

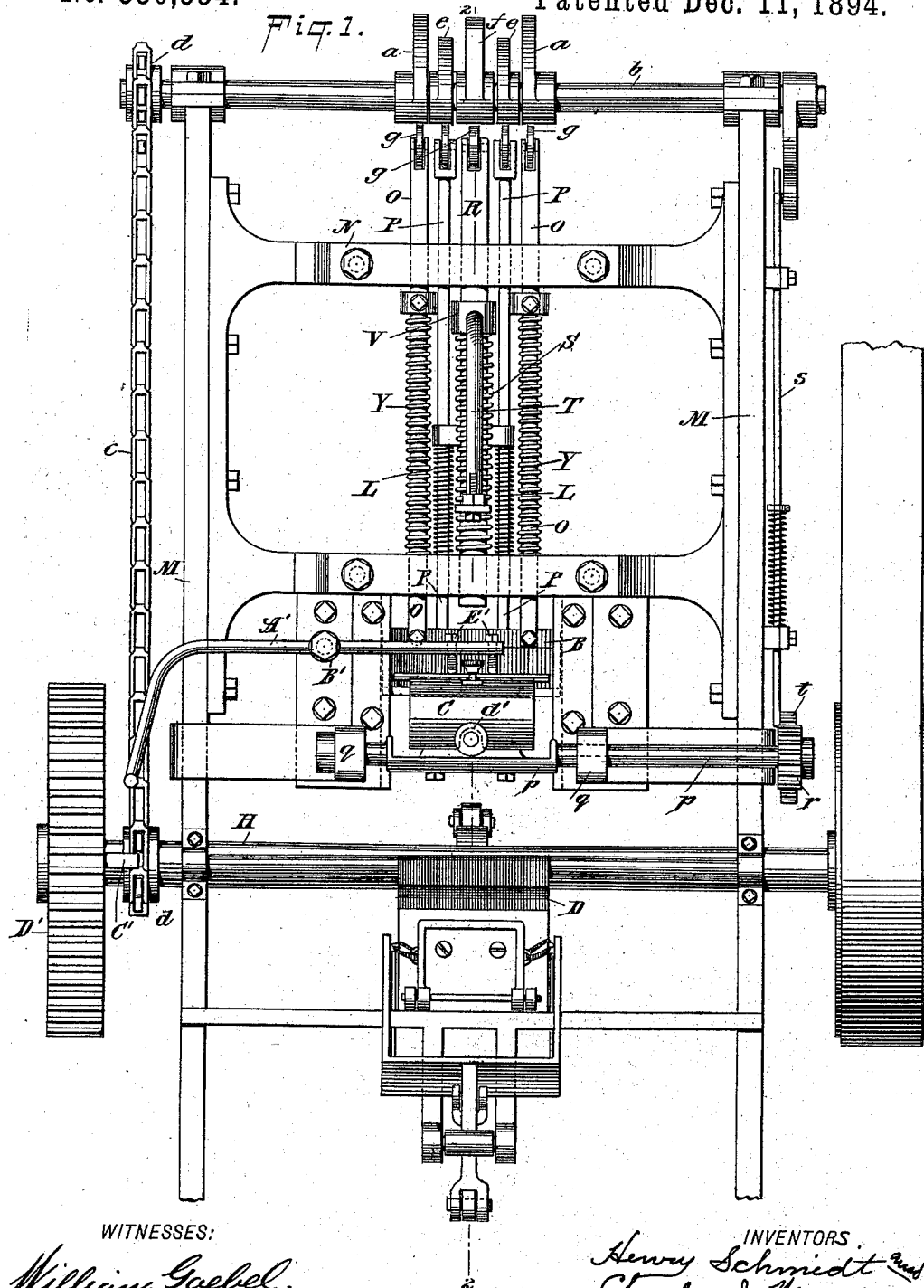
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4 Sheets—Sheet 1.

H. SCHMIDT & C. J. WERNER.
CIGAR BUNCHING MACHINE.

No. 530,554.

Patented Dec. 11, 1894.



WITNESSES:

William Gaebel.
Herman Gustow

INVENTORS.

Henry Schmidt and
Charles J. Werner,
BY

Chas. O'Gill
ATTORNEY.

