

(No Model.)

4 Sheets—Sheet 1.

J. E. SMITH.
CIGAR BUNCHING MACHINE.

No. 402,038.

Patented Apr. 23, 1889.

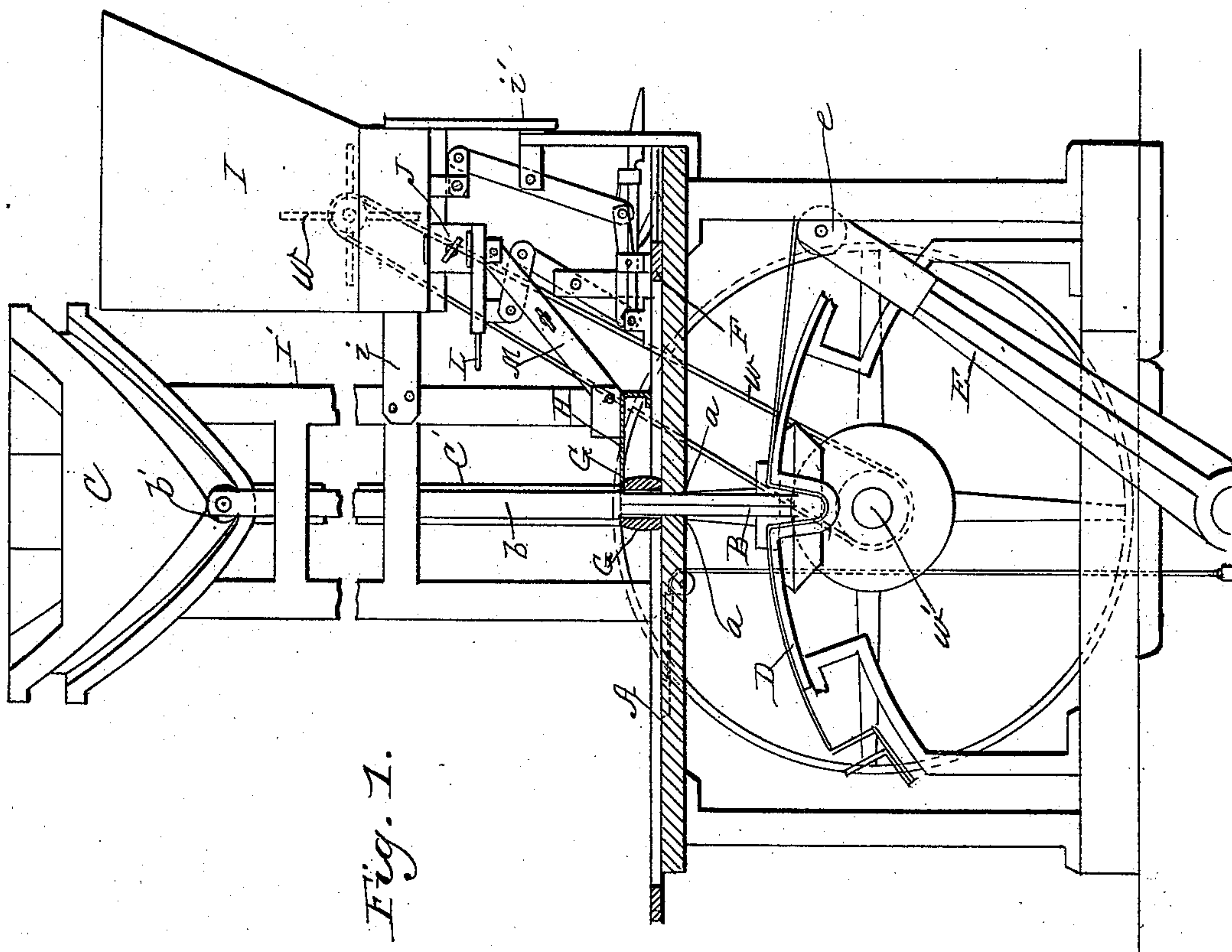


Fig. 1.

Witnesses:

M. M. Montimer

Fred. Kruger

Inventor:

James E. Smith.
by *John Moore.*
Attorney.

(No Model.)

