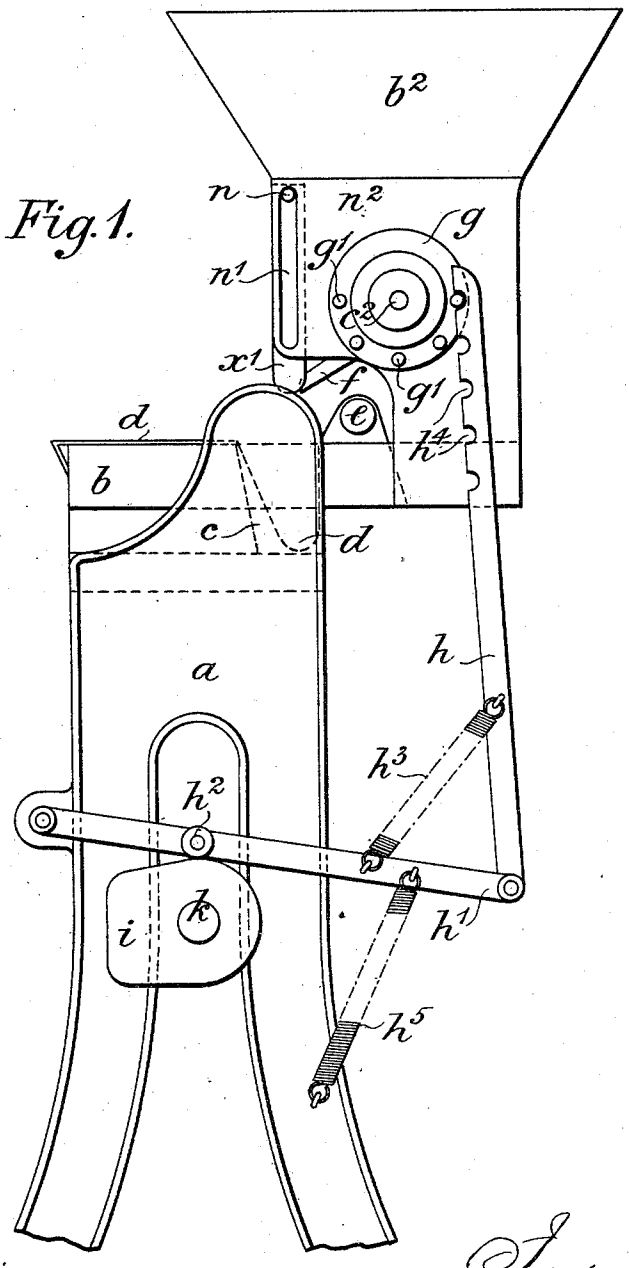
(No Model.) 4 Sheets—Sheet 1.

J. CONNELL.

CIGAR BUNCHING MACHINE.

No. 456,798. Patented July 28, 1891.

Fig. 1.



Witnesses:
F. A. Rutherford.
J. G. Meyer Jr.

Inventor:
James Connell,
By James L. Norris.
Attorney.

