

(No Model.)

3 Sheets—Sheet 1.

A. K. DEGOOD.
CIGAR BUNCHING MACHINE.

No. 396,732.

Patented Jan. 29, 1889.

FIG. 1.

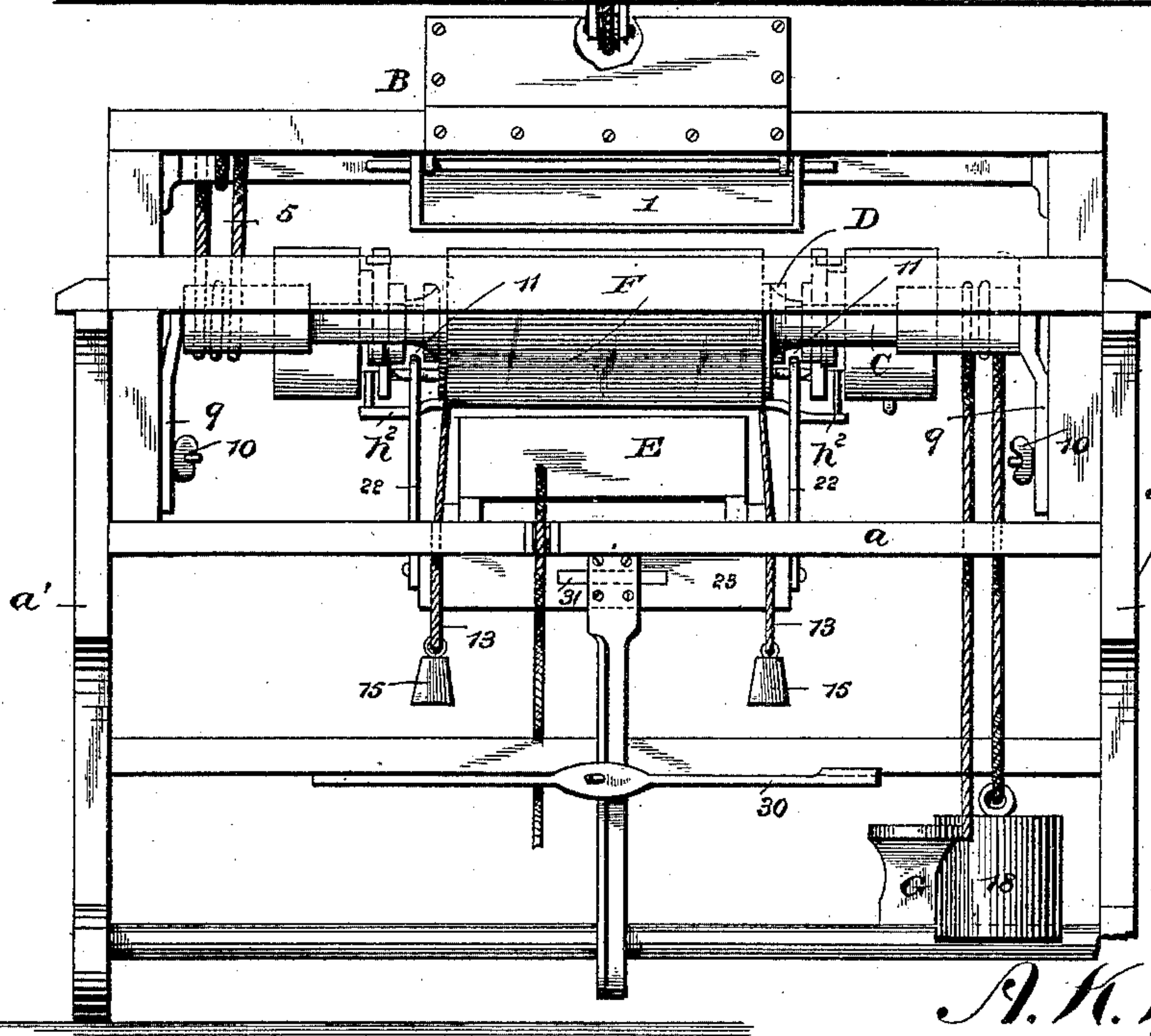
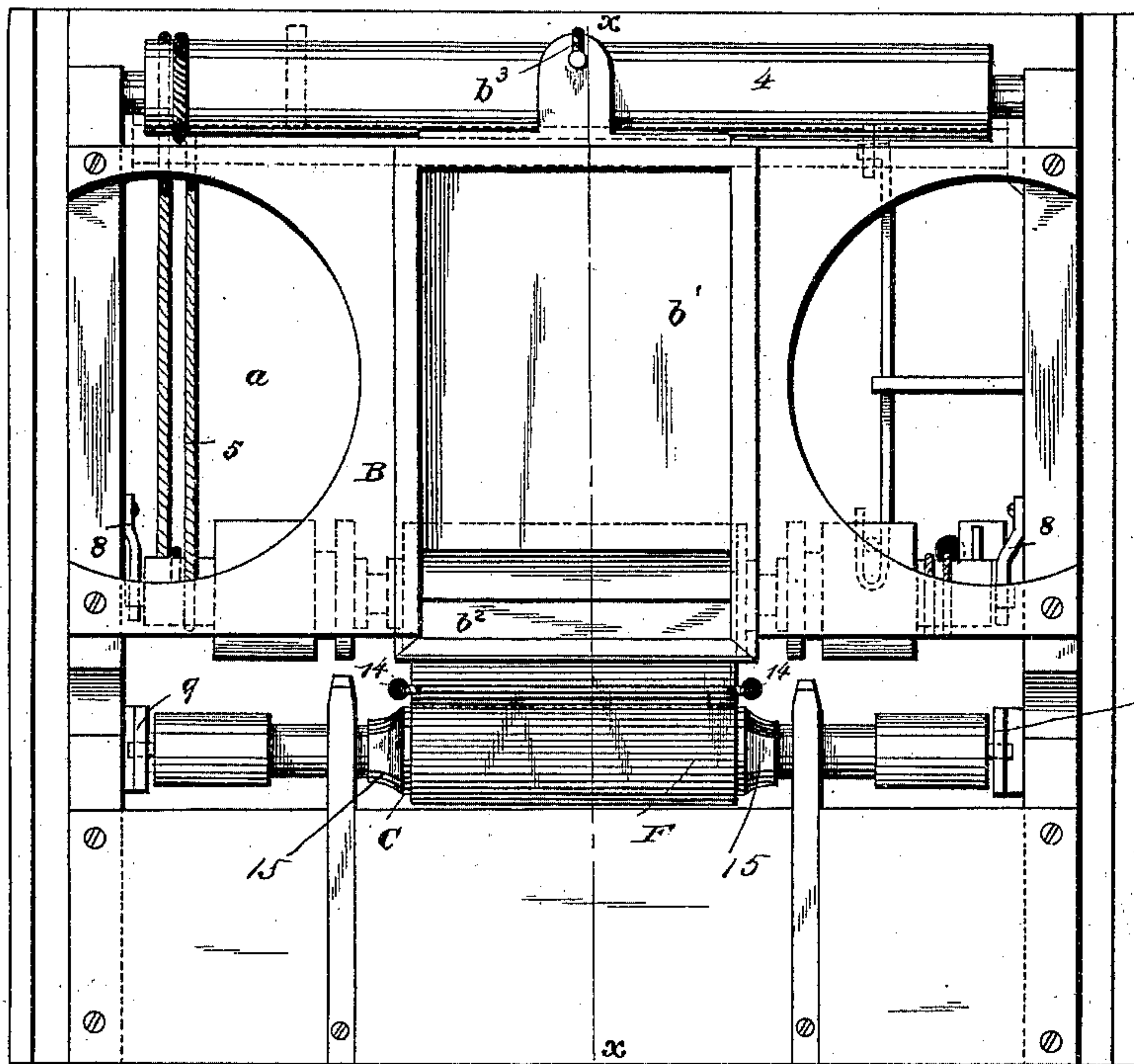