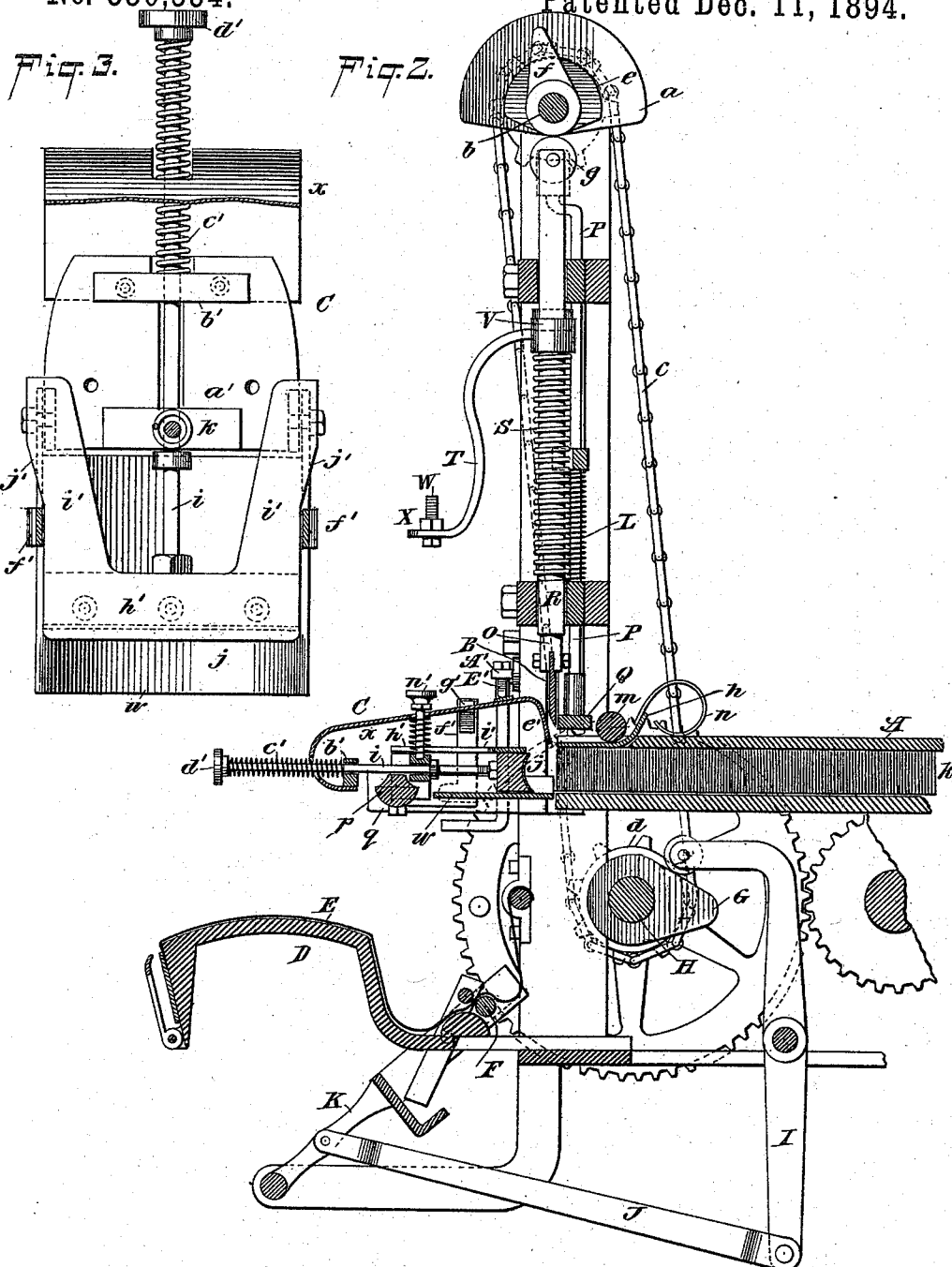
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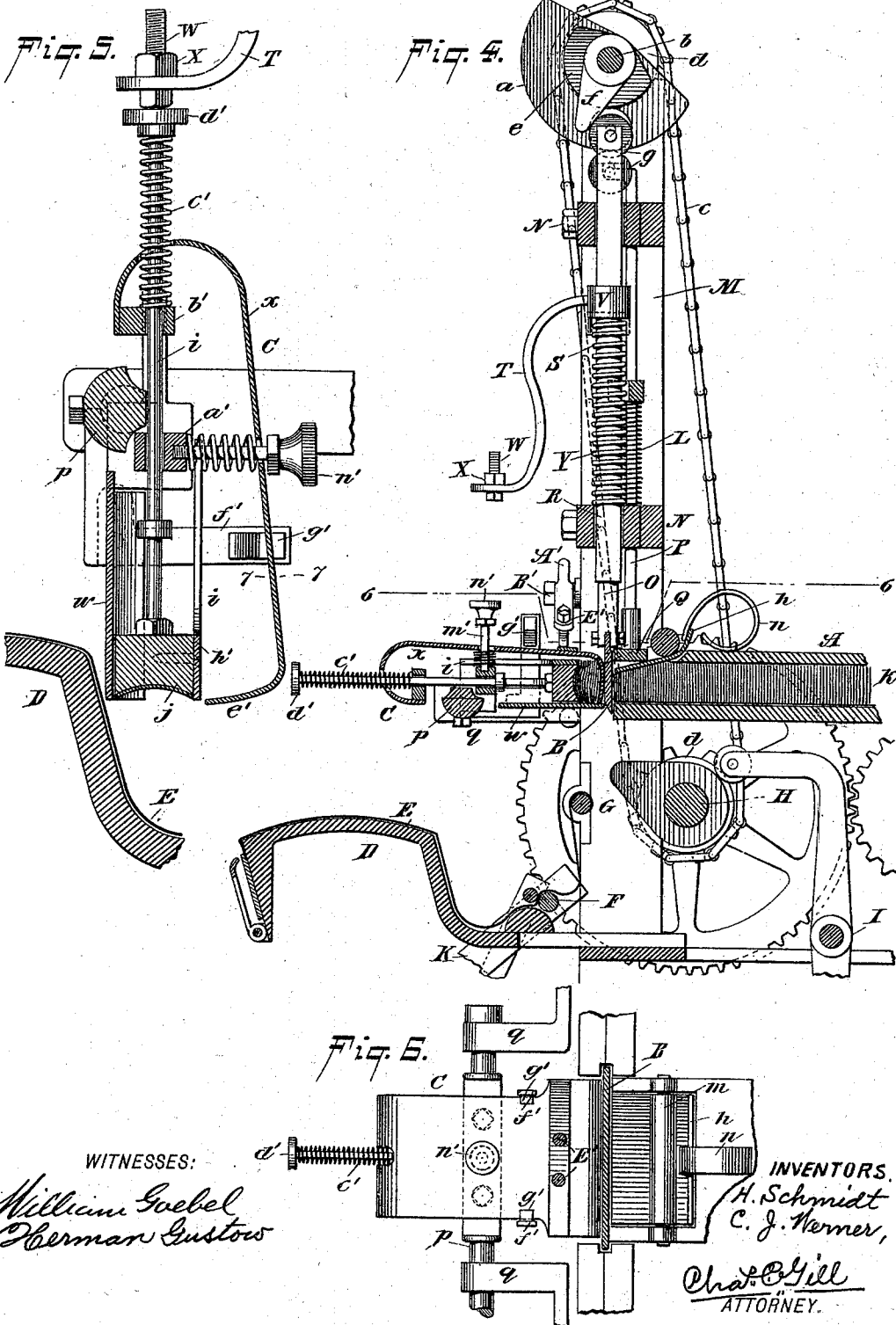
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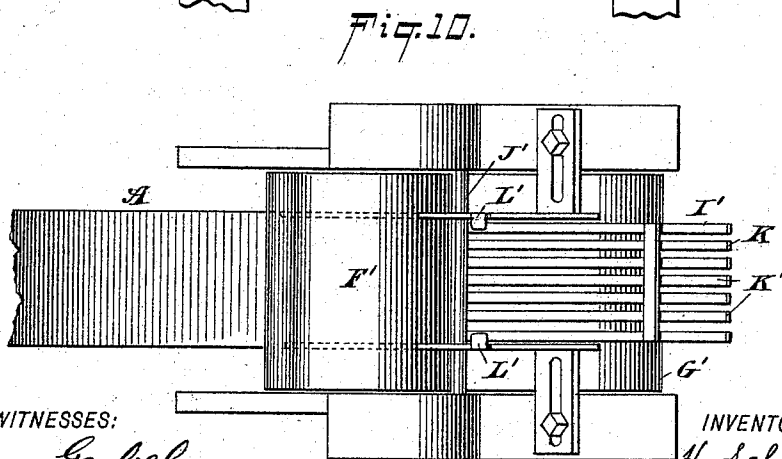