4 Sheets—Sheet 2.

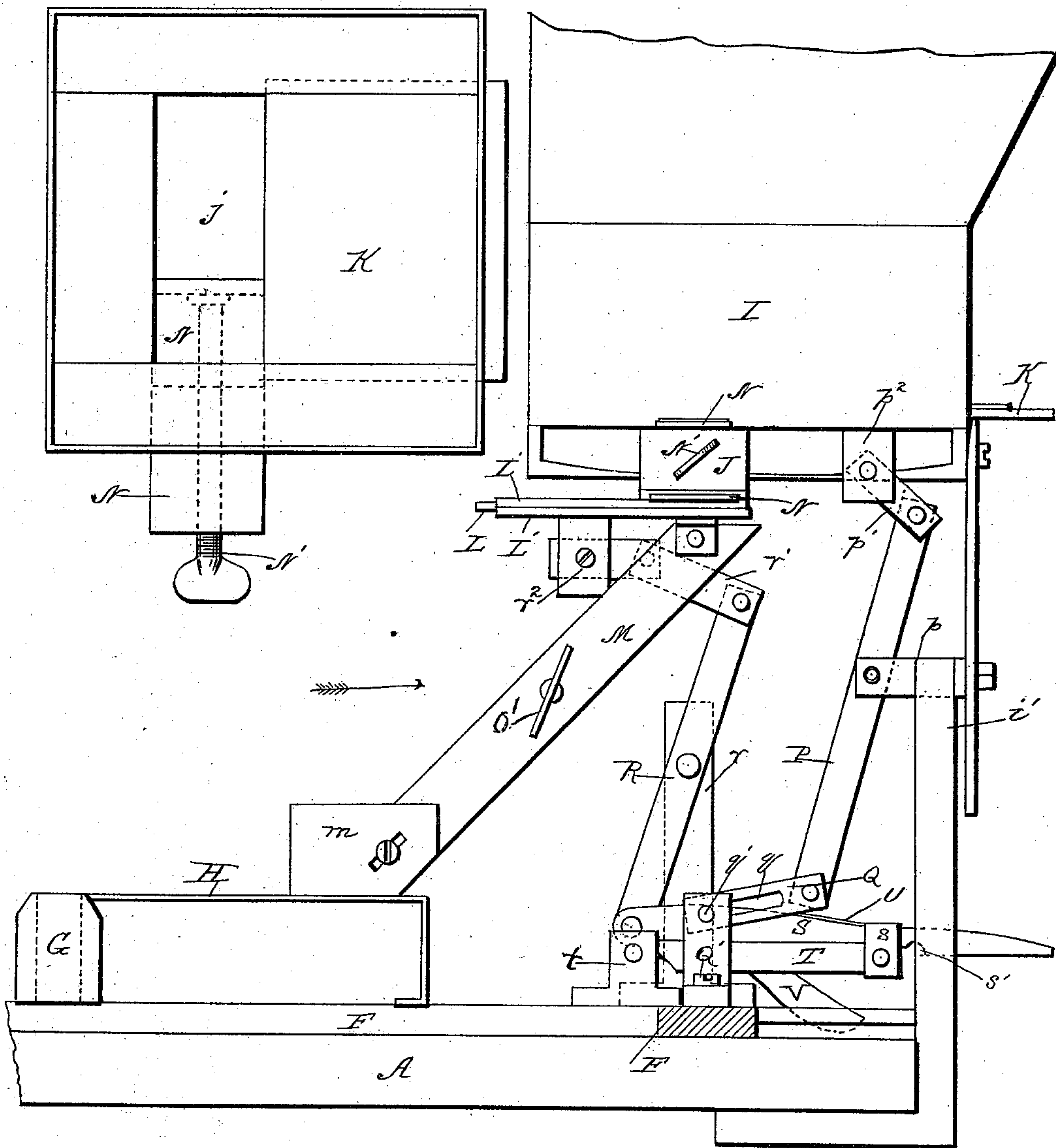
J. E. SMITH.
CIGAR BUNCHING MACHINE.

No. 402,038.

Patented Apr. 23, 1889.

Fig. 4.

Fig. 2



Witnesses:

M. M. Mortimer
Fred. Kiefer

Inventor:

James E. Smith
by O. M. Moore,
Attorney.

