

No. 681,679.

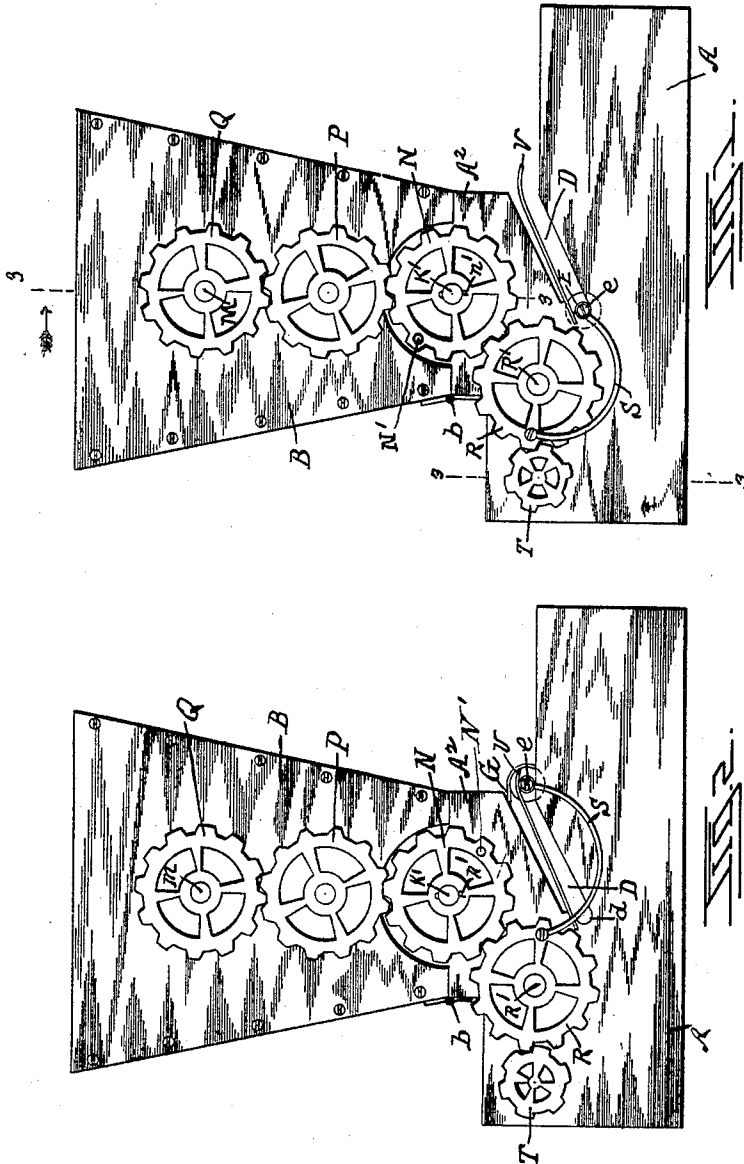
Patented Sept. 3, 1901.

M. J. BOWMAN.
BUNCHING MACHINE.

(Application filed Oct. 5, 1900.)

(No Model.)

3 Sheets—Sheet 1.



No. 681,679.

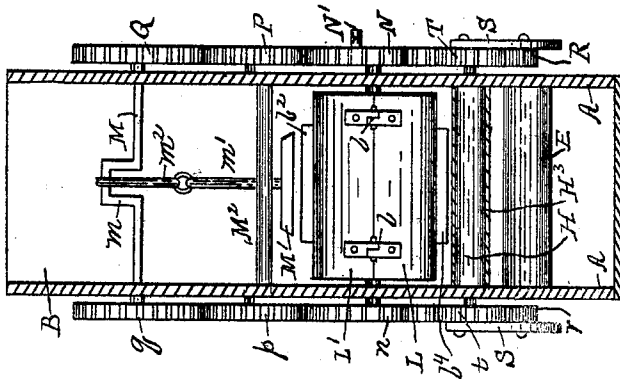
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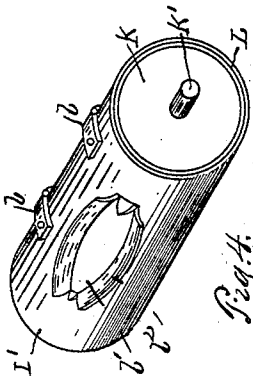


Fig. 4.

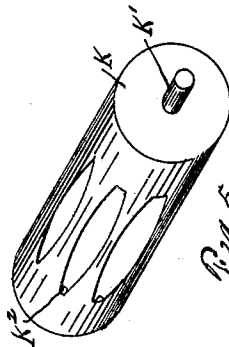


Fig 5.

Business.

