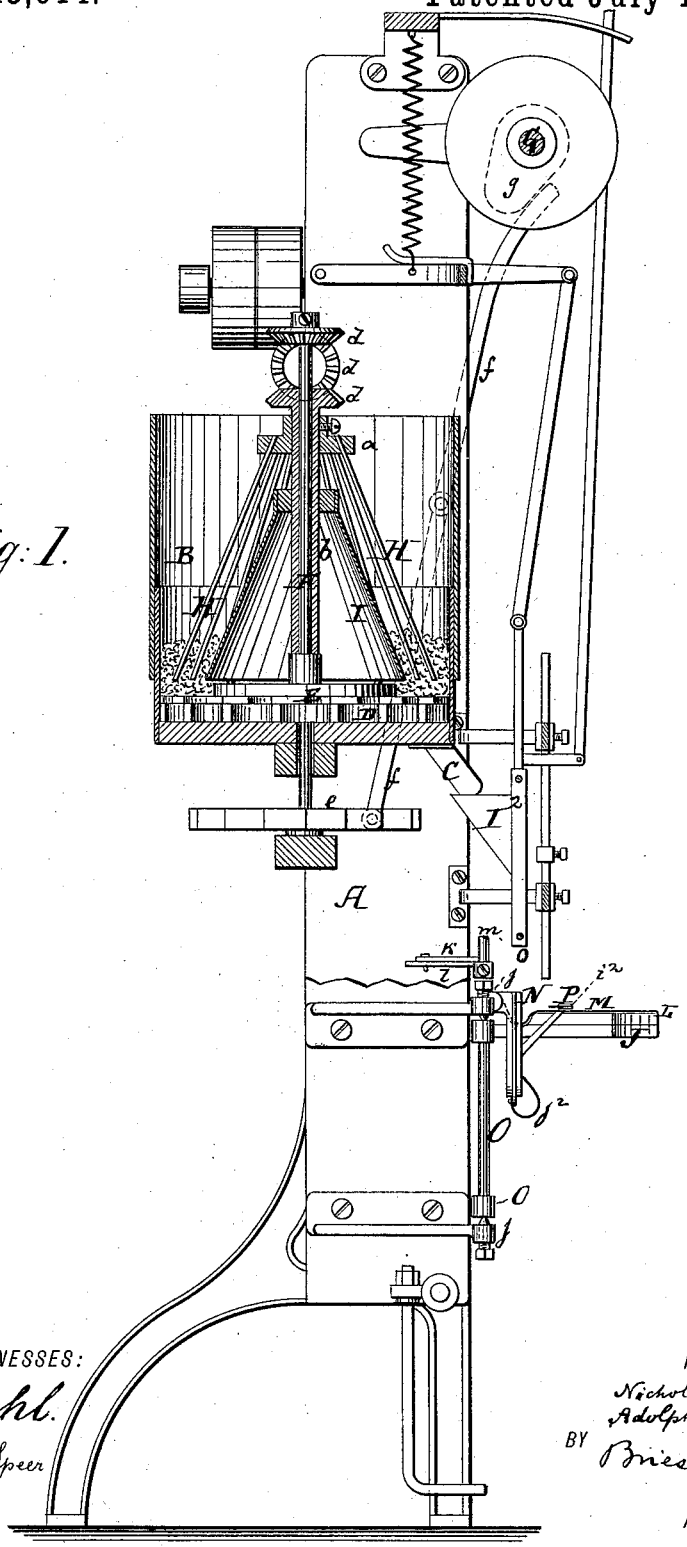
(No Model.) 3 Sheets—Sheet 1.

N. H. BORGFELDT & A. C. SCHUTZ.

CIGAR BUNCHING MACHINE.

No. 345,614. Patented July 13, 1886.

Fig. 1.



WITNESSES:

A. Schehl.

John M. Speer

INVENTORS:

Nicholas H. Borgfeldt

Adolph C. Schutz

BY Briesen & Steele

ATTORNEYS.

