

(No Model.)

3 Sheets—Sheet 1.

F. & E. H. THOMPSON.
CIGAR BUNCHING MACHINE.

No. 459,167.

Patented Sept. 8, 1891.

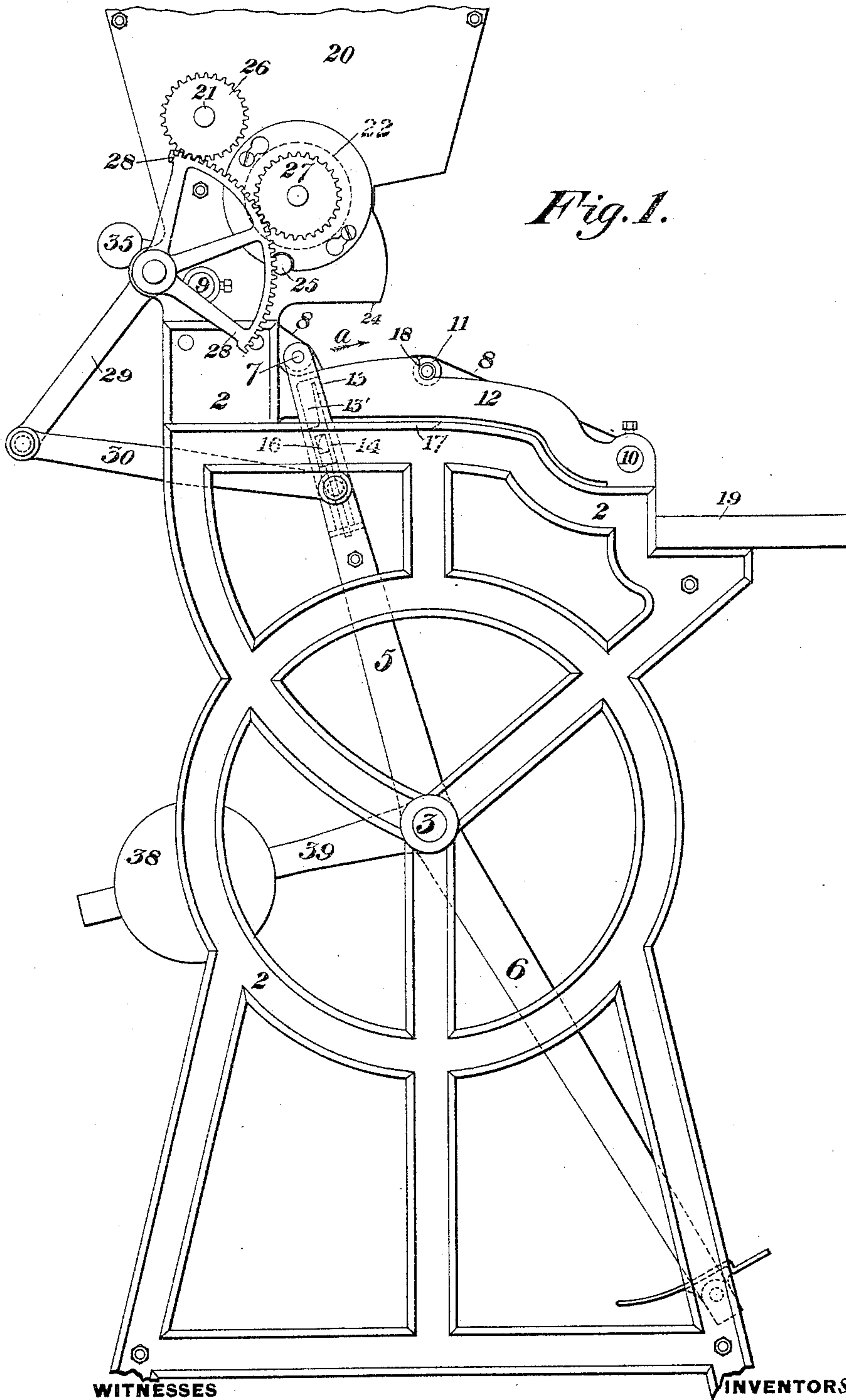


Fig. 1.

