

(No Model.)

3 Sheets—Sheet 1.

C. BROWNING, Dec'd.

F. BROWNING, Administrator.

CIGAR BUNCHING MACHINE.

No. 494,521.

Patented Mar. 28, 1893.

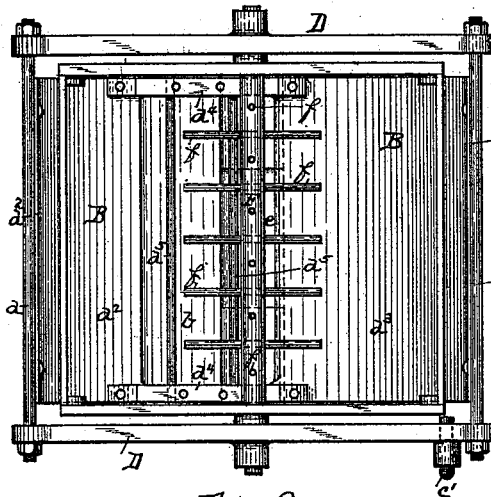


Fig. 2.

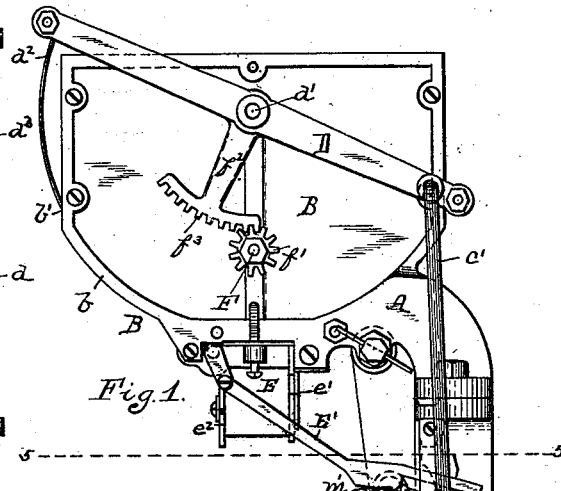


Fig. 1.

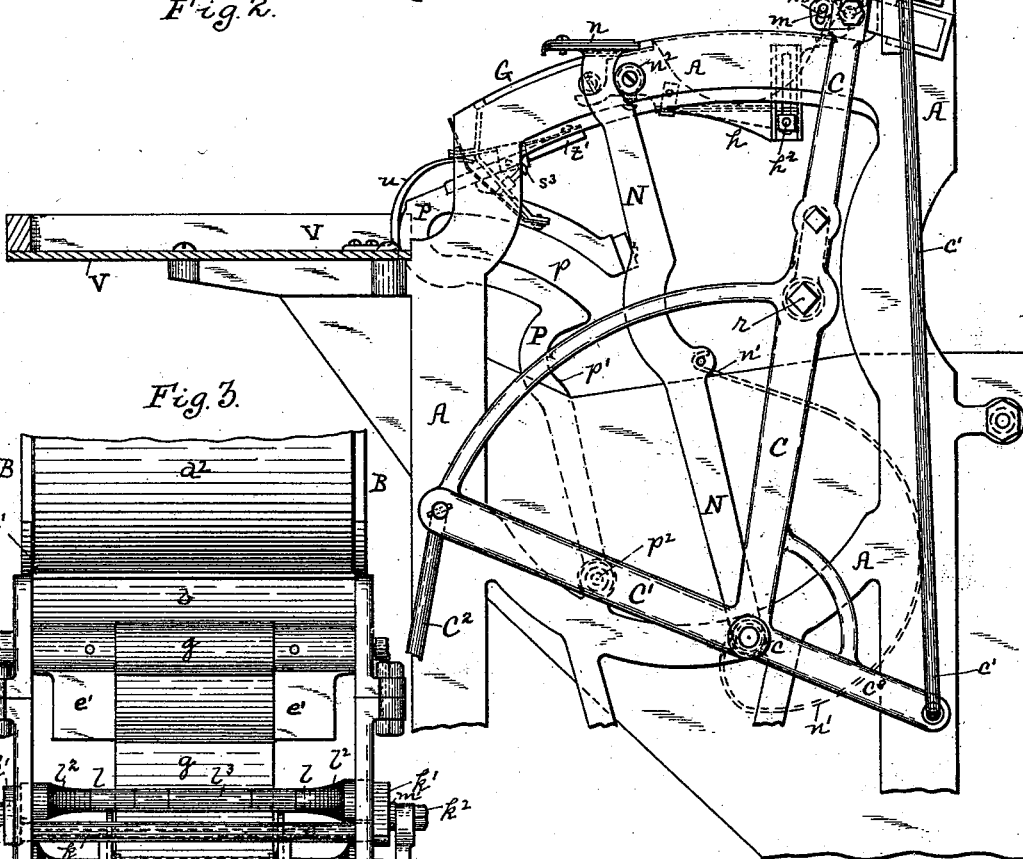
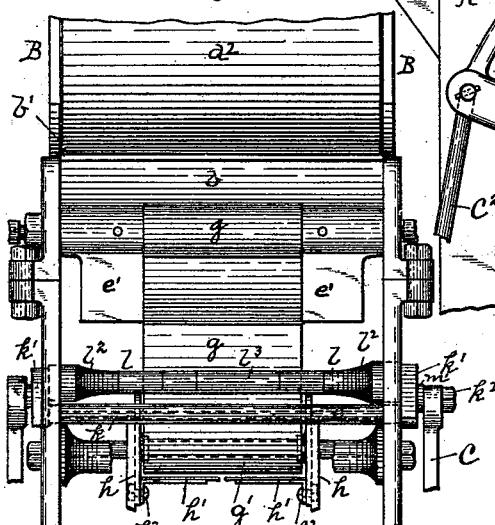


