(No Model.)

4 Sheets—Sheet 1.

J. E. SMITH.

CIGAR BUNCHING MACHINE.

No. 402,039. Patented Apr. 23, 1889.

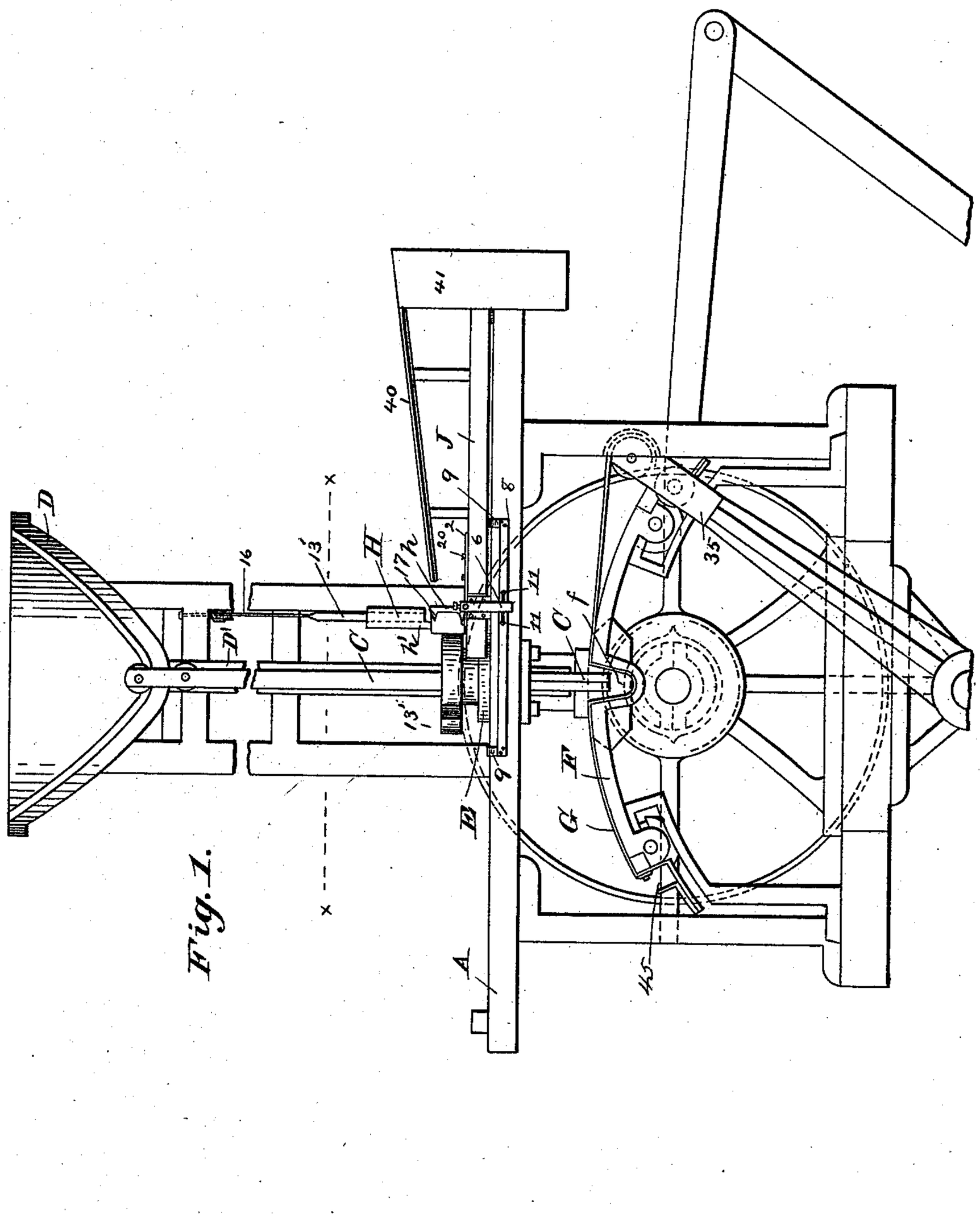

Fig. 1.

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(No Model.) 4 Sheets—Sheet 2.

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No. 402,039. Patented Apr. 23, 1889.