FIG. 2.

Witnesses,

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By *his* Attorney

Edson Bros.

(No Model.)

3 Sheets—Sheet 2.

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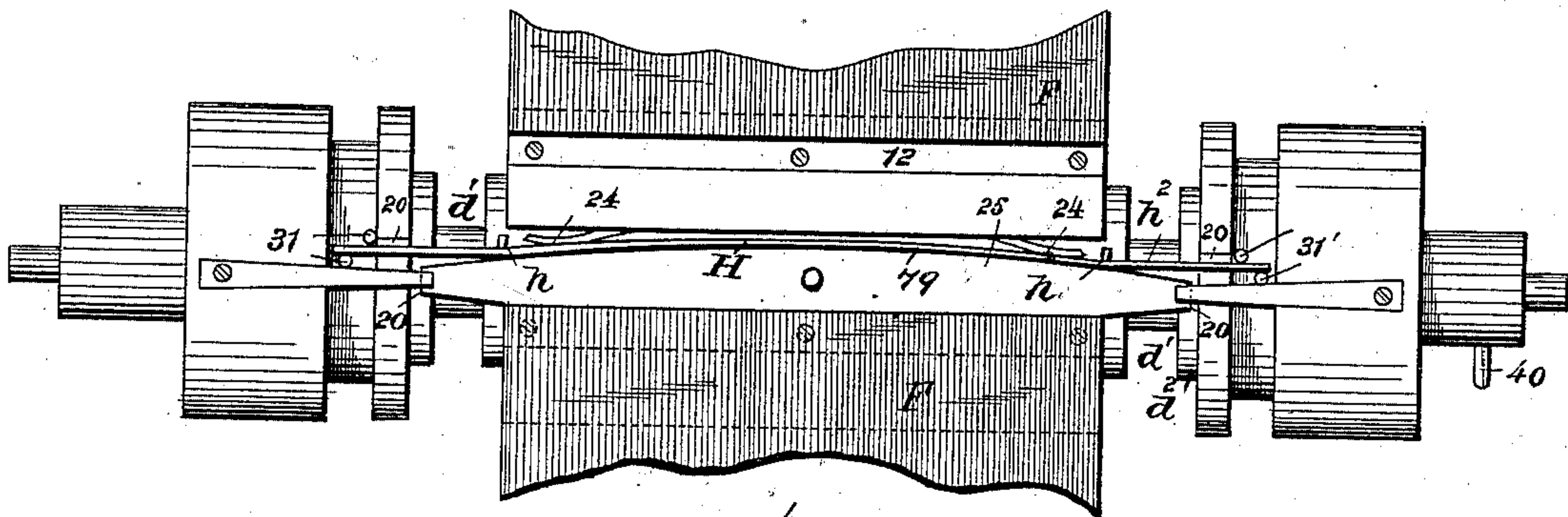
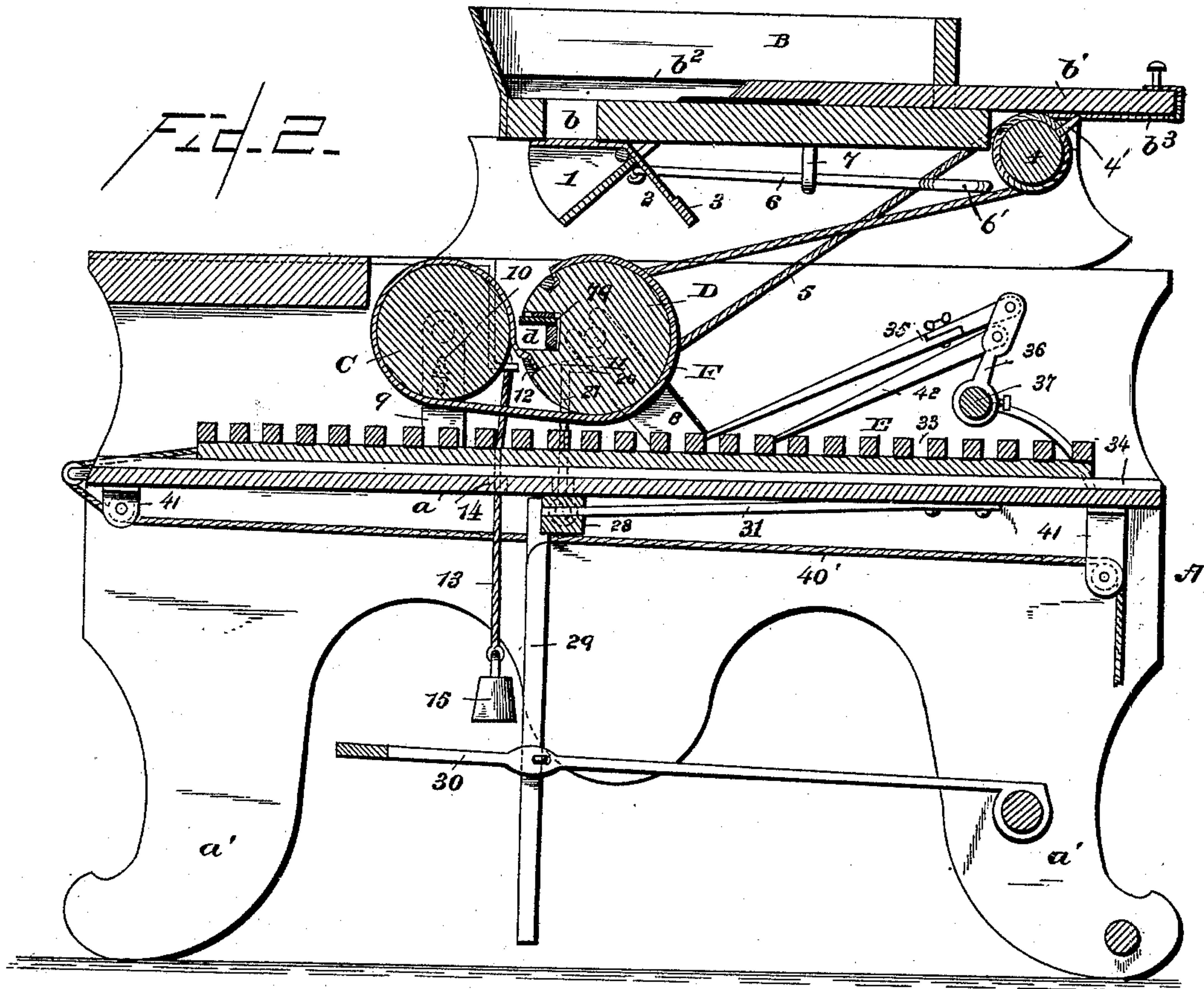