Fig. 3.



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(No Model.)

3 Sheets—Sheet 2.

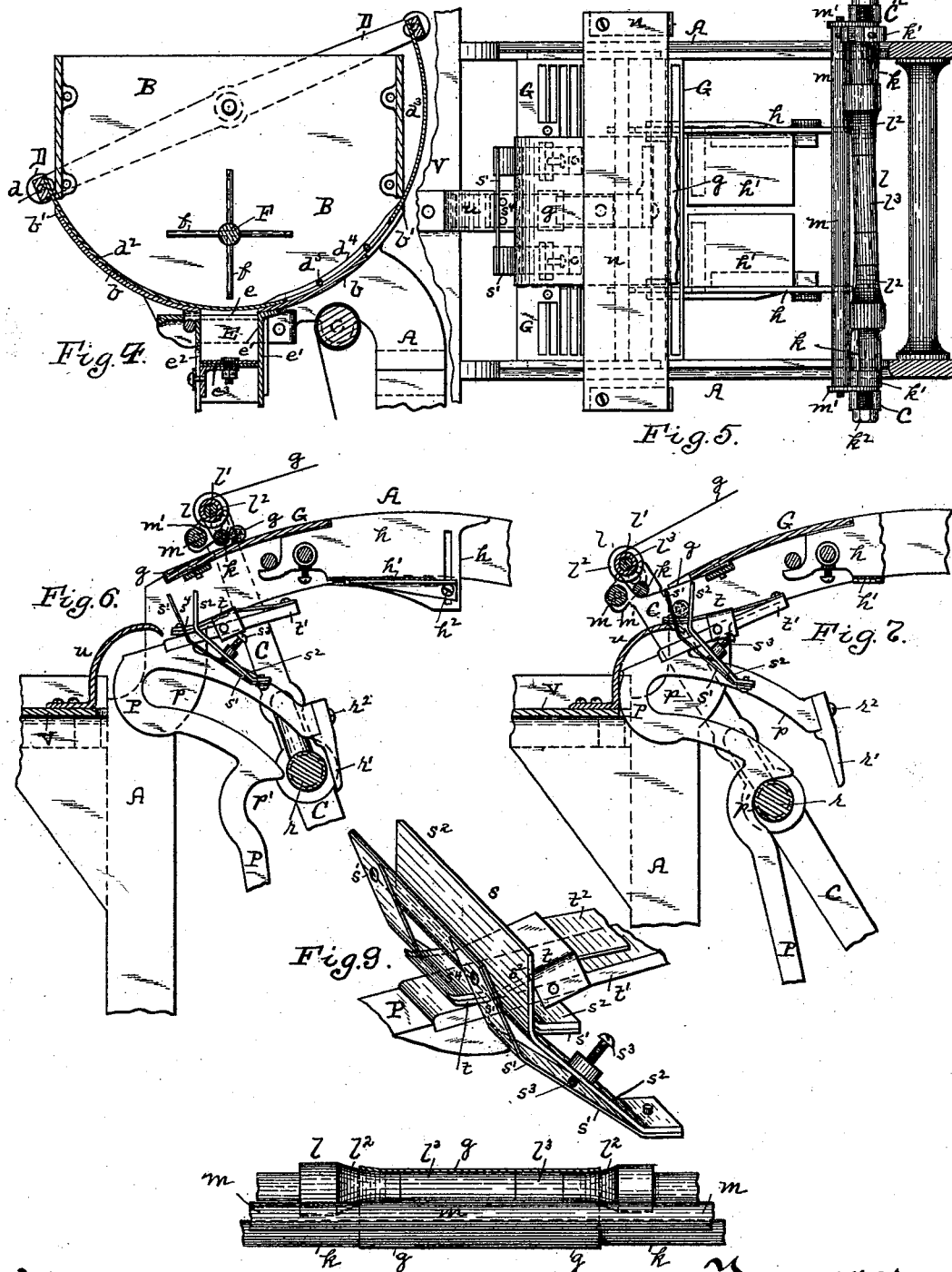
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(No Model.)