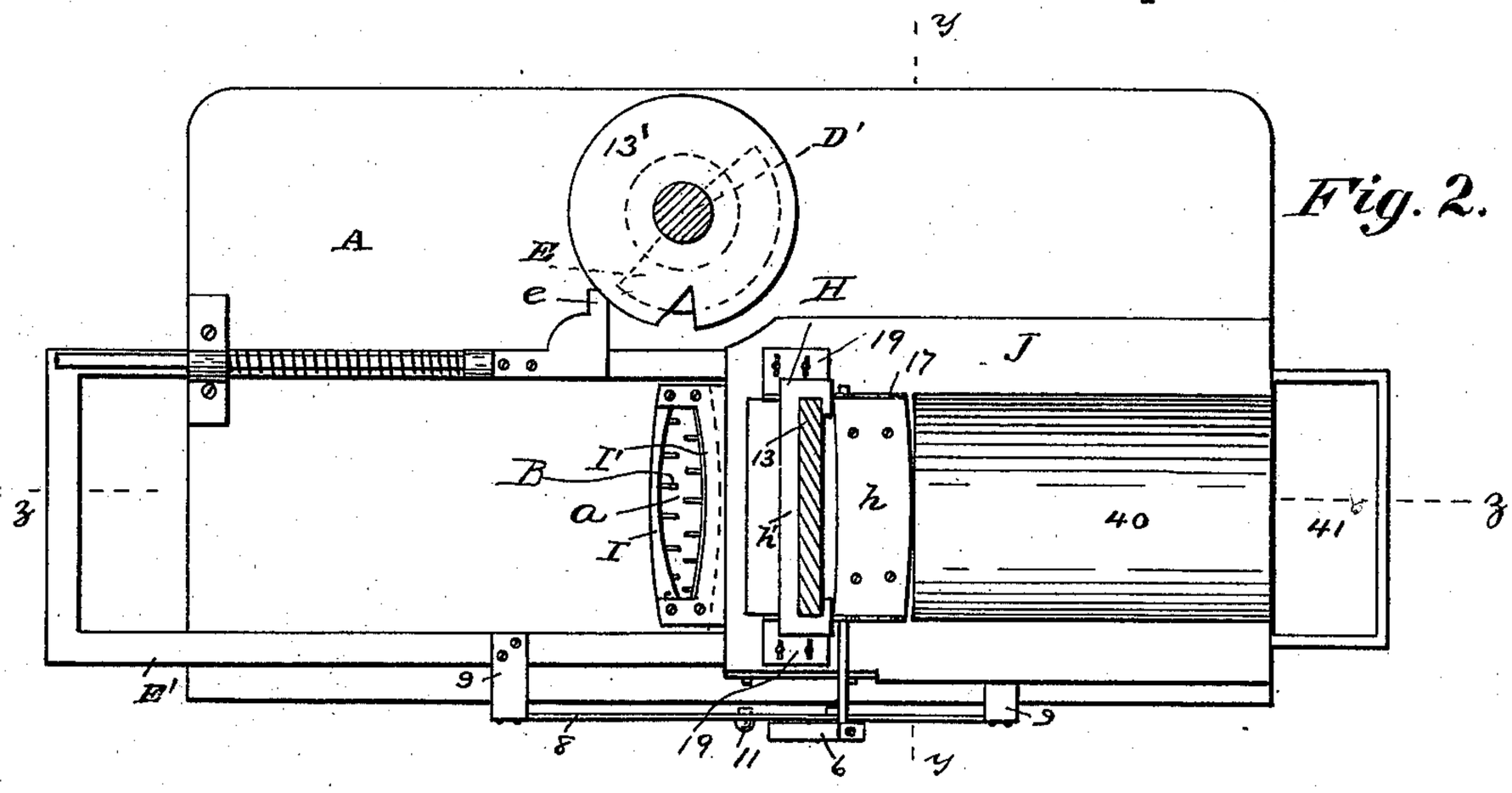

Fig. 2.

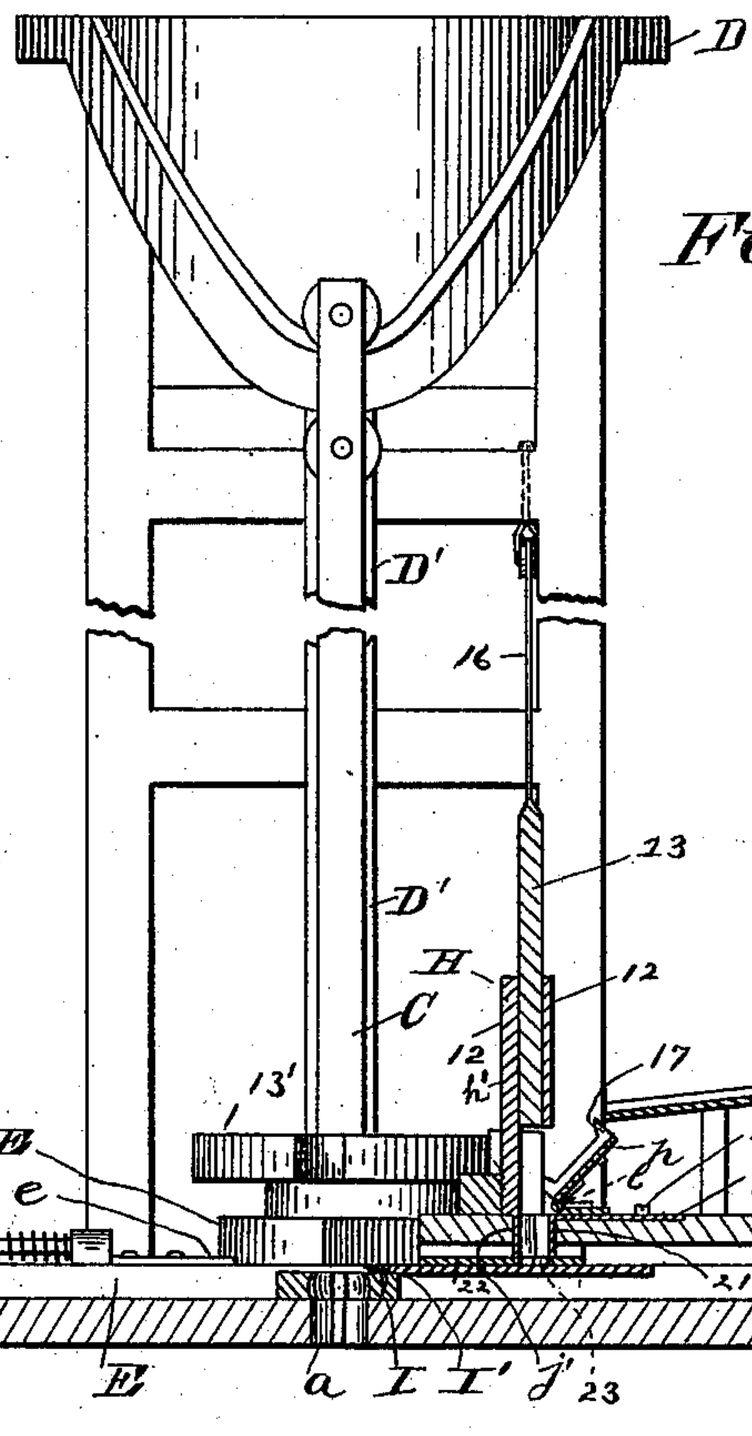

Fig. 3.

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(No Model.) 4 Sheets—Sheet 3.

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CIGAR BUNCHING MACHINE.

No. 402,039. Patented Apr. 23, 1889.

Fig. 4.