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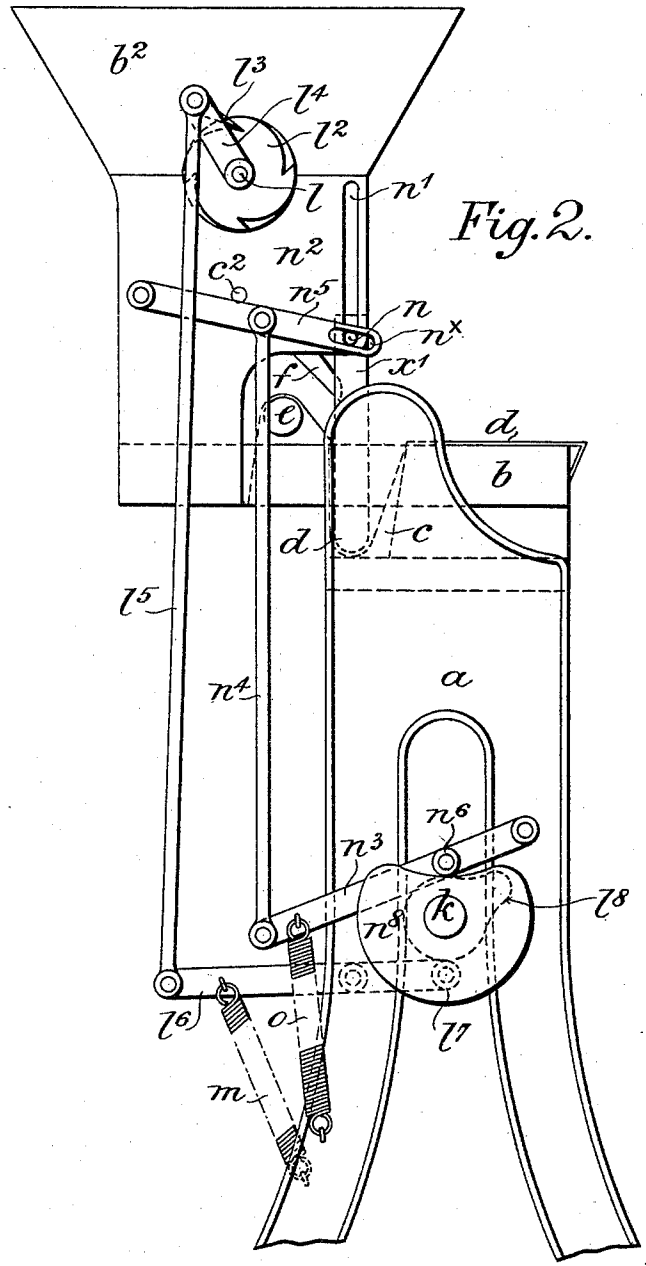


Fig. 2.

Witnesses:-
J. A. Rutherford
J. G. Meyers Jr.

Inventor:
James Connell,
By James L. Norris.
Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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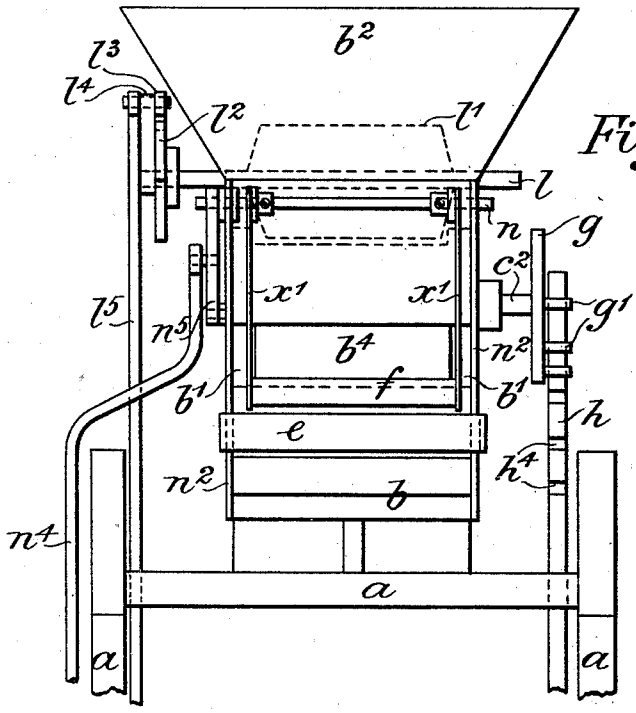
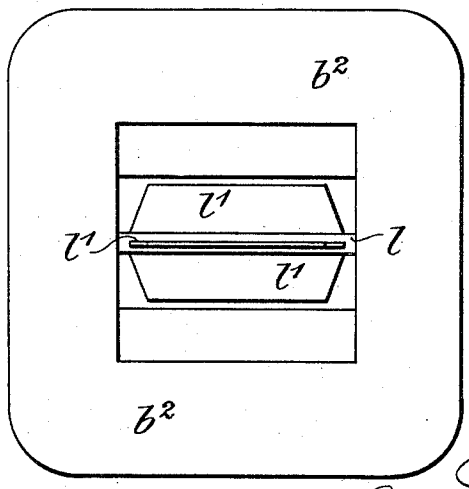


Fig. 3.