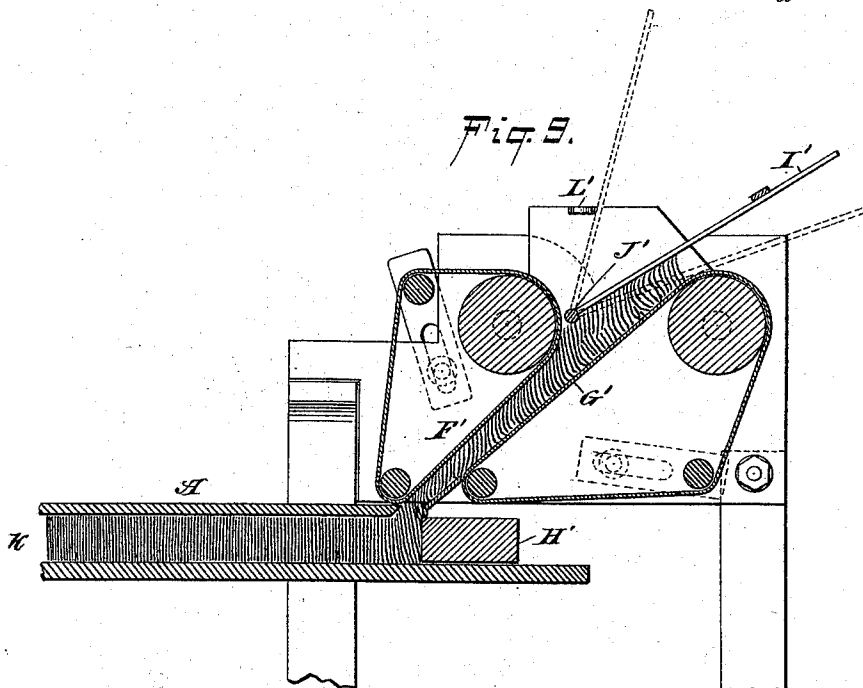
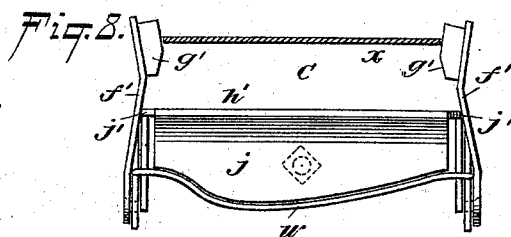
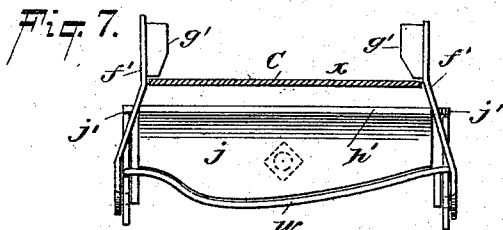
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4 Sheets—Sheet 4.