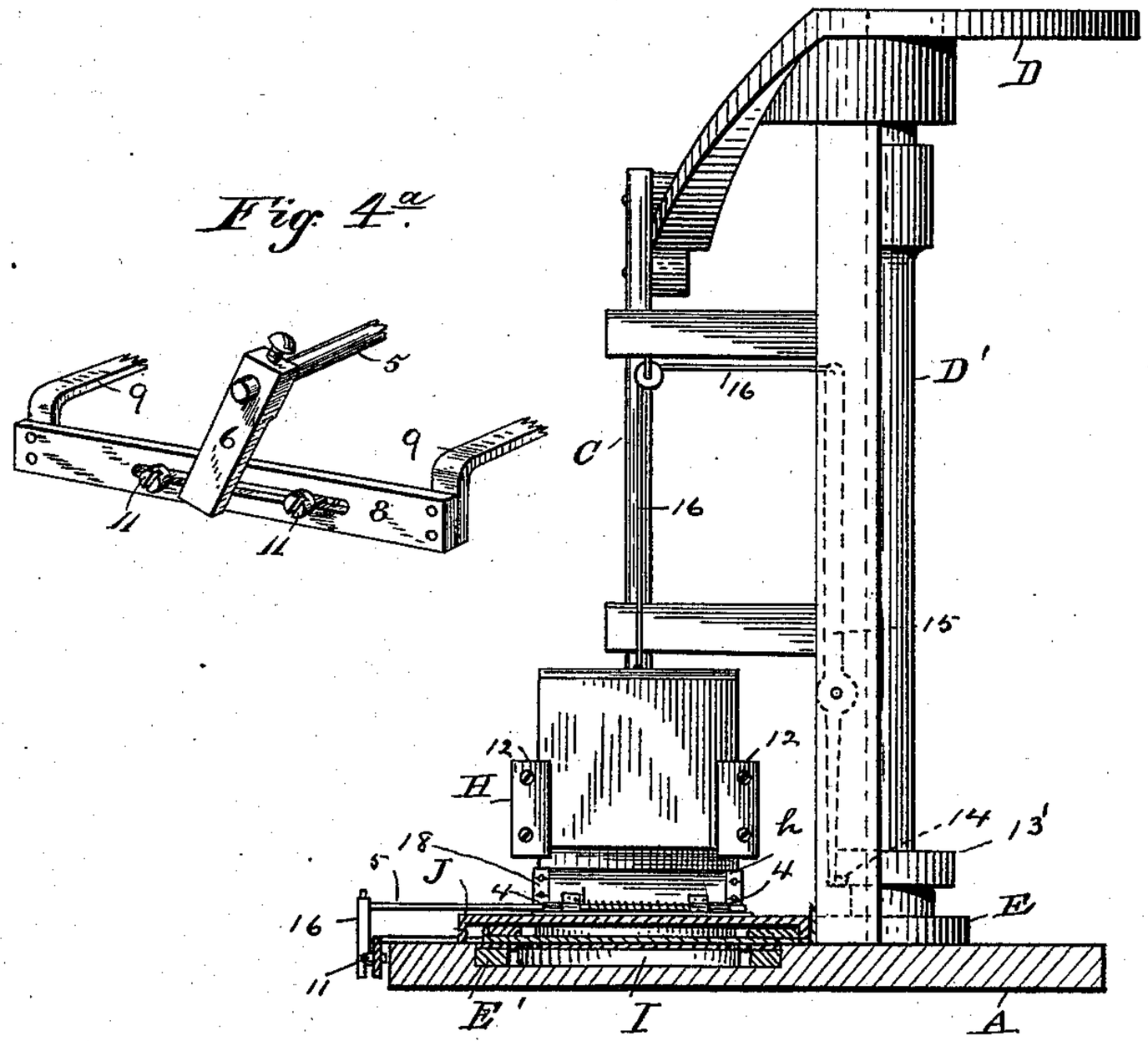
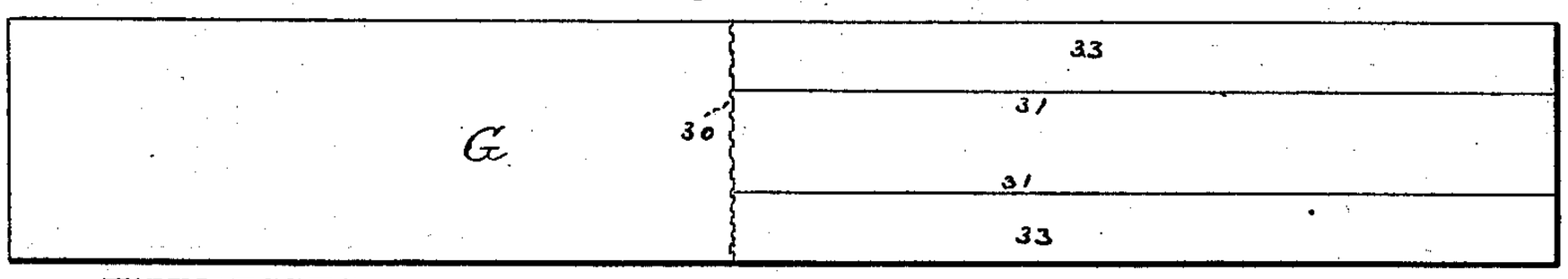


Fig. 4a.

Fig. 5.



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(No Model.) 4 Sheets—Sheet 4.

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CIGAR BUNCHING MACHINE.

No. 402,039. Patented Apr. 23, 1889.

Fig. 6.

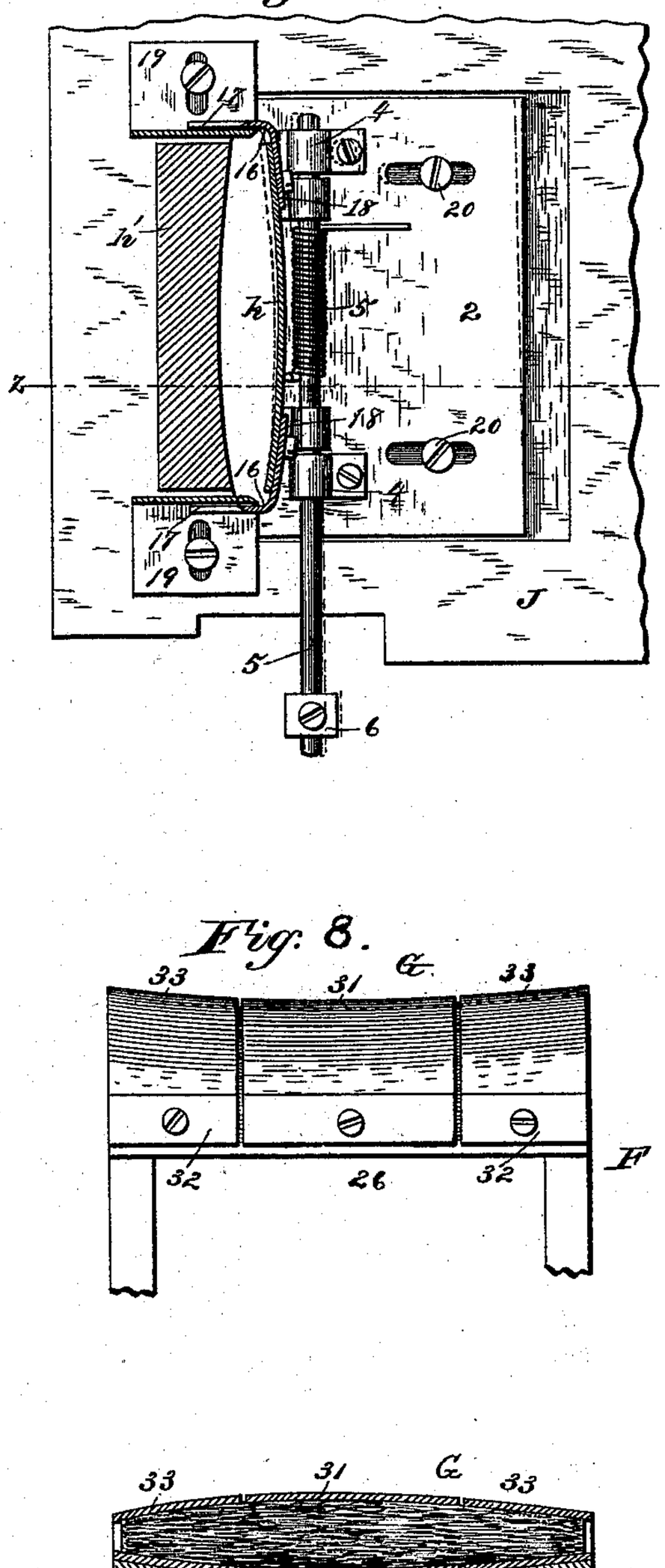


Fig. 7.

