

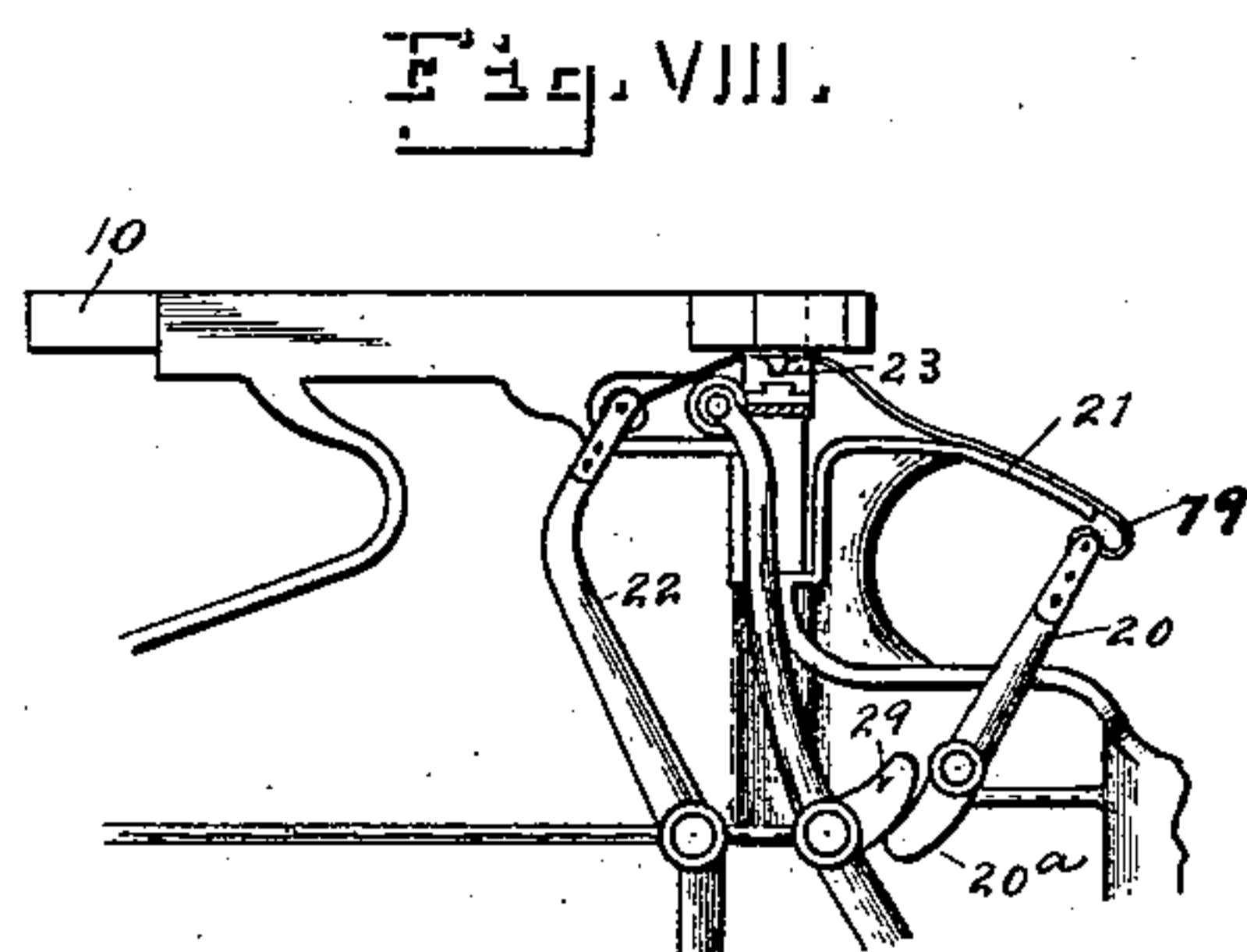