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WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY SCHMIDT AND CHARLES J. WERNER, OF NEW YORK, N. Y.

CIGAR-BUNCHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 530,554, dated December 11, 1894.

Application filed May 9, 1894. Serial No. 510,581. (No model.)

To all whom it may concern:

Be it known that we, HENRY SCHMIDT and CHARLES J. WERNER, citizens of the United States, and residents of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Cigar-Bunching Machines, of which the following is a specification.

The invention relates to improvements in cigar bunching machines, and consists in certain novel features of construction and combinations of parts hereinafter particularly described and set forth.

The invention made the subject hereof embodies certain improvements on the cigar bunching machines described and claimed in Letters Patent of the United States heretofore granted to Schmidt, Merunka and Werner, and numbered and dated as follows: No. 465,499, of December 22, 1891, and No. 492,438, of February 28, 1893; and the object of the present invention is to render more efficient, convenient and positive the making of uniform bunches on said machines.

The invention will be more fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of a cigar bunching machine constructed in accordance with and embodying the invention. Fig. 2 is a vertical longitudinal section of same on the dotted line 2—2 of Fig. 1, the parts of the machine being shown in position to permit the feeding of the filler tobacco from the main trough therefor into the oscillating charge carrier by which it is delivered to the bunch rolling mechanism. Fig. 3 is an enlarged plan view, partly broken away, of the oscillating charge carrier. Fig. 4 is a sectional view of the machine corresponding with Fig. 2, but illustrating the position the parts of the machine will have after the filler tobacco has been fed forward into the oscillating charge carrier, the knife has descended to sever the charge of filler tobacco, and the carrier has been closed preparatory to being turned downward toward the rolling mechanism. Fig. 5 is an enlarged central vertical longitudinal section of the oscillating charge carrier shown open and with the plunger therein depressed toward the rolling table. Fig. 6 is a horizon-

tal section of the machine on the dotted line 6—6 of Fig. 4, looking downward. Fig. 7 is a view of the entrance end of the oscillating charge carrier shown closed, the hinged side of said carrier being in section on the dotted line 7—7 of Fig. 5. Fig. 8 is a like view of same shown open. Fig. 9 is a central vertical longitudinal section through that end of the machine at which the filler tobacco is fed to the endless belts which move it downward to the trough through which it passes to the knife which severs the charges thereof for the bunches, and Fig. 10 is a top view of same.