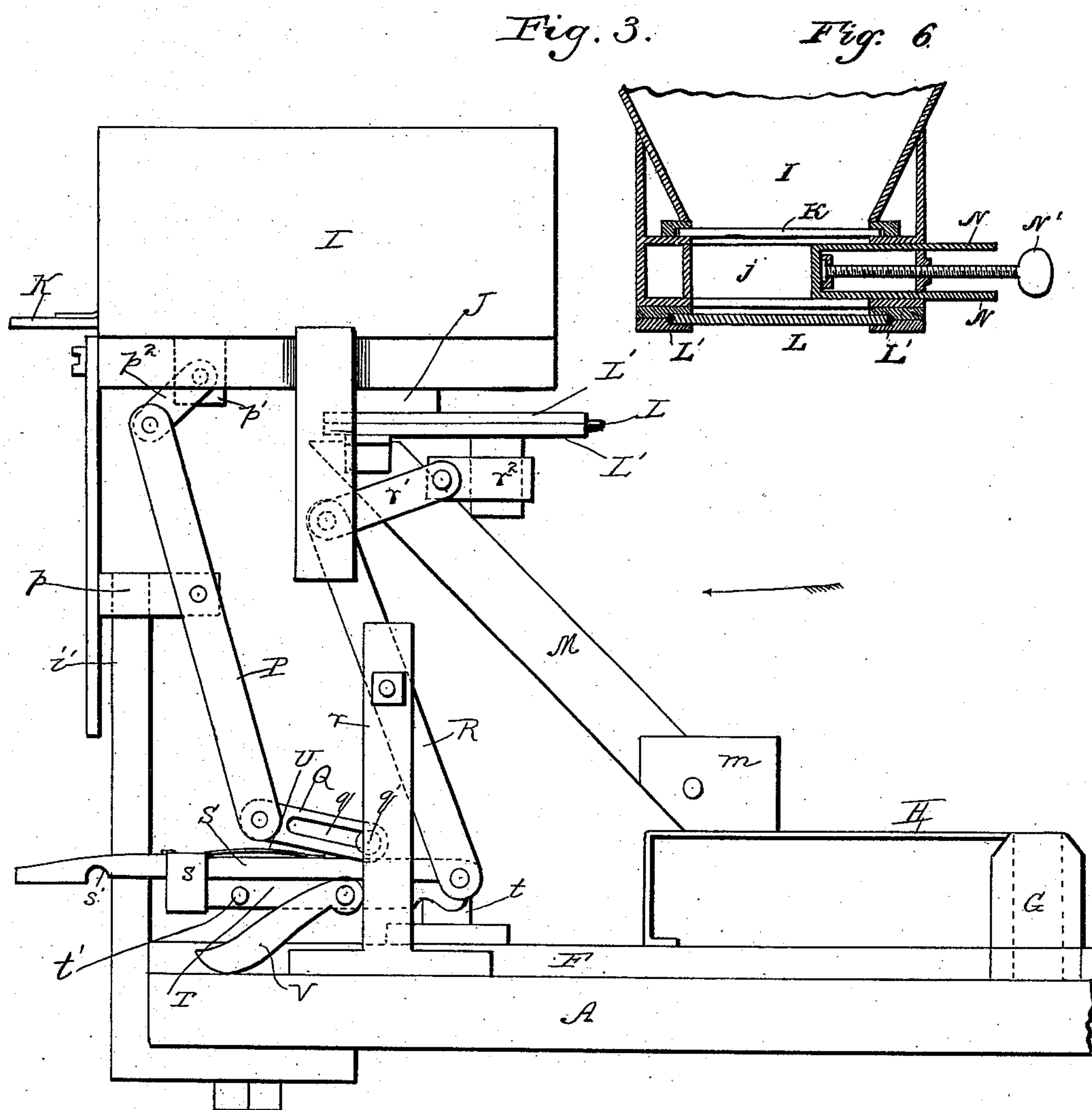
(No Model.)

4 Sheets—Sheet 3.

J. E. SMITH.
CIGAR BUNCHING MACHINE.

No. 402,038.

Patented Apr. 23, 1889.



Witnesses:

M. M. Mortimer

Fred. Kruger

Inventor:

Inventor
James C. Smith
by J. M. Moore
Attorney.

(No Model.)