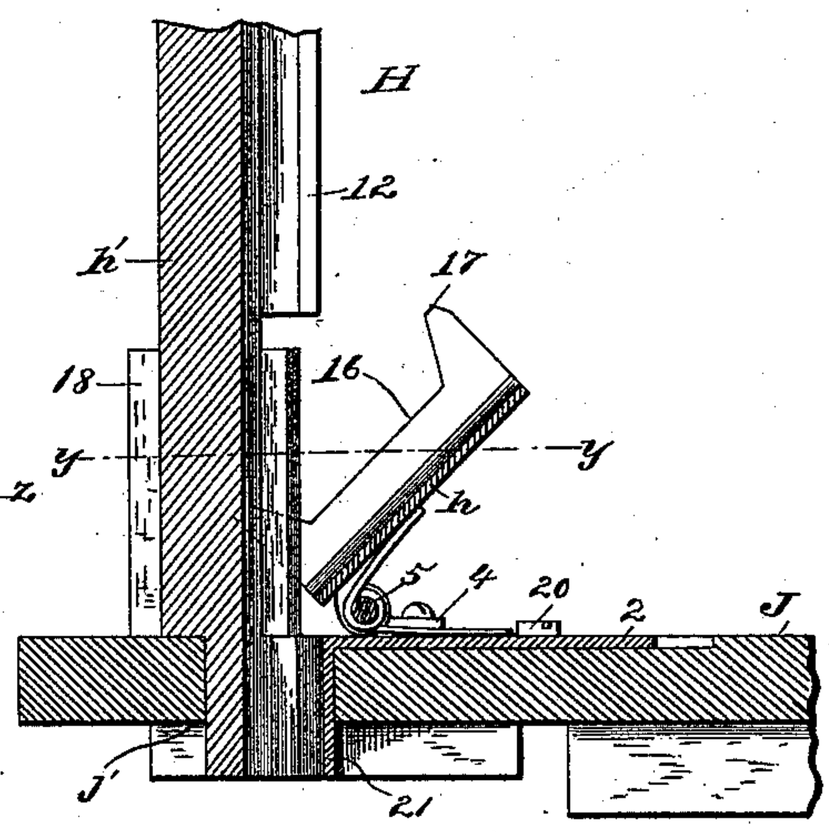


Fig. 8.

Fig. 9.

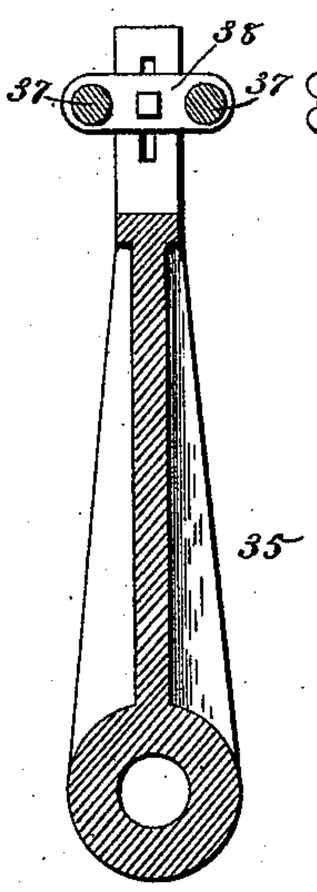


Fig. 10.

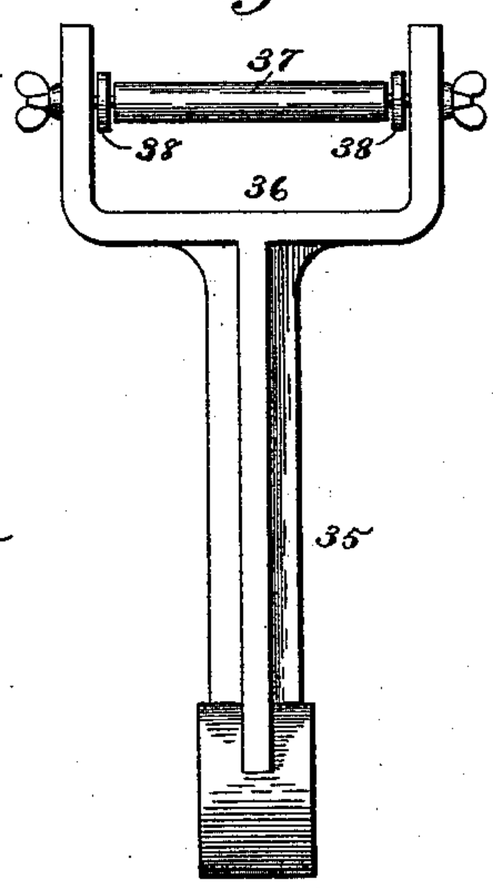
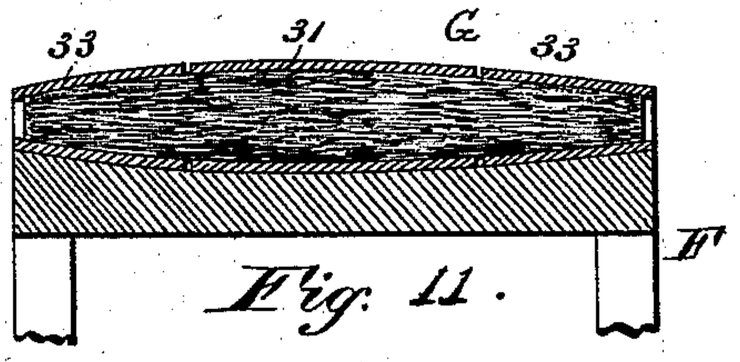


Fig. 11.



ATTEST:

Percy C. Bowers.
R. H. Bishop.

INVENTOR:

James Ed. Smith
By H. Berukard
his Attorney.

UNITED STATES PATENT OFFICE.

JAMES ED. 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. 402,039, dated April 23, 1889.

Application filed May 19, 1888. Serial No. 274,400. (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 peculiar combination of devices and novel construction and arrangement of parts, as will be hereinafter fully described and claimed.

