Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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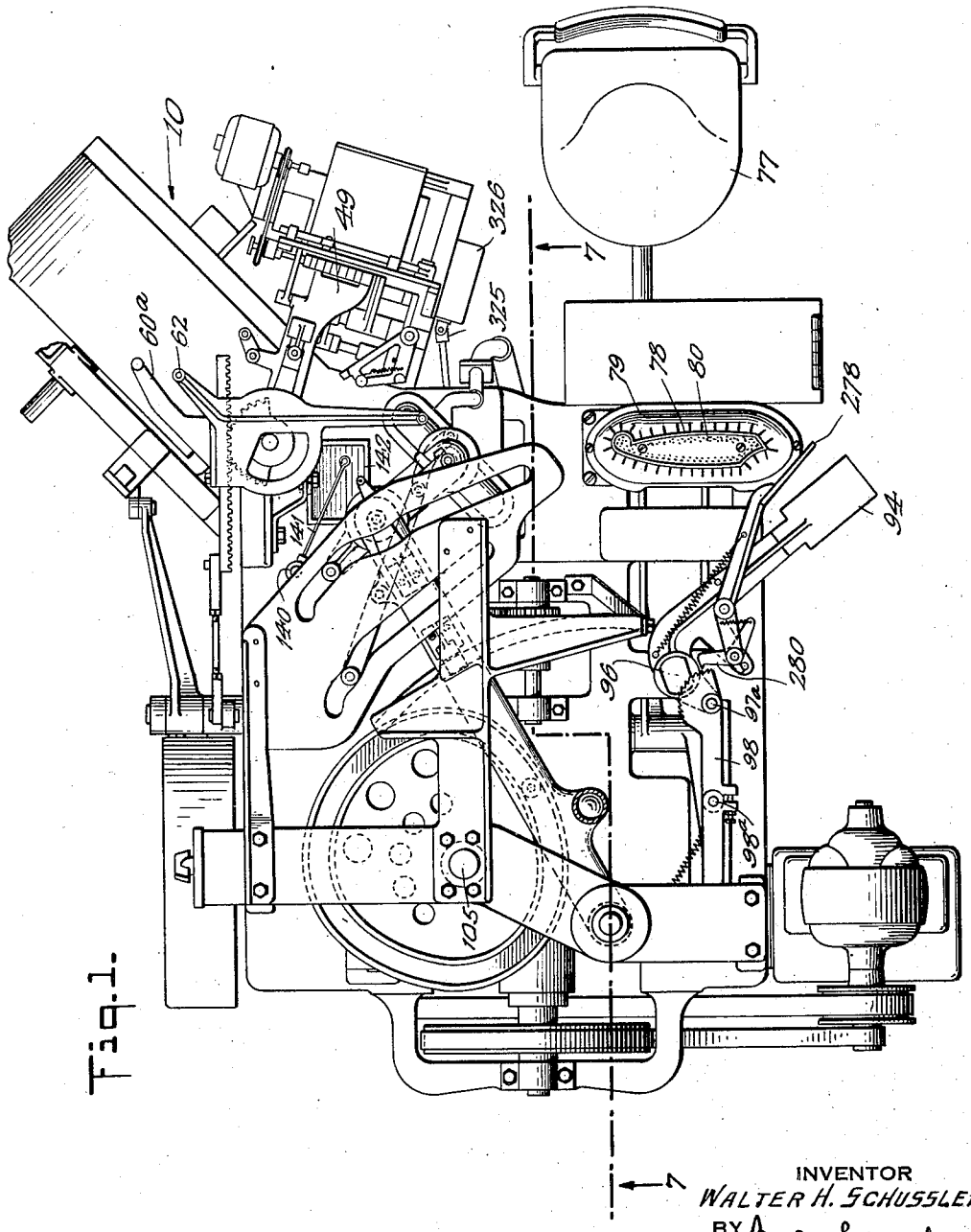


Fig. 1.

INVENTOR
WALTER H. SCHUSSLER
BY
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Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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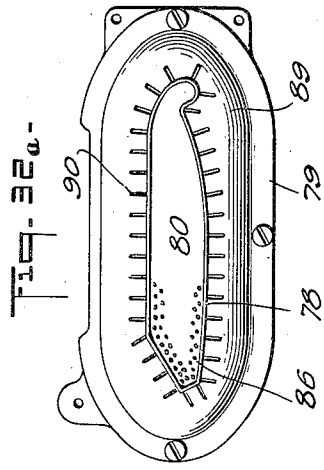


Fig. 32a.