FIG. 4.

Witnesses.

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Fig. 5

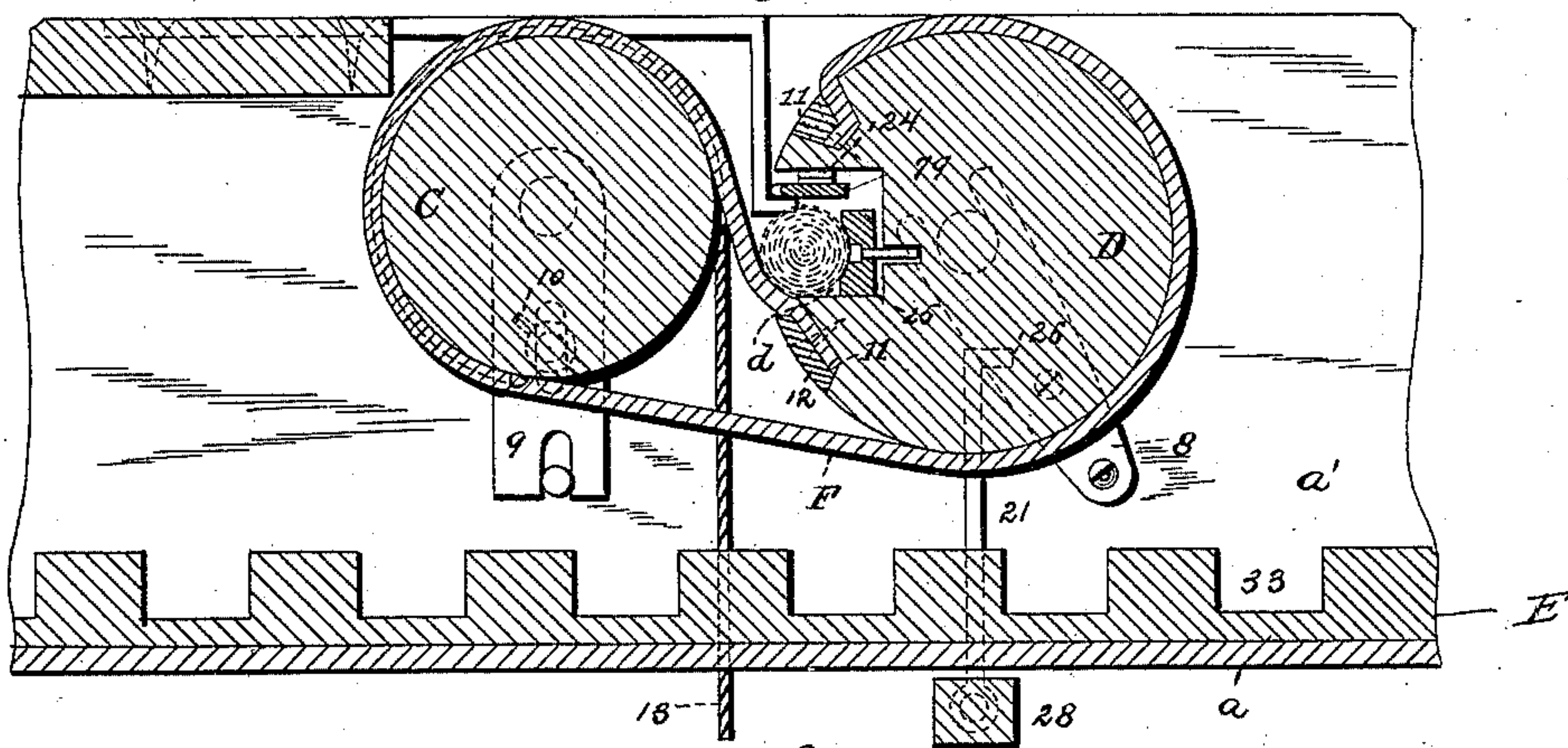


Fig. 6.

