(No Model.) 2 Sheets—Sheet 1.

F. & E. H. THOMPSON.

CIGAR BUNCHING MACHINE.

No. 349,069. Patented Sept. 14, 1886.

Fig. 2.

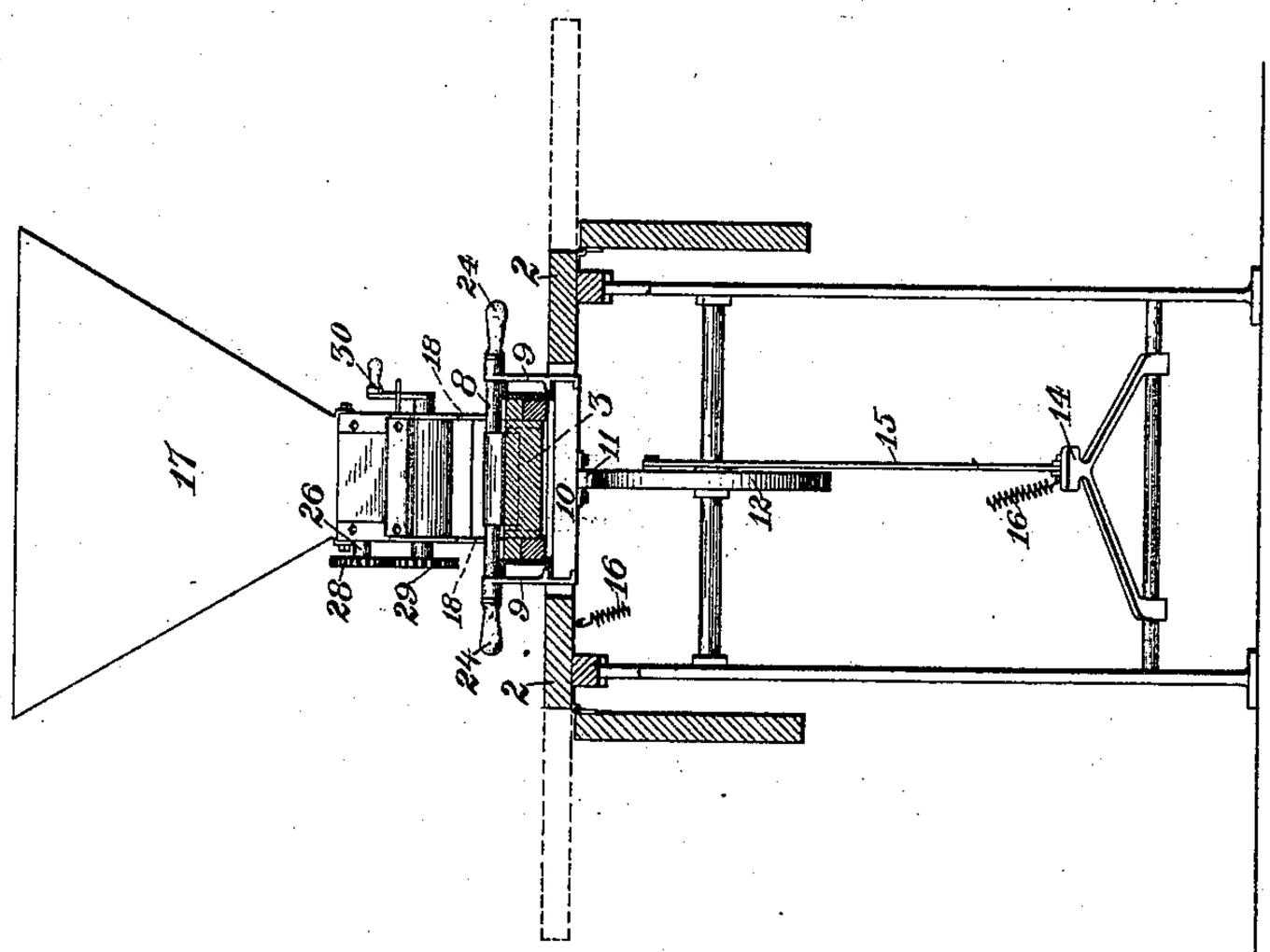
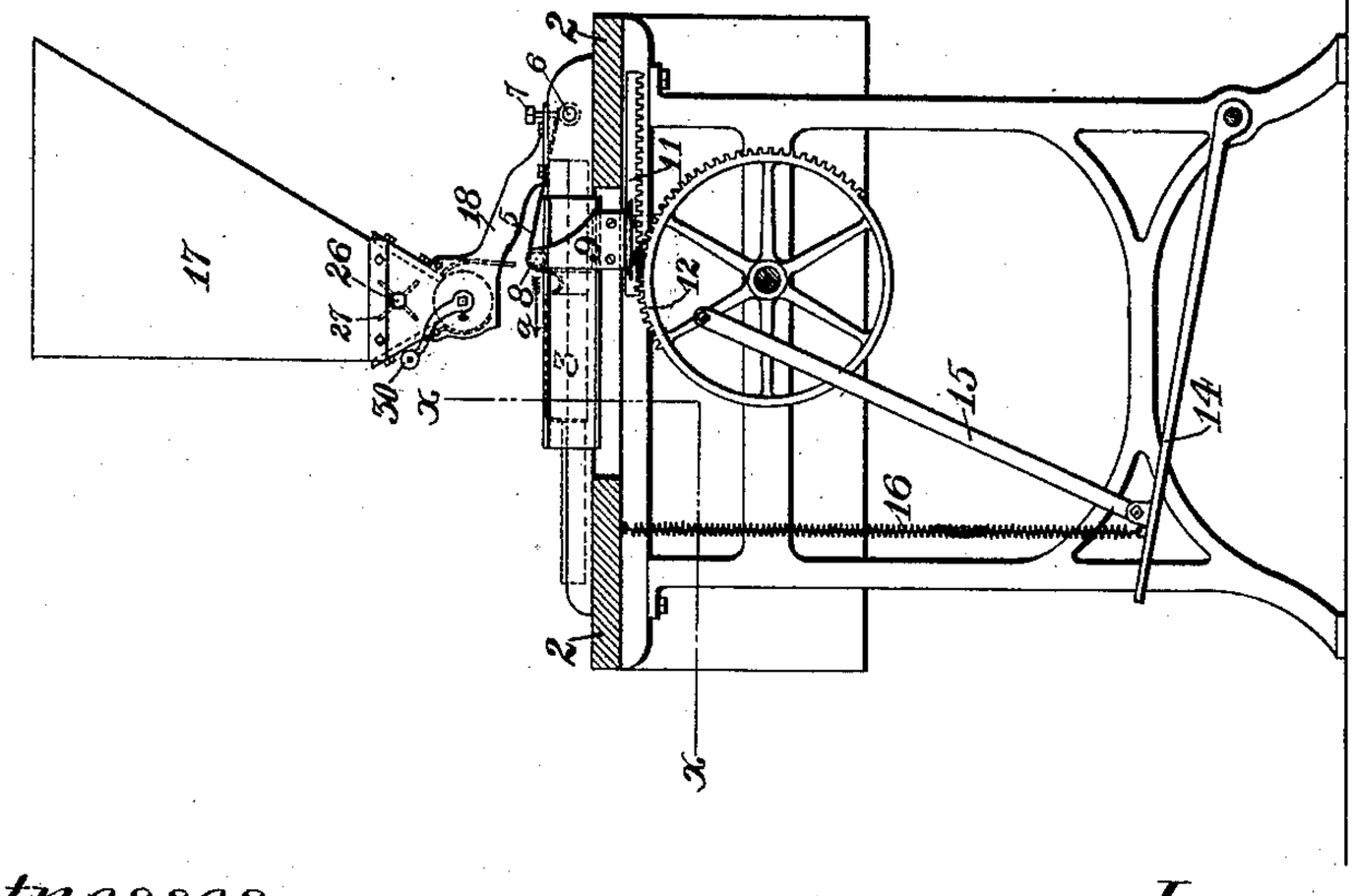


Fig. 1.



Witnesses.
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J. A. Burns.

Inventors.
Francis Thompson
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their Attorneys

(No Model.)

