apron-bar *I* is reciprocated in the frame-slots *I'* by the following mechanism: A cam, *N*, is mounted on the main shaft *L* and has a side groove, *s*. A lever, *I*<sup>2</sup>, has a slot, *t*, which fits loosely on the main shaft, and is provided with a roller on the pin *t'*, and said roller occupies the cam-groove *s*. A rock-shaft, *I*<sup>3</sup>, is mounted in the hangers *t*<sup>2</sup>, and a short arm, *u*, is keyed fast on the said rock-shaft. At each end of the rock-shaft are long upward-projecting arms *I*<sup>4</sup>, (see Fig. 6,) which vibrate as the rock-shaft moves. These long arms *I*<sup>4</sup> are jointed at *t*<sup>3</sup> to arms *v* at each end of the apron-bar *I*. It will now be seen that when the cam *N* revolves the apron-bar *I* will reciprocate, and by drawing the apron back and forward will roll the filler in the bight *h*.

The rod *l*<sup>4</sup>, which imparts a swinging movement to the two upright arms *l* for partly turning the roller *f*, is moved, and also the rod *p'*, which gives motion to the pivoted frame *H* by an arm, *O*, depending from a shaft, *p*<sup>2</sup>, in bearings under the table. The rod *l*<sup>4</sup> is attached to said arm *O* at one side and the rod *p'* at the other side. The shaft *p*<sup>2</sup>, from which the arm *O* depends, has another arm, *p*<sup>3</sup>, provided with an ordinary friction-roller, which bears against the rim or periphery *p*<sup>4</sup> of the cam *N*. Thus the said cam has two effective or operating parts—the groove *s* and the rim *p*<sup>4</sup>. Through the action of the cam-rim *p*<sup>4</sup>, arm *O*, and rod *p'* the lower end of the pivoted frame *H* will be pushed in a direction away from the said cam *N*, while a spiral spring, *x*, attached to the table and lower end of the pivoted frame, will draw the latter back again toward the cam.

The pusher *J* has its block *j* connected with the rod *i* by a hinge-joint, *j*<sup>2</sup>. This joint gives freedom to the pusher to turn with respect to the rod.

Having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a cigar-bunching machine, the combination of the hopper *B*, having an inclined bottom, *B'*, an oscillating feed-cylinder having a cavity therein and located in the bottom of the hopper, a feed-belt, *D*, traveling above the inclined bottom, a bunch-guide, *E*, beneath the hopper, and a reciprocating pusher, *J*, in the guide, as set forth.

2. In a cigar-machine, the combination of the hopper *B*, a feed-cylinder having a cavity therein and located in the bottom of the hopper, a bunch-guide, *E*, beneath the hopper, a reciprocating pusher, *J*, in said guide, stationary rollers *f f'*, a pivoted frame, *H*, having a roller, *g*, and an apron, *G*, passed over said rollers, the slack thereof forming a bight between one of the stationary rollers and the roller on the pivoted frame, as set forth.

3. In a cigar-bunching machine, the combination of the hopper *B*, an oscillating feed-cylinder having a cavity and located in the bot-



tom of the hopper, a bunch-guide, E, beneath the hopper, a reciprocating pusher, J, in the guide, a frame having slots I', a bar, I, movable back and forth in the slots, rollers *f f' g g'*, the frame H, and an apron, G, passed over the rollers and connected to said bar, substantially as described.

4. In a cigar-bunching machine, the combination of a tubular guide, E, and a pusher in the guide, comprising a cross-head, *j*, and a flexible bar, *j'*, attached to the cross-head, and means whereby the shape of said bar may be changed, as set forth.

5. In a cigar-bunching machine, the combination of a frame having slots I', a bar, I, movable back and forth in the slots, rollers *f f' g g'*, an apron, G, passed over the rollers and connected to the said bar, a pivoted frame, H, and pivoted upright arms *l*, provided at their upper end with flat springs *l'*, which are in contact with one of the said rollers, for the purpose set forth.

6. In a cigar-bunching machine, the combination of a frame having slots I', a bar, I, movable back and forth in the slots, rollers *f f' g g'*, an apron, G, passed over the rollers and

connected to the said bar, and a pivoted frame, H, provided with a rest or support, O, for the leaf or wrapper, as set forth.

7. In a cigar-bunching machine, the combination of a frame having slots I', a bar, I, movable back and forth in the slots, rollers *f f' g g'*, an apron, G, passed over the rollers and connected to the said bar, a pivoted frame, H, and pivoted upright arms *l*, having a spring, *g'*, which bears against the apron and presses it in contact with the pivoted frame, as set forth.

8. In a cigar-bunching machine, the combination of a frame having slots I', a bar, I, movable back and forth in the slots, rollers *f f' g g'*, the frame H, an apron, G, passed over the rollers and connected to the said bar, a main shaft, L, having a cam, N, and levers and jointed arms, substantially as described, connecting the said movable bar I with the cam.

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

MOSES GREENSFELDER.

Witnesses:

JOHN E. MORRIS,  
JNO. T. MADDOX.