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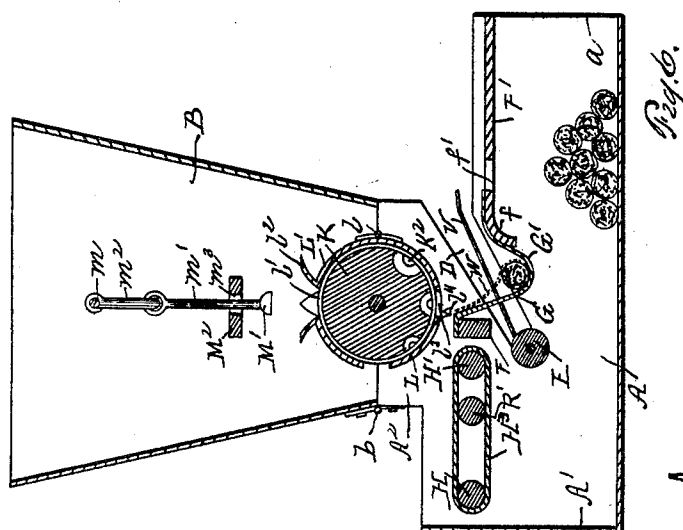


Fig. 6.

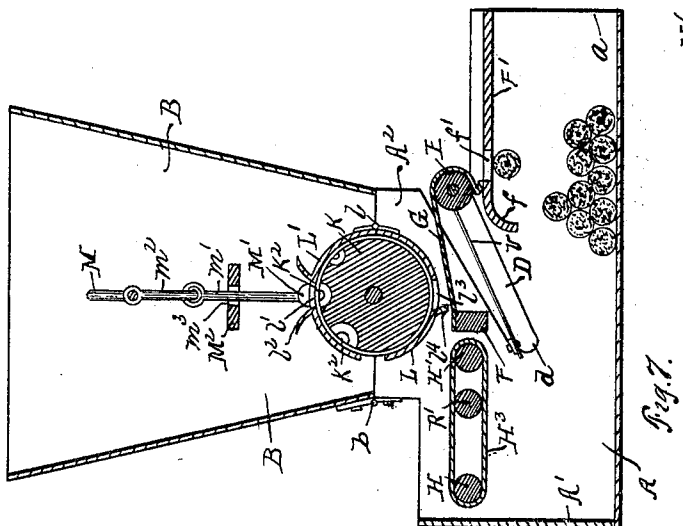


Fig. 7.

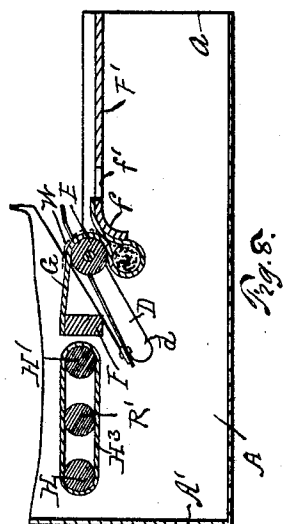


Fig. 8.

Witnesses.
H. H. H. Lamer
C. G. Bassler.

IN WITNESS WHEREOF,
M. J. Bowman
By
Wm. R. Gerhardt,
Attorney.

UNITED STATES PATENT OFFICE.

MILTON J. BOWMAN, OF KINZERS, PENNSYLVANIA.

BUNCHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 681,679, dated September 3, 1901.

Application filed October 5, 1900. Serial No. 32,198. (No model.)

To all whom it may concern:

Be it known that I, MILTON J. BOWMAN, a citizen of the United States, and a resident of Kinzers, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Bunching-Machines, of which the following is a specification.

This invention relates to improvements in that class of machines designed for rolling binders around the fillers of cigars; and the objects of these improvements are, first, to control the amount of filler fed to each binder; second, to automatically roll the filler in the binder, and, third, to automatically deliver the bunch from the machine.

The invention consists in the construction and combination of the various parts, as hereinafter fully described and then pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of a cigar-bunching machine, the parts occupying their normal positions; Fig. 2, a similar view, but showing the parts in the positions occupied thereby as the rolling of a filler in a binder is completed; Fig. 3, a vertical section of the hopper and the frame on broken line 3 3 of Fig. 1, the other parts being shown in elevation; Fig. 4, a perspective view of the feed-cylinder and its case detached, and Fig. 5 a similar view of the feed-cylinder detached. Fig. 6 is a longitudinal vertical section showing the parts in their normal positions; Fig. 7, a view similar to that shown in Fig. 6, but illustrating the parts in the positions occupied thereby when the bunching-roller reaches the limit of its outward movement; and Fig. 8, a longitudinal section of a part of the machine, showing the bunching-roller in the position occupied thereby as it forms the bight wherein the bunch is rolled.

Similar letters indicate like parts throughout the several views.