2 Sheets—Sheet 2.

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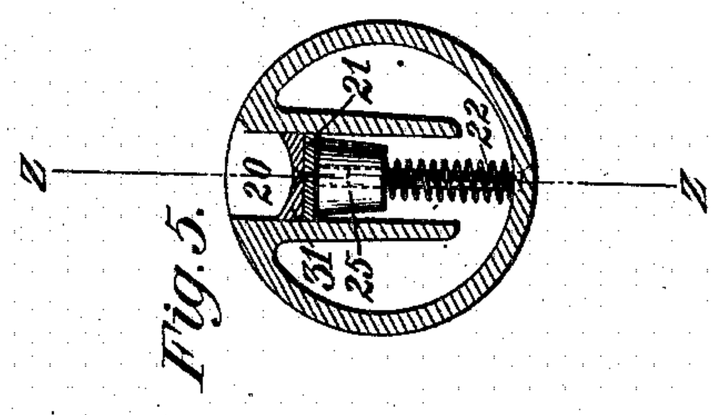

Fig. 5.

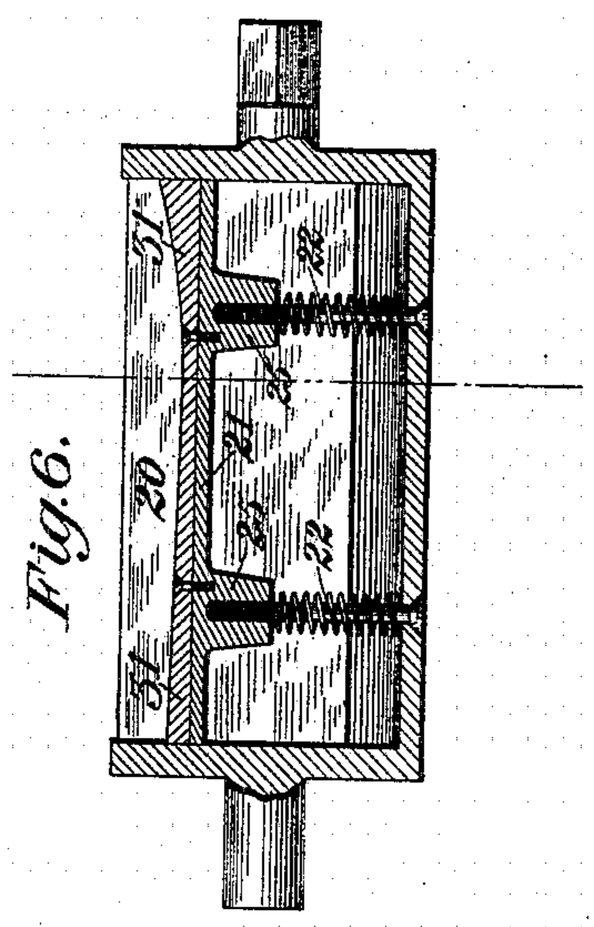

Fig. 6.