In the drawings forming a part of this application we have omitted the mechanism for forming the elongated mass of filler tobacco having an outline in cross section corresponding with that of a cigar, and also the mechanism for moving the filler tobacco through the trough, as well as parts of the supporting frame of the machine, since these features are not claimed herein and are fully disclosed in the patents hereinbefore referred to.

In the accompanying drawings A designates the trough through which the filler tobacco in the form of an elongated mass is fed; B, the knife which severs the charges thereof; C, the oscillatory charge carrier, and D the rolling table having an apron E and also a bunching roller F, the latter being operable from a cam G on the main driving shaft H, through the medium of the rocking lever I, connecting rod J and pivoted arms K, the latter carrying between their upper ends the bunching roller F which co-operates with the apron E in the rolling of the bunches in a well known manner, and as specifically pointed out in the patents above referred to.

The cam G and connections intermediate the same and the roller F form no part of the present invention, but are indicated in Fig. 2 for clearness of illustration.

The trough A is the same as the trough illustrated in the aforesaid Patents Nos. 465,499 and 492,438, respectively, and constitutes no part of the present invention.

The discharge end of the trough A terminates between the standards M, M, located at the front of the cigar bunching machine, as indicated in Figs. 1 and 4, and between the standards M, M, are arranged the cross bars N, N, which serve as stays and guides for the

rods O, O, carrying the knife B, and also for the rods P, P, which carry at their lower ends the presser plate Q, the latter being in close proximity to and at the rear side of the knife B. The cross bars N, N, also serve as guides for the rod R, which as illustrated in Fig. 1 is provided with the coiled spring S and arm T, the latter extending forward and downward from a collar V secured on said rod and provided at its lower horizontal end with the rod W which is vertically adjustable by means of the screw threads cut thereon and may be locked at any desired adjustment by means of the nut X. The rods O carrying the knife B have a spring tension upward by reason of the springs Y and are caused to have their downward motion by means of the cams *a*, *a*, secured upon the auxiliary driving shaft *b* which extends across and connects the standards M, M. The auxiliary driving shaft *b* receives its motion from the main driving shaft H through the medium of the chain *c* and sprocket wheels *d*, *d*, as illustrated in Fig. 1 and as shown also in the patent hereinbefore referred to numbered 492,438. The rods P, P, have a spring tension upward due to the coiled springs L, thereon, and are given their descending motion from the auxiliary driving shaft *b* through the cams *e*, *e*, on said shaft; and the rod R which also has a spring tension upward has imparted to it its downward motion from the cam *f* secured upon the auxiliary driving shaft *b*. The rods O, P, R, are provided with rollers *g*, shown in Fig. 1, which owing to the spring action of said rods are in constant contact with the cams *a*, *e*, and *f*.

The object of the cams *a* is simply to depress at the proper time the knife B for severing a charge of the filler tobacco suitable for a bunch, while the cams *e* effect the depression of the presser plate Q against the plate *h* pressing upon the tobacco adjacent to the point at which the knife B severs the charge. The cam *f* is utilized for depressing the rod R and arm T in order that the latter at its lower end may come into contact with the upper end of the plunger rod *i* located within the oscillating charge carrier C and operate to depress the plunger *j* for the purpose of ejecting the charge of tobacco from said carrier, allowing it to descend upon the rolling table D, where in a well known manner it will be formed into a bunch.

The plate *h* is illustrated in its upper position upon the filler tobacco in Fig. 2, while in Fig. 4 it is shown firmly depressed against the tobacco, in which position it will prevent the latter from being carried upward with the knife B upon the ascent of the latter. The plate *h* extends substantially the full width of the mass of filler tobacco lettered *k* and is secured to a roller *m* which permits of the said plate having a rocking motion. When the presser plate Q is elevated, the spring *n* serves to impart to the plate *h* a spring pressure against the tobacco, whereby the latter at the exit end of the trough A is prevented

from unduly expanding or springing outward into the carrier C, as would be its natural tendency if left unrestrained. The presser plate *h* and pressure plate Q constitute a portion of the present invention.