Referring to the details of the drawings, A indicates the side walls of the frame supporting the operating mechanism open at the front end *a*, *A'* the rear wall of said frame, and *A²* standards formed on side walls A, to the rear edges of which is hinged the hopper B, as shown at *b*. Hopper B is adapted to be

turned backward about said hinges for a purpose to be described.

D indicates slots or guideways extending diagonally downward and backward from the fronts of standards *A²* into side walls A, and in the lower ends of slots D are formed semi-circular seats *d*, wherein normally rest the spindles *e* of the bunching-roller E. Above and somewhat in front of said seats *d* is a cross-bar F, supported by side walls A and placed higher than the table F', located in front of the openings into slots D and supported in and between said side walls. The rear end of table F' curves downward to form a lip *f*. To cross-bar F is secured the rear edge of the bunching-apron G, and the front edge of said apron is secured on the rear end of table F', which front edge of the apron is located adjacent to the rear edge of a transverse slot *f'* in table F'. The front end of apron G, from its front edge backward to the face of lip *f*, normally rests on table F' and on said lip, and the body of the apron forms a pocket G' between the lip *f* and bunching-roller E when in its normal position. Behind and on a line with cross-bar F are two rollers H and H', and around these rollers passes an endless feed-belt H², adapted to feed the binders to the bunching-apron, as is usual.

K indicates a revoluble feed-cylinder having its spindles K' journaled in the meeting edges of standards *A²* and of hopper B, the pillows of the journal-bearings being formed in the edges of said standards and the caps in the edges of hopper B, so that by turning the hopper back on its hinges *b* feed-cylinder K may be removed. In the periphery of feed-cylinder K are a number of pockets K², disposed lengthwise thereof and of different sizes, as shown. Inclosing feed-cylinder K is a cylindrical case comprising a stationary bottom L, having its ends rigidly secured in standards *A²*, and a cap L', hinged to one edge of bottom L, as shown at *l*. In the top of cap L' is a slot *l'*, through which the fillers are fed to said cylinder, and having an upwardly-flaring rim *l²*, formed of the material cut out to form said slot *l'*, and in the bottom L there is also a slot *l³*, wherethrough the fillers are discharged, and located above the pocket G' in bunching-apron G and along

the back edge of slot l^3 is formed a depending lip l^4 . Case $L L'$ prevents any displacement of the fillers in the pockets of the feed-cylinder as they are carried from the feed to the discharge slots in said case and holds them in the pocket in the feed-cylinder until the same is in position to discharge into the pocket in the bunching-apron.

M indicates a crank-shaft journaled in the sides of hopper B , and from the crank m of said shaft is suspended a plunger M' , having its stem m' connected with said crank by a link m^2 . Plunger-stem m' passes through a guide-slot m^3 in a cross-bar M^2 , and the various parts are so disposed that the plunger is operated vertically above slot l' of cap L' . The mechanism is actuated through a train of gearing on both sides of the frame. On one end of spindle K' of feed-cylinder K is keyed a gear-wheel N , to which power is applied through a crank-arm N' , and on the other end of said spindle is keyed a gear-wheel n . Gear-wheels N and n , respectively, mesh with idlers P and p , located above them, and idlers P and p again mesh, respectively, with gear-wheels Q and q on the ends of crank-shaft M . Gear-wheels N and n also mesh with gear-wheels R and r on the ends of a shaft R' , passing through the side walls of a frame and between the folds of feed-belt H^3 , and the gear-wheels R and r mesh with pinions T and t on the spindles of belt-roller H , whereby said belt is actuated.

S indicates curved connecting-rods, the rear ends whereof are pivoted on gear-wheels R and r and adjacent to the peripheries thereof, and the front ends of said connecting-rods are pivoted on spindles e of bunching-roller E .

Of the wheels in the train of gearing just described the wheels N and n , P and p , Q and q , and R and r are all of the same diameter. With the beginning of each revolution the bunching-roller E is in its normal (retracted) position, a charge of filling is supposed to be in pocket G' of bunching-apron G , with a wrapper W in place to be rolled about the same, the feed-cylinder K is in position with the pocket K^2 , that has just emptied a charge of filling into pocket G' , located over slot l^3 of case $L L'$, and the plunger M' is raised, all as illustrated in Fig. 6. With the first half of the revolution of said wheels bunching-roller E advances, rolling the wrapper around the filling, as shown in Fig. 8, and discharging the completed bunch through slot f' of table F' , feed-cylinder K is revolved until said pocket K^2 is on top and beneath slot l' of the cap of cylinder-case $L L'$, and plunger M' is depressed and forces a fresh charge of filling into pocket K^2 . As said movements are completed the continuing revolution of the wheels retracts the bunching-roller, a pocket G' is again formed, the feed-cylinder revolves until pocket K^2 empties another load into pocket G' , and the plunger is again elevated. The pockets K^2 of feed-cylinder K are of dif-