One of the objects of my present invention is to provide mechanism for primarily shaping and forming the tobacco before being placed in a mold on a reciprocating carriage that conveys the tobacco into position to be operated upon by a discharger which carries it to the rolling and pressing mechanism of a machine substantially such as that shown in prior applications filed by me, dated, respectively, November 7, 1887, and December 27, 1887, and bearing Serial Nos. 254,666 and 259,049, respectively.

A further object of my invention is to provide a combined shaper and hopper of the character above specified for automatically feeding the tobacco to the mold when it assumes a proper position beneath the hopper and shaper, and to insure the tobacco entering the mold to the proper depth, which thus secures a necessary quantity of tobacco to form a bunch without the exercise of skill or assistance on the part of the attendant to determine the quantity the mold shall contain.

Another object of my invention is to automatically open the hopper and shaper as the mold and carriage emerge from beneath the hopper, so that the tobacco can be thrown into the hopper by hand without danger to the attendant, and at all times keep a sufficient quantity therein to properly supply the mold, the capacity of the hopper and shaper being such that enough tobacco for two or more bunches can be kept therein. The hopper is automatically closed as the mold assumes the proper position beneath the same, and it has cutting mechanism for severing the ends of the tobacco that protrude or extend beyond the ends of the hopper, whereby the mass of tobacco in the hopper that is to be formed into bunches is kept of uniform length, and, furthermore, this cutting mechanism is made adjustable in the direction of the length of the hopper to adapt the same to contain fillers of different lengths; and, finally, the object of my invention is to make the sides of the shaper adjustable laterally to vary the width of the tobacco or filler contained therein, and also to make the ends of one or both sides of the shaper adjustable, to adapt the shaper to form fillers of varying longitudinal contour, either to make the bunches narrow at one end and broad at the other, or to make the bunch of the same transverse thickness at both ends, &c.

In the accompanying drawings, Figure 1 is a side elevation of a cigar-bunching machine constructed in accordance with my invention. Fig. 2 is a horizontal sectional view thereof on the line *x x* of Fig. 1. Fig. 3 is a longitudinal sectional view through the main table of the machine and the combined hopper and shaper, taken on the line *z z* of Fig. 2; and Fig. 4 is a transverse vertical sectional view on the line *y y* of Fig. 2. Fig. 4ª is a detail perspective view. Fig. 5 is a plan view of my improved rolling-apron. Fig. 6 is an enlarged horizontal sectional view through the hopper on the line *y y* of Fig. 7, showing the movable wall *h* of the hopper in a closed position. Fig. 7 is a vertical sectional view through the hopper on the line *z z* of Fig. 6, showing the movable wall *h* open. Fig. 8 is an end view of the rolling-table with the apron thereon, showing the method of securing the latter in place. Fig. 9 is a vertical sectional view through the rocking arm and bunching-rollers. Fig. 10 is a side elevation of the devices

shown in Fig. 9. Fig. 11 is a transverse sectional view taken centrally through the bight in the rolling-apron.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the main table of a cigar-bunching machine embodying my invention, in which is formed a vertical opening, *a*, normally closed by gates B. A vertically-reciprocating discharger, C, is arranged to pass through this opening *a* and between the gates at suitable regular intervals, and this discharger has at its upper end a friction-roller that works in a groove of a cam, D, fixed to the upper end of a vertical power-shaft, D′, that is driven by belting from a suitable line of shafting or other power. On this vertical shaft D′, at a point just above or in close proximity to the upper face of the main table A, is fixed another cam, E, which is adapted to strike a laterally-projecting arm, *e*, fixed to a reciprocating carriage, E′, that is guided in suitable ways on the table A and is adapted to move across the opening *a* therein. Beneath this table A is a stationary cigar-rolling table, F, which is curved longitudinally, as shown, and has a transverse depression, *f*, formed therein at a point immediately below and in line with the vertical opening *a* of the main table A, whereby the discharger C is adapted to enter the depression in the rolling-table and to deposit the filler in the bight of the apron G, as will be hereinafter fully described. All these parts of the machine just described are common to machines shown in my prior applications hereinbefore referred to.

In my present invention I contemplate using a combined hopper and shaper, II, which is arranged on the main table A at one side of the opening *a* therein and a suitable distance above the table to permit the open mold I on a reciprocating carriage to pass beneath the hopper and align therewith to receive the tobacco or filler from the hopper and convey it intact to the opening *a* in the main table A. This combined hopper and shaper II is mounted on a platform, J, which is elevated a short distance above the table A on suitable flanges or feet, *j*, and the forward end of this platform has a slot, *j′*, formed transversely therein for the passage of the tobacco or filler from the combined hopper and shaper II to the open mold I. The hopper is formed with a movable swinging side wall, *h*, a stationary fixed rear wall, *h′*, and two end walls, all of which are relatively arranged and proportioned to form an inclosure or receptacle approximately rectangular in shape, with the exception that the side walls are curved longitudinally, so that the greatest transverse diameter or width of the hopper is at the middle thereof, and thus both end walls gradually approach each other. The shape of the hopper is thus approximately that of the external longitudinal contour of the bunch after it is rolled, and by thus primarily shaping or forming the tobacco or filler in the manufacture of cigars I am enabled to make a more perfect bunch. As the tobacco is properly arranged in the hopper when fed thereto, the filler retains its shape and the due arrangement of the tobacco-leaves throughout the subsequent operations of being conveyed to the bunching devices and while subjected to the action of such devices; and, further, the tobacco is not unduly pressed into a tighter or firmer mass at one end than at the other.

The swinging side wall, *h*, of the hopper and shaper is pivotally supported, as at 5, at its lower edge on a base-plate, 2, that is mounted on the platform J at one side of the slot *j′* therein, this pivotal support for the swinging wall *h* being preferably in the form of a rock-shaft arranged at one side of the hopper transversely across the platform J, and which is journaled in suitable bearings, 4, on the base-plate 2, a torsion-spring, 5′, being coiled around the rock-shaft to assist in closing the movable side wall, *h*, of the hopper.

To provide for automatically opening the combined hopper and shaper and for keeping the same in such opened position against the tension of the torsion-spring, I have arranged connections between the reciprocating carriage and the swinging wall *h*, for throwing the latter rearwardly away from the hopper while the carriage lies over the opening *a*, whereby the hopper is opened nearly the entire time for the attendant to almost continuously throw the tobacco therein, if necessary, the only time when the hopper is closed being when the open mold and carriage slide beneath the hopper to receive the tobacco therefrom.

One end of the rock-shaft 5 is extended beyond one edge of the platform J, and carries an arm, 6, that depends from said rock-shaft and has its free end fitted between two buttons, 11, fixed on a bar or rod, 8, which is located at one side of the carriage longitudinally thereof. This rod or bar is secured to the carriage by short arms or plates 9, that extend laterally from the carriage over the main table A, and said rod or bar has a longitudinal slot, in which are fitted the buttons 11, as shown in Fig. 4ª, said buttons being adapted, as the carriage reciprocates back and forth, to alternately strike the free end of the arm on the rock-shaft, so as to oscillate the latter, and thus open and close the combined hopper and shaper.