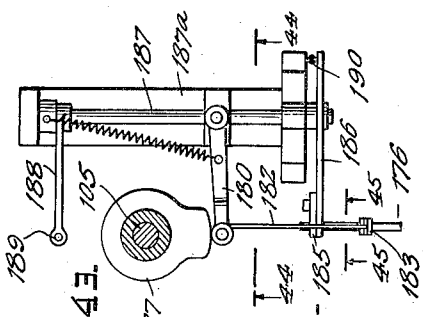


Fig. 43.

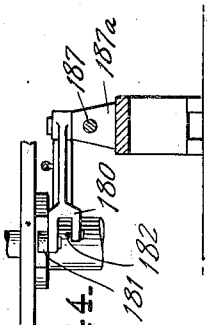


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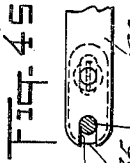


Fig. 45.

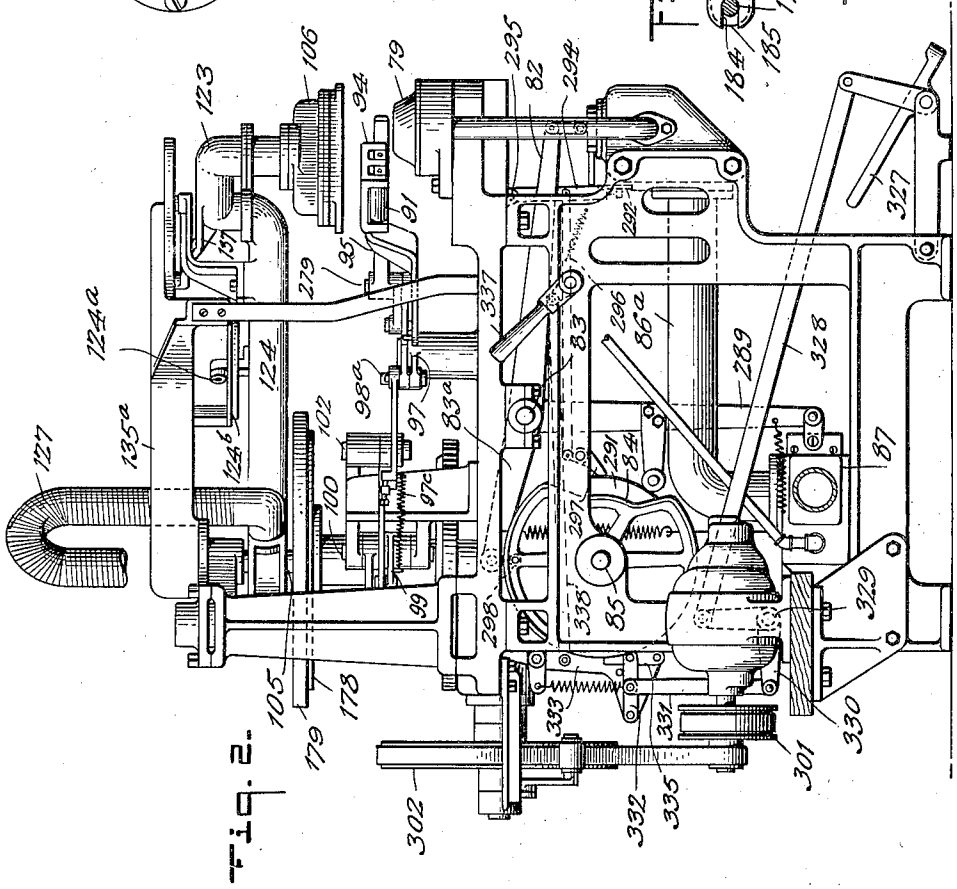


Fig. 2.