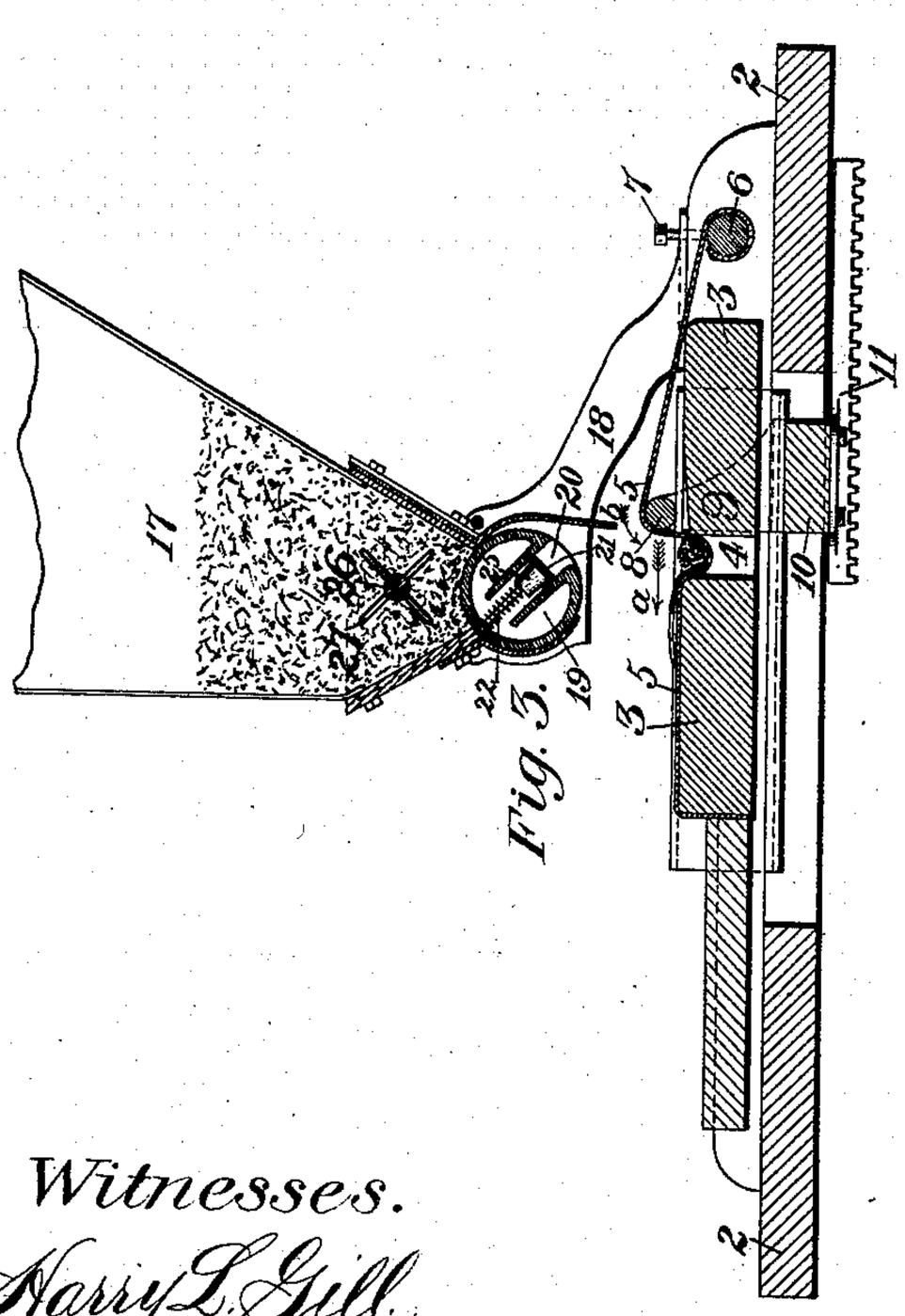

Fig. 3.