It is obvious that the front button impinges against the arm 6 to turn the rock-shaft and swinging wall *h* away from the hopper to open the latter for the attendant to readily place tobacco therein, the parts being held in these positions while the carriage and open mold lie over the opening *a* for the discharger C to pass therethrough; but as soon as the carriage moves forward, by the cam E striking the arm *e* of said carriage, the opposite button on the arm or rod strikes the arm of the rock-

shaft and turns the latter to move the swinging wall *h* toward the hopper, which movement of the shaft is assisted by the spring. The hopper is closed before the carriage and open mold arrive beneath the combined hopper and shaper and before a vertically-reciprocating compressor drops in said hopper and shaper to positively expel the tobacco therefrom into the open mold beneath and in line with said combined hopper and shaper. The fixed rear wall of the combined hopper and shaper is extended a suitable distance above the movable swinging wall *h* thereof, and this extended end of the fixed wall has parallel guideways or cleats fixed to its front side, as at 12, in which guideways operates a vertically-reciprocating compressor, 13, that falls by gravity upon the tobacco or filler contained in said hopper and shaper simultaneously with the arrival of the open mold I in line with the combined hopper and shaper. By thus positively expelling the tobacco or filler from the combined hopper and shaper the open mold I is supplied with a given depth of tobacco, which is forced into said open mold with certainty and precision, and the successive charges of tobacco are uniform in quantity to make bunches of like size. This vertically-reciprocating compressor is arranged to enter the combined hopper and shaper a suitable distance to compress the tobacco therein slightly, so that it will possess the required firmness, and this compressor is shaped to correspond with the contour of the combined hopper and shaper, so as to fit snugly therein. This compressor acts only for a short period of time at each descent upon the contents of the combined hopper and shaper, and at the same instant that the open mold I aligns with said hopper and shaper, whereby the tobacco is positively forced from said hopper and shaper into the open mold. This compressor is normally elevated by a cam, 13′, which is fixed to the power-shaft D′ immediately above the cam E, and said cam 13′ is adapted to act against a right-angled foot, 14, of a vertical lever, 15, which is pivoted near its lower end to one of the uprights that support the power-shaft, the upper end of the lever having a cord, 16, connected thereto, which passes over a suitable guide-pulley and thence to the compressor. As the cam 13′ on the power-shaft rotates it throws the longer arm of the lever rearwardly, which draws on the cord and elevates the compressor; but when the foot of the lever enters the notch in the cam the compressor drops by gravity and acts on the tobacco to positively expel a portion of the same from the combined hopper and shaper into the open mold, after which the cam reverses the lever and raises the compressor.

The swinging side wall, *h*, of the combined hopper and shaper carries cutters or knives 16, for severing the ends of tobacco that protrude or extend beyond the ends of the combined hopper and shaper. These knives or cutters are located at opposite ends of the swinging wall *h* and project beyond the same at right angles thereto, each knife or cutter having two forwardly-extending ears, 17, which are located at opposite sides of the beveled cutting-edges of the knives, which ears 17 serve to direct the tobacco against the cutting-edge of the knife when the swinging wall *h* approaches the other wall, *h′*, of the combined hopper and shaper to close the latter. Each knife or cutter has a right-angled slotted plate or flange, 18, that bears against the exterior face of the movable wall *h*, and which is firmly secured to said wall *h* by bolts which pass through the slots in the flanges or plates, whereby the knives or cutters are made adjustable in the direction of the length of the hopper and are adapted to cut the tobacco in different lengths. The edges of the end walls of the combined hopper and shaper adjoining the knives or cutters, and which overlap said cutters when the swinging wall *h* is closed, are likewise provided with cutting-edges, as indicated very clearly in Fig. 6, which construction secures a shear cut as the swinging wall *h* works on a hinge or pivot, and said end walls of the hopper are further provided with slotted feet 19, through which bolts are passed to adjustably secure said end walls to the platform, so that said end walls can be moved in the same direction as the knives or cutters to vary the length of the hopper and secure the proper cutting of the ends of the tobacco.

The base-plate 2, that carries the swinging wall *h* of the hopper, is secured to the platform by bolts 20, that pass through longitudinal slots therein, and by moving this plate toward or from the stationary rear wall of the hopper the transverse width of the hopper can be varied. The rear wall, *h′*, of said hopper is extended through the slot *j′* in the platform J, and on the opposite side of this slot is a vertical plate, 21, that is secured in any suitable manner to or formed integral with the base-plate 2, as indicated in Fig. 7, so as to be movable or adjustable with said base-plate 2. This vertical plate 21 is curved longitudinally, and in connection with the lower end of the rear wall, *h′*, the plate constitutes a primary shaper for the bunch before it passes to the open mold on the carriage. This primary shaper receives the tobacco directly from the combined hopper and shaper, and delivers it to the open mold when the carriage slides beneath the hopper and shaper.

By reference to Fig. 6 it is obvious that one end of the base-plate 2 of the combined hopper and shaper and the swinging wall *h* and the shaper-plate 21, carried by said base-plate 2, can be moved toward or from the rear fixed wall, *h′*, to vary the relative positions of said shaper-plate 21 and the swinging wall *h* with respect to the rear fixed wall, *h′*, and thus change the transverse width of the combined hopper and shaper, whereby it is adapted to make bunches of different thicknesses, according

to the width of the space between the fixed wall h', the shaper-plate 21, and the wall h. Either end of the shaper-plate 21 and the wall h can be moved laterally of the fixed wall h' by merely moving one end of the slotted base-plate 2, as indicated by dotted lines in Fig. 6, so that the width of the combined hopper and shaper at either end can be varied to make bunches of different thicknesses.

The open mold I is fixed to the carriage at an intermediate point of the length thereof by any suitable fastenings, and in front of this open mold is a horizontal plate, I′, which is also fixed to the carriage. This plate is of such length that when the open mold aligns with the opening a in the main table the plate closes the open lower side of the combined hopper and shaper to prevent the tobacco from escaping therefrom until the carriage moves forward again and the open mold aligns with said hopper and shaper. The rear edge of this cut-off or valve plate I′, adjoining the open mold I, is curved to conform to the curvature of one side of the said mold, said curved edge of the cut-off being beveled to a cutting-edge, as shown, to sever the tobacco as the carriage and mold slide toward the opening a.