3 Sheets—Sheet 3.

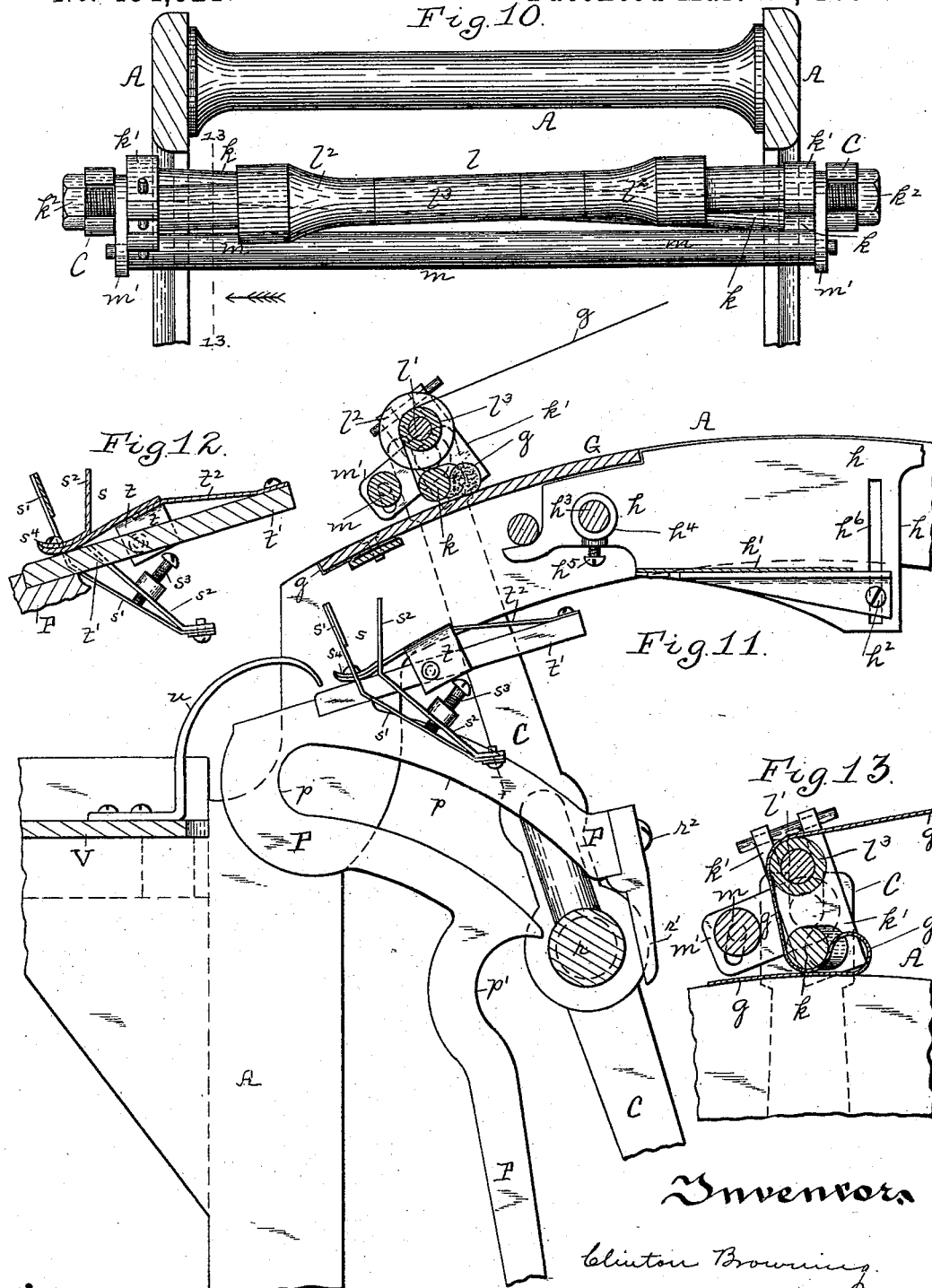
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CIGAR BUNCHING MACHINE.

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Patented Mar. 28, 1893.



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UNITED STATES PATENT OFFICE.

FRANK BROWNING, OF CORAOPOLIS, PENNSYLVANIA, ADMINISTRATOR OF
CLINTON BROWNING, DECEASED.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 494,521, dated March 28, 1893.

Application filed June 8, 1891. Serial No. 395,597. (No model.)