Fig. 4.



Witnesses:-
J. A. Rutherford.
J. G. Meyers Jr.

Inventor:
James Connell
By James L. Norris.
Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

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J. CONNELL.

CIGAR BUNCHING MACHINE.

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Fig. 5.

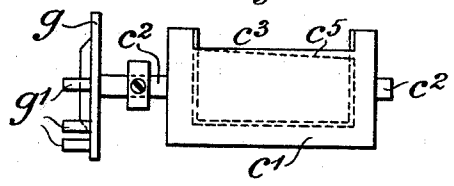


Fig. 7.

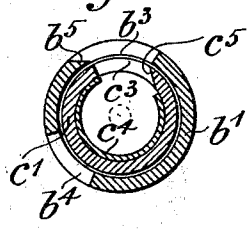


Fig. 8.

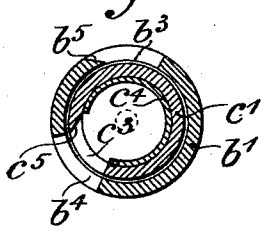
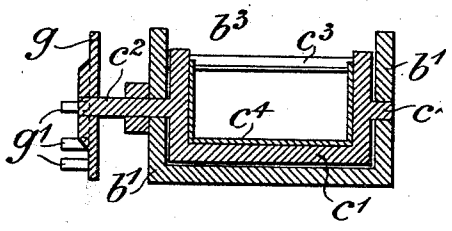


Fig. 6.



Witnesses:
J. A. Rutherford.
J. G. Meyers Jr.

Inventor:
James Connell,
By James L. Norris.
Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES CONNELL, OF NOTTINGHAM, ENGLAND.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 456,798, dated July 28, 1891.

Application filed December 4, 1890. Serial No. 373,602. (No model.)

To all whom it may concern:

Be it known that I, JAMES CONNELL, a subject of the Queen of Great Britain and Ireland, residing at Nottingham, England, have invented new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

This invention relates to the cigar-bunching machine for which Letters Patent No. 450,959 were issued to me April 21, 1891; and my present invention has for its object to provide an improved automatic feeding and cutting-off device whereby the exact quantity of tobacco required for the bunch is fed therefrom directly into the bight of the working apron, thereby enabling me to dispense with the use of the endless chain of scoops or buckets and the trough and to arrange and fix the feed-hopper above the rear end of the working-table, instead of at the back of the machine and behind such working-table.

The invention further relates to an improved arrangement of the blades for forming the bight in the apron and for acting as a gage to regulate the length of the bunches to be rolled.

In the accompanying drawings only such parts of the machine are represented as are necessary to explain my improvements, the remaining parts being fully shown and described in my above-mentioned former specification.

Figure 1 represents a side elevation as seen from the right of the upper part of the machine, showing the feeding and cutting-off device and the mechanism for operating the same. Fig. 2 is a similar view, but seen from the left, and showing the mechanism for operating the blades for forming the bight in the apron and for actuating the stirring device hereinafter fully referred to. Fig. 3 is a front elevation of the upper part of the machine. Fig. 4 is a plan of the feed-hopper, showing the stirring device. Fig. 5 is a detached view in elevation of the inner rotary cylinder forming part of the feeding or cutting-off device. Fig. 6 is a vertical longitudinal section of the feeding and cutting-off device. Figs. 7 and 8 are cross-sections of Fig. 6, showing the inner rotary cylinder in different positions within the stationary cylinder.

