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No. 785,688. PATENTED MAR. 21, 1905.

A. F. WALLBILLICH.

CIGAR ROLLING MACHINE.

APPLICATION FILED MAY 9, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

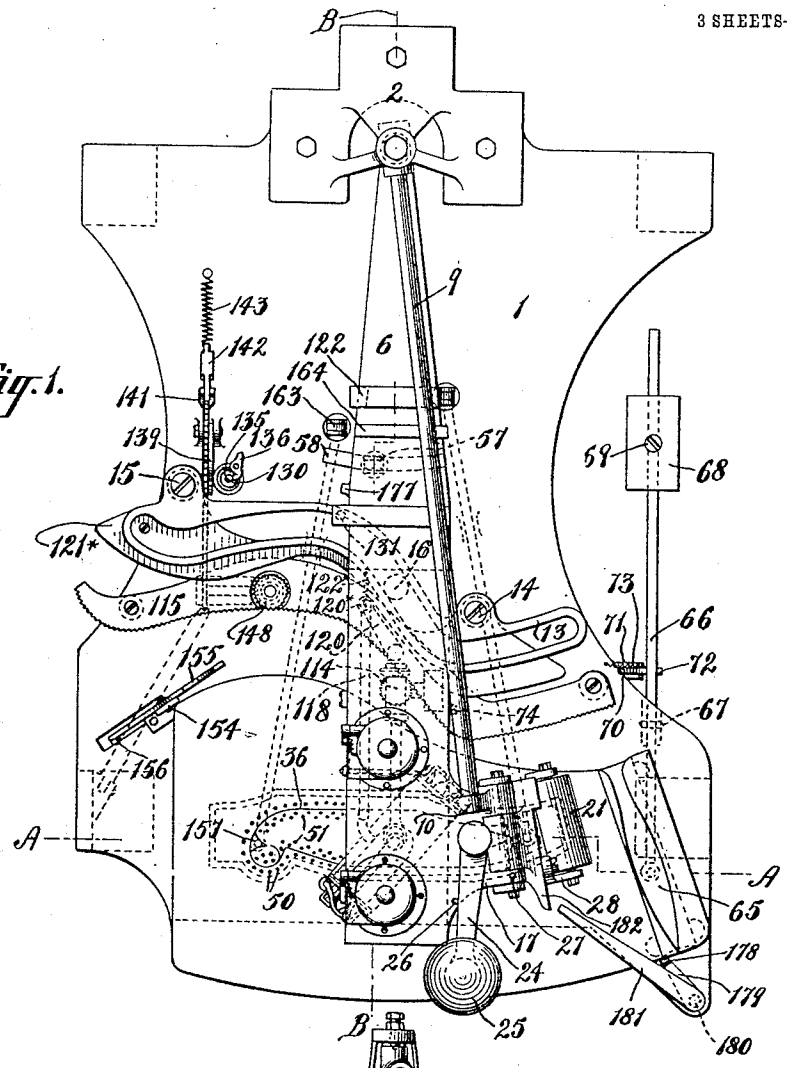
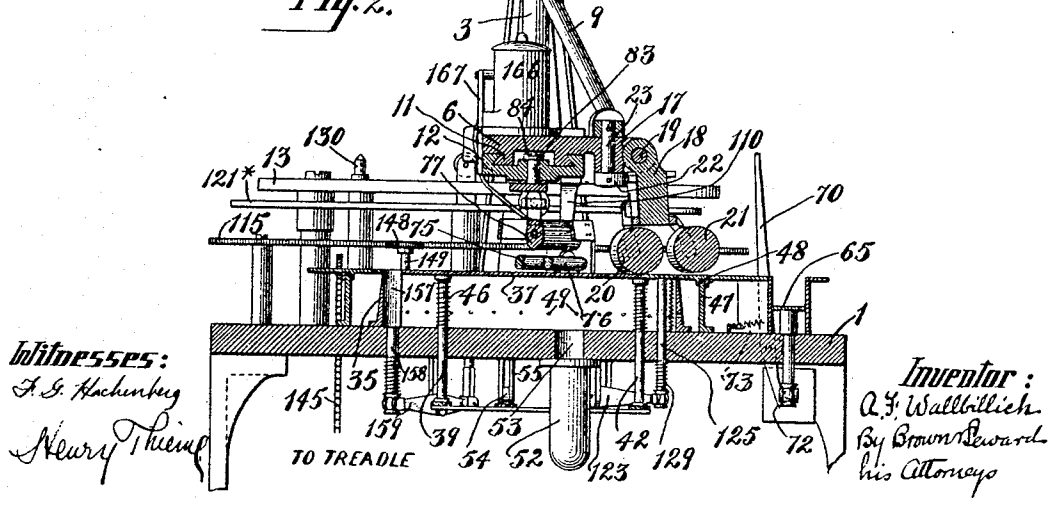


Fig. 2.



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Fig. 3.

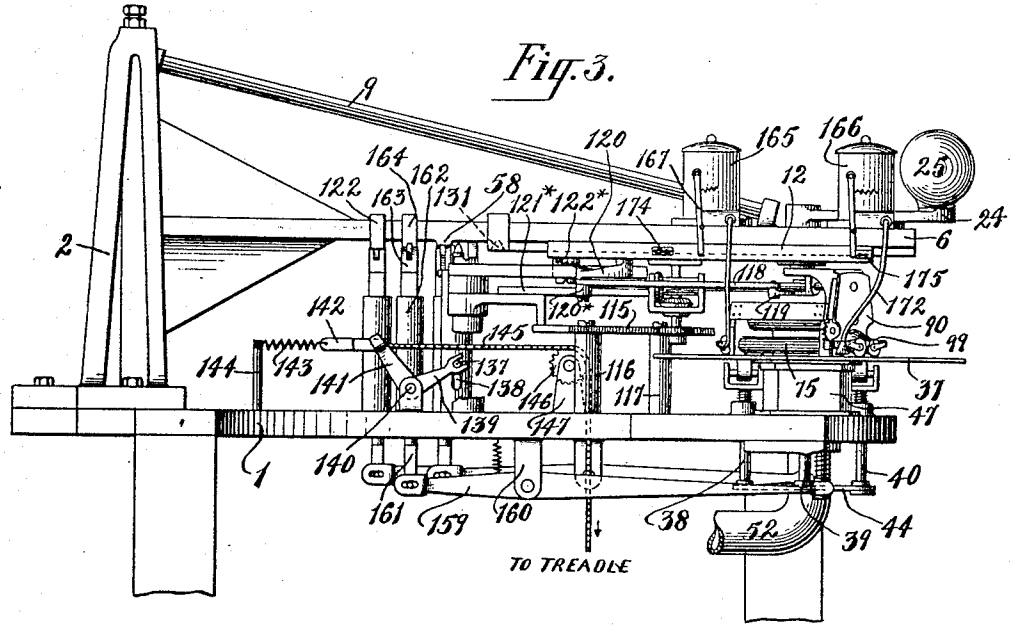


Fig. 4.