The charge carrier C is secured to the shaft *p* which is mounted in the forwardly projecting arms *q* and is provided upon one end with a pinion wheel *r* which is operated from the auxiliary driving shaft *b* through the rod *s* and segment *t*, as fully described and shown in the Letters Patent hereinbefore referred to, No. 465,499. The shaft *p* has simply an oscillatory motion imparted to it for the purpose of permitting the charge carrier C to turn upward in line with the trough A and then downward to deposit the charge of tobacco on the rolling table, and hence the present invention is not confined to any special means for imparting to the shaft *p* its oscillating movement, such mechanism having been already disclosed in the prior patents hereinbefore referred to.

The charge carrier C constitutes one feature of the invention sought to be protected hereby and said carrier consists of a back plate *w*, the plunger *j*, the hinged plate *x* and other features which will be presently referred to. The plunger *j* has a reciprocating movement due to the plunger rod *i* which extends upward from the plunger through the guides *a'*, *b'*, and is provided with a spring *c'* intermediate the guide *b'* and the head *d'* secured upon the upper end of said rod. The spring *c'* imparts an outward tension to the rod *i* which serves to draw the plunger *j* inward within the main portion of the carrier C except when the force of said spring *c'* is overcome by the arm T, as hereinafter explained. The hinged plate *x* of the charge carrier C will preferably be formed of a sheet of steel secured at its upper end to the transverse guide bar *b'*, and thence curving upward toward the opposite side of said guide bar and then downward to a point adjacent to the lower edge of the plate *w* where it turns toward said plate and forms a lip *e'*, which serves at the proper time to close the charge carrier, as illustrated in Fig. 4. Upon opposite sides of the charge carrier C are provided the spring plates *f'*, *f'*, having at their outer ends the shoulders *g'* adapted when the plate *x* is closed toward the plate *w* to engage said plate *x* at its opposite outer edges, as shown in Fig. 7, and thus lock the same in its closed position, whereby during the downward movement of the carrier C from the position shown in Fig. 4 to that illustrated in Fig. 5, there will be no opportunity for the charge of filler tobacco to escape. Upon that side of the plunger *j* adjacent to the plate *x* is secured the plate *h'* having at its opposite ends the arms *i'*, *i'*, forming at their outer edges the inclined cams *j'*, *j'*, as shown more clearly in Fig. 3, and which cams when the plunger *j* is in its inward position, as shown in Fig. 3, will be removed from the spring arms *f'*, *f'*,

but which upon the descent of the plunger *j* due to the pressure of the arm *T* will be wedged between the said spring plates *f'*, and force the same outward from each other, thus removing the shoulders *g'* from the edges of the plate *x* and permitting the latter to spring outward to the position illustrated in Figs. 5 and 8. The plate *x* has a natural tendency to spring outward, but in order to increase the outward tension of the plate *x* and to render the operation of the same positive at all times, we have provided the spring *k'* on the rod *m'* intermediate the inner surface of the plate *x* and the transverse guide bar *a'* as shown more clearly in Fig. 5. The tension of the spring *k'* is exerted against the plate *x* to force the same outward and this outward movement is effectually restrained within proper limits by means of the nut *n'* located upon the outer end of said rod *m'*. When the carrier *C* is in its horizontal position and has received a charge of filler tobacco for a bunch, as shown in Fig. 4, the plate *x* will be closed and will remain closed until the carrier has turned downward to its vertical position, shown in Fig. 5, at which time the depression of the rod *R* by means of the cam *f* will carry the arm *T* against the upper end of the plunger rod *i* and depressing the same with the plunger *j* will wedge the cam edges *j'* against the spring arms *f'*, forcing the latter outward and permitting the plate *x* to open as illustrated.

While the carrier *C* is in its horizontal position shown in Fig. 4 the plunger rod *i* will be held outward by means of the spring *c'*. The outward movement of the rod *i* draws the plunger *j* inward, thus relieving the spring arms *f'* from the engagement therewith of the cam edges *j'* and leaving the plate *x* free to be closed. The plate *x* is closed by means of the rocking arm *A'* pivotally secured on the pin *B'* and having one end in position to be engaged by the pin *C'* secured upon the inner face of the wheel *D'*, as shown in Fig. 1, while the other end of said arm *A'* extends inward and is provided with the screws or threaded rods *E', E'*, the lower ends of which terminate in proper position to be depressed upon the plate *x* when the carrier *C* is in its horizontal position and the outer end of the rod *A'* is forced upward by the contact therewith of the pin *C'* during the revolution of the wheel *D'*.

When the carrier *C* first arrives at its horizontal position the plate *x* will be open and the tobacco *h* in the trough *A* will be fed into the carrier *C* and against its plunger *j*.