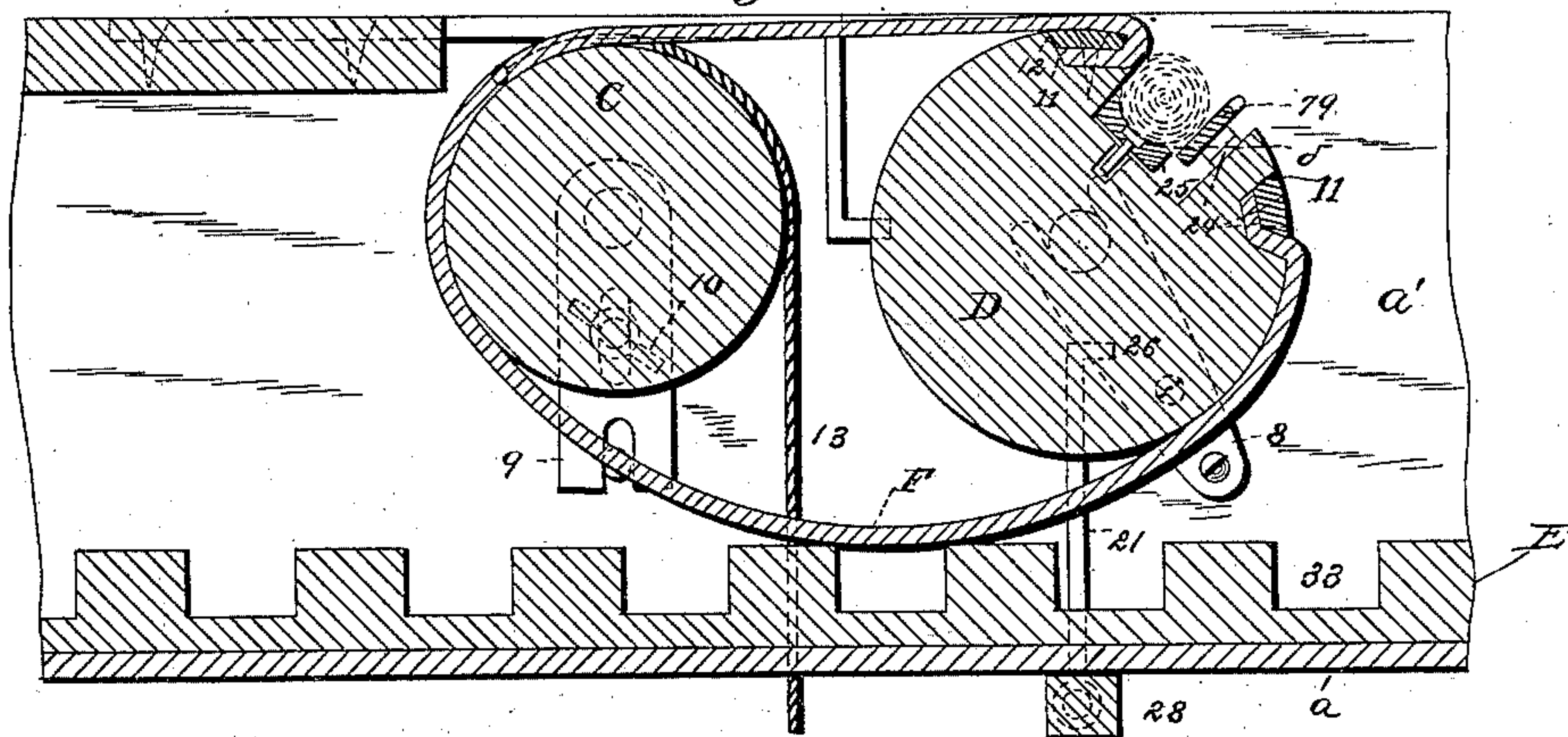
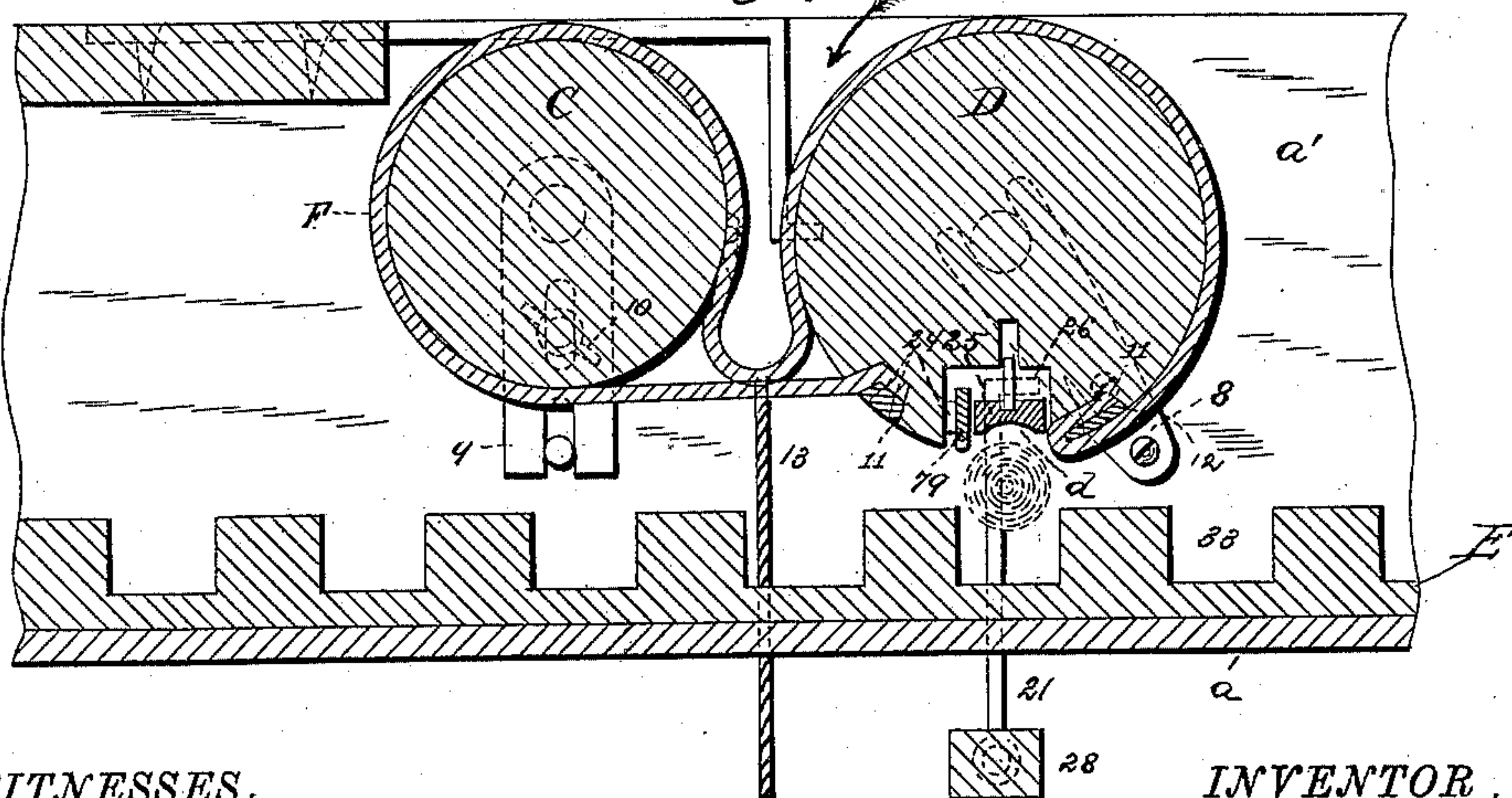