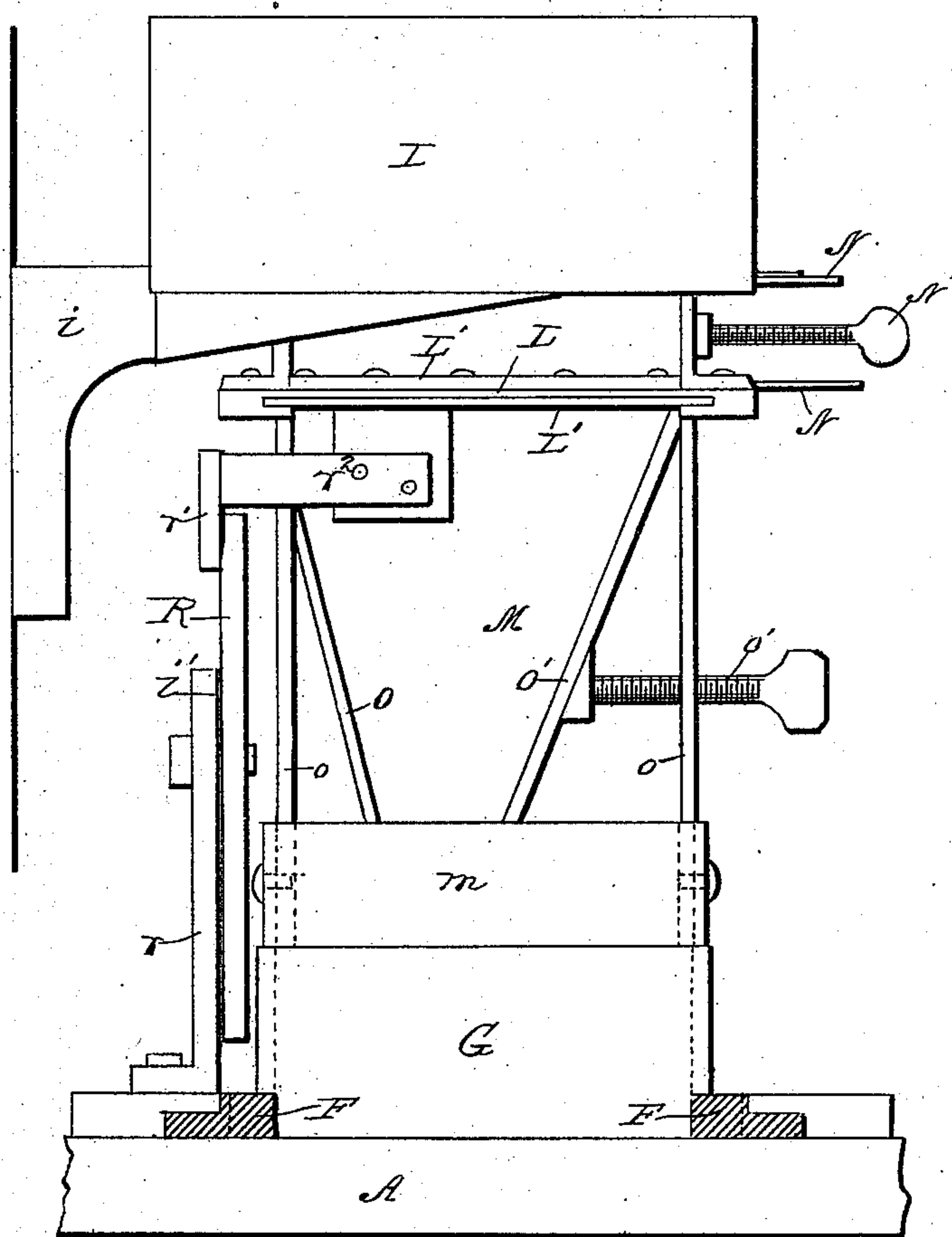
4 Sheets—Sheet 4.

J. E. SMITH.
CIGAR BUNCHING MACHINE.

No. 402,038.

Patented Apr. 23, 1889.

Fig. 5.



Witnesses:
M. M. Moatimes
Fred. Keefe

Inventor:
James E. Smith
by *Wm. Moore*
Attorney-

UNITED STATES PATENT OFFICE.

JAMES EDWARD SMITH, OF NEW YORK, N. Y., ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO ADOLPH MOONELIS AND BENJAMIN LICHTENSTEIN, OF SAME PLACE.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 402,038, dated April 23, 1889.

Application filed December 27, 1887. Serial No. 259,049. (No model.)

To all whom it may concern:

Be it known that I, JAMES EDWARD SMITH, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Cigar-Bunching Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to cigar-bunching machines; and it consists of the novel combination of devices and peculiar construction and arrangement of parts, as will be hereinafter fully described and claimed.