WITNESSES

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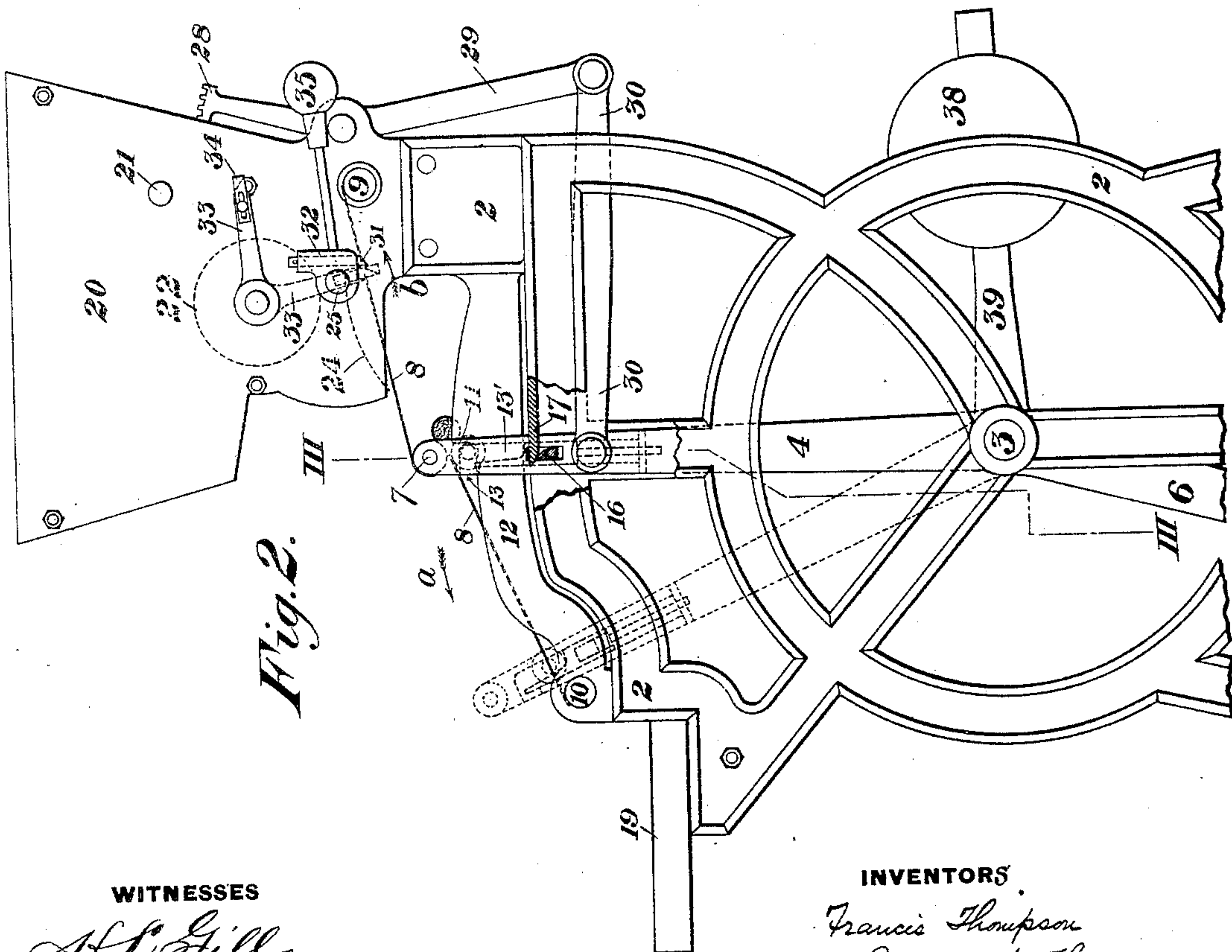
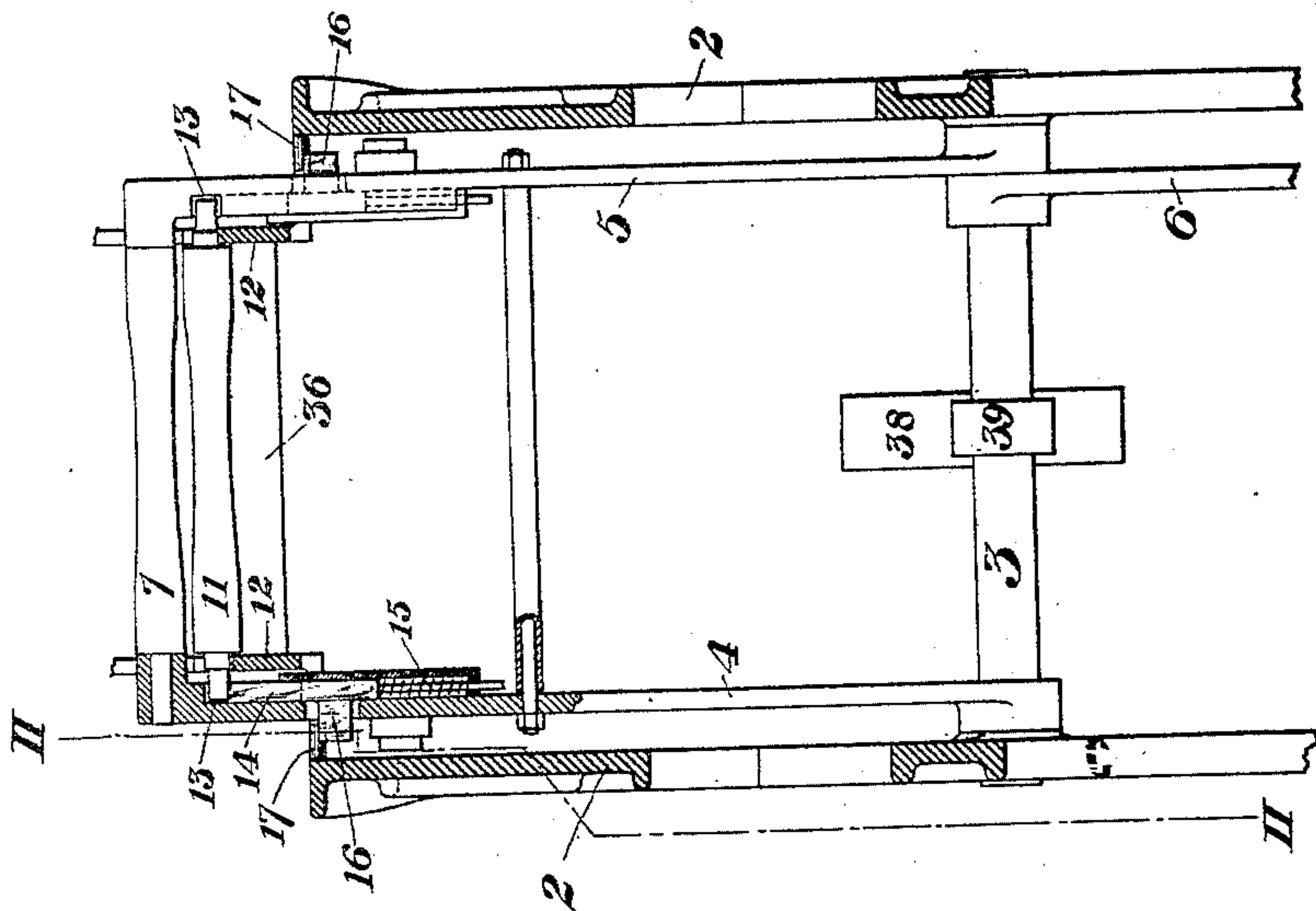
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UNITED STATES PATENT OFFICE.