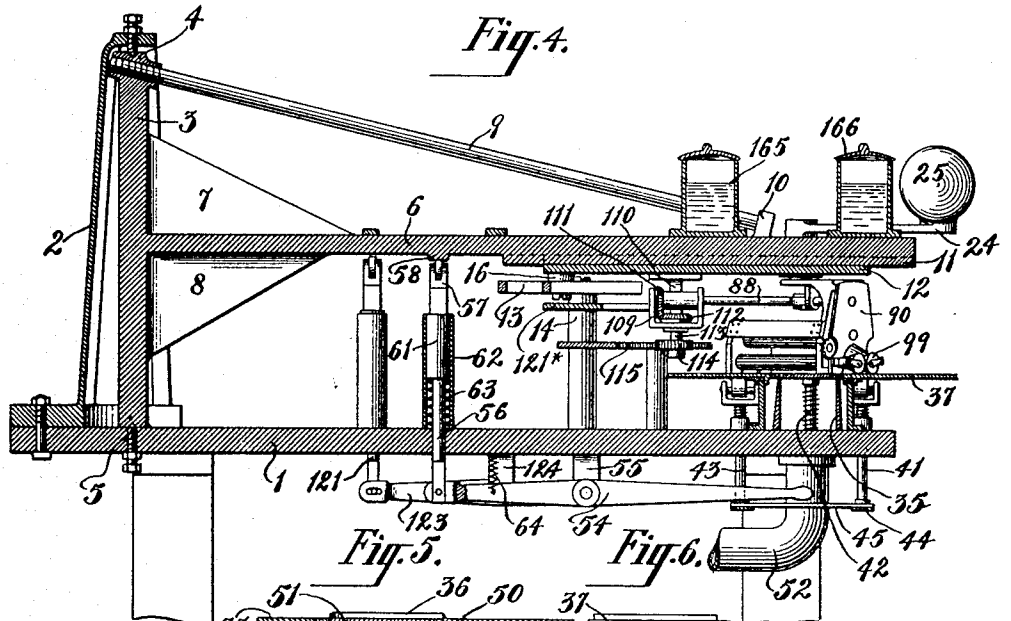


Fig. 5.

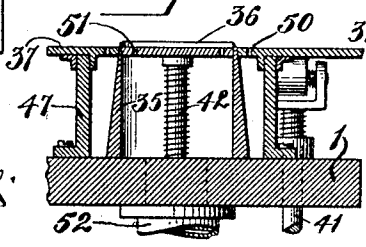
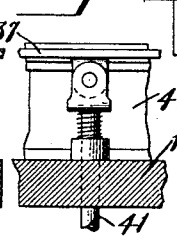


Fig. 6.



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Fig. 7.

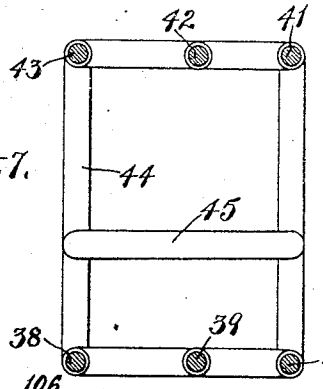


Fig. 8.

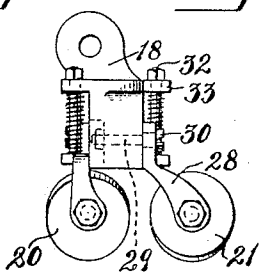


Fig. 9.

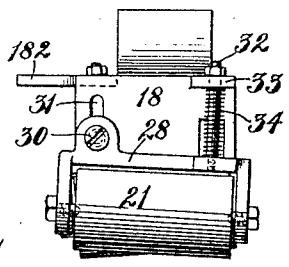


Fig. 10.

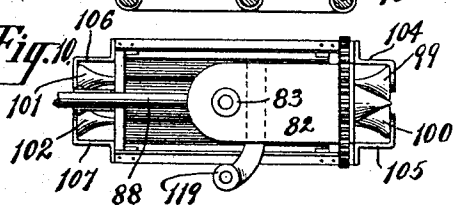


Fig. 14.

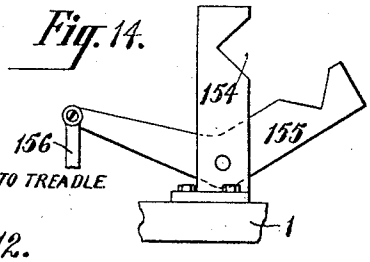


Fig. 11.

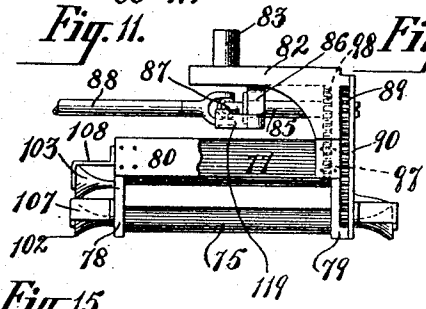


Fig. 12.

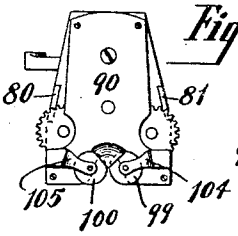


Fig. 13.

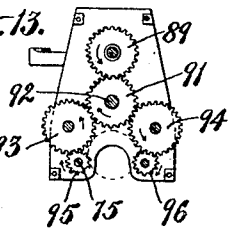


Fig. 15.