(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

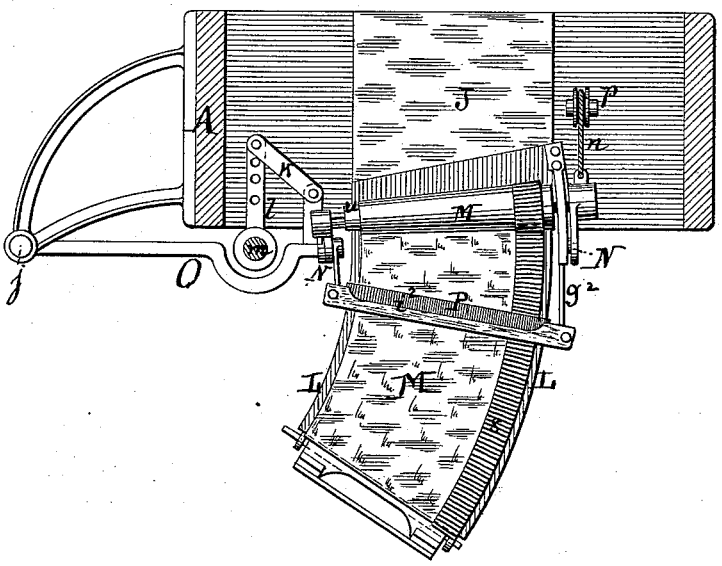
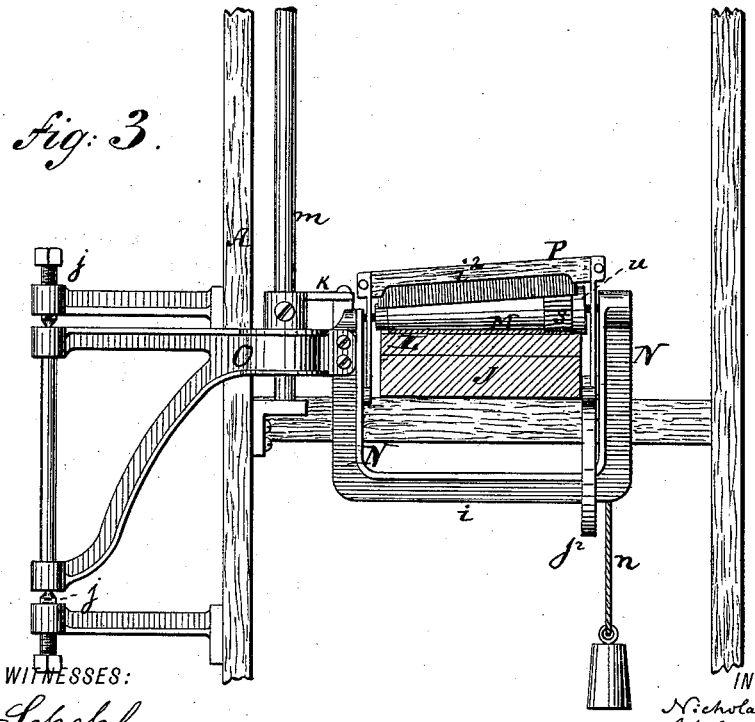


Fig. 3.



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John M. Speer.

INVENTORS:

Nicholas H. Borgfeldt

Adolph C. Schutz

BY Briesen & Steele

ATTORNEY

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Fig. 4.

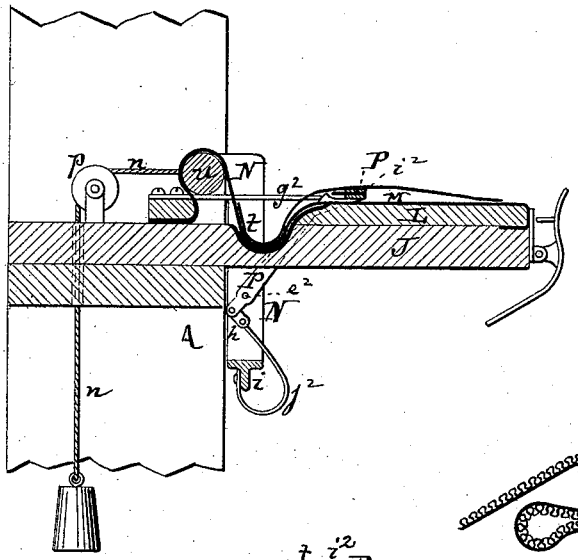


Fig. 5ª.

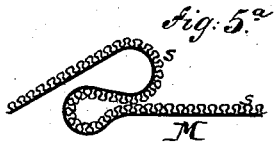


Fig. 5.