The operative parts of the machine are so timed that when a sufficient quantity of the tobacco has entered the carrier *C* the presser plate *Q* will descend upon and depress the plate *h* against the tobacco, and the knife *B* will descend, severing the charge thereof, as illustrated in Fig. 4, and almost simultaneously therewith the pin *C'* will meet the outer end of the rocking arm *A'* and depress the

inner end thereof to close the plate *x* so as to effectually retain the charge of filler tobacco within the carrier *C*. As soon as the pin *C'* passes the end of the rocking arm *A'* the latter will cease to maintain any pressure upon the plate *x*; but at such time the shoulders *g'* on the spring arms *f'* will retain the plate *x* in its closed position. As soon as the charge carrier *C* has been closed it will be turned to its vertical position shown in Fig. 5 by means of the rock shaft *p*, whereupon the cam *f* will depress the rod *R* and cause the arm *T* to descend upon the upper end of the plunger rod *i* for the purpose of depressing the plunger *j*, freeing the plate *x* from the shoulders *g'* and ejecting the charge of filler tobacco, the latter being permitted to descend upon the rolling table preparatory to the rolling of the bunch.

After the charge of filler tobacco has been ejected from the carrier *C* the cam *f* permits the elevation of the rod *R*, thus freeing the arm *T* from the plunger rod *i* and permitting the spring *c'* to withdraw the plunger *j* into the carrier and leaving the latter in condition to be immediately turned upward to its horizontal position to receive a further charge of filler tobacco. Upon the carrier *C* again reaching its horizontal position, the knife *B* will ascend and in this movement will be quickly followed by the plate *Q*, at which time the filler tobacco will again feed into the carrier *C* as before. The plate *Q* descends slightly in advance of the knife *B* and remains down slightly longer than said knife, and both plate and knife remain down while the carrier *C* moves to its vertical position closed and returns to its horizontal position open.

The carrier *C* constructed as above described constitutes a part of the invention sought to be protected hereby.

At the inlet end of the trough *A* are provided the feed belts *F', G'*, mounted upon rollers and arranged substantially as illustrated in the aforesaid Letters Patent No. 492,438. As the filler tobacco is fed downward by the endless belts *F', G'*, it is, as shown and described in said Patent No. 492,438, forced into the trough *A* by means of the reciprocating plunger *H'*. The novel feature of construction provided at the feeding end of the machine is the hinged board *I'*, which as shown in Fig. 9 is secured at its lower end on a pivot rod *J'* which will permit the board *I'* to be raised or lowered at will, as indicated by dotted lines. The board *I'* will preferably be composed of the slats *K'* as indicated more clearly in Fig. 10 in order that the operator may be enabled to observe the tobacco without elevating the board *I'*. At opposite sides of the board *I'* are the studs *L'* which prevent the said board from being raised upward and thrown back upon the belt *F'*. The object of the board *I'* is to facilitate the proper feeding of the filler tobacco into the space leading to and between the belts *F', G'*.

It has been found that where the space between the upper large rollers of the belts F', G', has been filled with the filler tobacco, the latter is apt to become irregular in its consistency and that some parts thereof would become more firmly compacted than other parts and that the liability of the tobacco to clog at the lower ends of the belts F', G', is increased. When the board I' is made use of the operator has a guide by which to direct him in the feeding of the filler tobacco, and said board has a tendency to prevent any over-feeding of the filler tobacco even through carelessness. The filler tobacco is by hand placed upon the belt G' to about the quantity illustrated in Fig. 9, and the board I' permitted to rest upon it. After the belts F', G', have carried the tobacco downward until the board I' has descended upon the belt G' as indicated by dotted lines in Fig. 9, it will be an indication that an additional supply of the filler tobacco may be safely given to the feeding belts, at which time the operator will insert an additional quantity of the tobacco below said board and upon the belt G'.

In view of the fact that the board I' is composed of slats, as illustrated in Fig. 10, the operator may at all times observe the condition of the feeding of the tobacco downward between the belts F', G'. The pressure of the board I' on the filler tobacco serves to keep it retained against the belt G', which thus is to a greater extent enabled to perform its full operation of moving the mass of tobacco. The studs L' prevent the board I' from remaining upward free of the tobacco and also operate as a safe-guard against the operator throwing the board I' over upon the belt F', in which position it would fail to accomplish the very important objects now attained by it.

From the foregoing description it will be observed that the main features of invention sought to be protected by this application and which are improvements upon the machine of the patents hereinbefore referred to, are the plate *h*, presser plate Q, the carrier C, with the means for operating the said parts, and the hinged board I', the operation of all of which features has been fully described above.