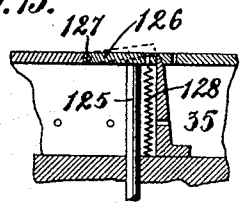


Fig. 16.

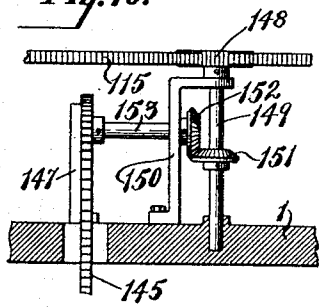


Fig. 17.

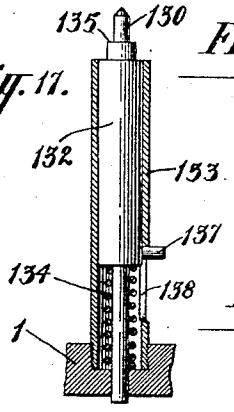


Fig. 18.

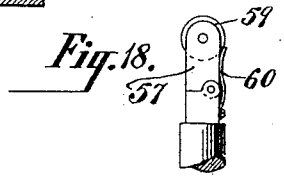


Fig. 19.

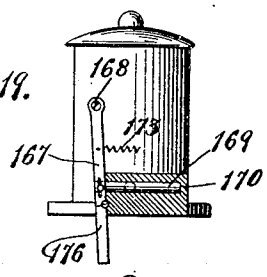
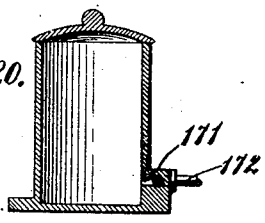


Fig. 20.



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No. 785,688. Patented March 21, 1905.

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UNITED STATES PATENT OFFICE.

ANTHONY F. WALLBILLICH, OF PRINCEBAY, NEW YORK.

CIGAR-ROLLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 785,688, dated March 21, 1905.

Application filed May 9, 1904. Serial No. 207,034.

To all whom it may concern:

Be it known that I, ANTHONY F. WALLBILLICH, a citizen of the United States, and a resident of Princebay, in the county of Richmond and State of New York, have invented a new and useful Improvement in Cigar-Rolling Machines, of which the following is a specification.

My invention relates to a cigar-rolling machine, with the object in view of providing an efficient machine for cutting the wrapper and rolling it onto the cigar-bunch and economizing time in performing these operations.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a top plan view of the machine. Fig. 2 is transverse vertical section in the plane of the line A A of Fig. 1. Fig. 3 is a view in side elevation, several parts being omitted to show more clearly the structures behind them. Fig. 4 is a longitudinal section in the plane of the line B B of Fig. 1. Fig. 5 is an enlarged partial vertical and longitudinal section in the same plane as Fig. 4, showing the wrapper-cutter with its cutting edge projecting above the top of the table in the position which it occupies during the cutting of the wrapper. Fig. 6 is a partial view of the same in side elevation. Fig. 7 is a top plan view in detail of the frame for applying power to raise and lower the table with respect to the wrapper-cutter. Fig. 8 is a view in detail in end elevation of the pressure-rollers for cutting the wrapper, showing their manner of attachment to their support. Fig. 9 is a view of the same in side elevation. Fig. 10 is a top plan view in detail of the rollers for rolling the wrapper onto the bunch. Fig. 11 is a view in side elevation, the side frame being partially broken away. Fig. 12 is a view of the same in end elevation. Fig. 13 is a similar view in end elevation with the outer end frame or plate removed to show the relation of the roller-driving gear-wheels to one another. Fig. 4 is a view in detail, showing the shears or cutters for cutting the end of the cigar after it is wrapped. Fig. 15 is a sectional view in detail through a portion of the wrapper-cutter and table, showing the structure of the table at the point where the end of the wrapper is first picked up by the wrapping-rollers. Fig. 16 is a view in detail, showing the arrangement of gear by which the wrapping of the cigar-tip is continued after the wrapping-rollers have stopped their travel along the table. Fig. 17 is a view in detail in vertical section of the yielding stop for arresting the swinging movement of the roller-carrying arm. Fig. 18 is a view in detail of the top of one of the keys or tappets for transmitting motion to the movable table when the roller-carrying arm is swung in one direction while permitting it to pass idly in the opposite direction. Fig. 19 is a view in detail in side elevation of one of the pots for holding the adhesive material, and Fig. 20 is a view of the same in section in a plane taken at right angles to the view shown in Fig. 19.

My invention contemplates means for cutting the wrapper to shape during the swinging movement of a roller-carrying arm in one direction along a horizontal plane and subsequently during the return movement of said arm raising a cigar-bunch into position to have the wrapper rolled thereon, rolling the wrapper on the cigar-bunch, and while the cigar as a whole is held against travel along the table rotating it to finish the winding of the wrapper on the tip and cutting the opposite end and finally discharging the completely-wrapped cigar, the whole operation of cutting, wrapping, and discharging the cigar being performed during an advance and return movement of the horizontally-swinging arm.

The framework of the machine for my present purposes comprises a bed-plate 1, which may be supported at the proper height above the floor by any well-known or suitable means, and a standard 2, fixed to and uprising from the bed-plate 1, preferably near one end thereof. A post 3 is pivoted at its upper end at 4 to the top of the standard 2 and at its bottom at 5 to the bed-plate 1 and has projecting horizontally therefrom an arm 6, here shown as of flat form and gradually increasing in width for a considerable distance from the post 3, the said arm being braced in proximity to the post by means of corner flanges or

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ribs 7 and 8 and having its outer end further supported against any liability of springing downwardly under the weight carried thereby by means of a rod 9, extending diagonally from a lug 10 on the top of the arm 6 near its outer end upwardly to the post 3 near its top.

On the inside of the arm 6 there is a track in form of a dovetailed tongue 11, on which a carriage 12 is supported to slide a limited extent lengthwise of the arm 6, the sliding movement of said carriage being controlled by a cam 13, fixed on suitable posts uprising from the bed-plate 1, one of them being denoted in Fig. 4 by 14 and the other in Fig. 1 by 15.

The carriage 12 is provided with a depending post or lug carrying antifriction-roller 16, (see Fig. 4,) engaging the groove of the cam 13.