To all whom it may concern:

Be it known that CLINTON BROWNING, deceased, late a resident of Shousetown, in the county of Allegheny and State of Pennsylvania, did invent a new and useful Improvement in Cigar-Bunching Machines; and I, FRANK BROWNING, of Coraopolis, Pennsylvania, administrator of the said CLINTON BROWNING, deceased, do hereby declare the following to be a full, clear, and exact description thereof.

The present invention relates to cigar bunching machines, and is an improvement on certain other cigar bunching machines of the same type, especially upon Letters Patent No. 383,342, granted to Clinton Browning, the inventor of the present machine, dated May 22, 1888, and No. 392,100, granted to Clinton Browning and R. H. Logan, dated October 30, 1888.

The object of the present invention is to simplify the construction of these machines in certain particulars, among others, to improve the mechanism for forming the cut off between the hopper and the measuring box or receptacle and feeding the filler to the measuring box or receptacle; to arrange the bunching rolls in such way that while the guiding roll for the bunching cloth travels at an even distance from the bunching table, the bunching apron can be taken up in such way as to bring it to approximately the shape of the finished cigar, thus forming a more properly shaped bunch, the machine being adapted for forming bunches of any shape; to properly support the bunching apron at the point at which it receives the filler, according to the shape of the cigar to be formed; and to provide an improved form of carrier to receive the wrapped cigar filler from the bunching apron and carry it to such a point that it may be removed to be placed within the mold.

The several points of invention desired to be covered will be hereinafter specifically described and set forth in the claims.

To enable others skilled in the art to make and use the invention, it will be described more fully, referring to the accompanying drawings in which—

Figure 1 is a side view of the upper part of a cigar bunching machine embodying the in-

vention. Fig. 2 is a top view of the hopper. Fig. 3 is a back view of a part of the machine. Fig. 4 is a sectional view of the hopper. Fig. 5 is a horizontal section on the line 5—5, Fig. 1. Figs. 6 and 7 are detail views showing the operations of bunching and the discharge of the cigar bunch formed into the carrier. Fig. 8 is a detail front view of the bunching rolls. Fig. 9 is a perspective view of the bunch carrier. Fig. 10 is an enlarged plan view of the bunching rolls and their connections. Fig. 11 is an enlarged detail view of the bunching and discharge mechanism. Fig. 12 is a longitudinal section of the bunch carrier; and Fig. 13 is a cross section of the bunching rolls on the line 13—13, Fig. 10.

Like letters of reference indicate like parts in each of the figures.

The cigar machine has two side frames A carrying at the upper end thereof a hopper B and having mounted in said machine frame the frame C operating the bunching rolls and other movable parts of the mechanism, said operating frame being mounted on the machine frame A at c, and having the arm C' from which the bar C² extends down to the foot lever which is not shown, a spring for retracting the lever and holding the parts in their normal position being connected to the foot lever or other suitable parts of the machine. Said frame C also serves to operate the feeding mechanism from the hopper through an arm C³ connected to a bar c' which extends up to and is connected to the rocking frame D mounted in the hopper at d'. The hopper B has a curved or semi-circular base b formed as a radius from the point at which the rocking frame D is mounted and the said rocking frame extends on both sides of the hopper and has cross arms d which have secured to them the curved plates d² d³, said plates extending from the outside of the hopper into the same through openings b' formed in the side walls just above the curved or semi-circular base b, said plates d² d³ having the same curve as the base and traveling within the hopper and practically in contact with such curved base, and said curved plates d² d³ being connected by straps d⁴ so as to operate together when the rocking frame is swung in its course. In the space between said

plates d^2 d^3 are the cross bars d^5 which travel across the discharge opening e leading to the measuring box or receptacle E. The discharge opening e leading to the measuring box or receptacle E is in the center of the base of the hopper and one of the said plates d^2 d^3 is adapted to swing over such discharge opening and close the same, so forming the cut off mechanism to close communication between the hopper and the measuring box when the measured filler is being discharged from the box. As a result of this, as the swinging frame D swings in its course when the opening between the two plates d^2 d^3 is opposite the discharge opening e , the filler can pass down into the measuring box or receptacle E; but as the frame swings farther in its course, the rear plate d^3 will pass over the opening and close it and so permit the discharge of the measured filler from the box. A further advantage of this construction is that as said curved plates travel down toward the discharge opening, they form a broad surface which will carry down the filler to the discharge opening, taking down both the large portions and the small portions thereof, and so preventing the sifting of the dust or fine portions from the filler by carrying the filler in a body to the opening, so that it may be caught by the arms f on the stirring shaft F, and carried thereby over the discharge opening e , so that it may pass down into the measuring box. Practical use of such apparatus has proven it very efficient for the purpose, while it is simple in construction.