Fig. 7.



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UNITED STATES PATENT OFFICE.

ALEXANDER K. DEGOOD, OF MILLSBOROUGH, PENNSYLVANIA.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 396,732, dated January 29, 1889.

Application filed March 12, 1888. Serial No. 267,032. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER K. DEGOOD, a citizen of the United States, residing at Millsborough, in the county of Washington and State of Pennsylvania, 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 machines for making cigars; and it consists of the peculiar combination of devices and novel construction and arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

The object of my invention is to provide means for grasping the bunch of tobacco after it has been rolled and pressed between a pair of coacting presser-rolls, and to convey said bunch between the rolls and discharge it into an intermittently-fed mold; to provide mechanism for releasing the bunch from the grasping device and for discharging the bunch with a positive movement into the mold, and to provide appliances connected with and actuated automatically by one of the presser-rollers for feeding the mold with a regular step-by-step movement at each rotation of the presser-rolls, so that an unfilled mold is presented to receive the bunches as they are successively discharged from one of the rolls, and, finally, to improve the machine in minor details of construction, whereby its simplicity of construction and efficiency of operation are greatly increased.

In the accompanying drawings, Figure 1 is a top plan view of a machine for bunching and making cigars embodying my improvements. Fig. 2 is a vertical sectional view thereof on the line $x x$ of Fig. 1, showing the presser-rolls in position for the grasping device to receive and hold the bunch after the rolls have completed their first rotation to roll and press the bunch, so that one of the rolls can carry the bunch from between the same to a position for positively discharging the

bunch into a mold. Fig. 3 is a front elevation of the machine. Fig. 4 is a detached detail view, in elevation, of the larger presser-roll and the devices for grasping the bunch. Fig. 5 is an enlarged detail sectional view through the coacting presser-rolls after they have been rotated to roll the bunch and showing the rear roll receiving the bunch preparatory to the reverse rotations of the rolls to discharge said bunch. Fig. 6 is a sectional view corresponding to Fig. 5, showing the rolls partly rotated in the reverse direction, with the bunch in the recess of the rear roll, the apron being slackened and the weighted cords partly coiled around the front presser-roll; and Fig. 7 is another sectional view corresponding to Figs. 5 and 6, with the rear roll in the act of discharging the bunch and the apron depressed by the weighted cords between the two presser-rolls to form a bight in the apron to receive the filler from the inclined chute and hopper.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the supporting-frame of a cigar-bunching machine embodying my invention, which frame has a table-top, a , and upright side pieces, a' , upon which side pieces a hopper, B, is mounted at a suitable elevated point over a pair of coacting presser-rolls, C D, that are suitably journaled between the side pieces, a' , of the supporting-frame a short distance above the top of said frame to adapt a sliding mold, E, to pass beneath said rolls.

The hopper is provided with a discharge-opening, b , in its bottom and with a slide, b' , which is adapted to force the tobacco from the hopper into an inclined discharge-chute, 1, that is fixed to the under side of the hopper and terminates at its lower end over the presser-rolls, so as to properly discharge the tobacco from the hopper onto a traveling apron and between the rolls. The opening b in the bottom of the hopper is alternately opened and closed at suitable regular intervals by a valve, 2, that is arranged on the under side of the hopper and pivoted in close proximity to the opening, said valve being normally kept in a closed position by means of a weighted lip, 3, which inclines downwardly from its rear end. The slide b' is provided

at its front end with a knife or cutter, b^2 , and near the ends of said slide are secured the ends of a connected cord, b^3 , which is wound one or more times around the roller or drum 4, that is arranged transversely across the machine at the rear of the hopper, and by which the slide is caused to reciprocate in the hopper as the roller is actuated by a belt, 5, from the larger presser-roll, D. The valve 2 is also actuated and controlled from this roller 4 through the medium of a pitman, 6, (see Fig. 2,) which is pivotally connected at the front end to the valve, at one end thereof, and which has an eye at its rear end, that is adapted to be struck by a pin or stud, $4'$, fixed on the roller, the rear end of said pitman being supported and guided by a fixed keeper, 7, on the bottom of the hopper. As the slide b' is drawn by the roller 4 and cord b^3 to the rear end of the hopper, the valve closes by gravity of the weighted lip thereof against the bottom of the hopper over the opening b therein; but when the direction of rotation of the roller 4 is reversed to force the slide b' forward in the hopper, and thus push or force the tobacco therein through the opening b , the valve 2 is opened for a short interval by the pin or stud on the roller 4 striking the eye of the pitman 6, and thereby moving the latter endwise to the rear of the hopper, as will be readily understood.

The coacting presser-rolls C D are arranged side by side, parallel with each other, and in substantially the same horizontal planes; but one of the rollers, preferably the rear one, D, is much larger in diameter than the other roller, C, for the purpose of receiving and carrying with it the grasping and discharging devices for the bunch after it has been rolled and pressed into the proper cylindrical shape by the coacting rollers and the traveling belt, presently described.

The larger rear presser-roll, D, is journaled in stationary bearings 8, that are fixed to the upright side pieces, a' , of the frame A; but the front presser-roll is journaled in adjustable bearings 9, that are adjustably secured by means of a slot, and bolt connection, 10, to the side pieces, a' , of the frame, whereby the front roller can be moved closer to or farther from the rear roller, and thereby adapt the coacting rollers to properly operate on bunches of varying thicknesses or diameters.