The purpose of the reciprocating sliding movement of the carriage 12 with relation to the arm 6 as the latter is swung forward and backward will appear later on.

The arm 6 is provided near its outer end with an offset 17 at one of its edges, as shown in Figs. 1 and 2, to the end of which offset the pressure-roller frame 18 is hinged, as at 19, to permit the pressure-rollers 20 and 21, carried thereby, to be swung bodily down into plane of the rolling-table and up out of the plane of the rolling-table to perform the wrapper-cutting operation to place them out of action during the rolling operation, respectively.

The swinging of the frame 18 and the pressure-rollers carried thereby up out of the plane of the rolling-table is effected by means of a cam 22 on the lower end of a spindle or shaft 23, mounted in rotary adjustment in the offset 17 and provided at its upper end with an operating-crank 24, the latter being provided for convenience with a handle 25. As the crank 24 is turned in one direction the cam 22 will engage the back of the frame 18 and swing it, together with the rollers 20 21, up out of the plane of the rolling-table, and as the crank is moved in the opposite direction it will permit the pressure-rollers to drop back into the plane of the rolling-table for purposes of cutting.

The crank 24 (see Fig. 1) is limited in its swinging movements by means of pins 26 27 and serves not only to operate the roller-carrying-frame 18 to bring the rollers into the proper position, but also serves as a convenient means for the operator to swing the arm 6 and the parts carried thereby, the position of the said crank 24 being such that when it is swung against the pin 27 to swing the arm 6 toward the right to cut the wrapper it will permit the rollers 20 21 to drop into position to press the wrapper against the knife-edge, while when the said crank 24 is swung in the opposite direction to swing the arm 6 against the pin 26 toward the right, as the drawing Fig. 1 is held in reading, it will at the same time bring the cam 22 in operation to lift the said rollers out of the way of the wrapper-cutter.

The rollers 20 21 are mounted in their frame 18 so that they may be tilted endwise, as shown more clearly in Figs. 8 and 9, the object being to depress the end of one of said rollers 20 where it will bear with greater force over the cutting edge for one edge of the wrapper and the roller 21 tilted in the opposite direction to bring its depressed end into position to bear with greater force upon the cutting edge at the opposite end of the wrapper. To this end I mount each of the rollers in a yoke 28 and support one end of the yoke on a clamp-bolt 29 (see dotted lines, Fig. 8) by means of a screw 30, the said clamp-bolt extending, through a slot 31 in the roller-frame 18, while the opposite end of the said yoke 28 is supported on a bolt 32, depending from the lug 33 on the frame 18, a coil-spring 34 being interposed between the lug 33 and the top of the yoke 28 to produce a yielding pressure on the depressed end of the roller. By this means the yoke, and hence the roller, may be given any desired inclination and the pressure increased or diminished at pleasure.

The wrapper-cutter which coöperated with the rollers 20 21 to cut the wrapper during the swinging of the arm 6 to the right is denoted by 35, (see Figs. 2 and 4,) and its cutting edge is denoted by the fine full line 36 in Fig. 1. Its cutting edge follows the contour which it is desired the wrapper shall have when it is ready to be rolled onto the cigar-bunch, and this cutting edge 36 is given a clearance above the rolling-table by the downward movement of the rolling-table with respect to the cutter, the latter being, as above stated, fixed to the bed-plate.

The rolling-table is denoted by 37 and is supported upon vertically-movable posts, six in number, denoted by 38 39 40 41 42 43, respectively, (see Fig. 7 and Figs. 3 and 4,) each of which shows one or more of these supporting-posts secured at their lower ends to a skeleton frame 44 below the bed-plate 1, the said frame being provided with a cross-bar 45 for receiving one end of the table-operating lever, to be hereinafter more particularly explained, and the upper ends of said posts being fixed to and carrying the table 37 above the bed-plate 1, the posts themselves having a vertical sliding movement in the bed-plate 1. The several table-supporting posts are provided with coil-springs 46, interposed between the table and the top of the bed-plate 1, the tension of which tends to lift the table up to a point which will bring its upper surface flush with or slightly above the cutting edge 36 of the wrapper-cutter, when the springs are free to lift the table. There is also interposed between the table and the bed-plate 1 a side wall 47, which completely surrounds the cutter 35, the said wall 47 being fixed air-tight to the top of the bed-

plate I and its upper end being fitted as nearly air-tight as may be to the under side of the table 37 by means of a groove 48, the side walls of which embrace the opposite faces of the top of the wall 47 with a close sliding fit to permit the table to rise and fall with respect to the side wall 47 without opening any considerable part for air to enter.

The cutter 35 is provided with perforations 49 through its body to bring the space between the cutter and the wall 47 into communication with the space within the cutter. The table 37 is also provided with perforations 50, extending therethrough along that portion between the cutter 35 and the wall 47, and with perforations 51 through that portion that lies within the cutter.

The cutting edge 36 of the wrapper-cutter extends through a narrow slot in the table, which slot completely separates the portion of the table within the line of the cutting edge from that portion without that line, the said inner portion of the table being supported in place by the posts 39 and 42, while the portion outside of the line of the cutting edge 36 is supported by the remaining four posts 38, 40, 41, and 43.

Means for maintaining a vacuum or partial vacuum in the space between the table 37 and the bed-plate 1 is provided by a pipe 52, leading from the bed-plate 1 to a suitable vacuum apparatus of any well-known or approved form, (not shown herein,) communication between the said pipe 52 and the space between the table and the bed-plate being effected through a perforation 53 in the bed-plate.

The rolling-table is depressed for the cutting operation by means of a lever 54, fulcrumed in a hanger 55, depending from the bed-plate 1, one arm of the said lever resting on the cross-piece 45 of the frame 44 and the opposite arm being connected to the lower end of a rod 56, extending up through the bed-plate 1 and provided at its upper end with a hinged top piece 57, which is engaged at the proper time by a projection 58 on the under side of the swinging arm 6. The top 57 is hinged in such a position (shown in detail in Fig. 18) that when the arm 6 engages the anti-friction-roller 59, carried in said top 57 in one direction, it will effect a depression of the rod 56, and hence operate the lever 54; but when the arm 6 moves in the opposite direction the top 57 will yield against the tension of the spring 60 and work idly, so as to produce no effect upon the lever 54. The rod 56 has an enlarged portion 61 above the bed-plate 1, which enlarged portion works in a hollow standard 62, set on the bed-plate 1, and a coil-spring 63, inserted between the lower end of the enlarged portion 61 and the top of the bed-plate 1, serves to hold the rod 56 in its raised adjustment, and hence the table depressed, against the tension of the springs 46 except when the rod 56 is positively depressed by the swinging of the arm 6 to the left, thereby bringing the projection 58 in contact with its top 57. I may also use a spring 64, connecting the lever 54 with the bed-plate 1, as a lifting-spring to assist the spring 63.