FRANCIS THOMPSON AND EDWARD H. THOMPSON, OF ALLEGHENY, PENNSYLVANIA.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 459,167, dated September 8, 1891.

Application filed June 23, 1890. Serial No. 356,414. (No model.)

To all whom it may concern:

Be it known that we, FRANCIS THOMPSON and EDWARD H. THOMPSON, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Cigar-Bunching Machines, of which the following is a full, clear, and exact description.

The machine described and claimed in the present application is an improvement on the cigar-bunching machine for which we obtained a patent, No. 438,903, dated October 21, 1890.

In that machine the bunches are formed by two traveling rollers arranged to move in different planes one above the other and arranged beneath and in combination with a slack apron having fixed ends, for which a broad claim is made. The mechanism described for operating the rollers consists of two pairs of rigidly-movable levers moving in different arcs, and while that machine is remarkably efficient for use in bunching cigars we have devised several important improvements thereon, which form the basis of this application.

We shall now describe our invention, so that others skilled in the art may use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an elevation of one side of my improved machine. Fig. 2 is an elevation of the other side, being partly in section on the line II II of Fig. 3. Fig. 3 is a vertical section on the line III III of Fig. 2, showing the roller-carrying levers on both sides of the machine. Fig. 4 is a vertical longitudinal section of the machine on the line IV IV of Fig. 5, showing the parts in the same position as shown in Fig. 1. Fig. 5 is a horizontal section on the line V V of Fig. 4.

Like symbols of reference indicate like parts in each figure.

In the drawings, 2 represents the frame of the machine. 3 is a rock-shaft journaled therein. 4 5 are carrier-levers extending therefrom, one at each side of the machine, said levers being movable on the arc of a circle from the position shown in Fig. 1 to the extreme position shown by dotted lines in Fig. 2.

6 is a foot-lever by which the shaft may be rocked to swing the levers in the manner just indicated.