A horizontal fixed plate, 22, is arranged beneath the combined hopper and shaper and on a plane above the cut-off I′ on the reciprocating carriage, as indicated in Fig. 3 of the drawings, and this plate has a vertical opening which aligns with the opening in the primary shaper 21, to permit the tobacco to readily pass through the plate from the combined hopper and shaper into the open mold.

I will now proceed to describe the rolling-apron G, arranged over the curved cigar-rolling table F. This apron is made of pliable fibrous material, and has one end attached directly to one end of the cigar-rolling table by screws or other suitable fastenings, and the other end of said apron is connected to the opposite end of said cigar-rolling table by three plates, 32, which will be described more in detail presently.

To avoid pressing too much on the ends of the bunch, which would be liable to pack or press the ends of said bunch too firmly, and in order to give the bunch a better shape, so it will fit more readily in a mold, I construct the apron to bear on the bunch uniformly throughout the length of said bunch, and at the same time properly roll the bunch to the desired shape and wrap a binder around the same. One end of this apron is slitted or cut longitudinally in parallel lines, as at 31 in Figs. 5 and 11, to a point at or near the middle of the apron, to divide said slitted end of the apron into three sections or parts, and transversely through the apron at the points where the cuts or slits terminate I run a transverse thread, 30, (indicated in Fig. 5,) to prevent the cuts from extending farther into the plain portion of the apron. This plain portion of the apron lies over the cigar-rolling table on one side of the cavity thereof, and the slitted or divided part lies on the other side of said cavity, while the thread lies within the cavity or at one side thereof, the slitted part of the apron being on the side of the cavity where the rolling of the bunch takes place after said bunch has been raised out of the cavity by the bunching-rollers, presently described.

Each section of the slitted apron is secured to one end of the cigar-rolling table, independently of the other sections, by means of a plate, 32, one of said plates being provided for each section of the apron, and said plates clamp the sections of the apron between themselves and the rolling-table, to which table the plates are fastened by suitable fastening devices. The side sections of the apron are drawn tighter than the middle section to press upon the reduced or tapered ends of the bunch uniformly with the middle section of the apron, and it will be noted by reference to Fig. 11 that when the bight is formed in the apron there is less space between the side sections of the apron than the middle section thereof, which is advantageous for the reason that as the diameter of the ends of the bunch is less than the diameter of the middle of the bunch the apron presses uniformly on the bunch throughout the entire length thereof.

35 is the rocking arm, pivoted at a point to have its upper end swing above the curved face of the cigar-rolling table, said end of the arm being bifurcated, as at 36. These bifurcated ends of the arm carry the bunching-rolls 37, which rollers are of uniform diameter and are arranged side by side parallel with each other to leave an intermediate space, in which fits the bight of the apron and the bunch when the latter is being rolled and the binder is wrapped around the same. The ends of these rollers are journaled in plates or bearings 38, which are adjustably connected to the bifurcated ends of the rocking arm to adjust either end of the pair of rollers vertically on the arm, thus bringing them nearer to or farther from the top of the cigar-rolling table, over which the rollers and the bight of the apron work in rolling the bunch and wrapping the binder around the same. This rocking arm is caused to traverse the rolling-table in first one direction and then the other by mechanism substantially as shown in my prior application, filed November 7, 1887.

Above the platform J on the main table A and in front of the combined hopper and shaper is an inclined runway or feeding-table, 40, having its upper side hollowed out longitudinally in the middle thereof, so as to direct the clippings of tobacco cut by the knives or cutters of the hopper, and which have been placed by the attendant into the middle of the hopper.

Below the outer end of the feeding-table is a box or receptacle, 41, from which the attendant takes the tobacco and places it on the feeding-table, from which it is thrown by hand

into the hopper, the operation of placing the tobacco on the table from the box 41 being done by one hand and that of throwing it into the hopper by the other hand.

The operation of my cigar-bunching machine herein described is as follows: The combined hopper and shaper is filled with tobacco and the machine started to cause the cam E to force the carriage beneath the hopper and in position for the open mold to align therewith. Simultaneous with the arrival of the open mold beneath the hopper the vertically-reciprocating compressor descends and acts on the tobacco to force a sufficient quantity from the combined hopper and shaper into the open mold to fill the latter to the proper depth without attention on the part of the attendant, after which the compressor is elevated by the cam 13′ acting on the lever and the carriage returned to position at one side of the opening *a*, with the mold and the tobacco therein in line with said opening, the beveled edge on the cut-off I′ on the carriage cutting the tobacco as the carriage moves across the combined hopper and shaper, and said cut-off also prevents the further escape of the contents of the combined hopper and shaper. The carriage and open mold remain in position over the opening *a*, while the discharger C passes through the open mold and opening and between the gates B to carry the tobacco from the open mold and deposit it on the apron and in the cavity in the cigar-rolling table, after which the discharger is elevated and the open mold and carriage forced beneath the combined hopper and shaper to receive a new bunch therefrom, the tobacco being fed by hand into the hopper to maintain therein a sufficient quantity to form two or more bunches and the feeding being performed without danger of injury to the attendant's hands by reason of the wall *h* of said hopper and shaper being opened nearly all the time. When the discharger C descends with the bunch and strikes the apron, the latter is forced into the cavity in the cigar-rolling table with said discharger, the latter being elevated after the tobacco has been discharged therefrom in the manner shown and described in my former application, filed November 7, 1887, Serial No. 254,666. As the discharger recedes the rocking arm is advanced and the front roller thereof elevates the bight of the apron and the bunch in said bight out of the cavity. The bight and the bunch therein fit in the space between the rollers as the arm advances, and the apron and rollers rest on the table to roll the bunch and wrap the binder around the same, the binder having been previously placed by hand on the apron before the descent of the discharger. The arm traverses the cigar-rolling table until the front roller reaches a point beyond the opposite end of the table from whence the arm started, and as the ends of the apron are fastened to the table the bight of the apron is straightened out and the bunch discharged from the apron into a receptacle, 45, placed below the table.

I am aware that changes in the form and proportion of parts and details of construction can be made without departing from the spirit or sacrificing the advantages of my invention.

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, with a reciprocating carriage having an open mold and a cut-off, of a hopper having a shaper at its lower end for feeding tobacco directly to said mold, and a compressor for positively forcing the tobacco from said hopper and shaper into said mold, substantially as and for the purpose described.

2. In a cigar-bunching machine, the combination of a combined hopper and shaper having its walls constructed and arranged for primarily shaping the tobacco therein to the desired contour of a cigar-bunch, a reciprocating carriage adapted to slide beneath said hopper and shaper and having a cut-off, and an open mold carried by the carriage, substantially as described, for the purpose set forth.

3. In a cigar-bunching machine, the combination of a hopper having a shaper arranged in its lower part below the receiving-orifice for primarily forming the tobacco to the desired contour of a bunch before it is discharged from said hopper, a reciprocating carriage having a cut-off, and an open mold fixed to the carriage, substantially as described.