The invention as thus far explained covers the means for cutting the wrapper to the desired shape to be applied to the cigar-bunch, and if we assume the swinging arm 6 to be swung to the left, as Fig. 1 is held in reading, to the limit of its movement in that direction, so as to carry the pressure-rollers 20 21 to the left end of the rolling-table, leaving the table free for the spreading thereon of the blank from which the wrapper is to be cut, and assume that the blank be spread on the table, covering the cutting edge 36, the swing of the arm 6 to the right by the lever 24 will first swing the lever 24 into engagement with the stop 27, and thereby drop the pressure-rollers 20 21 into position to engage the blank, and the blank being held securely in position by means of suction, due to the vacuum beneath it, the swinging of the arm 6 to the right will cause the pressure-rollers 20 21 to press the blank into cutting engagement with the edge 36, thereby cutting the wrapper to the desired form. In this movement of the arm 6 to the right the hinge-top 57 on the rod 56 will work idly, so that the rolling-table will be held below the cutting edge 36, as shown in Fig. 5, by the action of the spring 63, assisted by the spring 64, which overpower the tension of the springs 46. The cutting of the blank to the required form having been accomplished, the return movement of the arm 6 to the left applies the formed wrapper to the cigar-bunch as follows: The cigar-bunch having been placed on the plunger 65, (see Fig. 2,) the upper face of which forms the bottom of the bunch-retaining pocket adjacent to the right end of the table, the latter part of the swinging movement of the arm 6 to the right sets free the mechanism for lifting the plunger 65 and lifts the bunch up onto the level of the table between the wrapping-rollers as they reach a position at the limit of the stroke of the arm 6 to the right, directly over the bunch-pocket and plunger 65.

The lifting and tripping of the plunger 65 is accomplished as follows: The plunger 65 extends down through the bed-plate 1 and is attached at its lower end to one end of a tilting lever 66, fulcrumed to the under side of the bed-plate 1 at 67 (see dotted lines, Fig. 1) and provided with a counterbalance-weight 68, which may be secured by means of a set-screw 69 in such position as to lift the plunger 65 and bunch thereon whenever the lever 66 is set free. The lever 66 is locked in position to hold the plunger 65 depressed by means of the lower end of an upright tripping-lever 70, fulcrumed on the edge of the bed-plate 1, as shown at 71, Fig. 1, the said lower end of the lever 70 being provided with an offset 72

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for engaging the under side of the lever 66 and a spring 73, attached at one end to the bed-plate 1 and at the opposite end to the lever 70, tending to hold its lower end in the path of the lever 66 and its upper end in the path of a projection 74 on the edge of the arm 6. As the bunch is placed by the operator in its pocket on the plunger 65 and the latter depressed, lifting the counterbalance 68, the lower end of the lever 70 will be swung back against the tension of its spring 73 to permit the counterbalance end of the lever 66 to rise, and the lower end of the lever 70 will as soon as the counterbalance end of the lever 66 rises beyond its offset end 72 immediately swing back underneath the lever 66 to hold the counterbalance 68 lifted, and hence the plunger 65 depressed, until the swinging of the arm 6 against the upper end of the trip-lever 70 disengages the lower end of the lever 70 from the lever 66, when the counterbalance-weight 68 will take effect and lift the plunger 65 and throw the bunch up between the wrapping-rollers.

The projection 74 on the edge of the arm 6 may conveniently be a screw tapped into the side of the arm, and hence adjustable out and in to perform the tripping operation at the proper moment.

The wrapping-rollers comprise a group of three rollers, arranged as shown in Fig. 2, the two lower rollers being denoted by 75 and 76 and the upper roller, intermediate of the rollers 75 and 76 and spaced above the latter, is denoted by 77. This group of three rollers is mounted in a frame (shown in detail in Figs. 11, 12, and 13) consisting of two end plates 78 79, in which the opposite ends of the rollers are journaled, the said end plates being connected by side bars 80 and 81 and the end plate 79 being extended upwardly and inwardly, as shown at 82, Fig. 11, where it is provided with an upwardly-extending pivot 83, located about centrally over the group of rollers and serving in connection with the screw 84 (see Fig. 2) to pivot the roller-carrying frame as a whole to the sliding carriage 12, so that the said group of rollers may be swung bodily in a horizontal direction to assume different angles with respect to the longitudinal axis of the wrapper.

The gear for operating the wrapping-rollers is arranged as follows: A short shaft 85 is mounted in the front plate 79 and in a lug 86, depending from the overhanging portion 82 of the front plate, and is coupled by a universal joint 87 with a drive-shaft 88. (See Fig. 11.) The shaft 85 is provided with a driving-pinion 89, located between the front plate 79 and an auxiliary bearing-plate 90, secured to and spaced from the plate 79, and this pinion 89 is in gear with a pinion 91, (see Fig. 13,) working idly on the shaft 92 of the roller 77, and this in turn is in gear with two idler-pinions 93 and 94, mounted in the plates 79 and 90, the pinion 93 being in mesh with a pinion 95 on the shaft of the roller 75 for driving it, and the pinion 94 being in mesh with a pinion 96 on the shaft of the roller 76 for driving it. The roller 77 is mounted loosely on its shaft and is provided with a gear 97 in mesh with a gear (indicated at 98) on the short shaft 85, so that it—viz., the roller 77—may be driven independently of its shaft, which may be utilized as a brace for the frame and as a support for the idler-pinion 91. At the opposite ends of the group of wrapping-rollers there are located guide-cones for retaining the opposite ends of the cigar-bunch while it is being wrapped, those at the outer end being denoted by 99 and 100 and those at the opposite end being denoted by 101, 102, and 103. (See Figs. 10 and 11.) These cones are held in position those at the outer end of the group of rollers by brackets 104 105, fixed to the plate 90, and those at the opposite end by brackets 106, 107, and 108, fixed to the plate 78.