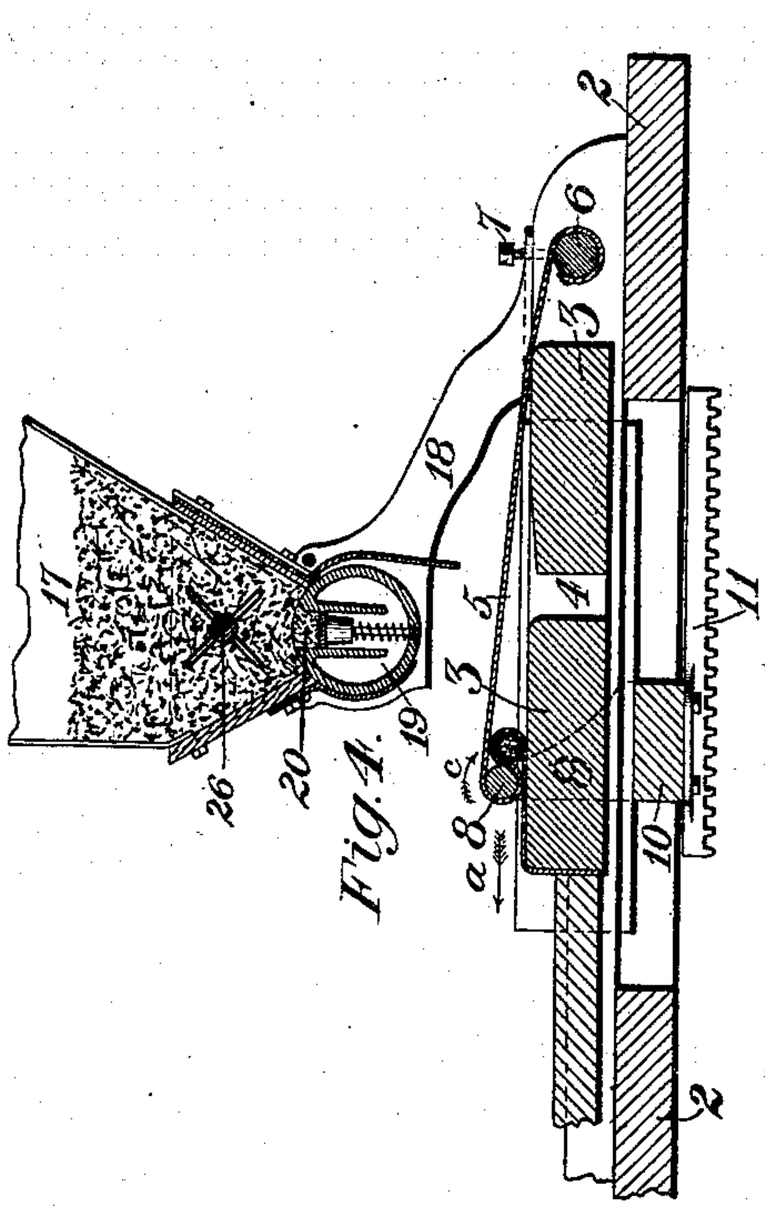

Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANCIS THOMPSON AND EDWARD H. THOMPSON, OF ALLEGHENY CITY, PA.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 349,069, dated September 14, 1886.

Application filed November 11, 1885. Serial No. 182,416. (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; and we do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation of our improved machine. Fig. 2 is a front view thereof, shown partly in section on the line *x x* of Fig. 1. Fig. 3 is a vertical longitudinal section of the machine. Fig. 4 is a similar section thereof, illustrating the process of the formation of the cigar. Fig. 5 is a vertical cross-section of the hopper feed-cylinder, showing a modification. Fig. 6 is a longitudinal axial section thereof on the line *z z* of Fig. 5.

Like signs of reference indicate like parts in each figure.

The use for which our improved machine is primarily designed is for the manufacture of cigars composed of a filling of tobacco-scraps inclosed in a binder of leaf-tobacco.

The operation of measuring the quantity of tobacco necessary for a cigar and giving form to it on the binder, and then wrapping it within the binder, is known as "bunching." It requires long experience and good judgment to make the bunch of a cigar by hand of uniform size and smooth outline, and to have the filling of uniform compactness. If too much filling be put in any part of the cigar, it will pack tightly and prevent an easy draft of smoke.

The object of our invention is to provide, in a bunching-machine, improved means for accurately gaging the amount of filling needed in the cigar, and for rolling the bunch better, more simply, and more rapidly than has been possible on prior machines.

Referring now to the drawings, 3 represents the bed or table of the machine on which the bunch is made. It is on the top of a stand, 2, and has a transverse groove or recess, 4, midway of its length. A slack belt or apron, 5, is arranged on the bed 3, being fastened at the rear and front ends thereof. The rear end of the belt is attached to a roller, 6, by means of which the belt can be drawn as tightly or made as slack as may be desired. A set-screw, 7, serves to hold the roller when it has been properly adjusted. A roller, 8, is journaled transversely to the bed 3, and but a little above its surface, and the belt 5 passes over the roller. The journal-bearings 9 of the latter are uprights, forming part of a frame which is mounted on the sides of the stand 2 in such manner as to be movable back and forth thereon lengthwise of the bed 3. The remaining parts of this frame are a connecting bar or brace, 10, which extends underneath the surface of the stand 2 and connects the uprights 9, and a rack, 11, which is affixed to the brace 10 and extends lengthwise of the bed 3, with its teeth downward. A segmental pinion, 12, journaled to the stand 2, meshes with the rack 11, and is connected with a foot-treadle, 14, by a connecting-rod, 15. By depressing the treadle the pinion is turned, and by its action on the rack 11 the frame in which the roller 8 is journaled will be moved forward in the direction of the arrow *a* in the several figures, and will carry the roller over the surface of the bed. The treadle 14 has a withdrawing-spring, 16, which, on removing the pressure of the foot, will raise the treadle, and will retract the roller 8 to the rear of the bed 3. The roller is journaled loosely in its bearings, so as to be easily rotary therein.