In order to turn the shaft F and its stirring arms, the pinion f' is employed, mounted on said shaft at the side of the hopper and below the pivotal point of the swinging frame D and extending down from the frame D is the arm f^2 having the segmental geared face f^3 gearing with said pinion and acting to turn the shaft as the frame moves in its reciprocating course, turning said shaft F in the opposite directions to the movement of the curved plates so that the plates will act to bring down the filler close to the discharge opening, and as the plates recede, the arms f of the shaft will carry the filler over and force it down into the discharge opening.

The construction of the measuring box is substantially such as described in said patent No. 392,100, and it is operated in substantially the same way so that a detailed description thereof is not considered necessary, the box having the stationary rear wall e' and the door e^2 carrying the horizontal plate e^3 which extends over from the door e^2 to the plate e' and forms the bottom of the measuring box while the lever E' connects to such door and acts to open it through the frame G which pushes forward the lever E', so as to discharge the measured filler from the box upon the bunching apron, g .

The bunching apron g is secured at one end back of the measuring box and extends therefrom in front of the bunching rollers so

as to droop below the measuring box, so forming a pocket in position to receive the filler therefrom and thence extends over the bunching table G and is secured at the forward end thereof. The usual provision is made for its adjustment, and bunching aprons of different widths, according to the different lengths of cigars, can be secured in place.

It is desirable to have the bunching apron supported at the point where it droops under the measuring box so that the filler fed from the box shall drop upon the apron and be held there in substantially the shape in which it is dropped, the measuring box being adjusted to give the proper amount of filler for the different parts of the cigar, such as is described in said patent No. 392,100. For this purpose, is employed, in connection with the side plates h which confine the filler on each side of the pocket of the bunching apron, the horizontal supporting plates h' which extend inwardly such a distance as to give a support to the pocket g' of the bunching apron, these supporting plates being preferably formed of ductile material, such as sheet metal, which can be bent as desired to conform to the shape to be imparted to the cigar. The supporting plates h' are connected to the side plates h by bolts h^2 fitting in the vertical slots h^6 in the side plates so that they can be vertically adjusted to the desired position while the side plates are themselves horizontally adjustable according to the length of the cigar to be formed.

In order to adjust the supporting plates h' laterally for the different lengths of cigars, the frame A is provided with the shaft h^3 upon which slides in bearings h^4 the side plates h , being held by the set screws h^5 . The supporting plates h' are, however, of such width that they will give sufficient support to the bunching apron even though the side plates may be drawn out so far that the inner edges of the supporting plates are some distance from each other. Such construction enables the forming of a thick or thin cigar bunch and the holding the filler in the proper position to be brought into the desired shape as the bunching apron is drawn tightly around it. It is of course known that in forming these cigars it is desirable that the edge of the bunching roller shall travel close to the face of the bunching table so that as the apron moves around the bunch, there shall be no liability of any of the filler escaping or extending out between the roller and bunching table. It is also necessary that the bunching apron be taken up from one side or the other so as to form a cigar bunch according to the desired shape, that is, tapering to the point at one end and, if desired, tapering to some extent at the other. Difficulty has been experienced in arranging a bunching roller which will produce these two effects, and the desired result has been accomplished by employing a straight cylindrical bunching roller k of the same diameter throughout located beneath

the apron *g* so that it may travel close to the bunching table, and, in addition to that, may rotate freely as the apron passes around it; and above the same has been placed the apron-adjusting roller *l*, also located beneath the apron *g*, which can be made of any desired shape so as to take up any desired part of the bunching apron, such as one or both ends thereof, and impart the desired shape to the portion of the apron holding the bunch. The bunching apron passes in front of these two rollers and as the rollers are drawn forward, after the filler drops into the pocket of the bunching apron, while the one roller holds it in proper line, the other roller takes up the apron and imparts the desired shape to the cigar bunch. This apron-adjusting roller *l* is formed of a series of sleeves mounted upon the central shaft *l'*, some of these sleeves being tapering as at *l²*, and some of them of the same diameter throughout as at *l³*, and all of the sleeves being mounted centrally on the shaft *l'* and free to turn thereon, so that friction of the apron is overcome. For example, in Fig. 8 several sleeves are shown being of different lengths to provide for the proper adjustment, and the sleeves *l³* having straight or parallel surfaces while the sleeves *l²* are tapering so that they will take up the bunching apron and narrow the ends of the cigar bunch formed. The several sleeves are mounted upon the shaft *l'* and the end ones may, if desired, be locked thereto by setscrews or other devices so as to hold them in proper line while at the same time the shaft *l'* is free to turn as may be desired. The two rollers *k l* are mounted in bearing blocks *k'* into which the shafts of said rollers fit, said bearing blocks being secured to the upper ends of the frame C by bolts *k²*; and the bearing blocks *k'* may be turned or adjusted in such a way as to turn the rolls into different relative positions with each other, such, for example, to place the apron adjusting roll diagonal to the bunching roll and so change the shape of the cigar bunch. The bearing blocks are also longitudinally adjustable in the ends of the frame C, so giving the further means for adjusting or regulating the size of the bunch. In front of these rollers and in front of the bunching apron is arranged the roller *m* which is supported in brackets *m'* secured to said frame C, said roller acting to smooth out the binder as the cigar bunch is made, and also acting on the return of the operating frame C to carry back the bunching apron into proper position for receiving the next body of filler from the measuring box.