The present invention has especial relation to an automatic scrap-feeder adapted to be attached to a cigar-bunching machine of the character shown in a prior application filed by me November 7, 1887, Serial No. 254,666, in which scrap-tobacco is automatically fed in predetermined quantities at suitable regular intervals to a mold.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a cigar-bunching machine having my automatic feeder applied thereto. Fig. 2 is an enlarged view of the feeder, taken from one side thereof, detached from the machine proper. Fig. 3 is a like view taken from the opposite side of the feeder. Fig. 4 is a top plan view of the hopper; and Fig. 5 is an end elevation of the feeder, looking in the direction indicated by the arrow in Figs. 2 and 3. Fig. 6 is a vertical detail sectional view on the line *y y* of Fig. 4.

Referring to the drawings, in which like letters of reference indicate corresponding parts in all the figures, A designates the main table of a cigar-bunching machine, having an opening, *a*, therein for the vertically-reciprocating plunger B to pass through. This plunger has a rod, *b*, which carries a friction-roller, *b'*, that rides in a groove of a cam, C, carried by the upper end of a vertical power-shaft, C', whereby the plunger is reciprocated as the

cam rotates with the shaft. Below the main table A is the cigar-rolling table D, having an apron passing over the same and connected at its ends thereto, and a rocking arm, E, carrying a bunching-roll, *e*, is adapted to swing back and forth over this rolling-table to form the bunch in a bight in the apron. All of these parts are common to the cigar-bunching machine shown in my prior application, and need not be more fully described in this specification.

On the main table A of the machine is a reciprocating carriage, F, that is guided in a direct line as it moves back and forth on the table by suitable guides, as is obvious, and to this carriage is fixed an open mold, G. (Shown in end elevation in Figs. 2 and 3, in vertical cross-section in Fig. 1, and in side elevation in Fig. 5.) This mold has a vertical opening therein, which passes through the upper and lower sides thereof, as in my prior invention, and the longitudinal contour of the mold-opening conforms to the shape of a bunch.

H is a horizontal valve-plate arranged in the horizontal plane of the upper edges of the mold, and this plate is fixed to the carriage at one side of the mold, so as to move with the carriage and automatically cut off the tobacco from the feeder when the carriage is forced toward the opening *a* in the table A, and thereby moves the open mold G out of line with the discharge-chute of the feeder.

The feeder has an elevated hopper, I, which is supported at a suitable distance above the main table A at one end thereof, and this hopper is fixed to the vertical frame I' by means of lateral brackets *i*, and connected to the table A by a vertical standard, *i'*. In the bottom of this hopper is formed a transverse opening, *j*, (see Fig. 4,) and below this opening and in line therewith is formed a receptacle or box, J, (see Fig. 2,) which receives the tobacco from the hopper when the reciprocating valve K is moved rearwardly from the opening *j* in the hopper. This valve K is arranged to move in suitable guides (indicated by dotted lines in Fig. 4) to alternately open and close the discharge-orifice *j* in the hopper at suitable regular intervals, and below the box or receptacle J is arranged an-

other reciprocating valve, L, which is operated to move in an opposite direction to the valve K, to open the lower side of the box or receptacle J when the valve K closes the discharge-orifice in the hopper. This valve L is thus arranged on a lower horizontal plane than the valve K, and it is guided between the opposing faces of two horizontal guide-plates, L', which are bolted together and to the box or receptacle J, said guide-plates extending laterally from the box, as shown in Figs. 1, 2, and 3, so as to properly guide and support the lower valve.

Depending from the bottom of the elevated hopper and fixed thereto in any suitable manner is an inclined chute, M, which is arranged to receive the fillers from the box or receptacle J and conduct them to the open mold G on the reciprocating carriage when said open mold arrives beneath the lower end of the chute. The chute terminates a short distance above the table to leave sufficient space for the open mold and valve-plate on the carriage to slide beneath the same, and to the lower end of this chute is secured a guard, m, having its front side closed to prevent the tobacco or filler from escaping from the chute as it descends the same to enter the open mold.