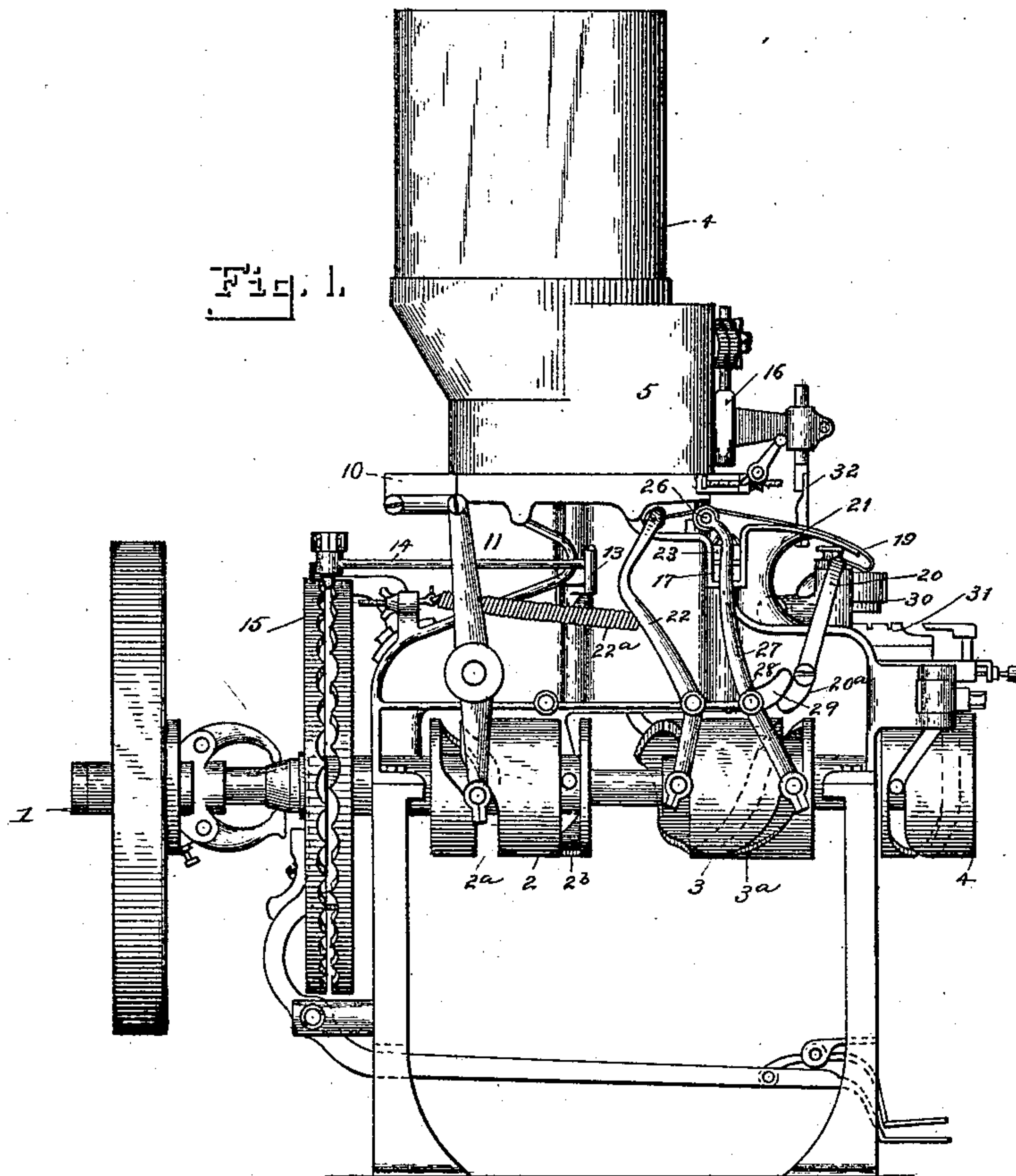
(Model.)