In carrying out my improvements I fix in the lower part of the feed-hopper b^2 a hollow and stationary cylinder b', formed with two longitudinal openings b^3 b^4 one being at or near the top and the other at or near the bottom. Within the stationary cylinder I arrange a second hollow cylinder c', free to rotate upon two trunnions c^2, one of which projects through one side of the feed-hopper. This inner cylinder or box has only one longitudinal opening c^3 and is destined to receive the necessary quantity of tobacco for the bunch from the feed-hopper b^2 and to deliver it down a stationary inclined chute f, between opposite guide-plates x', into the bight of the working-apron d.

A rotary reciprocating motion is imparted to the inner cylinder or box during each revolution of the machine, and consequently the longitudinal opening c^3 will once during each such reciprocating movement coincide with the upper longitudinal opening b^3 in the stationary cylinder b' for the purpose of receiving the tobacco from the feed-hopper, and once with the longitudinal opening b^4 in the stationary cylinder for the purpose of delivering this tobacco into the bight of the working-apron.

For the purpose of cutting off any excess or surplus tobacco when the inner or rotary cylinder is full, each of the cylinders is provided with a knife-edge b^5 and c^5, respectively, arranged preferably somewhat slanting, as shown in Fig. 5, and working over or against each other during the reciprocating motion of the inner cylinder.

In order to further regulate the quantity of tobacco for forming the fillers, the inner or rotary cylinder c' is provided with a removable or interchangeable lining or scoop c^4, which may be exchanged for one having either a smaller or a greater capacity.

On the prolonged trunnion c^2 is mounted a disk g, provided on its face with projecting pins or studs g', with which engage corresponding notches formed in the lever h. Motion is transmitted to this disk, and consequently to the inner or rotary cylinder c', by means of the lever h, which receives its motion from the lever h' (provided with friction-roller h^2) and cam i, mounted on the

working-shaft k. A spiral spring h^3 tends to keep the lever h with its notches h^4 in contact or engagement with the pins or studs g' on the disk g. The friction-roller h^2 on the lever h' is held in contact with the cam i by the spiral spring h^5.

To facilitate the filling of the inner or rotary cylinder c' and to prevent the lower end of the feed-hopper becoming choked with tobacco, I provide a suitable stirrer arranged above the feeding and cutting-off device, and consisting of a spindle l having radial blades l'. The spindle l, projects through the sides of the feed-hopper, and on one of its ends is mounted a wheel or disk l^2, formed with ratchet-teeth, with which engages a spring-pawl l^3 on the arm l^4 and turning loose on the spindle l. This stirrer receives its motion from a cam l^8 on the working-shaft through the levers l^5 l^6, the latter being controlled by a spring m and carrying a friction-roller l^7, bearing against the said cam. It will thus be seen that during each revolution of the machine the pawl l^3 will be drawn down once and lifted again, thereby actuating the stirring device for a quarter of a revolution during each whole revolution of the machine. On the tobacco falling from the feeding and cutting-off device down the stationary inclined chute f into the bight of the apron d it descends between the two oppositely-arranged vertical blades x', mounted on a horizontal rod or spindle n, and which are, according to my present improvement, so arranged as to work with a vertical reciprocating movement instead of with a rotary reciprocating movement, as formerly. These blades, which are capable of adjustment toward or from each other, serve to determine the length of the bunch to be rolled, as mentioned in my prior specification. They also serve to form the proper bight in the apron after the working-roller e has receded to the rear end of the working-table b. For this purpose the ends of the rod n project through two vertical slots n', formed one in each of the two cheeks or sides n^2, which support the feed-hopper above the rear end of the working-table. Motion is imparted to these vertical blades from the cam n^8 (carried by the working-shaft) and levers n^3 n^4 n^5, this latter being slotted at $n^\times$ to receive one end of the rod or spindle n. The lever n^3 is provided with a friction-roller n^6 and is controlled by a spring o, which keeps the friction-roller n^6 against the cam n^8. The rising and falling of the blades take place once during each revolution of the machine at the moment when the working-roller e has retired to the extreme rear end of the working-table b, and when the blades x' descend into the cavity c, formed in the working-table, they take with them the apron, and thus form therein the required bight. The cam n^8 will then lift this arrangement of rods and levers and therewith the blades x', which will ascend high enough for the working-roller to pass under them and move forward for the purpose of rolling the bunch in the apron, as described in my above-mentioned specification.