To vary the size or area of the discharge-orifice *j* of the hopper, and thus regulate the quantity of tobacco that escapes from the hopper each time the valve K is opened, I provide manual valves N, which are arranged in the upper and lower edges of the box or receptacle J, and suitably secured or connected together. (See Figs. 2, 4, and 5.) The upper valve, N, is arranged to partly close the opening in the bottom of the hopper, while the lower valve closes the lower side of the opening in the box or receptacle J to the same extent that the upper valve, N, closes the discharge-orifice *j*, and these valves are simultaneously adjusted to the same extent by means of a thumb-screw, N', which is connected thereto and works in a threaded opening in the hopper.

The inclined chute of the feeder has parallel side flanges, o, and within these flanges are arranged partitions O O', which are inclined toward each other longitudinally of the chute. One of these partitions, O, is preferably fixed to the chute, and the other is hinged or pivotally connected at its upper end thereto, so that it can be adjusted toward or from the other partition to vary the space between the two partitions. It is obvious, however, that both partitions can be made adjustable, if desired. The adjustable partition is moved by a thumb-screw, o', which works in one of the side flanges of the inclined chute, and is suitably connected to the partition O', as indicated in Fig. 5 of the drawings.

I will now proceed to describe the mechanism I prefer to employ to automatically re-

ciprocate the valves K L in the hopper and its receptacle J.

P is a vertically-disposed lever, which is pivoted at an intermediate point of its length to a horizontal arm, *p*, fixed to the upright standard that assists in supporting the hopper, and the upper end of this lever is connected to a depending lug, *p*², on the valve K, by an intermediate link, *p*'. To the lower end of this lever is pivoted a link, Q, which has a longitudinal slot, *q*, therein, in which works a pin or stud, *q*', on a fixed arm or standard, Q', that is secured to and reciprocates with the carriage F, that conveys the mold from the feeder to the opening in the table *a* for the plunger to pass through the mold and said opening, to thereby convey the filler to the rolling and pressing devices. It is obvious that as the carriage and mold slide back and forth the pin *q*' will ride in the slot of the link Q, and that the lever P will be oscillated to reciprocate the valve K in the bottom of the hopper to alternately open and close the discharge-orifice *j* therein.

R is another lever, which is arranged in front of the lever P, and is likewise pivoted at an intermediate point of its length on a vertical standard, *r*, that is fixed to the table A of the machine, at one side of the carriage. To the upper end of this lever R is pivoted a link, *r*', which is pivoted at its opposite end to a depending arm or lug, *r*², on the lower reciprocating valve, L, whereby as the lever R is oscillated the valve L will be caused to move back and forth between the guide-plates L' L' and alternately open and close the lower side of the box or receptacle J on the bottom of the hopper. To the lower end of this lever R is pivoted an arm, S, which is arranged substantially at right angles to the lever R, and the opposite free end of this arm passes through a sleeve or band, *s*, which is fixed or secured to the outer end of a bar or link, T, which has its opposite end pivotally connected to a lug or standard, *t*, that is fixed to the reciprocating carriage F, whereby as the carriage is moved back and forth the standard and the bar or link connected thereto are drawn or forced with the carriage to cause the sleeve to ride over the arm S until a notch, *s*', in the lower edge of the arm S takes over a pin or stud, *t*', fixed to the bar or link T, when said arm will be moved with the bar or link and the carriage to which it is connected. A spring, U, is secured to the sleeve and bears at its free end on the bar to normally depress the same, (see Fig. 2,) and to the bar or link is pivotally connected a gravity-pawl, V.

In order to permit the receptacle J to be properly filled with tobacco, it is desirable that the lower valve, L, shall remain closed and at rest while the carriage F and open mold G are completing a part of their return movements beneath the lower end of the inclined chute, and to effect this end I connect

the lower valve-operating lever, R, to the carriage through the medium of the bars S and T, which are adapted to be extended longitudinally of each other during a part of the rearward movement of the carriage. The link T moves back and forth with the carriage at all times, being pivotally connected to the fixed stud *t* on the carriage; but the bar S, to which the valve-operating lever R is connected, moves with the carriage only at intervals. When the carriage and mold slide beneath the chute M, the bar T rides rearward with the carriage, together with the sleeve attached to the bar, until the gravity-pawl V rides clear of the end of the table and drops down. Simultaneously with the dropping of the pawl the spring U depresses the upper bar, S, so that the stud or pin *t'* on the lower bar, T, enters the notch *s'*, thus detachably connecting the bars S T together. The two detachably-coupled bars move together equally during the completion of the rearward movement of the carriage, and the bar S turns the lever R on its pivot to open the lower valve, L, and permit the contents of the receptacle J to escape upon the chute M and into the mold. When the carriage begins its forward movement to carry the mold to the opening *a* in the main table A, the bars S T move therewith and close the valve L. These coupled bars S T continue to move with the carriage until the pawl V on the bar T strikes the end of the table, and as the pawl is raised the rounded edge of the pivoted end thereof bears against the lower edge of the bar S, and thereby elevates or raises said bar S, to enable the notch *s'* to clear the pin or stud *t'*, thus uncoupling the two bars and permitting the bar S and the lever R and the valve L, attached thereto, to remain at rest, while the bar T and the sleeve attached to said bar continue to move with the carriage.