The tobacco filling is supplied to the machine from a hopper, 17, which is supported over the bed 3 by means of arms 18. The discharge end of the hopper, which is directly over the transverse recess 4, is closed by a cylinder or roller, 19, journaled in suitable bearings, and having on its surface one or more longitudinal grooves, 20. If the hopper be filled with tobacco scraps, and the roller be turned so as to bring its groove uppermost, the tobacco will fall thereinto, and on the roller being turned back the contents of the groove will be discharged upon the belt 5. (See Fig. 3.) The roller 19 preferably consists of a hollow cylinder with two re-entrant parallel wings or plates, which form the groove 20. (See Figs. 5 and 6.) The bottom of the latter is a plate, 21, which is fitted therein, and is held in position at the desired distance from the

surface of the cylinder by screws 22, which pass through the opposite side of the cylinder and enter screw-sockets 25 on the under side of the plate. Coiled springs encircle the screws, and, bearing at one end against the inside of the cylinder and at the other end against the screw-sockets 25, hold the plate 21 in position. By turning the screws 22 this plate may be adjusted to any suitable distance from the upper end of the groove 20, and the springs will hold it wherever it is set. By thus adjusting the depth of the groove 20 the amount of tobacco discharged at each revolution of the roller may be regulated according to the required size of the cigar. The surface of the plate 21 may either be flat, in which case a uniform amount of tobacco will be dropped from each part of the groove, or the plate may be concave or otherwise irregular in shape, when correspondingly-varying amounts of tobacco will be dropped from different parts of the groove upon the binder, and the cigar will be bunched in the desired oval or tapering form, or made capable of being molded into this shape.

This is the operation of the machine: The roller 8 is brought to the rear part of the bed 3, back of the recess 4, the slack of the belt 5 is pushed down into the recess, as shown in Figs. 1 and 3, and a binder of leaf-tobacco is put on the belt and pressed down into the recess 4 above it. The hopper-cylinder, which hitherto has been in the position shown in Fig. 4, is then turned into the position shown in Fig. 3, and discharges its contents of scrap onto the belt in the recess 4. The foot-treadle 14 is then depressed, and this turns the pinion 12, which, meshing with the rack 11, moves the roller forward in the direction of the arrow *a*. In passing over the recess 4 the roller 8 folds the binder and the slack of the belt over the bunch of scrap, and until it passes the recess it revolves backward in the direction of the arrow *b*. When, however, the roller has passed the recess, the bunch will be behind it, as shown in Fig. 4, and in its passage to the front end of the bed 3 the rotation of the roller will be reversed, and it will continue to revolve forward in the direction of the arrow *c* until the roller reaches the end of its bed, and will wrap the binder neatly around the filler. The completed bunch is discharged when the roller reaches the front end of the bed 3. The reversal of rotation of the bunching-roller is caused by the drawing action of the belt thereon, and is of great importance, because it tightens the binder on the bunch and produces a better article than has been possible with the rigid forming-rollers heretofore in use. On releasing the foot from the treadle 14 the spring 16 will raise it, and will retract the forming-roller 8 to the rear of the bed 3 in readiness for forming another bunch.

Instead of the treadle, rack, and pinion for moving the roller 8, there may be handles 24 affixed to the frame of the roller, by which the operator may move the latter back and forth by his hands. In practice we have found the treadle the more convenient device, because it leaves the hands of the workman free to arrange the binder.