The larger presser-roll, D, is provided in its periphery with a deep recess or depression, d , that is of considerable width and extends longitudinally of the roll, the ends of said recess terminating between two deep annular peripheral grooves, d' , the purpose of which will be hereinafter explained. On each side of this longitudinal recess is formed a shallow groove or depression, 11, in which are fitted the ends of a traveling apron, F, and these ends of the apron are secured in place by means of strips or cleats 12, that lie flush with the periphery of the roller and are firmly secured in place by screws or other suitable

fastenings. This traveling apron F passes over and around the smaller presser-roll, and to the side edges of the apron, at an intermediate point of the length thereof, are connected vertical cords or wires 13, which are arranged in the space between the rolls C D and pass through suitable openings, 14, in the tabletop a , the lower ends of said cords having small weights 15 connected thereto. These cords serve to drag or pull the apron down between the rolls, when they have been turned, to cause the recess in the larger roll, D, to face the traveling discharge-mold, whereby a bight is formed in the apron, and it is held in a stretched position to receive the tobacco from the hopper; otherwise the apron would be liable to become puffed out or lie loosely above the rolls, instead of folding between them to properly form the bight and receive the tobacco when the rolls are turned to their normal position by a drop-weight, presently described. As the apron travels around the rollers C D, with the latter to roll and press the bunch, the cords or wires wind or coil themselves around the front roller at the sides of the apron, and to properly insure this winding of the wires or cords and prevent them from interfering with the apron the front roller has inclined faces 15, (see Fig. 1,) formed thereon on opposite sides of the apron, around which the cords are adapted to coil themselves.

The smaller front roller, C, is caused to rotate simultaneously with the larger rear roller, as the traveling apron connects the two rollers together and serves as a belt, and the rear roller is operated by means of a treadle, G, arranged beneath the top a and connected with said roller D by a cord or other pliable connection, which is wound one or more times around the roll D.

The presser-rolls are normally returned to a position to receive tobacco from the hopper for making a bunch when pressure is removed from the treadle G by means of a drop-weight, 18, which has its cord wound around one end of the larger presser-roll, D, and as the roller 4, which operates the valve and slide b' , is connected by a belt with the presser-roll D the valve remains open, and the slide is forced forward, while the rolls remain stationary to receive the tobacco, the quantity of tobacco that is allowed to escape from the hopper being determined by the operator, who has only to depress the treadle to close the valve 2 and start the presser-rolls in motion to shape and press the bunch.

I will now proceed to describe the device for grasping and discharging the "bunch" after it has been rolled and pressed between the rolls C D. As the ends of the traveling apron are secured to the larger presser-roll on opposite sides of the peripheral longitudinal recess therein, this recess is free and unobstructed when the rolls are turned to cause the said recess to face the front presser-roll, as seen in Figs. 2 and 5, so that a bunch can

drop into said recess as it faces the front roll, which operation is assisted by the natural inherent elasticity in the bunch, which causes it to expand in a measure when released from the powerful pressure of the rolls by the recess providing an increased space between the rolls, and after the bunch enters the longitudinal recess it is grasped and held therein as the roller D begins its retrograde rotation by an elastic grasping device, H, which is housed within the recess and carried with the roller in its rotations. This grasping device preferably comprises a flat metallic bar or rod, which is arranged longitudinally in the recess at one side thereof, and this bar is capable of lateral play toward and from one of the walls of the recess, and is controlled so that as the recess faces the front roll, C, an increased space between said bar and one wall of the recess is secured, into which the bunch can drop with ease and freedom; but when the roll D begins to rotate in the reverse direction this bar is forced toward and upon the bunch to grasp and hold it between itself and one wall of the recess by means of a spring, 79, which is preferably flat and arranged between the bar and the wall of the recess nearest the same, said spring lying wholly within the recess and secured centrally to one wall thereof, so that its ends are free to exert the required pressure against the rear side of the bar. The movable grasping-bar is retained or held in the longitudinal recess of the roll D by means of short studs h thereon, fitting loosely in keepers h' , fixed in the bottom of the recess, and the extremities of said grasping-bar provided with lateral arms h^2 , which are extended beyond the recess across the peripheral grooves d^2 and into notches 20, formed in the periphery. As the roller D rotates to cause the recess to face the roller C, the extended arms of the grasping-bar will strike fixed stops 21, and thereby limit the rotation of the rollers C D and force the grasping-bar backward against the tension of its spring to increase the space between said bar and one wall of the recess and permit the bunch to readily enter the recess. These stops 21 are carried by vertical arms 22, which are fixed to a rigid transverse bar, 23, secured to the side pieces of the frame in front of the presser-rolls, and these arms depend between the rolls on opposite sides of the apron, with the stop in close proximity to the periphery of the roll D, the laterally-extended arms of the grasping-bar being curved or inclined slightly from the roll D, so that they lie over and out of contact with flat springs 24 on the roller D to avoid interfering with the springs, which are designed to limit the outward play of an expelling device for forcing the bunch from the recess. This expelling device 25 consists of a flat unyielding bar or rod fitted in the bottom of the recess at one side of the grasping-bar therein and having its ends extended beyond the terminals of the recess into the deep annular

grooves d^2 of the roll D, so that as the roll is rotated to cause the recess to face the mold E the ends of said expelling-bar are in position to be engaged by hooks or catches 26 on vertical depressing-rods 27. The vertical rods 27 pass through suitable openings formed in the top a of the frame, on opposite sides of the mold E, and they are fixed at their lower ends to a horizontal bar, 28, arranged below the top a and carried by a bar, 29, which is pivotally connected to an operating-treadle, 30, situated at one side of the treadle for operating the rolls. A retracting-spring, 31, secured at one end to the under side of the top a , is connected with the horizontal bar 28 to normally elevate the treadle and the vertical rods 27, so that the hooks thereon are normally projected into the annular grooves d^2 of the roll D, (but out of contact therewith,) and thereby held in the path of the ends of the expelling-bar to engage the latter when the roll D is rotated to cause the recess therein to face the mold E. To expel the bunch when the roll D occupies this position, it is only necessary for the operator to depress the treadle and overcome the tension of the retracting-spring, thereby drawing the vertical rods 27 downward and causing the hooks thereon to engage the ends of the expelling-bar, which forces the latter outwardly and expels the bunch from the recess, the outward movement of the expelling-bar being limited by the springs 26 coming in contact with the ends of said bar, said springs projecting into the grooves d^2 in the path of the bar, which normally rests in the bottom of the recess.