3 Sheets—Sheet 1.

F. C. MILLER.
CIGAR BUNCHING MACHINE.

No. 465,283.

Patented Dec. 15, 1891.



Witnesses
Harry S. Palmer.
Geo. L. Wheelock.

Inventor
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(Model.)

3 Sheets—Sheet 2.

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Fig. II.

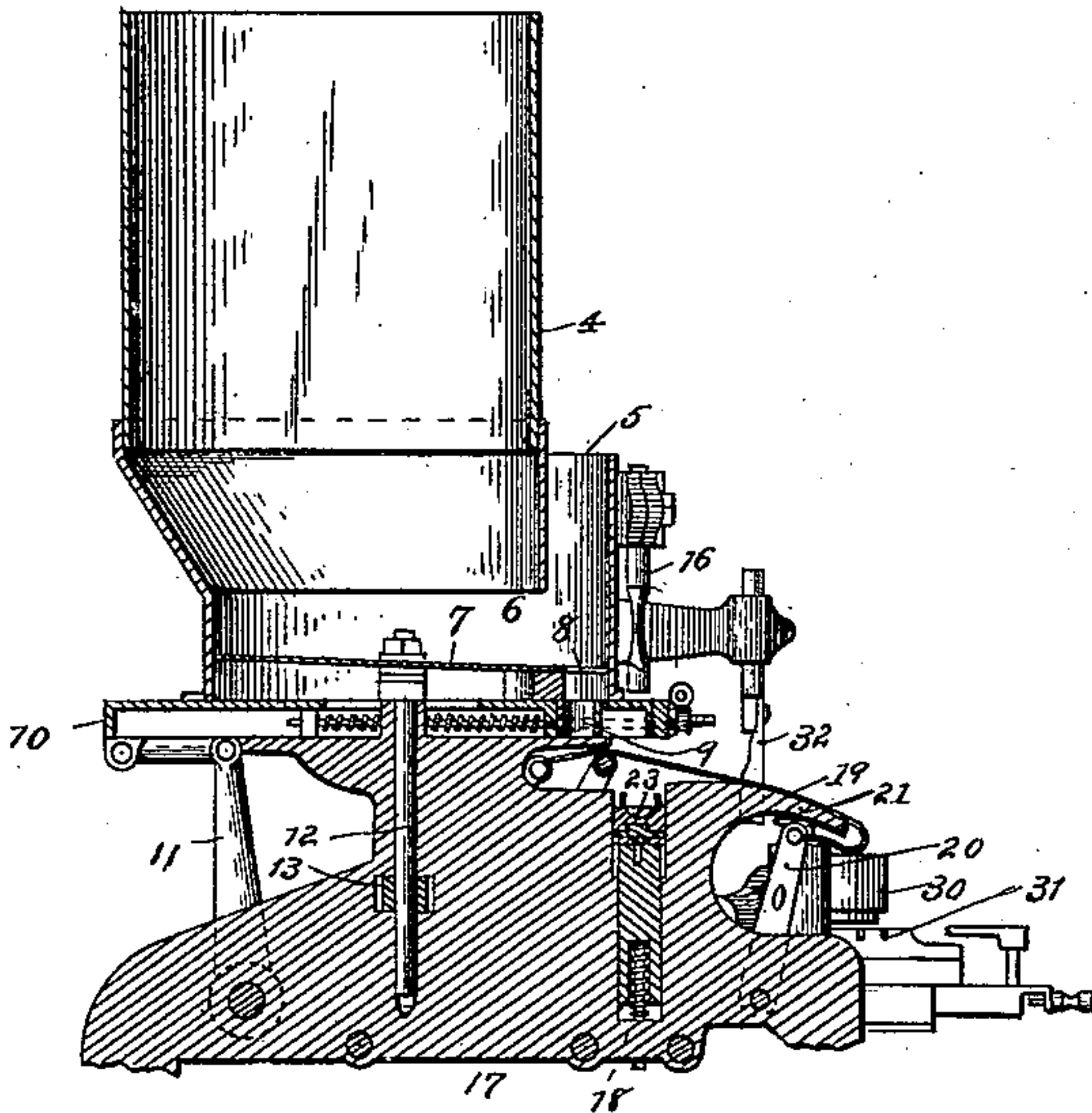


Fig. III.

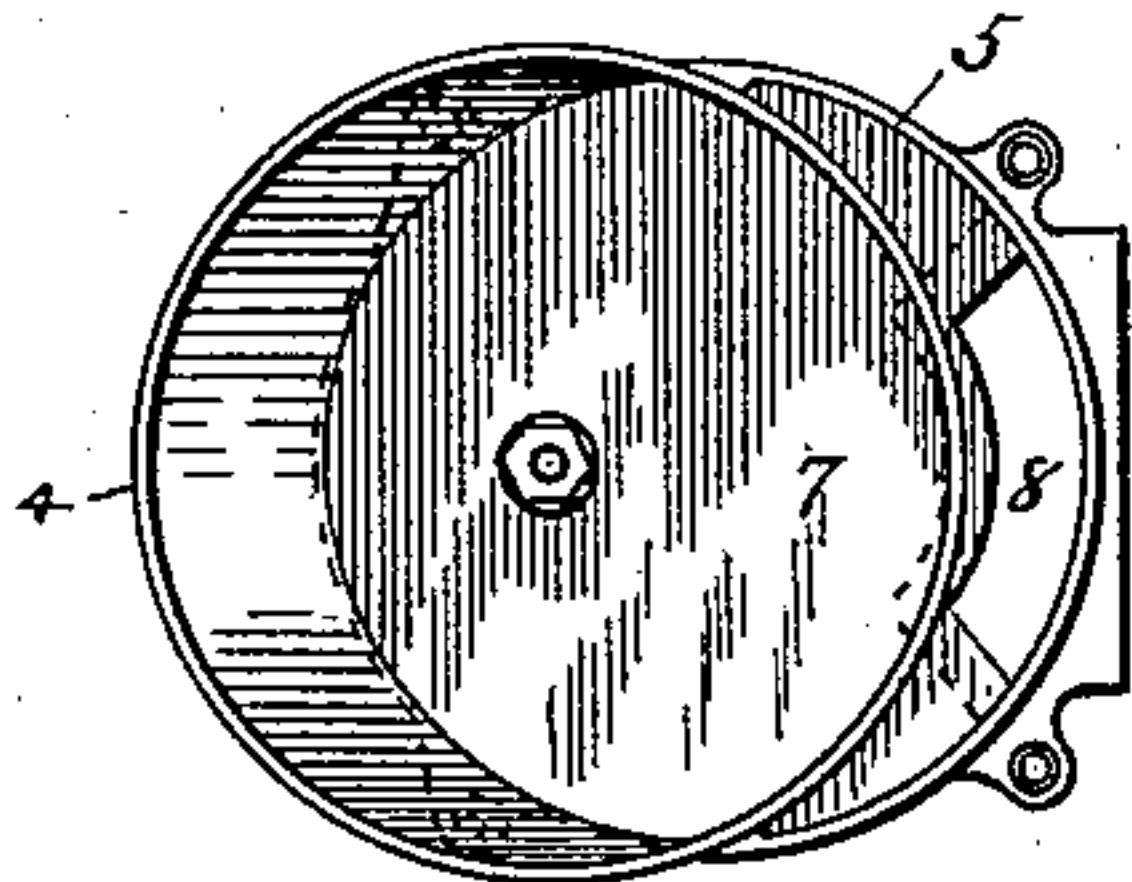


Fig. IV.