7 is a bunching-roller journaled at the ends of the levers which serve as carriers to the roller.

8 is a bunching-apron fixed at its ends to rollers 9 and 10, which are adjustable to tighten or slacken the belt. 11 is a second bunching-roller, which, instead of being journaled in radially-movable arms, as shown in the prior patent above mentioned, is set loosely on guide-rails 12, forming parts of the machine-frame. The belt extends over the two rollers 7 and 11.

On the front edges of the levers 4 and 5 are notches 13, which are adapted to receive the journals at the ends of the roller 11 when the levers are brought into engagement therewith. Each of the levers is provided with a spring-latch or dog 14, backed by a spring 15, which tends to raise the dog or latch so as to close said notch. The latch has a lug 16, which projects laterally through a slot in its lever, and is adapted to engage a cam-strip or plate 17 on the machine-frame when the lever is moved on the arc of a circle. Suppose now that the parts are in the position shown in Fig. 4, the levers 4 and 5 being retracted and the roller 11 resting against shoulders 18 on the guide-rails 12. The operator now depresses the apron so as to form a pocket between the rollers 7 and 11. The binder is placed in the pocket and the filler in proper quantity is placed on the binder. The operator now moves the foot-lever so as to swing the levers 4 and 5 in the direction of the arrow *a*. The effect of this is to cause the roller 7 to form the apron into a loop, and as the levers progress toward the roller 11 the engagement of the lugs 16 with the cam-strip 17 moves down the latches 14, so as to open the notches 13, and when the levers come to the position of the roller 11 the journals of the roller enter and are inclosed within the notches. The parts are then in the position shown by full lines in Fig. 2. Immediately after this the lugs 16 pass beyond the cam-strips and the latches spring up, so as to close the notches 13 and to lock the journals of the roller therein. As the levers 4 and 5 con-

tinue their motion, the action of the rollers on the loop of the apron in their rear is such as to wrap the binder around the filler and to form the cigar-bunch in the manner described in the patent before referred to. The guide-rails 12, on which the journals of the roller 11 have a bearing, support this roller until the levers arrive near the extreme limit of their course. At this place the guide-rails are curved downwardly, and when the roller 11 arrives thereat its journals drop down in slots 13', which are formed in the levers as continuation of the notches 13. This is shown by dotted lines in Fig. 2. When the rollers are thus separated, the bunch in its completed state is discharged upon a usual receiving-shelf 19. The foot-lever 6 is then moved back and swings the levers 4 and 5 toward their original position, carrying back roller 11 to its first position.

In the drawings we show a weight 38, mounted on a lever 39, which is secured to the shaft 3 for the purpose of retracting or assisting in retracting the foot-lever and bringing the parts back to their normal position. Instead of the weight 38, suitable springs may be used. In the back motion of the levers 4 and 5 the roller 11 is raised by the guide-rails 12 to the level of the notches 13, and when the lugs 16 engage the ends of the cam-strips 17 the latches are moved down so as to open the notches 13, the roller 11 is retained by the shoulders 18 on the guide-rails, and the levers move on, carrying the roller 7 into the original position shown in Fig. 1. For the purpose of thus operating the latches 14 the lugs 16 and the ends of the cam-strips 17 are beveled, as shown in Fig. 2.

The advantages of the machine as above described will be appreciated by those skilled in the art. The construction is very simple, an excellent bunch is made, and the machine is easy to operate and is not apt to get out of order. The last-named feature of advantage is important, because of the fact that cigar-machines are usually operated by girls quite unfamiliar with mechanical construction. As the bunch is formed by action of the rollers and not by a traveling roller and table, the tobacco cannot protrude beyond the limits of the apron, and the machine is therefore very efficient in producing cigars of uniform length.

We shall now describe the mechanism by which the tobacco-filler is discharged upon the bunching-apron.

20 is the usual feed-hopper; 21, a shaft of the feed-cylinder journaled therein; 22, a cylinder journaled at the delivery end of the hopper and provided with a pocket 23, which, when the cylinder is in the position shown in Fig. 4, is adapted to receive a measured quantity of tobacco, and which discharges the same when the cylinder is rotated about one hundred and eighty degrees of arc. I prefer that the size of this pocket should be adjustable in the manner described and claimed

in Patent No. 349,069, issued to us on September 14, 1886, and have so shown it in the drawings.

24 is a door pivoted at 25 below the cylinder 22 and adapted to receive on its upper surface the tobacco discharged by the latter, and adapted, also, when it is swung into the position shown by dotted lines in Fig. 4 to discharge the tobacco upon the apron below it.