By arranging the expelling-bar longitudinally within the recess at one side of the grasping-bar it is adapted to effectually expel a bunch without liability of injury thereto, and said bar is prevented from becoming accidentally displaced by the springs on the roll D.

The laterally-extended arms of the grasping-bar are arranged between fixed stop-pins 31, arranged in the notches 20 in the roll D, to limit the play or movement of said bar, as is obvious.

The mold E corresponds in width to the apron and the length of the bunch made by the machine, and this mold extends from one end of the machine to the other; or it may be longer or shorter, as desired. This mold has a series of pockets, 33, formed transversely therein in its upper face, and these pockets are of sufficient width and spaced at suitable intervals apart to properly receive the bunches as they are successively discharged from the roll D by the expelling-bar operating in the recess therein, said mold being guided in a direct line through the machine by suitable fixed guides, 34, on the top a , as shown.

To provide for the automatic feeding of the mold with a step-by-step movement to present an unfilled pocket beneath the rolls C D at each turn thereof, I pivot a feeding-pawl,

35, on a stud, 36, of a rock-shaft, 37, arranged at the rear end of the machine, transversely thereof, and journaled in the side pieces of the frame A. This rock-shaft is operated
 5 from the power-roll D by means of a pitman, 38, which is pivotally connected at its rear end to the rock-shaft and has its front end passing through a fixed guide, 39, and arranged in the path of a stud, 40, on the power-roll D, so
 10 that as said roll is turned the stud thereon strikes the front end of the pitman to impart an endwise movement thereto, and thus rock or oscillate the shaft. The feeding-pawl is made in two sections, which are adjustably
 15 connected together by a slot-and-bolt connection, and this pawl drops by gravity into engagement with the pockets in the mold E to move or force the latter one step at a time at each oscillation of the rock-shaft and turn of
 20 the presser-rolls. A weighted cord, 40', is connected to the front of the mold to assist the feeding-pawl in moving the same, said cord passing to the rear of the machine beneath the top a through suitable guide-
 25 sheaves, 41.

To properly hold the mold in position beneath the presser-rolls to receive the bunch, I provide another slip-pawl, 42, that rests on the mold and is carried by the arm
 30 or stud 36 on a shaft.

This being the construction of my improved machine for bunching cigars, the operation thereof is as follows: The position of the rolls and traveling apron for receiving the
 35 filler from the hopper is indicated in Fig. 7, in which figure the apron is depressed between the rolls by the depending weighted cords to thereby form a bight in which the filler is deposited from the inclined chute 1
 40 and the hopper. The drop-weight normally holds the rolls in position, so that the recess in the roll D is on the lower side thereof to face the mold E, the treadle is elevated, the valve 2 is opened, and the slide b' is forced
 45 or withdrawn through the rear of the hopper to permit tobacco to pass through the opening b at the front of the hopper. The parts are allowed to remain in this position until enough tobacco has passed through the opening b in the
 50 hopper down the chute 2 and been deposited in the bight of the traveling apron to form a filler, at which time the operator depresses the treadle. The effect of this movement of the treadle is to rotate the rolls toward the
 55 front of the machine in the direction indicated by the arrow in Fig. 7, and also to cut off the further escape of tobacco from the hopper and force the slide to the rear of the hopper in position to feed a new supply
 60 of tobacco through the opening b, when the rolls are returned to their normal position and a bight again formed in the apron. The bight in the apron and the bunch therein are located at a point below the contiguous
 65 convex faces of the coacting presser-rolls, and also below a line drawn through the axes of said rolls, whereby the bunch is prevented

from becoming displaced through the open upper side of the bight during the rotation of the rolls. When the rolls begin to rotate in
 70 the direction just described, the apron travels around with the front presser-roll, and the bunch in the bight of the apron is properly rolled and pressed, the weighted cords coiling themselves around the inclined faces 15 of
 75 the front presser-roll as the apron travels around with the latter. By referring to Fig. 7 it will be noticed that when the rolls are rotated in the direction indicated by the arrow in said figure one end of the apron attached
 80 to the rear roll will unwind itself from said roll, while the other end of the apron will coil itself partly around the rear roll, so that at the termination of this rotation of the rolls the apron and rolls will assume the positions
 85 indicated in Fig. 5. It will be understood that while the rolls are rotating in the direction just stated the bunch is retained on the apron between the rolls, and at the termination of said rotation of the rolls the bunch is
 90 received in the recess in the rear roll, as indicated in Fig. 5. As the rear roll approaches its limit of rotation in the direction described, the laterally-extended ends of the grasping-
 95 bar strike the fixed stops 21 to thereby move said grasping-bar against the tension of the spring thereof to permit the bunch to readily enter the recess without obstruction from said grasping-bar. After the bunch has been
 100 properly received and clamped by the grasping-bar in the recess of the roll D, the pressure on the treadle is removed, and the drop-weight falls by gravity to return the rolls to their normal positions and again open the
 105 valve in the hopper. The positions of the rolls and apron when the former are partly rotated in the reverse direction are shown in Fig. 6, in which the bunch is shown in dotted lines clamped by the grasping-bar in the recess in the roll D, and the lower side of the
 110 apron that is being uncoiled or unwound from the roll D is slackened, while the weighted cords 13 are shown uncoiling themselves from the front presser-roll. As the rolls near the completion of this reverse rotation, the
 115 weighted cords 13 pull the upper slack side of the apron between the rolls, so that by the time the rolls complete the revolution and assume the position shown in Fig. 7 a bight is formed in the apron between said rolls, as
 120 shown. When the rolls are at rest at the completion of the reverse rotation, the recess in the roll D faces the mold E, and the operator depresses the treadle to force the expelling-bar against the bunch and positively dis-
 125 charge the latter from the recess and cause it to drop in one of the pockets of the mold E, the latter being fed one step forward by the feeding-pawl at the succeeding revolution of the rolls to permit an unfilled pocket to
 130 receive the next bunch.