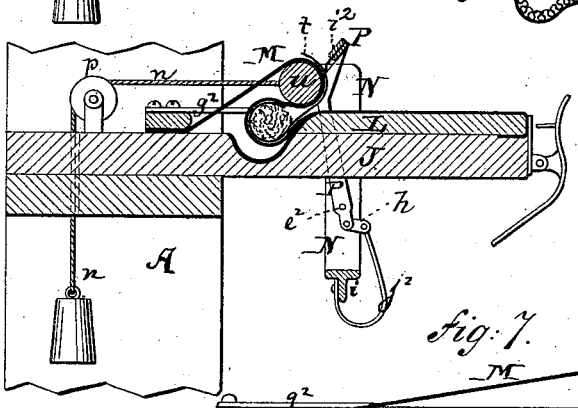


Fig. 7.

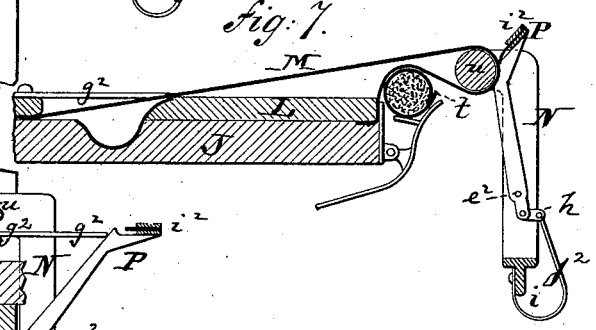
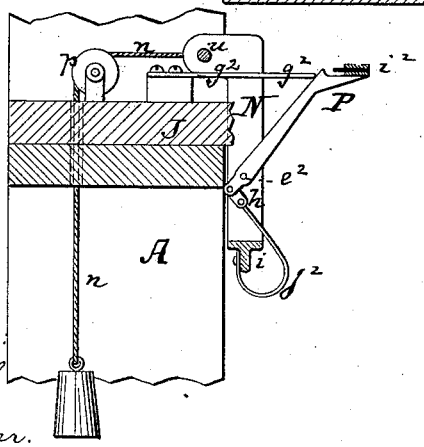


Fig. 6.



WITNESSES:
A. Schehl.
John M. Speer.

INVENTORS:
Nicholas H. Borgfeldt
Adolph C. Schutz
BY Briesen & Steele
ATTORNEYS.

UNITED STATES PATENT OFFICE.

NICHOLAS H. BORGFELDT AND ADOLPH C. SCHUTZ, OF NEW YORK, N. Y.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 345,614, dated July 13, 1886.

Application filed October 8, 1885. Serial No. 179,306. (No model.)

To all whom it may concern:

Be it known that we, NICHOLAS H. BORGFELDT and ADOLPH C. SCHUTZ, both residents of New York city, in the county and State of New York, have jointly invented an Improved Cigar-Bunching Machine, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings.

This invention relates to improvements on the cigar-bunching machine for which we filed application for patent May 8, 1885, Serial No. 164,755, which patent was issued December 1, 1885, No. 331,676.

The present invention relates more specifically to improvements in the mechanism for distributing tobacco in measured doses to a hopper, which conveys it to the bunch-rolling contrivance.

In this respect the invention consists in placing within the receiving-cylinder that contains the tobacco a certain agitating contrivance, hereinafter to be more specifically described.

The invention also relates to improvements in the bunch-rolling contrivance; and it consists in the employment of a sliding frame, which carries the roller and apron on a sector-shaped table for the purpose of producing a tapering cigar.

It also consists in other details of improvement respecting this bunch-rolling mechanism, that will be hereinafter more specifically described.

Figure 1 is a side elevation, partly in section, of an improved cigar-bunching machine. Fig. 2 is a top view, on an enlarged scale, of the rolling board and its appurtenances. Fig. 3 is a detail face view, partly in section, of the rolling apparatus. Figs. 4, 5, and 7 are sectional views of the rolling apparatus, showing it in different positions. Fig. 6 is a side view of the same, partly in section; and Fig. 5ª is a detail edge view of the apron used in the rolling apparatus.