4. In a cigar-bunching machine, the combination of a combined hopper and shaper, a reciprocating carriage having an open shallow mold adapted to align with said hopper and shaper to receive a specified quantity of tobacco directly therefrom, a cut-off fixed to the carriage at one side of the mold and having a knife-edge to sever the tobacco when the mold is carried away from the hopper and shaper, and a reciprocating compressor operating in the hopper and shaper, substantially as and for the purpose described.

5. In a cigar-bunching machine, the combination of a combined hopper and shaper, a reciprocating carriage having an open mold and a cut-off, a vertically-reciprocating compressor operating in the hopper and shaper above the contents thereof, a power-shaft carrying two cams, one of which draws the carriage and mold away from the hopper and shaper, and mechanism, substantially as described, operated by the other cam of the power-shaft to permit the compressor to act on the contents of the hopper and shaper when the mold aligns with the latter, as and for the purpose described.

6. In a cigar-bunching machine, the combination of a primary shaping-hopper, a reciprocating carriage having an open mold and a cut-off, a gravity-compressor for positively

expelling the contents of the hopper, and mechanism for automatically releasing the compressor to cause it to exert downward pressure on the contents of the hopper simultaneously with the arrival of the open mold beneath the hopper to receive tobacco therefrom, substantially as described.

7. In a cigar-bunching machine, the combination of a primary shaping-hopper, a reciprocating carriage having an open mold and a cut-off, a compressor operating in the hopper to force the tobacco into the open mold, a lever connected to said compressor, and a cam fixed to a rotary power-shaft and arranged to act against the free end of the lever, substantially as described, for the purpose set forth.

8. In a cigar-bunching machine, the combination of a combined hopper and shaper having the walls thereof constructed and arranged to shape the contents thereof to the desired contour of a bunch, one of the side walls of said hopper being adapted to swing back and forth with respect to the other wall thereof, a reciprocating carriage, an open mold on the carriage adapted to align with the hopper and shaper, and a cut-off fixed to the carriage at one side of the mold to close the hopper and shaper when the mold is forced away from the same, substantially as described.

9. In a cigar-bunching machine, the combination of a combined hopper and shaper having the walls thereof constructed and arranged to shape the contents of the same to the desired contour of a bunch, and having one of its walls arranged to swing back and forth, a reciprocating carriage having an open mold adapted to align with the hopper and shaper, connections intermediate of the carriage and swinging wall of the hopper and shaper for automatically closing said wall when the mold aligns with said hopper and shaper, and a cut-off, substantially as described.

10. In a cigar-bunching machine, the combination of a combined hopper and shaper having the walls thereof constructed and arranged to shape the contents to the desired contour of a bunch, and having one of its walls pivotally supported to swing laterally, a reciprocating carriage having an open mold, connections intermediate of the carriage and swinging wall of the hopper for automatically closing the latter when the mold aligns therewith, a cut-off, and a vertically-reciprocating compressor operating in the hopper and shaper to descend upon the contents of the same when the swinging wall is closed and force the tobacco into said mold, substantially as described.

11. In a cigar-bunching machine, the combination of a combined hopper and shaper having its walls constructed and arranged to shape the contents thereof to the desired contour of a bunch, and one of said walls movable away from the other, a reciprocating carriage having an open mold and a cut-off and adapted to slide beneath the hopper, and devices connected to the carriage and movable wall of said hopper and shaper for holding said wall open when the carriage is moved away from the hopper, substantially as described.

12. In a cigar-bunching machine, the combination of a hopper, a rock-shaft carrying one of the walls of said hopper and having a depending arm, a reciprocating carriage arranged to slide beneath said hopper and carrying an open mold and a cut-off, and fixed studs or projections on the carriage for alternately striking the depending arm, and thereby rocking the shaft, substantially as described.

13. In a cigar-bunching machine, the combination of a hopper, a rock-shaft to which one of the walls of said hopper is secured and having a depending arm at one end, a reciprocating carriage arranged to slide beneath the hopper and having an open mold and a cut-off, and a bar or rod arranged at one side of and secured to the carriage and having studs in the path of which the depending arm is arranged, substantially as described.

14. In a cigar-bunching machine, the combination of a hopper, a rock-shaft to which one of the walls of said hopper is secured, an arm depending from said rock-shaft, a reciprocating carriage having an open mold and a cut-off, a fixed stud on the carriage for striking the depending arm, and a spring for closing said movable wall of the hopper when the depending arm is released from the stud, substantially as described.

15. In a cigar-bunching machine, a hopper having a movable wall carrying knives or cutters for severing the protruding ends of tobacco, substantially as described, for the purpose set forth.

16. In a cigar-bunching machine, a hopper having a movable wall and knives or cutters adjustably connected to said wall, substantially as described.

17. In a cigar-bunching machine, a hopper having a movable wall and cutters or knives carried by the wall at the ends of the hopper and adjustable in the direction of the length of the hopper, substantially as described.

18. In a cigar-bunching machine, the combination of a hopper having a swinging side wall, end walls adjustable in the direction of the length of the hopper and having the cutting-edges, and knives or cutters carried by the swinging wall and adjustable thereon in the same direction as the end walls, substantially as described.

19. A hopper having one of its side walls adjustable laterally at either end of the opposite side wall, substantially as described, for the purpose set forth.

20. A hopper having a base-plate and a movable wall mounted on said plate, the plate being adjustable laterally at either end of the hopper, all combined substantially as described.

21. In a cigar-bunching machine, a hopper having an adjustable base-plate carrying one

of the walls of the hopper, and a vertical shaper-plate, 21, secured to said base-plate and arranged in the lower end of the hopper below the movable wall of the same, all combined substantially as and for the purpose described.

22. In a cigar-bunching machine, the combination of a hopper, a reciprocating carriage having an open mold, and a cut-off plate fixed to the carriage at one side of the mold and having its edge adjoining the mold curved transversely and beveled to a cutting-edge, substantially as described.

23. In a cigar-bunching machine, the combination of a cigar-rolling table, an apron connected directly at one end thereto and having its opposite end cut or divided longitudinally for a suitable distance toward the middle thereof, and plates for independently fastening each of the pieces formed by the cuts to the opposite end of the rolling-table, substantially as described.

24. In a cigar-bunching machine, the combination of a cigar-rolling table, an apron, a rocking arm, the adjustable bearings or plates connected to the rocking arm and each adjustable independently thereon in the direction of its length, and a pair of spaced bunching-rollers journaled in said bearings or plates, substantially as described.

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

JAMES ED. SMITH.

Witnesses:
JOS. FORREST,
H. T. BERNHARD.