Mounted on the machine frame and swinging on arms N is the dam *n* which is adapted to swing over the bunching table and form a support for the binder as it is taken up by the bunching apron, the dam being free to swing and to be pushed forward by the bunching mechanism in its forward stroke and being retracted by a spring *n'* against a stop *n²*.

This dam mechanism forms no part of the present invention.

The bunch carrying mechanism is carried on what is termed the cam arm P pivoted at *p²*, which has formed therein the cam or eccentric guideway *p* into which enters the cross bar *r* on the operating frame C, such cross bar by traveling in the eccentric guideway *p* imparting the necessary movement to the bunch carrying arm P and by traveling upwardly in such guideway, as the frame C swings back it draws the arm P to the rear end of the machine in position for the operator to remove the cigar bunch. As the frame C moves forward, the bar *r* travels downwardly in said slot and so forces the arm P forward, this operation being continued until the arm P is carried to the full distance required, when the bar *r* passes out of the slot and into the depression *p'* of the arm P which permits the frame to swing forward far enough to carry the cigar bunch over the end of the bunching table and cause it to pass down into the carrier on the arm P. As the frame C passes backwardly the bar *r* engages the lug *r'* at the upper end of the slot *p* and so draws back the arm P and with it the bunch carrying mechanism. This lug *r'* is formed removable from the arm P being secured thereto by a bolt *r²* so that by the loosening of the bolt *r²*, the lug *r'* may be turned to one side, and in that case the arm P will not be engaged by the bar *r* but will remain at the forward end of the bunching table as shown in Fig. 1, in such position as to receive the bunch, the bunch being removed by the operator at the forward end of the machine.

The construction of the bunch carrier is more particularly shown in Figs. 6, 7 and 9; the bunch carrier marked *s*, having two arms *s' s²* formed of spring sheet metal and connected at the base, the space between such arms being adjusted by the set screws *s³*. The upper ends of said arms are bent upwardly as shown in Figs. 6 and 7 and extend out from each other so forming the seat for the reception of the cigar bunch. Secured to and forming part of the inner arm *s²* of the bunch carrier is the lip *s⁴* which extends between the arms and so forms the base of the seat between such arms, and said lip is connected to the plate *t* which plate is hinged to the extension *t'* on the cam arm P, so that the bunch carrier can swing on that extension. Secured also to the extension and pressing upon the hinged plate *t* is the leaf spring *t²* which by pressing on said hinged plate holds the bunch carrier down upon the extension *t* in the position shown in Fig. 6.

Secured to the table V of the machine is the bracket *u* in line with the travel of the bunch carrier, and just in front of the bunching table G. When the cam arm P is drawn forward, it carries with it the bunch carrier *s* which travels under the bunching table G; but as such bunch carrier is drawn to the front of the bunching table, the bracket *u*

passes under the lip s^4 of the bunch carrier and raises the bunch carrier up in line with the bunching table and into proper position to receive the cigar bunch formed by the machine, as soon as the bunching rollers pass beyond the table, the bunch carrier being thus brought up close to the bunching rolls and into such position that as soon as the bunching apron is drawn taut, it will discharge the cigar bunch into the bunching carrier. As soon as the foot is taken from the treadle, the bunching rolls and their frame C will be carried back to their normal position, and as the bunch carrier passes from the bracket, the spring t^2 will press down the carrier into its normal position so that it can pass under the bunching table, and the bar r as it travels up the cam slot or guide-way p , will carry over the bunch carrier to the rear of the machine in such position that the bunch may be lifted out of the bunch carrier by another operation and placed in the mold, which is supported on the machine.