It will be further noted by reference to Fig. 7 that the rolls are so arranged and constructed that while a bunch is being discharged

from the rear roll, D, by the expelling device another filler is simultaneously deposited in the bight of the apron to form a new bunch, the machine thus receiving a filler at the same time that it discharges a previously-formed bunch.

I am aware that changes and modifications 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, and I do not therefore limit myself to the exact details herein shown and described as an embodiment of my invention.

I am aware that at the date of my invention it was not broadly new to provide a cigar-bunching machine with a pair of coacting rollers situated side by side and an apron connected with the rollers and adapted to form a bight between the same, one of said rollers having a recess in its periphery; also, that it was not new to provide a hopper above the rollers and a perforated slide operating in said hopper and reciprocated by intermediate connections with one of the coacting rollers.

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

1. In a cigar-bunching machine, a pair of coacting presser-rolls, one having a longitudinal recess, in combination with an apron passing around both rolls and connected at its ends to the roll having said recess and upon opposite sides thereof and adapted to form a bight between the rolls, and a grasping device, substantially as described, housed within said recess to grasp and retain the bunch therein during the rotation in one direction of said roll, substantially as described.

2. In a cigar-bunching machine, the combination of a pair of coacting presser-rolls, one having a longitudinal recess in its periphery, an apron passing around both rolls and having its ends connected to the recessed roll on opposite sides of the recess therein and adapted to form a bight between the two rolls, and an expelling device, substantially as described, carried by the roll having the recess and located within the latter, to expel the bunch from said recess at the completion of the revolution in one direction of said recessed roll, substantially as and for the purpose set forth.

3. In a cigar-bunching machine, the combination of a pair of coacting presser-rolls, one having a longitudinal recess, an apron passing around both rolls and having its ends secured to the recessed roll on opposite sides of the recess therein and adapted to form a bight between said rolls, a grasping device housed within the recess for holding the bunch therein during the rotation of the roll in one direction, and an expelling device, substantially as described, normally located in the bottom of the recess and at one side of the grasping device, said expelling device being

adapted to move laterally to one side of the grasping device for positively expelling the bunch from said recess at the completion of the rotation of the roll in one direction, substantially as and for the purpose described.

4. In a cigar-bunching machine, the combination of a pair of coacting presser-rolls, one having a longitudinal recess in its periphery adapted to receive a cigar-bunch, an apron passing around both rolls and connected at its ends to the recessed roll on opposite sides of the recess therein and adapted to form a bight between the rolls, an expelling-bar arranged longitudinally within the recess, and devices connected to a treadle for moving said expelling-bar laterally in the recess at the termination of rotation of the recessed roll in one direction, substantially as and for the purpose described.

5. In a cigar-bunching machine, the combination, with a pair of coacting presser-rolls, one having a longitudinal recess and annular grooves at the ends of the recess, and an apron passing around both rolls and connected at its ends to the recessed roll on opposite sides of said recess and adapted to form a bight between the two rolls, of an expelling-bar housed within the recess and having its ends extended into the annular grooves, vertical rods normally fitting in the annular grooves and adapted to engage the ends of the expelling-bar, and a treadle to which said rods are connected, substantially as described.

6. In a cigar-bunching machine, the combination, with a pair of coacting presser-rolls, one having a longitudinal recess, and an apron passing around both rolls and connected at its ends to the recessed roll on opposite sides of the recess therein and adapted to form a bight between said rolls, of an expelling-bar housed within the recess, springs fixed to the roller and arranged in the path of the expelling-bar for limiting the play thereof, vertical rods adapted to engage the expelling-bar to move the latter toward the springs, and a treadle to which the rods are connected, substantially as described.

7. In a cigar-bunching machine, the combination of the presser-rolls, one having a recess therein, an apron passing around both rolls and connected at its ends to the recessed roll on opposite sides of the recess therein and adapted to form a bight between said rolls, a spring-controlled grasping-bar arranged lengthwise of the recess and having its ends extended beyond the same, and stops arranged in the path of the ends of said bar, substantially as described.

8. In a cigar-bunching machine, the combination of the presser-rolls, one having a recess therein, an apron passing around both rolls and connected at its ends to the recessed roll on opposite sides of the recess therein, a spring-controlled presser-bar housed within the recess and having its ends extended beyond the same, stops for limiting the play of said bar in the recess, and fixed stops depend-

ing between the rollers and arranged in the path of the ends of the presser-bar, substantially as described.

5 9. In a cigar-bunching machine, the combination of a pair of presser-rolls, one having a longitudinal recess therein, an apron passing around both rolls and connected at its ends to the recessed roll on opposite sides of the recess therein, a traveling mold arranged be-
10 neath the rolls to receive the bunches therefrom, and devices for feeding the mold with a step-by-step movement, substantially as described.

15 10. In a cigar-bunching machine, the combination of a pair of presser-rolls, one having a recess, an apron passing around the rolls and connected at its ends to the recessed roll on opposite sides of the recess therein, a grasping device housed in the recess, an expelling
20 device, a traveling mold arranged beneath the rolls and having a series of transverse pockets, and a feeding-pawl for moving the mold with a step-by-step movement, substantially as described.

25 11. In a cigar-bunching machine, the combination of a pair of presser-rolls, one having a recess, an apron passing around both rolls and connected at its ends to the recessed roll on

opposite sides of the recess therein, a traveling mold guided in a direct line beneath the rolls and having a series of transverse pockets, a feeding-pawl carried by a rock-shaft, a pitman intermediate the rock-shaft and one of the presser-rolls, a weighted cord connected with one end of the mold, and a slip-pawl en-
35 gaging the mold, substantially as described.

12. In a cigar-bunching machine, the combination of a pair of coacting presser-rolls, an apron passing over the rolls, an elevated hopper having an opening in its bottom and an
40 inclined fixed chute arranged to deliver the tobacco between the rolls, a pivoted valve having a depending weighted lip adapted to normally close said opening, a roller belted to one of the presser-rolls, and a pitman con-
45 nected to the valve and adapted to be moved endwise to open the valve by a pin fixed on the periphery of the roller, substantially as and for the purpose described.

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

ALEXANDER K. DEGOOD.

Witnesses:

E. A. BURSON,
J. C. SARGENT.