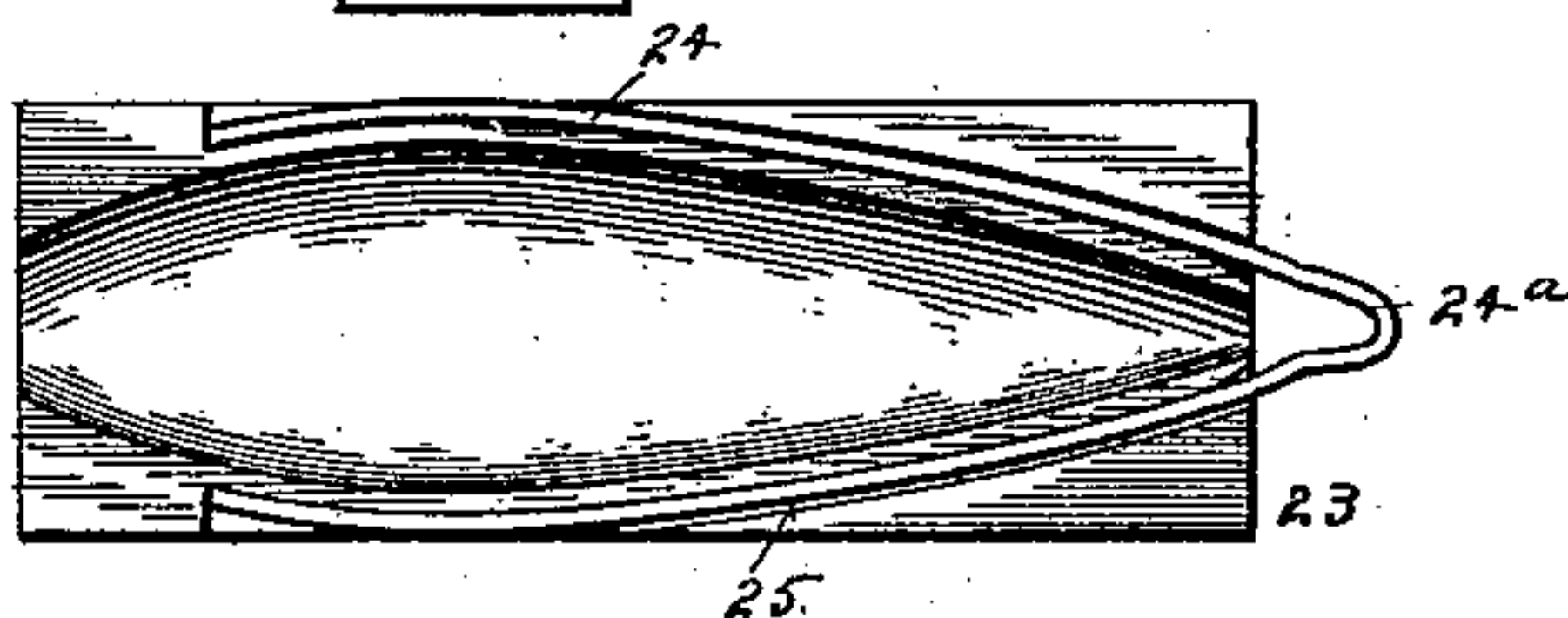


Fig. V.

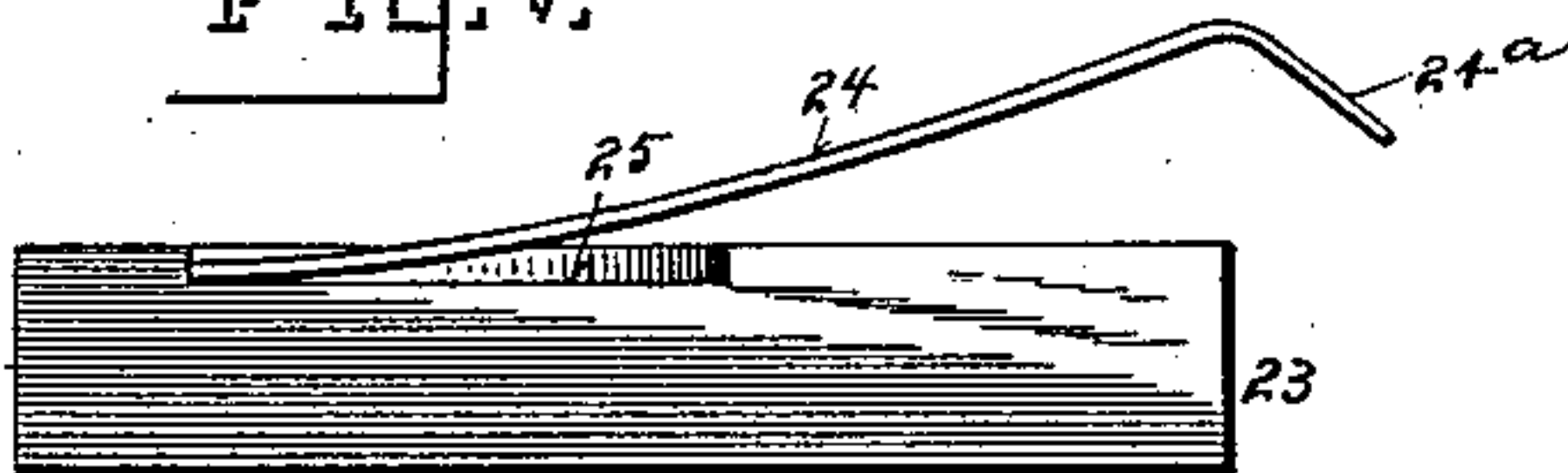


Fig. VI.