The operation of the machine is as follows:—
 25 The cigar filler is placed within the hopper, an extension being placed above the hopper shown so as to hold a sufficient quantity thereof, and part of the filler passing down into contact with the stirring arms f of the shaft F, which as it is rotated in either direction will carry such filler down into the measuring box or receptacle E, and as the curved plates d^2 d^3 move within the hopper, they will also carry the filler down into contact with the stirring arms and assist in forcing it into the measuring box or receptacle, and as they travel over the base of the hopper will carry not only the fine, but the coarse portions of the filler with them into such position that they can be forced by the stirring arms f into the box or receptacle. The plate d^2 comes up to the edge of the measuring box but does not pass over the same, and at the same time the cross bars d^4 secured to the straps d^4 travel over the box and further assist in carrying the filler into the box. The plate d^3 , however, passes over the box and closes it so that the filler within the pocket may be discharged after it has been measured. When the operator presses down the treadle, the first operation is the opening of the box E through the lever E' which is forced over by the frame C and which opens the box and permits the discharge of the contents thereof upon the pocket g' of the bunching apron g , the arm E' being then freed from the frame C and the box closing. As the frame C moves forward and carries with it the bunching roller k , the bunching apron is drawn over so as to gather up the bunch and at the same time the operator places the binder over the dam n in position to be engaged by the roller m , the binder extending down into the pocket of the bunching apron, and the bunching roller then draws the bunching apron over onto the bunching table, and as the bunch is rolled within the bunching apron, the binder is rolled around the bunch

so as to form the finished bunch. During this operation the apron adjusting roller by the irregularities or enlargements thereon, or by its position with relation to the bunching roller, takes up part of the apron so as to impart the desired shape to the bunch, tapering it at the ends as desired. During the movement of the bunching roller across the bunching table, the bunch carrier is being drawn forward under the table, and as soon as it reaches the forward end of the bunching table, the bunch carrier is raised by the bracket u up in line with the upper surface of the table and into such position that as the bunching roller passes off the forward end of the table and draws the bunching apron taut, the cigar bunch will be discharged into the bunch carrier s , which will hold it and prevent the unwrapping of the binder, and the bunch carrier will carry the bunch to the rear of the machine where the bunch may be lifted out from the bunch carrier by another operation and placed in the mold. As soon as the frame C reaches its normal position, the arm or lever E' of the measuring box will again engage with it ready to open the measuring box. During this operation, the measuring box will close and the curved cut off plate d^3 will be drawn from over it and the cigar filler will be forced down into the measuring box, and as the parts return to their normal position, the plate d^3 will again pass over the measuring box and close the same so that on the next stroke of the machine the operation will be repeated.

The machine is simple in construction, and all the parts are positive in their action, the machine having been employed in practical use and having been proved efficient for the purpose intended.

What is claimed is—

1. In a cigar bunching machine, the combination of a hopper having a curved base, an opening in the side wall at the top of said curved base, and an opening in the base communicating with a measuring box, a curved plate passing through the opening in the side wall adapted to travel over said base and close the top of the measuring box, substantially as and for the purposes set forth.

2. In a cigar bunching machine, the combination of a hopper having a curved base on its inside provided with a central opening over a measuring box, and having openings in the side walls at the ends of said curved base, and a frame mounted on the hopper and having curved plates passing through such side openings and adapted to travel over the curved base, and close the opening in the measuring box substantially as and for the purposes set forth.

3. In a cigar bunching machine, the combination of a hopper having a curved base on its inside provided with a central opening over a measuring box and having openings in the side wall at the ends of said curved base and a frame mounted on the hopper and

having curved plates passing through such side openings and adapted to travel over the curved base, and close the opening in the measuring box and bars extending across the space between said curved plates and adapted to travel over the opening of the measuring box, substantially as and for the purposes set forth.

4. In a cigar bunching machine, the combination of a hopper having a curved base on its inside and an opening in the center thereof communicating with a measuring box, a stirring bar having arms thereon mounted in the hopper above said opening, and a curved plate traveling over the curved base to close the opening in the measuring box, substantially as and for the purposes set forth.

5. In a cigar bunching machine, the combination of a hopper having a curved base on its inside, a central opening in said base above said box and openings in the side walls at the ends of said curved base, a rocking frame carrying curved plates passing into the hopper through such openings and traveling over the curved base to close the opening in the measuring box, and a stirring bar mounted in the hopper and provided with arms above the opening of the measuring box, substantially as and for the purposes set forth.

6. In a cigar bunching machine, the combination of a hopper having a curved base on its inside, a central opening in said base above said box and openings in the side walls at the ends of said curved base, a rocking frame carrying curved plates passing into the hopper through such openings and traveling over the curved base to close the opening in the measuring box, and a stirring bar having arms thereon mounted in the hopper above the opening of the measuring box, said stirring bar carrying a pinion and said rocking frame having segmental gear engaging therewith, substantially as and for the purposes set forth.

7. In a cigar bunching machine, the combination of a bunching table, a bunching apron, a bunching roller having a straight face and an apron adjusting roller of irregular shape above the bunching roller, substantially as and for the purposes set forth.