The drive-shaft 88 for operating the wrapping-rollers is mounted in the bracket 109, supported by a hanger 110, fixed to the under side of the carriage 12, and said shaft 88 is provided with a bevel-gear 111, which intermeshes with a bevel-gear 112 on the upper end of a shaft 113, depending from the bracket 109, and carrying on its lower end a pinion 114, which meshes with a curved rack-bar 115, the latter being supported on suitable posts 116 117, uprising from the bed-plate 1. The pinion 114 is held in mesh with the rack 115 by means of the roller 16, depending from the carriage 12, as hereinabove explained, and following the cam 13. At the same time that the pinion 114 is carried along the rack 115 and by its engagement therewith drives the wrapping-rollers through the bevel-gear and shaft 88 the group of wrapping-rollers is bodily tilted in a horizontal plane to assume the proper angle with respect to the longitudinal axis of the wrapper by means of a connecting-rod 118, (shown in full lines in Fig. 3 and in dotted lines in Fig. 1,) which connects an arm 119, fixed to the overhanging portion 82 of the roller-frame, with an arm 120, fixed to the carriage 12. A roller 120* on the arm 120 is held against a cam 121* by a spring 122* to effect the said tilting of the roller-frame as the arm 6 swings and the carriage 12 slides.

At the beginning of the swinging movement of the arm 6 toward the left for wrapping the bunch a rod 121, with a hinge-top similar to that already described on the rod 56, is depressed by a projection 122 on the arm 6 and operates a lever 123, fulcrumed to a hanger 124, depending from the under side of the bed-plate 1, to lift a rod 125 at the opposite end of the lever 123, and thereby throw a small section 126 of the wrapping-table (see Fig. 15) hinged to the body of the table at 127 up into the tilted position (shown in dotted lines in Fig. 15) in order to lift the edge of the wrapper which

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is first to be applied to the bunch, so that it will be thoroughly caught by the wrapping-rollers at the beginning of the wrapping operation.

The hinged table-section 126 is normally held down in the plane of the table proper by a spring 128, and the rod 125 is depressed, and hence the opposite end of the lever 123 lifted into position to be engaged by the arm 6 by a coil-spring 129, (see Fig. 2,) interposed between the bed-plate 1 and the end of the lever 123. As soon as the projection 122 has passed the table-section 126 will be drawn back again into the plane of the body of the table.

The swinging motion of the arm 6 toward the left to wrap the bunch is arrested by means of a vertically-yielding stop-pin 130, which enters a socket 131, carried by the arm 6. The stop-pin 130 has an enlarged body portion 132, which slides in a hollow post 133, fixed to the top of the body-plate 1, and a spring 134, interposed between the bottom of the enlarged portion 132 and the bed-plate 1, serves to hold the stop-pin 130 normally in its lifted position in engagement with the arm 6. This pin is further provided with a shoulder 135, by means of which it is locked in its depressed position out of the way of the arm 6 by means of a spring-actuated dog 136, (see Fig. 1,) which is pivoted to the top of the post 133 and swings its nose over the shoulder 135. The part 132 is further provided with a projecting pin 137, which extends through a slot 138 in the post 133 in position to engage one arm 139 of a rocking angle-lever fulcrumed at 140 on a support uprising from the bed-plate 1. The other arm, 141, of the said angle-lever is operated by means of a stop-piece 142. The stop-piece 142 is attached at one end to a spring 143, the opposite end of said spring being secured to a post 144, uprising from the bed-plate 1, and the other end of the stop-piece 142 is connected to a sprocket-chain 145, which passes over a sprocket-wheel 146, mounted in a standard 147, uprising from the bed-plate 1, and thence extends downwardly to a foot-treadle, as indicated in Fig. 3.

The downward pressure of the treadle accomplishes three things, one of these being the rocking of the angle-lever by means of the engagement of the stop-piece 142 with an arm 141 of the lever in a direction to depress the stop-pin 130 to a point where it can be caught and held down by the dog 136. Before this operation takes place, however—*i. e.*, before the stop-piece 142 has been brought into engagement with the angle-lever—the movement of the sprocket-chain rotating the sprocket-wheel 146 has set in operation an auxiliary rolling mechanism for rotating the cigar-bunch to wrap the wrapper snugly around the tip, while the body of the cigar is held against a horizontally-traveling movement. This is accomplished by operating a pinion 148 (see Fig. 1) in engagement with the pinion 114, carried by the sliding carriage. The pinion 148 is located in the plane of the rack along which the pinion 114 travels, and at a certain point where the arm 6 is arrested some two or three teeth of the pinion 148 project into alinement with the teeth on the rack 115, so that in its travel along the rack the pinion 114 will at this point where it is stopped be engaged with the pinion 148 instead of with the rack. The spindle which carries the pinion 148 is represented on a larger scale in Fig. 16 and is denoted by 149 and is mounted in the bed-plate 1 and in a bracket 150, secured to and uprising from the bed-plate. The spindle 149 has fixed thereon a bevel-gear 151, which intermeshes with a bevel-gear 152 on a shaft 153, journaled in the standard 147 and in the bracket 150, and also carrying the sprocket-wheel on which the sprocket-chain 145 works. In Fig. 16 the wheel 148 is located directly back of the pinion 114; but its relation to the rack can be readily seen from Fig. 1. This downward movement of the treadle also operates the shears consisting of a stationary blade 154 (see Fig. 14) and a swinging blade 155, the latter being connected by a rod 156 with the treadle. This cutting or trimming of the end of the cigar opposite the tip takes place just subsequently to the auxiliary rolling to finish the tip. The downward movement of the treadle therefore finishes the tip, depresses the stop 130 out of the way of the arm 6, where it may be held by the dog 136, and finally trims the end of the cigar, so that the further movement of the arm 6 to the left, the stop 130 being now out of the way, will discharge the completed cigar from the table and the machine is ready for placing another blank on the table from which a wrapper is to be cut during the swinging movement of the arm 6 to the right, as hereinabove stated. To more securely hold the tip in position during this final auxiliary wrapping of the tip, I find it desirable to raise a tip-guide 157 (see Figs. 1 and 2) slightly above the surface of the table, and this I accomplish by means of a rod 158, extending down through the bed-plate 1 and attached to one end of a lever 159, fulcrumed in a hanger 160, depending from the bed-plate 1 and operated by means of a rod 161, extending up through the bed-plate 1 and through a suitable standard 162, fixed on the bed-plate, the said rod 161 being provided on its top with a hinged piece 163, after the manner of the piece 57, hereinbefore described. This lever 159 is operated by means of a projection 164 on the arm 6 just before the arm 6 reaches its position where it is stopped by the stop-pin 130, so that the tip of the cigar is held in position by this guide during the auxiliary wrapping movement, while the body of the cigar is held against bodily travel.