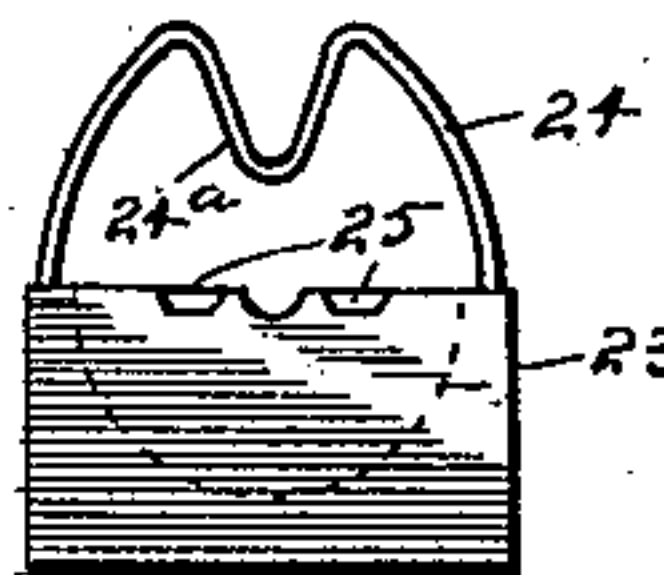
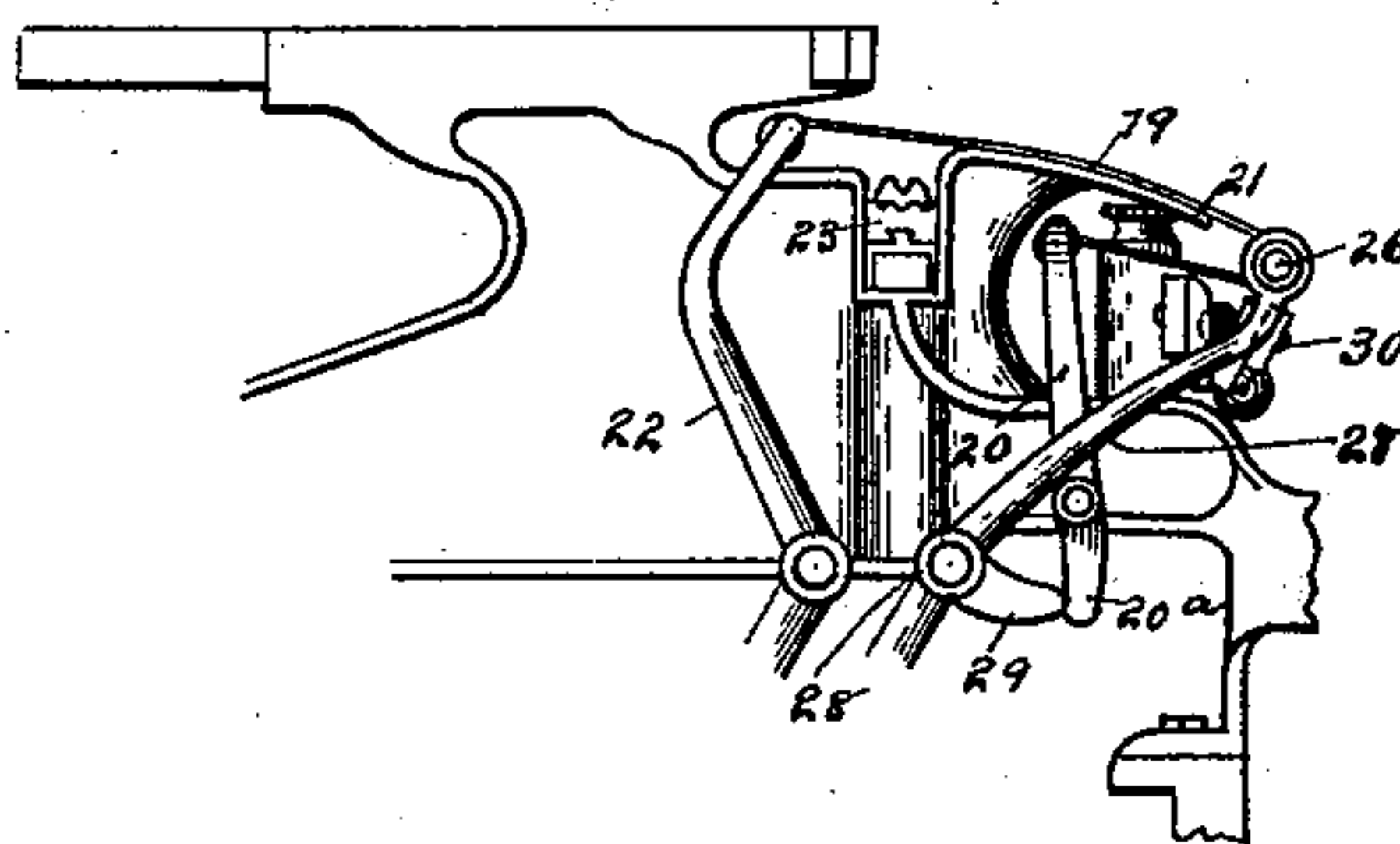


Fig. VII.