8. In a cigar bunching machine, the combination of a bunching table, a bunching apron, a bunching roller having a straight face and an apron adjusting roller of irregular shape above the bunching roller, said apron-adjusting roller being adjustable with relation to the position of the bunching roller, substantially as and for the purposes set forth.

9. In a cigar bunching machine, the combination of a bunching table, a bunching apron, a bunching roller having a straight face and an apron-adjusting roller of irregular shape above the bunching roller, said apron-adjusting roller being formed of different sleeves mounted on a shaft and adjustable thereon according to the shape desired for the bunch,

substantially as and for the purposes set forth.

10. In a cigar bunching machine, the combination of a bunching table, a bunching apron, a bunching roller having a straight face traveling over said table, an apron-adjusting roller above the bunching roller and of irregular shape, said rollers being back of the bunching apron, and a roller mounted in front of the bunching roller and in front of the bunching apron, substantially as and for the purposes set forth.

11. In a cigar bunching machine, the combination with a traveling bunching roller of a bunching table, a bunching apron extending over the table and having a pocket at the rear end thereof so as to receive the filler, and a supporting plate extending under said pocket of the bunching apron, said plate being vertically adjustable, substantially as and for the purposes set forth.

12. In a cigar bunching machine, the combination of a bunching table, a bunching apron extending over the table and having a pocket at the rear end thereof so as to receive the filler, plates forming the sides of said pocket, and a supporting plate extending under said pocket of the bunching apron, said plate being formed in sections and said sections being secured to and extending inwardly from the side plates, which side plates are adjustable from and toward each other, substantially as and for the purposes set forth.

13. In a cigar bunching machine, the combination of an arm pivoted on the machine frame and having a groove or guideway thereon, said arm carrying a bunch carrier and an operating frame having a bar thereon entering said guideway and imparting movement to said arm, substantially as and for the purposes set forth.

14. In a cigar bunching machine, the combination of the arm P supporting a bunch carrier and having the guideway *p*, and the frame C having the bar *r* entering such guideway so as to impart motion to said arm P, substantially as and for the purposes set forth.

15. In a cigar bunching machine, the combination of the arm P supporting a bunch carrier and having the guideway *p* and the depression *p'* below the same, and the operating frame C having the bar *r* adapted to travel in the said guideway and to enter said depression, substantially as and for the purposes set forth.

16. In cigar bunching machines, the combination of the arm P supporting a bunching carrier and having the guideway *p* and the removable lug or shoe *r'* at the lower end of said guideway, and the operative frame C having the bar *r* entering said guideway and adapted to contact with said removable shoe, substantially as and for the purposes set forth.

17. In a cigar bunching machine, the combination of a carrier support reciprocating be-

tween the front and back portions of said machine, a bunching carrier pivoted to said support, and a bracket adapted to engage with said bunch carrier and to lift it in front of the bunching table of the machine, substantially as and for the purposes set forth.

18. In a cigar bunching machine, the combination of a carrier support reciprocating between the front and back portions of the machine, a bunch carrier pivoted to said support, a spring pressing against said bunch carrier to hold it down, and a bracket adapted to engage with said bunch carrier and raise it up in front of the bunching table, substantially as and for the purposes set forth.

19. In a cigar bunching machine, the combination of a bunching table, a bunching apron secured at the forward end thereof, a bunching roller traveling over said table, a bunch carrier reciprocating under the table, and a finger engaging with the bunch carrier and adapted to raise it up in front of the bunching table to receive the bunch as the bunching roller passes off the forward end of the table, substantially as and for the purposes set forth.

20. In a cigar bunching machine, the combination of a carrier support, the bunch carrier s pivoted thereto and having the lip s⁴ extending out at the forward end thereof, and the stationary bracket u adapted to pass un-

der said lip and raise the bunch carrier, substantially as and for the purposes set forth.

21. In a cigar bunching machine, the combination of a carrier support, the bunch carrier hinged or pivoted thereto by one plate s' thereof, having fingers extending down on each side of the support and the other arm or plate s³ in front of the plate s' having fingers extending down at the sides of the support and connected to the bases of the fingers s', substantially as and for the purposes set forth.

22. In a cigar bunching machine, the combination of the carrier support P, the bunch carrier hinged or pivoted thereto by one plate s' thereof, having fingers extending down on each side of the support and the other arm or plate s³ in front of the plate s' having fingers extending down at the sides of the support and connected to the bases of the fingers of the plate s' and the adjusting screws s³ between said plates s' and s³, substantially as and for the purposes set forth.

In testimony whereof I, the said FRANK BROWNING, have hereunto set my hand.

FRANK BROWNING,
Administrator of the estate of Clinton Browning, deceased.

Witnesses:

J. N. COOKE,
ROBT. D. TOTTEN.