26 is a gear-wheel on the agitator-shaft; 27, a gear-wheel on the shaft of the cylinder 22, and 28 is a segmental pinion in gear with both gear-wheels 26 and 27.

29 is a crank-lever fixed to the shaft of the pinion 28, and 30 is a pitman connecting it with the levers 4 and 5, so that when the latter levers are moved the lever 29 is rocked and an oscillatory rotation imparted to the gearing 28, 26, and 27 and to the agitator-shaft and feed-cylinder.

In order to operate the door 24 automatically, we provide its shaft 25 with a trigger 31, which is movably set in an upright position in a small case 32, so that its gravity shall tend normally to project it. A spring may, however, be employed to perform this work of projecting the trigger.

33 is a lever projecting radially from the agitator-shaft and provided with a laterally-projecting stud 34, adapted in the motion of the lever to engage the trigger. This stud is preferably made to be longitudinally adjustable on the lever for the purpose hereinafter explained.

In Fig. 2 we show by dotted lines the lever 33 in the position which it occupies when the levers 4 and 5 are in the retracted position shown in Fig. 1. The operator then forms the apron into a pocket in advance of the roller 7 and places the binder in position, and as the roller begins to move forward the lever 33 moves in the direction of the arrow *b*, and by reason of the engagement of the stud 34 with the trigger 31 the door-shaft is rotated and the door is opened so as to discharge upon the apron the tobacco previously discharged from the hopper-cylinder. As the end of the trigger 31 and the stud 34 move in different arcs their divergence soon disengages them from each other, and thereupon the door is automatically closed by a weight 35, suitably connected therewith. On the back motion of the levers 4 and 5 the lever 33 moves in the reverse direction to that above described, and when the stud 34 engages the trigger 31, the trigger is moved up to permit the passage of the lever and stud into the position shown by dotted lines in Fig. 2. This manner of operating the tobacco-feeding mechanism we find to be of very great convenience and utility. By adjusting the stud 34 longitudinally on the lever the extent of the opening of the door and the length of time during which it is held open may be regulated.

It remains to describe certain features of construction of the machine relating to the

forming of the pocket in the apron to receive the tobacco-filler. The apron is depressed between two transverse plates or wings 36, having adjustably secured end plates 37, which may be adjusted to conform in position to the width of the apron employed. I may also provide the door 24 with side plates 40, (shown in Fig. 4,) which are laterally adjustable in order to limit the length of the stream of tobacco discharged from the hopper to conform to the width of the apron.

It will be understood by those skilled in the art that many changes in the form, construction, and relative arrangement of the parts of the machine may be devised without departing from the principles of our invention, as stated in the following claims. For example, instead of using levers for carrying the roller, devices of other form and construction may be used to serve as a carrier. The rollers 7 and 11 may be of any suitable shape, either cylindrical or curved, to conform to the shape of the bunch.

We claim—

1. In a cigar-bunching machine, the combination, with the bunching-apron, of two bunching-rollers arranged below said apron, a single vibrating roller-carrier in which one of said rollers is permanently-journaled and the other detachably journaled, and means for detaching the removably-journaled roller on the reverse motion of the vibrating carrier, substantially as and for the purposes specified.

2. In a cigar-bunching machine, the combination, with the bunching-apron, of two bunching-rollers arranged below said apron,

a single vibrating carrier therefor in which one of said rollers is fixedly journaled and the other loosely carried so as to have a movement to and from the fixed roller, and a guide for the loose roller, substantially as and for the purposes specified.

3. In a cigar-bunching machine, the combination, with a bunching-apron, of two bunching-rollers arranged below said apron, a single vibrating roller-carrier in which one of said rollers is fixedly journaled and the other of said rollers is loosely and detachably journaled so as to be capable of moving to and from the fixed roller, a guide for the loosely-journaled roller, and means for detaching said loose and detachable roller from the carrier on the reverse vibration of said carrier, substantially as and for the purposes specified.

4. In a cigar-bunching machine, the combination of two traveling bunching-rollers arranged to move in different planes and situate below the apron, an apron, a carrier for one of the rollers and a guide for supporting the other, recesses in the carrier adapted to receive the guided roller, latches on the carrier for holding the guided roller in the recesses, and means for operating the latches so as to cause them to hold the guided roller in the carrier, substantially as and for the purposes described.

In testimony whereof we have hereunto set our hands this 13th day of June, A. D. 1890.

FRANCIS THOMPSON.

EDWARD H. THOMPSON.

Witnesses:

W. B. CORWIN,

H. M. CORWIN.