Fig. IX.



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(Model.)

3 Sheets—Sheet 3.

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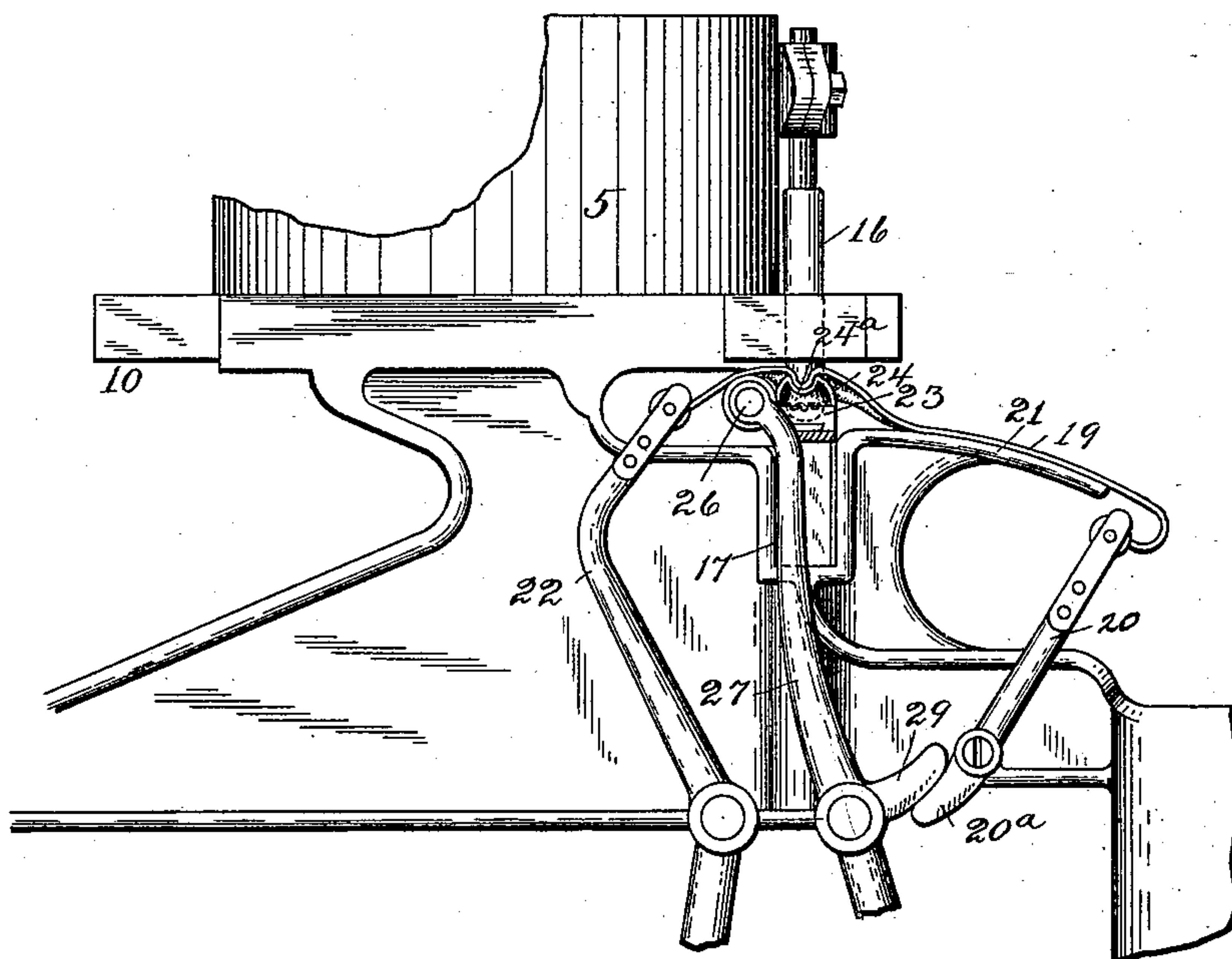


Fig. X.

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UNITED STATES PATENT OFFICE.

FREDRICK C. MILLER, OF NEWPORT, KENTUCKY.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 465,283, dated December 15, 1891.

Application filed November 23, 1889. Serial No. 331,371. (Model.)

To all whom it may concern:

Be it known that I, FREDRICK C. MILLER, a citizen of the United States, residing at Newport, Campbell county, Kentucky, have invented certain new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

My invention relates to improvements on the cigar-bunching machine described and claimed in my patent, No. 416,117, dated November 26, 1889.

My present invention consists in devices hereinafter described and claimed to facilitate and equalize the feeding of the tobacco and the formation of the bunches in the rolling-apron.