In Fig. 1 I have indicated in dotted lines a rotary agitator, W, which is arranged in the hopper I above the opening therein, and this agitator is rotated continuously by an endless belt, *w*, driven from the main driving-shaft *w'* of the machine.

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

1. In a cigar-bunching machine, the combination of a hopper having a receptacle of less area or size arranged below the same and communicating therewith, a valve operating in the hopper to cut off communication between the same and the receptacle, another valve operating in the receptacle to open the same and permit its contents to escape when the first-mentioned valve cuts off communication from the hopper and receptacle, a reciprocating carriage having an open mold and a cut-off, and mechanism for moving said valves, substantially as described.

2. In a cigar-bunching machine, the combination of an elevated hopper, a receptacle of

less area arranged below said hopper, a valve operating in the hopper above the receptacle, another valve operating across the lower open end of the receptacle, a reciprocating carriage having an open mold, a fixed chute having its upper end arranged in proximity to the receptacle and its lower end terminating a suitable distance above said mold and carriage, and a cut-off operating to close the chute when the mold is moved by the carriage out of line with the chute, substantially as described.

3. In a cigar-bunching machine, the combination of a hopper having a lower receptacle communicating with the discharge-orifice thereof, a reciprocating carriage having an open mold into which the contents of the receptacle are discharged, a valve operating across the discharge-orifice of the hopper, another valve located in the lower open end of the receptacle, a link-connection between the carriage and the first-mentioned valve for reciprocating the latter at suitable regular intervals, and another independent connection, substantially as described, intermediate of the carriage and the last-mentioned valve, for moving said valve to open the receptacle for a limited time and while the first-mentioned valve cuts off communication between the hopper and receptacle, substantially as described.

4. In a cigar-bunching machine, the combination of a carriage having an open mold and a valve-plate fixed thereto, an elevated hopper having a supplemental receptacle arranged below the discharge-orifice thereof, the independent valves K L, operating in the bottom of the hopper and its supplemental receptacle, link-connections, as described, between the carriage and each of the valves for alternately operating the latter, and an inclined chute below the hopper to convey the filler from the same to the mold, substantially as described, for the purpose set forth.

5. In a cigar-bunching machine, the combination of a carriage having an open mold and a rearward extension, H, a hopper having a supplemental receptacle below its discharge-orifice, the valve N, movable endwise in the box or receptacle to vary the area of the discharge-orifice in the hopper and receptacle, the independent valves K L, and connections, as described, between said valves and the carriage for alternately opening and closing the same, substantially as described.

6. In a cigar-bunching machine, the combination of a carriage having an open mold and a rearward extension, H, an elevated hopper having a discharge-orifice and a supplemental receptacle below said orifice, a reciprocating valve for opening and closing the orifice in said hopper, another valve in the supplemental receptacle for opening and closing the discharge-opening therein, link-connections between each valve and the carriage, an inclined chute below the supplemental receptacle, and the partitions in the chute, one

or both of which are adjustable laterally therein, substantially as described, for the purpose set forth.

7. In a cigar-bunching machine, the combination of a carriage having an open mold, an elevated hopper provided with a supplemental receptacle below its discharge-orifice, the independent valves operating in the hopper and the receptacle thereof to alternately
10 close the same, the vertical levers pivoted at intermediate points of their length and connected to the valves, a link connecting the

lower end of one lever with the carriage by a pin-and-slot connection, and the connected arm and link S T, pivotally connected to the
15 lower end of the other lever and the carriage, substantially as and for the purpose described.

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

JAMES EDWARD SMITH.

Witnesses:

WM. N. MOORE,
R. W. BISHOP.