In the drawings, with more particular reference to Fig. 1, the letter A represents the frame of the machine; B, the tobacco-holding cylinder; C, its outwardly-projecting chute; D, the notched disk which rests on the bottom of the cylinder; E, the notched upper plate resting on the disk D, all substantially as described in the above-mentioned patent. F is the upright shaft which carries the disks D and E, to which shaft intermittent rotary motion is imparted by the ratchet-wheel *e*, connecting-rod *f*, and cam *g* on main driving-shaft G of the machine, or by other suitable mechanism. So far as this branch of the application is concerned the invention consists in putting around the shaft F, within the cylinder B, an intermittently-revolving conical stirrer, H, which is attached to a collar, *a*, that is fastened to a tube, *b*, which embraces the shaft F, in combination with the notched disk D, which is attached to said shaft F, and which revolves in a direction opposite to said stirrers H. Motion is imparted by the gear-wheels *d d d* from the shaft F to the tube *b*, and thereby also to the stirrer H, and as the motion of the shaft F is intermittent rotary that of the stirrer H will also be intermittent rotary; but we do not confine ourselves to moving the stirrer in this intermittent manner, or directly from the shaft F, as means could readily be contrived for moving said stirrer by other connection with the driving-shaft.

The construction of the stirrer H is represented in the drawings as of truncated conical form, which is produced by a series of downwardly-diverging rods or sticks whose upper ends are fastened in the collar *a*. These rods embrace a cone, I, which is attached by suitable rods to the central part of the disk D, and which therefore revolves together with said disk D in direction opposite to the stirrer H. The object of this stirrer arrangement is to assist the tobacco in its movement downward, we having found that unless such assistance is rendered tobacco is liable to remain undisturbed by a partial removal of its lower portion, and hence some stirrer was deemed necessary. In addition to this, however, we found that the stirrer should be of a kind to move the tobacco downward gently, and not violently, and for this reason we have found the revolving conical cone and the oppositely-revolving series of rods around the cone to be of the greatest advantage.

Proceeding further to the consideration of the drawings, Fig. 1, we find the chute C to discharge into a hopper, I², which is arranged substantially like the hopper I in the above-mentioned patent, and which has a downward-

ly-projecting discharge-pipe, *o*, as stated in the patent. Below this tube is what we have termed the "binder-rest," which is composed of an apron, M, roller *u*, (which is hung in the horizontally-sliding frame N,) and binder-lifter P, which is pivoted at c^2 in the frame N and connected by a link, *h*, or otherwise with a spring, j^2. The binder-lifter P, like the frame P, that was described in the above-mentioned patent, consists of uprights which straddle the rolling-board L and supporting-table J, as shown in Fig. 3, and which above the rolling-board L are connected by a cross-bar, i^2, which, by preference, carries a wiper or elastic blade of india-rubber or analogous material. The frame N, in which the binder-lifter P is hung, straddles also the boards J and L, carries the roller *u* in proper bearings above said boards, and has, by preference, a stiff cross-bar, *i*, at its lower part. This frame N is, according to the present invention, rigidly connected with a bracket, O, which at *j* (see Figs. 2 and 3) is hung in the stationary frame A. The frame N or its bracket O is also connected by a link, *k*, with the crank *l* of an upright shaft, *m*, to which oscillating motion is imparted by suitable connection with the driving-shaft.

We do not deem it necessary to show here the (or any special) mechanism for oscillating the shaft *m*, as any suitable mechanical movement for performing this function can readily be contrived by those skilled in the art to which this invention relates.

It follows that when the shaft *m* is oscillated the frame N will be slid horizontally, but not in a straight direction. It will move around the pivots *j* as a center, and this curvilinear motion is utilized by us for the purpose of shaping the cigar and giving it the desired taper. To this end the rolling-board L is made of the form of a truncated sector, as shown in Fig. 2, and the apron M is also of the form of a truncated sector, as appears from the same figure, the roller *u* being, however, of tapering form, being smallest where it is nearest the pivots *j*. The radial edges of the apron are secured to the rolling-board. A weighted cord, *n*, extends from the sliding frame N to a friction-roller, *p*, which is hung in the frame A. The weight on the cord *n* has the tendency to draw the frame N toward the frame A—that is to say, into the position shown in Fig. 4. When the frame N is in this position—that is, next to the frame A—the binder-lifter P is by contact with a stationary finger, g^2, thrown back—that is, away from the the roller *u*, as is also shown in Fig. 4. In this position the cavity in or behind the rolling-board for the reception of the bunch is ready to receive such bunch. The apron M is pressed into the cavity and the binder *t* is laid over the concave portion of the apron, as shown in Fig. 4. When the parts are in this position the bunch is discharged into the hollow of the binder from the tube *o* of the hopper I^2. The shaft *m* now begins to move so as to carry the frame N outward. This brings the roller *u* first over the bunch (see Fig. 5) and with it one end of the binder. The other end of the binder is held against the apron, where it surrounds the roller *u* by the binder-lifter P, which, as soon as the frame N moves outward, is relieved from contact with the finger g^2 and turned up by its spring j^2, or equivalent weight, so as to carry its blade i^2 against the outer end of the binder, crowding it against that portion of the apron M which surrounds the roller *u*. The continued outward movement of the frame N causes the roller *u* to progress in the apron M, both ends of the apron being fixed, and thus to entirely roll the binder around the bunch, and also at the same time convey the completed bunch along on the rolling-board until finally the bunch is discharged over the edge of the rolling-board, as in Fig. 7, into a suitable receiver. During all this time that the frame N is moved outward the binder-lifter P retains the same relative position which it assumed the moment it left contact with the finger g^2. Compare for this purpose Figs. 5 and 7. As soon as the position shown in Fig. 7 has been attained the frame N is moved inward again by the weighted cord *n*, or by other suitable mechanism, until it reaches the position shown in Fig. 6, and the binder-lifter, as soon as it strikes the finger g^2, is promptly tilted, as in Fig. 6, to get out of the way of the cavity into which the next binder and bunch is to be placed.