My previous patent, No. 416,117, above referred to, contains a detailed description of the machine to which my present improvements are to be applied. Hence it is only necessary to describe the particular improvements herein claimed and the manner of their use in said machine. This will be clearly understood from the following description, taken in connection with the accompanying drawings, in which—

Figure I is a side view of a cigar-bunching machine embodying my improvements. Fig. II is a sectional view showing the tobacco-feeding mechanism and the bunch-rolling mechanism. Fig. III is a top view of the hopper and the auxiliary receptacle. Fig. IV is a plan view of the matrix-block of the follower provided with a spring. Fig. V is a side view thereof. Fig. VI is an end view. Fig. VII is an end view showing the spring applied directly to the follower and without the matrix-block. Fig. VIII is a view of the apron, follower, and tobacco-slide in the position they assume when the plunger comes down. Fig. IX is a detail view showing the bunch-rolling mechanism in position in which the bunch is delivered to the carrying-jaws.

1 represents the driving-shaft on which are fixed a series of cams 2, 3, and 4. Cam 2 has a cam-groove 2^a and another cam-groove 2^b. Cam 3 has a cam-groove 3^a.

4 is the main hopper for receiving the scraps of tobacco. I have found by experience that when a common straight hopper is used over the feeding and measuring devices it is very

difficult to feed a uniform quantity of tobacco for the fillers, the tobacco often banking itself in the hopper and varying in the amount fed; also, the change of the amount of tobacco in the hopper as it is fed out naturally changes the weight over the feeding and measuring devices as fast as it is used, and it packs itself more or less as it is shaken, and hence changes the amount fed by the feeding device into the measuring device for the fillers. Now to avoid these difficulties I have constructed the main hopper 4 with an auxiliary receptacle 5, forming a bay projecting in front of the open bottom of the main hopper and over the filler-feeding mechanism, sufficient space being left beneath the intervening wall of the main hopper 4 to allow the tobacco to flow from the main hopper into the auxiliary receptacle, and the front wall of the latter rising to a sufficient height above the opening beneath the wall of the main hopper to prevent any overflow of tobacco. The tobacco is thus kept at a substantially uniform height in the auxiliary receptacle, from which the filler-feeding mechanism is supplied, so as to equalize the pressure and insure a substantially uniform supply for each filler, regardless of the quantity of tobacco in the main hopper.

The main hopper 4 and its auxiliary receptacle 5 constitute, collectively, the hopper of the machine.

The plate 7, constituting the common bottom of the main hopper 4 and auxiliary receptacle 5, has an oscillating movement on its axis, as described in my patent before referred to, so as to feed the tobacco to the filler-measurer, and in order to facilitate the feed movement the said oscillating plate 7 is inclined downward toward the auxiliary receptacle 5, the discharge-opening 8 in said plate being at its lowest part and within the auxiliary receptacle 5. This oscillating plate 7, with its aperture 8, thus constitutes the feeding device from the hopper, and this and the measuring device or slide which apportions tobacco for the successive fillers constitute, collectively, the filler-feeding mechanism. Registering with the opening 8 in said plate 7, so as to receive a charge of tobacco, is an orifice or opening 9 in the slide 10, constituting the measuring device, that moves to and

fro under the oscillating plate. The slide is reciprocated at the proper time by means of a rocking or oscillating arm 11, the lower end of which is provided with means for engagement in the cam-groove 2^a. Said plate 7 is moved through the medium of a shaft 12, rock-arm 13, link or connecting rod 14, and a wheel 15, having a zigzag groove to receive a projection on said link.

10 16 is the plunger.

17 is the follower under the plunger, that is released by suitable means, so that it may be thrown up out of its housing by the spring 18 to engage the slide 10 on each side of the orifice 9 when the slide has moved out.

15 19 is the apron, and this is secured at its forward end to the oscillating frame or apron-holder 20 under the front end of the table 21, and at its rear end it is secured to the rear apron-holder or oscillating arms 22, that are operated by the cam 3. One of these oscillating arms is shown, there being one on each side of the machine. 22^a is a spiral spring that acts on the arms to draw the apron taut.

25 The apron passes between the plunger and follower.

23 is a matrix-block that is dovetailed onto the top of the follower, and to it or directly to the follower (the matrix-block in this case being dispensed with) is secured a V-shaped wire spring 24, the ends of which are secured near one of the short sides of the matrix-block or follower, as the case may be, and the apex 24^a of which is bent down and projects beyond the other short side of the follower.

30 The free or apex end of the spring is normally raised by reason of the spring being curved gradually upward from its ends toward its apex. As the follower springs up under the apron in the position shown in Fig. VIII the spring 24 is pressed into the grooves 25; but as soon as the plunger which passes inside the spring pushes down the follower as it delivers the filler in the apron, the spring is released from its pressure against the slide 10 and raises the apron with the binder (which was of course placed on the apron before the delivery of the filler thereon) on each side of the plunger, thereby forming a deep pocket held by the spring to retain the filler until the bunch-roller 26, that is carried by oscillating arms 27, operated from cam-groove 3^a of cam 3, has moved forward and practically closed the pocket of the apron. This construction enables the apron to deliver and retain the proper shape of the filler until it is taken care of by the bunch-roller, as above stated, and prevents parts of the filler from dropping off at the point of the filler before the bunch is rolled.