In the operation of the hopper 17 it is desirable to have some means for preventing the clogging of the scrap-tobacco in it and for forcing it down into the groove in the roller 19. We do this by the following mechanism: A rotary shaft, 26, is journaled in the hopper, near the base thereof, and has spurs or radial arms 27, which project from its surface within the hopper. The end of this shaft which projects to the outside of the hopper is provided with a gear-wheel, 28, which meshes with a pinion, 29, similarly keyed to the projecting end of the hopper-roller 19. The shaft of the roller 19 has a hand-crank, 30, by which it may be rotated back and forth to bring the groove in the roller alternately within the hopper and out of it, to receive and discharge the filler-scrap. During this rotation of the hopper-roller the gearing connection with the shaft 26 will likewise rotate it, and by the action of its projecting spurs the contents of the hopper will be continually loosened and caused to settle down upon the roller 19, thus securing the uniformity of the contents of each manufactured bunch.

Instead of having only one groove in the hopper-roller 19, and giving a reciprocating rotation to the roller, it may have two or more grooves and be adapted to have a rotation in a single direction, which will bring each of the grooves in succession within the hopper, and discharge the contents of the other upon the belt.

In Figs. 5 and 6 we have illustrated a device for varying the amount of filling in different parts of the bunch, and for thus giving a form to the cigar during the bunching process.

In the use of the hopper-roller before described, in which the plate 21 is straight, a constant quantity of tobacco is deposited on the belt, and a straight cigar will be produced, which is subsequently molded into shape.

To make a tapering cigar, we bolt an auxiliary plate, 31, on the face of the plate 21, as shown in Fig. 6. The surface of the plate 31 is curved, being highest at the end opposite the mouth end of the bunch and lowest at the middle. Then of the tobacco deposited by the roller upon the binder a larger quantity will be at the middle than at either end, and the least at the mouth end of the bunch, so that the proper oval form will be given to the finished cigar. The result is, that the finished cigar will be much more symmetrical and attractive in appearance than if it be simply molded into shape; and if it be afterward molded, the molding process will be much easier, and will not so compress the filler as to choke the cigar and make it hard to draw. This feature of our invention is therefore of great value. This auxiliary plate is shown detachable from the plate 21, to enable it to be conveniently

adjusted and removed. It may, however, be made integral with the lower plate, if desired.

We are aware that it is not new to employ a revoluble cylinder journaled at the base of the hopper of a cigar-machine, and having a longitudinal groove for receiving tobacco from the hopper and discharging it on the forming-belt; nor is it new to provide such a groove with an adjustable plate for regulating the amount of tobacco discharged therefrom, and we do not therefore make claim, broadly, to these constructions, but only to the improvements thereon indicated in the following claims.

We have shown the hopper-roller made of a hollow cylinder of metal with re-entrant plates, which constitute the sides of the pocket 20, but do not limit ourselves to this specific construction, for the roller may be a solid cylinder suitably grooved, if preferred.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a machine for bunching cigars, a feed-pocket which is arranged to receive and discharge the tobacco filler, and which is irregularly shaped to apportion the amount of tobacco received by and discharged from the different parts of the pocket, according to the shape of the desired bunch, substantially as and for the purposes described.

2. In combination with a rotary cylinder, 19, having a longitudinal groove, 20, a plate, 21, forming the base of the groove, and a set-screw traversing the cylinder and engaging the under side of the plate for the purpose of adjusting it vertically, and thereby increasing or diminishing the depth of the groove, substantially as and for the purposes described.

3. In a cigar-machine for forming bunches for irregularly-shaped cigars, the combination of a hopper and a rotating drum having a filler-measuring recess therein of an irregular shape or contour corresponding to that of the bunch to be formed, substantially as and for the purposes described.

4. In a cigar-machine, the combination of a hopper, a rotary cylinder having a groove or pocket for receiving and discharging the filler from the hopper, and a removable plate in said groove or pocket, the surface of said plate being of irregular shape, corresponding to the amounts of filler to be received in and discharged from the parts of the groove or pocket, substantially as and for the purposes set forth.

In testimony whereof we have hereunto set our hands this 4th day of November, A. D. 1885.

FRANCIS THOMPSON.
EDWARD H. THOMPSON.

Witnesses:
W. B. CORWIN,
THOMAS W. BAKEWELL.