For depositing adhesive material on the

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wrapper at the very beginning of the wrapping operation and also at the tip I provide two gum-pots, (denoted, respectively, by 165 and 166,) supported on the arm 6 and each provided with a depending arm 167, (see Fig. 19,) pivoted at 168 to the outside of the pot and having attached thereto a plunger 169, working in a bore 170, formed in an extended part of the base of the pot, the said bore 170 being in communication through a branch opening 171 with the interior of the pot. The plunger 169 as the arm 167 is drawn back slides along the bore 170 until its end passes partially or wholly the end of the branch opening 171, when a charge of liquid gum will be admitted into the bore 170 through the branch opening 171, and the return movement of the plunger 169 will force the charge from the bore 170 into a discharge-pipe 172, leading to the point where the gum is to be deposited on the wrapper. A spring 173 is used to return the arm to force the gum from the pot through the discharge-pipe, and the arms of the respective gum-pots—it being understood that the arrangement for the discharge of the gum from each is the same—are operated by means of projections 174 175 on the side of the carriage which engages the hinge-piece 176 on the lower end of the arm 168, so as to operate the arm when moving in one direction, and when moving in the opposite direction the hinge-piece lifts and permits the projection to pass idly.

The operation as a whole may be briefly stated as follows: The arm 6 being at the extreme limit of its movement to the left, the blank from which the wrapper is to be cut is spread on the table, and the stop-pin 130 being held depressed by the dog 136 and the rolling-table being lowered slightly below the edge of the wrapper-cutter, as shown in Fig. 5, the arm 6 is swung toward the right, working idly over the hinge-top 57 of the table-elevating rod, and the wrapper is cut to form. In the meantime a bunch to be wrapped has been placed on the plunger 65 and the latter depressed and locked in its depressed position by the lever 70. As the arm 6 approaches its limit to the right and the wrapping-rollers reach a position over the plunger 65 the latter is released by the engagement of the stop 74 on the arm 6 with the top of the lever 70, and the bunch is lifted by the face of the plunger 65 into position between the wrapping-rollers. The arm 6 may now be swung to the left, the preliminary motion being that of the lever 24, which is swung to the left against the stop 26, thereby lifting the pressure-rollers 20 and 21 from the table and bringing the projection 58 on the under side of the arm 6 into engagement with the top 57 of the table-lifting rod, thereby raising the table flush with or slightly above the cutting edge of the wrapper-cutter. The continued swinging movement of the arm 6 to the left by means of the cam 13 and the pinion 114 in engagement with the rack 115 rotates the wrapping-rollers and at the same time swings the wrapping-rollers bodily at such an angle to the axis of the wrapper as to lay it smoothly on the cigar-bunch, and this operation continues until a stop 177 on the edge of the arm 6 (see Fig. 1) engages the dog 136 and releases the stop-pin 130, which springs up into the socket 131 and temporarily stops the further swinging movement of the arm 6. This stop takes place just as the wrapping of the tip of the cigar is begun, and at this moment the tip-guide 157 has been lifted into position, and the operator now depresses the foot-treadle, operating the sprocket-wheel 146 and through the mechanism connected therewith continues the rotation of the group of wrapping-rollers, while the cigar is held against bodily travel and the wrapping of the tip is completed. The further movement of the treadle shears the end of the cigar opposite the tip and also forces down the stop 130 until it is caught by the dog 136 and held it its depressed adjustment. The arm 6 may then continue its movement to the left until the cigar is discharged from the end of the table, when a new wrapper-blank may be placed in position and the operation repeated. The end of the wrapper is first pressed against the bunch (after receiving a drop of adhesive material) by the tilting of the hinge-piece 126 and is then pressed against the bunch by the roller, and the bunch, caused to rotate by the rollers, winds the wrapper on itself, while the rollers press it smoothly in place, the position of the rollers with respect to the longitudinal axis of the wrapper being such that the wrapper will be wound spirally until the tip is reached.

It is to be understood that the sliding of the carriage 12 has discharged a little gum onto the end of the wrapper just before the wrapping operation began and that it has also discharged a little gum onto the tip of the wrapper just before the final operation of winding the tip has taken place.

I prefer to employ in connection with the parts hereinabove described a bunch-trimmer for removing a portion of the tobacco at the tip end of the bunch before it is wrapped to make the finished taper finer. To this end I fix a V-shaped cutter 178 on the end of an arm 179, secured to an upright spindle 180, mounted to rock and provided with an operating-arm 181 in the path of a lug 182 on the swinging roller-frame 18, so that as the arm 6 is swung to the right it will cause the cutter 178 to pass horizontally through the end of the cigar-bunch confined in its pocket on the plunger 65 and remove a tapered portion of the tobacco to enable the tip to be wrapped in pointed form.

It is obvious that changes might be resorted to in the form and arrangement of the parts

without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein shown and described; but

What I claim is—

1. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm and a wrapper-cutter and wrapping-table arranged to coact with the pressure-rollers and wrapping-rollers to cut the wrapper when the arm is swung in one direction and wrap the cigar when the arm is swung in the opposite direction.

2. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a wrapper-cutter and a table arranged to coöperate respectively with the pressure-rollers and the wrapping-rollers and means for adjusting the table with respect to the cutting edge of the wrapper-cutter.

3. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a wrapper-cutter and adjustable table arranged to coöperate with the wrapper-cutter and wrapping-rollers respectively and means for varying the position of the wrapping-rollers with respect to the longitudinal axis of the pressure-rollers during the wrapping operation.

4. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a wrapper-cutter and adjustable table arranged to coact with the pressure-rollers and wrapping-rollers respectively and means under the control of the swinging arm for placing a cigar-bunch between the wrapping-rollers in position to be wrapped.

5. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a cutter and an adjustable table arranged to coöperate with the pressure-rollers and wrapping-rollers respectively and means for throwing the pressure-rollers into pressing engagement when the arm is swung in one direction and for throwing the said pressure-rollers out of pressing engagement when the arm is swung in the opposite direction.

6. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers and wrapping-rollers carried by the arm, a cutter and a wrapping-table arranged to coöperate with the pressure-rollers and wrapping-rollers respectively, a lever mounted on the swinging arm and having a limited movement with respect thereto and a cam under the control of said lever for swinging the pressure-rollers out of pressing engagement when the arm is swung in one direction and permitting the pressure-rollers to move into pressing engagement when the arm is swung in the opposite direction.

7. In a cigar-wrapping machine, an arm mounted to swing back and forth, pressure-rollers mounted in a frame hinged to said arm, wrapping-rollers mounted in a frame pivoted to said arm, a cutter and a table arranged to coöperate with the pressure and wrapping rollers respectively, means for throwing the pressure-rollers out of pressing engagement during the swinging of the arm in one direction and a cam for swinging the wrapping-rollers on their pivotal connection with the arm during the swinging movement of the arm.

8. In a cigar-wrapping machine, an arm mounted to swing back and forth, a carriage mounted to slide longitudinally along the arm, pressure-rollers carried by the arm, wrapping-rollers carried by the sliding carriage, means for throwing the pressure-rollers into and out of pressing engagement, a cam for controlling the sliding movement of the carriage as the arm is swung, a rack bar and gear for operating the wrapping-rollers during the swinging movement of the arm and a cutter and table arranged to coöperate with the pressure-rollers and wrapping-rollers respectively.

9. The combination with the wrapping-rollers and means for operating them, of a sectional wrapping-table and means for temporarily tilting a section of the table out of the general plane of the table at the beginning of the wrapping operation.

10. The combination with the wrapping-rollers, a swinging arm forming a support for the rollers and means for operating the rollers, of a wrapping-table including a hinged section and a lever under the control of the swinging arm for tilting the hinged section of the table at the beginning of the wrapping operation.

11. The combination with wrapping-rollers and a swinging arm for carrying the rollers, of gearing operated by the swinging arm for imparting a rotary movement to the rollers, a table along which the rollers travel, a foot-treadle and gearing under the control of the foot-treadle for operating the wrapping-rollers while the swinging arm is temporarily at rest.

12. The combination with the wrapping-rollers, a swinging arm for carrying them and gearing under the control of the swinging arm for operating them, of a table along which the wrapping-rollers travel, a stop for arresting the swinging movement of the arm, gearing for operating the rollers while the swinging arm is temporarily at rest, and a treadle for operating said gearing and releasing the said stop.

13. The combination with wrapping-rollers, a swinging arm for carrying them and gearing under the control of the swinging arm for operating the rollers, of a wrapping-table along which the wrapping-rollers travel, auxiliary

gearing for operating the rollers while the arm is temporarily at rest, a cutter for trimming the end of the cigar while the swinging arm is at rest and a treadle for operating the said auxiliary gearing and cutter.

14. The combination with the wrapping-rollers, a swinging arm for carrying the rollers and gearing under the control of the swinging arm for operating the rollers, of a wrapping-table along which the rollers travel, a stop for arresting the swinging movement of the arm, auxiliary gearing for operating the rollers while the swinging arm is temporarily at rest, a cutter for trimming the cigar while the swinging arm is temporarily at rest and a treadle for releasing the stop operating auxiliary gearing and operating the cutter.

15. The combination with wrapping-rollers, a swinging arm for carrying the rollers and gearing under the control of the swinging arm for operating the rollers, of a wrapping-table along which the rollers travel, auxiliary gearing for operating the rollers while the swinging arm is temporarily at rest, a tip-guide and means for lifting the tip-guide above the surface of the table during the operation of the auxiliary gearing while the swinging arm is at rest.

16. The combination with the wrapping-rollers, a swinging arm for carrying the rollers and gearing under the control of the swinging arm for operating the rollers, of a wrapping-table along which the rollers travel, a bunch-receiving pocket at one end of the table, a plunger forming the bottom of said pocket, means for automatically lifting the plunger up into the plane of the table and a trip-lever for holding the plunger depressed, the said trip-lever being under the control of the swinging arm to release the plunger when the wrapping-rollers are over the pocket.

17. The combination with the swinging arm, pressure-rollers and wrapping-rollers carried by the arm, a wrapper-cutter and a table, the said cutter and table being arranged to coöperate with the pressure-rollers and wrapping-rollers, of a vertically-reciprocating frame forming a support for the table, means for holding the table with its surface in the plane of or above the cutting edge of the wrapper-cutter during the swinging movement of the arm in one direction and means under the control of the swinging arm for depressing the table below the cutting edge of the wrapper-cutter during the swinging movement of the arm in the opposite direction.

18. The combination with the swinging arm, the wrapper-cutter and rolling-table, of pressure-rollers for pressing the wrapper against the edge of the wrapper-cutter, a frame for supporting the rollers on the swinging arm, yokes in which the rollers are mounted and means for adjusting the yokes and hence the rollers in normally different tilted adjustments with respect to the frame.

19. The combination with the swinging arm, the pressure-rollers and wrapping-rollers carried thereby, the vertically-adjustable sectional wrapping-table and the wrapper-cutter, of a lever for controlling the vertical adjustment of the table as a whole, a lever for tilting a section of the table and a lever for elevating the tip-guide, the said levers being under the control of the swinging arm to be operated during its swinging movement.

20. The combination with the wrapping mechanism including a swinging operating-arm, of a bunch-pocket for retaining the bunch which is to be wrapped, an upright shaft having an arm in the path of the said swinging operating-arm to cause the shaft to rock when the operating-arm is swung and a bunch-trimmer attached to said upright shaft in position to be swung through the end of the said bunch-pocket when the shaft is rocked.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 9th day of April, 1904.

ANTHONY F. WALLBILLICH.

Witnesses:
FREDK. HAYNES,
HENRY THIEINE.

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