It will be perceived that the curvilinear motion of the frame N and its attachments, in connection with the tapering form of the roller *u*, insures the production of a tapering bunch, and that thus by automatic mechanism we are enabled to produce a tapering cigar, a matter which heretofore has caused great difficulty.

The apron M, on its outer side and next to its convex edge, carries on its upper face a continuous fluted or crimped border, *s*, which is made of flexible material—such as cotton or woolen fabric—and which has for its purpose to furnish a shoulder against which the tobacco shall rest, within the hollow of said apron, as represented in Figs. 2, 3, and 5[a]. In other words, we find that the bunch of tobacco as it is being rolled in the apron is liable to be displaced lengthwise in the apron toward the convex edge thereof, and to prevent this we have provided this flexible shoulder on the apron itself, against which the thick end of the bunch lies, and by which the bunch is prevented from becoming longitudinally displaced, there being no danger of its being displaced in the other direction toward the smaller end of the cavity which holds it. These features of improvement are applicable, however, also to apparatus for rolling cigars on a straight instead of a sector-shaped rolling-board, as even in that case the flexible fluting on the apron, which, when applied near one or both edges thereof, will preserve the bunch in position lengthwise.

We claim—

1. The combination of the cylinder B and notched disk D on shaft F with the stirrer H, and mechanism for revolving such disk and for revolving said stirrer in direction opposite to the disk D, substantially as specified.

2. The combination of the cylinder B and notched disk D on shaft F with the cone I, supported on disk D, and with the stirrer H, and mechanism for revolving said cone and disk and for revolving said stirrer in direction opposite to the cone and disk D, as specified.

3. The rotary conical stirrer H, constructed of downwardly-diverging rods that are secured to a collar, *a*, in combination with the hopper and cone, as described.

4. The truncated sector-shaped apron M, made with the continuous fluting *s* on its surface along its edge, for the purpose described.

5. The truncated sector-shaped apron M, having its radial edges secured to a rolling-board, combined with the tapering roller *u*, and mechanism for operating said roller, substantially as herein shown and described.

6. The sector-shaped rolling-board L, combined with the sliding frame N, sector-shaped apron M, and tapering roller *u*, substantially as and for the purpose described.

7. The sector-shaped rolling-board L, combined with the sliding frame N, sector-shaped apron M, tapering roller *u*, and binder-lifter P, substantially as and for the purpose described.

8. The sector-shaped rolling-board L, combined with the sliding frame N, sector-shaped apron M, tapering roller *u*, and binder-lifter P, the apron M having the projecting fluting *s*, substantially as and for the purpose described.

9. The combination of the pivoted bracket O with the frame N, which is rigidly attached thereto, and with the sector-shaped rolling-board L, tapering roller *u*, and sector-shaped apron M, and with mechanism for moving said bracket around its pivot, substantially as specified.

10. The combination of the rolling-board L with the sliding frame N, having tapering roller *u*, sector-shaped apron M, binder-lifter P, which is pivoted to said frame N, and with the finger g^3 on the stationary frame A, substantially as herein shown and described.

NICHOLAS H. BORGFELDT.
ADOLPH C. SCHUTZ.

Witnesses:
GUSTAV SCHNEPPÉ,
CHARLES G. M. THOMAS.