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

1. In a cigar bunching machine the trough through which the mass of filler tobacco is fed, and the plate *h* extending transversely across and forming the upper surface of said trough at its outlet end and resting on the filler tobacco, combined with the vertically reciprocating presser plate over said hinged plate, the reciprocating knife for severing the charge of tobacco, bunch rolling mechanism and means for delivering the severed charge of tobacco to said mechanism; substantially as and for the purposes set forth.

2. In a cigar bunching machine the trough

through which the mass of filler tobacco is fed, the hinged plate *h* extending transversely across and forming the upper surface of said trough at its outlet end, and the spring connected with said plate, combined with the vertically reciprocating presser plate over said hinged plate, the reciprocating knife for severing the charge of tobacco, bunch rolling mechanism and means for delivering the severed charge of tobacco to said mechanism; substantially as and for the purposes set forth.

3. In a cigar bunching machine, the trough through which the mass of filler tobacco is fed, and bunch rolling mechanism, combined with the knife B for severing the charge of tobacco, the rods O having coiled springs and carrying said knife, the presser plate Q independent of said knife but adjacent thereto, the rod P having coiled springs and carrying said presser plate, the transverse guides N for said rods O, P, the shaft *b* above said rods, the cams on said shaft and engaging said rods, and means for conveying the severed charges of filler tobacco to the bunch rolling mechanism; substantially as and for the purposes set forth.

4. In a cigar bunching machine, the feed trough for filler tobacco, the knife for severing the charges thereof, and bunch rolling mechanism, combined with the oscillatory charge carrier for conveying the severed charges of tobacco to the bunch rolling mechanism and consisting of the plate *w*, hinged plate *x*, plunger *j*, plunger rod *i*, spring arms *f'* having shoulders *g'*, and plate *h'* having cam edges *j'*; means for closing said carrier while in horizontal position, and means for depressing the plunger and opening said carrier when the latter is in its vertical position; substantially as and for the purposes set forth.

5. In a cigar bunching machine, the feed trough for filler tobacco, the knife for severing the charges thereof, and bunch rolling mechanism, combined with the oscillatory charge carrier for conveying the severed charges of tobacco to the bunch rolling mechanism and consisting of the plate *w*, hinged plate *x*, plunger *j*, plunger rod *i*, spring arms *f'*, having shoulders *g'*, and plate *h'* having cam edges *j'*; means for closing said carrier while in a horizontal position, the vertically reciprocating rod R, having a spring S and arm T, the shaft *b*, and the cam *f* on said shaft for depressing the rod R and causing the arm T to depress the said plunger rod and plunger and open said carrier; substantially as and for the purposes set forth.

6. In a cigar bunching machine the feed trough for filler tobacco, the knife for severing the charges thereof, and bunch rolling mechanism, combined with the oscillatory charge carrier for conveying the severed charges of tobacco to the bunch rolling mechanism and consisting of the plate *w*, hinged plate *x*, plunger *j*, plunger rod *i*, spring arms *f'* having shoulders *g'*, and plate *h'* having

cam edges *j'*; the pivoted rod *A'* for closing the carrier while in its horizontal position, the pin on the wheel for actuating said pivoted rod, and means for opening said carrier while in its vertical position; substantially as and for the purposes set forth.

7. In a cigar bunching machine, the feed trough, the knife for severing the charges of filler tobacco, bunch rolling mechanism, and means for conveying the severed charges of tobacco to said mechanism, combined with the endless feed-belts *F'*, *G'*, and the hinged board *I'* extending over the belt *G'*; substantially as shown and described.

8. In a cigar bunching machine, the feed trough, the knife for severing the charges of filler tobacco, bunch rolling mechanism, and means for conveying the severed charges of tobacco to said mechanism, combined with the endless feed-belts *F'*, *G'*, and the hinged board *I'* composed of separated slats and ex-

tending over the belt *G'*; substantially as shown and described.

9. In a cigar bunching machine, the feed trough, the knife for severing the charges of filler tobacco, bunch rolling mechanism, and means for conveying the severed charges of tobacco to said mechanism, combined with the endless feed-belts *F'*, *G'*, the hinged board *I'* extending over the belt *G'*, and the stops *L'* preventing the said board from remaining upward unsupported; substantially as shown and described.

Signed at New York, in the county of New York and State of New York, this 5th day of May, A. D. 1894.

HENRY SCHMIDT.
CHARLES J. WERNER.

Witnesses:

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