The working is as follows: The machine having been set in motion, the opening in the rotary cylinder c' of the feeding and cutting-off device will once during each revolution of the working-shaft k coincide with the upper opening of the stationary cylinder b', as represented in Fig. 7, for the purpose of receiving the requisite quantity of tobacco from the feed-hopper. During this time the working-roller e is moving forward over the working-table for the purpose of rolling into a bunch the tobacco previously delivered into the bight of the apron. The blades x' are meanwhile standing in their raised position to allow the roller e to pass beneath them. As soon as the bunch is rolled and delivered in front of the working-table the working-roller will retire to the rear end of the table and will come under the feed-hopper, and so soon as the roller e has arrived in this position the blades x' will descend and form the bight in the apron. At this moment the inner or rotary cylinder c' will have turned until its opening coincides with the lower opening b^4 of the stationary cylinder b', as represented in Fig. 8, and the tobacco will then fall through these openings and between the blades down the inclined chute into the bight of the apron. These blades will then rise and the rotary cylinder will return to its former position. The working-roller will now move forward, and, passing under the blades, will roll the tobacco just delivered into a bunch. The machine is now ready to repeat the same cycle of operations at each successive revolution of its working-shaft.

I wish it to be understood that I do not limit myself to the exact arrangement of mechanism for operating the feeding and cutting-off device, nor that for operating the blades, as it is obvious that I may employ any suitable means therefor.

What I claim, and desire to secure by Letters Patent, is—

1. In a cigar-bunching machine, the combination, with a hopper, of a stationary hollow cylinder provided with a lower longitudinal opening and an upper longitudinal opening having one edge formed with a knife-edge cut-off, an interior hollow cylinder provided with a single longitudinal opening through which the tobacco passes into the cylinder and having one edge formed with a knife-edge cut-off co-operating with the knife-edge cut-off of the stationary cylinder, and means for rotating the interior cylinder, substantially as described.

2. In a cigar-bunching machine, the combination, with a hopper, a stationary hollow cylinder having upper and lower longitudinal openings, and a rotating interior hollow cylinder having a single longitudinal opening,

of the interchangeable lining or scoop arranged within the interior rotating cylinder, substantially as described.

3. In a cigar-bunching machine, the combination, with a hopper, of the stationary hollow cylinder provided with a lower longitudinal opening and an upper longitudinal opening having one edge formed with a knife-edge cut-off, a rotating interior hollow cylinder provided with a single longitudinal opening through which the tobacco passes into the cylinder and having one edge formed with a knife-edge cut-off, and an interchangeable lining or scoop arranged within the interior rotating cylinder, substantially as described.

4. In a cigar-bunching machine, the combination, with a measuring and delivering device, a recessed working-table, and an apron, of means for forming and insuring a proper bight in the apron and regulating the length of the tobacco filler, consisting of the vertical plates x', the horizontal rod n, on which the vertical plates are adjustable to or from each other, set-screws for adjusting the vertical plates, the frame having vertical slots n, in which the horizontal rod works, and lever mechanism for reciprocating the rod and plates in a vertical plane, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAMES CONNELL. [L. S.]

Witnesses:

CHARLES CRAMOR,
Nottingham, 6 Victoria Str.

H. W. BULL,
13 Lowpavement, Nottingham, U. S. Consul Clerk.