45 The boss 28 of arm 27 is provided with a cam or projection 29. One side of the frame 20 is extended or has an extension 20^a below its pivot. As the bunch is rolled forward over the table it produces a slack of the apron in front of the bunch which this frame 20 takes up, it moving

in by reason of the cam or projection 29 coming in contact with and acting upon the extension 20^a of the frame, thus allowing a perfect rolling of the bunch. A tension on the bunch is kept from the beginning of its rolling to its completion by the apron, which also serves to deliver the bunch more positively into the traveling jaws 30, (see Fig. VIII,) that deliver the bunch to the moving mold 31, being pushed therefrom by the plunger 32. When the plunger 16 delivers the filler in the apron and pushes the apron down to form the pocket, the frame or apron-holder 20 is drawn toward the front end of the table, and the extension 20^a of said frame comes in contact with or approaches the cam or projection 29 of arm 27, and as soon as the bunch-roller begins to roll the bunch the cam operates on frame 20, which takes up the slack of the apron, as stated. At the same time that the plunger 16 deposits the filler on the apron, as shown by the position of the apron in Fig. IX, the arms 22 are moved forward by cam 3 and allow slack to the apron to form a pocket and then stop for a moment by reason of the double cam-surface of the cam; but as soon as the plunger 16 is retracted high enough the arms 22 start to move the apron a second time forward in unison with the movement of the bunch-roller until the pocket is closed on the edge of the table, and as the bunch starts to roll on the table by the continued forward movement of the bunch-roller the arms 22 draw the apron backward under the tension of spring 22^a and keep a tension on the apron while the bunch is being rolled.

Very important results are obtained by the forward movement of the arms 22, which carry the apron to form the pocket, and by the second forward movement until the pocket is closed on the table, as it keeps the tobacco in place in the form deposited before it starts to roll, and it therefore retains the shape desired and prevents parts of the tobacco-filler from spreading on the apron between it and the binder as the bunch is being rolled.

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

1. In a cigar-bunching machine, the combination of a main hopper to feed the tobacco, an auxiliary receptacle in front of the main hopper, an intervening wall extending from above downward between the main hopper and auxiliary receptacle, leaving a communication between them at bottom, and tobacco-feeding mechanism located beneath the auxiliary receptacle, as herein shown and described, so as to be supplied therefrom by gravity and to be unaffected by the vertical pressure of tobacco in the main hopper.

2. In a cigar-bunching machine, a hopper, and an oscillatory plate below it having an opening and inclined upwardly from its opening to assist the feeding of the tobacco toward the opening, substantially as set forth.

3. In a cigar-bunching machine, a hopper

constructed with an auxiliary receptacle fed from the main hopper, and an oscillatory plate below the said hopper extending into the auxiliary receptacle, where it is provided with an opening, such plate being inclined downward toward its opening to assist the feeding of the tobacco toward the opening, substantially as set forth.

4. In a cigar-bunching machine, the combination of the filler-feeding mechanism, an apron, a bunch-roller, a plunger to push the tobacco from said feeding mechanism onto the apron, a follower on which the plunger presses the apron in the act of delivering the tobacco on the apron, and a spring under the apron passing outside of the plunger to raise the apron, substantially as and for the purpose set forth.

5. In a cigar-bunching machine, the combination of a filler-feeding mechanism, an apron, a bunch-roller, a plunger to push the tobacco from said feeding mechanism onto the apron, a follower on which the plunger presses the apron in the act of delivering the tobacco on the apron, and a spring at the top of the follower having spreading ends, said spring when the plunger descends passing outside thereof to raise the apron, substantially as and for the purpose set forth.

6. In a cigar-bunching machine, the combination of filler-feeding mechanism, an apron, a bunch-roller, a plunger to push the tobacco from said feeding mechanism onto the apron, a follower on which the plunger presses the apron in the act of delivering the tobacco on the apron, and a V-shaped spring at the top of the follower inclined upwardly from its ends to its apex, said spring when the plunger descends passing outside thereof to raise the

apron, substantially as and for the purpose set forth.

7. The combination of the table 21, the reciprocating bunch-roller 26, the apron 19, the oscillating arms 22, to which the rear end of the apron is connected, and the cam 3, giving a positive intermittent movement to said arms, moving forward to afford slack to form the bunch-pocket in the apron, stopping while the bunch is pressed in the pocket, and again moving forward to permit the rolling of the bunch over the table, as explained.

8. The combination of the table 21, the reciprocating bunch-roller 26, the apron 19, the oscillating rear apron-holder 22, moving forward to afford slack to form the bunch-pocket in the apron and after the bunch is pressed in the pocket again moving forward to permit the rolling of the bunch, and the front apron-holder 20, having a reciprocating movement beneath the front end of the table to take up the slack of the apron in front of the bunching-roller during the forward movement of the latter, as explained.

9. The combination of the table 20, the reciprocating bunch-roller 26, the apron 19, the arms 22, to which the rear end of the apron is connected, the cam 3, imparting an intermittent and positive forward movement to the arms 22, the spring 22^a, retracting the arms 22 to keep the apron taut, the arms 20, to which the front end of the apron is connected, and means for imparting a reciprocating movement to the arms 22, substantially as and for the purposes set forth.

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