ferent sizes, so that the charges of filling carried by said cylinder may be varied. As will be observed, when the feed-cylinder is set the same pocket K^2 is always used. To substitute one of said pockets for another, hopper B is turned back about hinges b until the feed-cylinder is uncovered, and then said cylinder is taken from its position and again replaced with another of said pockets K^2 in an operative position. If it is necessary to this end to change the relative positions of gear-wheels N and n on the spindles of the feed-cylinder, those gear-wheels can be removed by withdrawing split keys n' and then replacing the gear-wheels on said spindles in position to mesh with the adjacent gear-wheels of the train. Rim l^2 of slot l of cylindrical case $L L'$ prevents the entrance into pockets K^2 of surplus filling material when the plunger is raised therefrom, and lip l^4 on the edge of slot l^3 of said case serves to direct the filling into pocket G' as it is discharged from the feed-cylinder.

In a shoulder in the lower end of the upper wall of each guideway D is secured one end of a forwardly-projecting spring-plate V , the front ends of which are free and project over the sides of table F' . These springs are adapted to bear on the spindles of bunching-roller E as said roller is moved forward to hold the roller down to its place and yet permit it to rise should any unyielding matter be discharged into pocket G' with the filler.

I do not confine myself to the details of construction herein shown and described, as it is obvious that many alterations may be made therein without departing from the principle and scope of my invention.

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

1. The combination, in a bunching-machine, of a table, a frame having guideways in the walls thereof, a bunching-roller normally supported in the inner ends of the guideways and adapted to travel through the same, spring-plates bearing on the ends of the bunching-rollers and having their inner ends secured adjacent to the inner ends of the guideways and their outer ends free, and a bunching-apron adapted to form a pocket in front of the normal position of the bunching-roller, for the purpose specified.

2. The combination, in a bunching-machine, of a table, a frame having guideways in the walls thereof and extending downward from said table, a bunching-roller normally supported in the inner ends of the guideways, spring-plates having their inner ends secured in the top walls of the inner ends of the guideways and their outer ends free and extending toward said table, said springs being constructed to bear on the ends of the bunching-roller, and a bunching-apron adapted to form a pocket in front of the normal position of the bunching-roller, for the purpose specified.

3. The combination, in a bunching-ma-

chine, of a bunching-apron, a bunching-roller, a feed-cylinder having therein pockets of different sizes, bearings, spindles on the feed-cylinder and removably engaging said bearings, whereby the feed-cylinder may be adjusted to place any one of said pockets in an operative position, and operating mechanism connecting the bunching-roller and the feed-cylinder, for the purpose specified.

4. The combination, in a bunching-machine, of a bunching-apron, a bunching-roller, a hopper above the bunching-apron and hinged to its supports, a removable feed-cylinder in the hopper and having therein pockets of different sizes, spindles on said cylinder and having their bearings in the meeting edges of the hopper and of the supporting-frame, and operating mechanism connecting the bunching-roller and the feed-cylinder, for the purpose specified.

5. The combination, in a bunching-machine, of a bunching-apron, a hopper above the bunching-apron, a case in the hopper and having therein a feed-slot and a discharge-slot, a rim about the feed-slot in the case, a lip along one side of the discharge-slot in the case, a feed-cylinder in the case and having a pocket adapted to range successively with the slots in the case, and a plunger constructed to push the filling material through the feed-slot in said case and into the pocket in the feed-cylinder, for the purpose specified.

6. The combination, in a bunching-machine, of a bunching-apron, a hopper above

the bunching-apron and hinged to its supports, a case in the hopper and having a discharge-slot in the bottom thereof, a lid hinged to said case and provided with a feed-slot, a removable feed-cylinder in the case and having a plurality of pockets, and spindles on said cylinder and having their bearings in the meeting edges of the hopper and of the supporting-frame, for the purpose specified.

7. The combination, in a bunching-machine, of a bunching-apron, a bunching-roller, a hopper above the bunching-apron and hinged to its support, a case in the hopper and having a discharge-slot in the bottom thereof, a lid hinged to said case and provided with a feed-slot, a removable feed-cylinder in the case and having therein pockets of different sizes, spindles on said cylinder and having their bearings in the meeting edges of the hopper and of the supporting-frame, a plunger constructed to push the filling material through the feed-slot in said case and into a pocket in the feed-cylinder, and operating mechanism connecting the bunching-roller, the feed-cylinder and the plunger, for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

MILTON J. BOWMAN.

Witnesses:

C. G. BASSLER,
WM. R. GERHART.