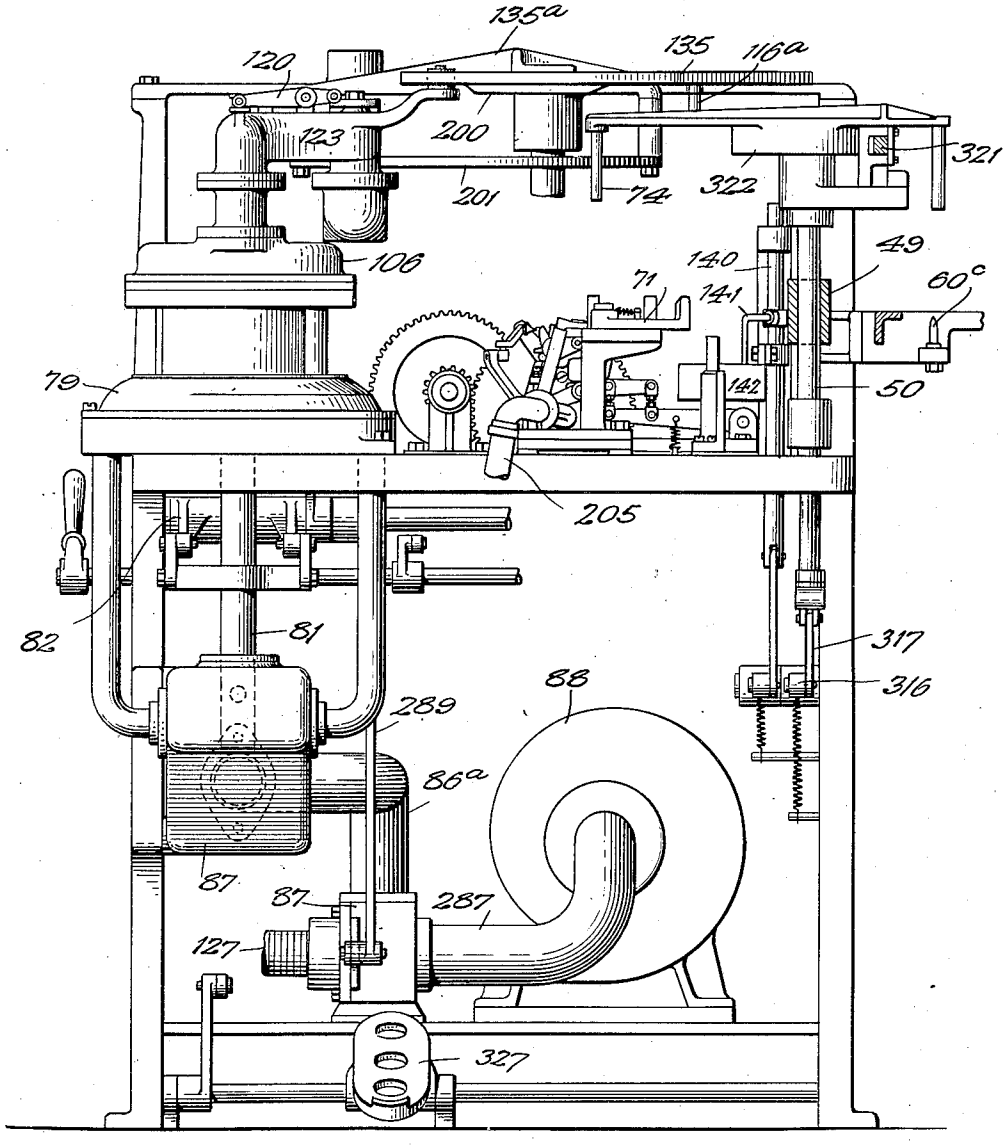
INVENTOR
WALTER H. SCHUSSLER
BY Brosser Mitchell
ATTORNEYS

Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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Fig. 3.



INVENTOR
WALTER H. SCHUSSLER
BY
ATTORNEYS

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CIGAR WRAPPING MACHINE

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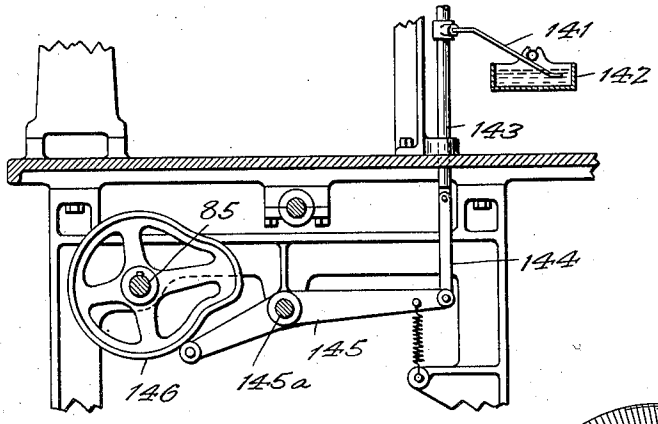


Fig. 37.

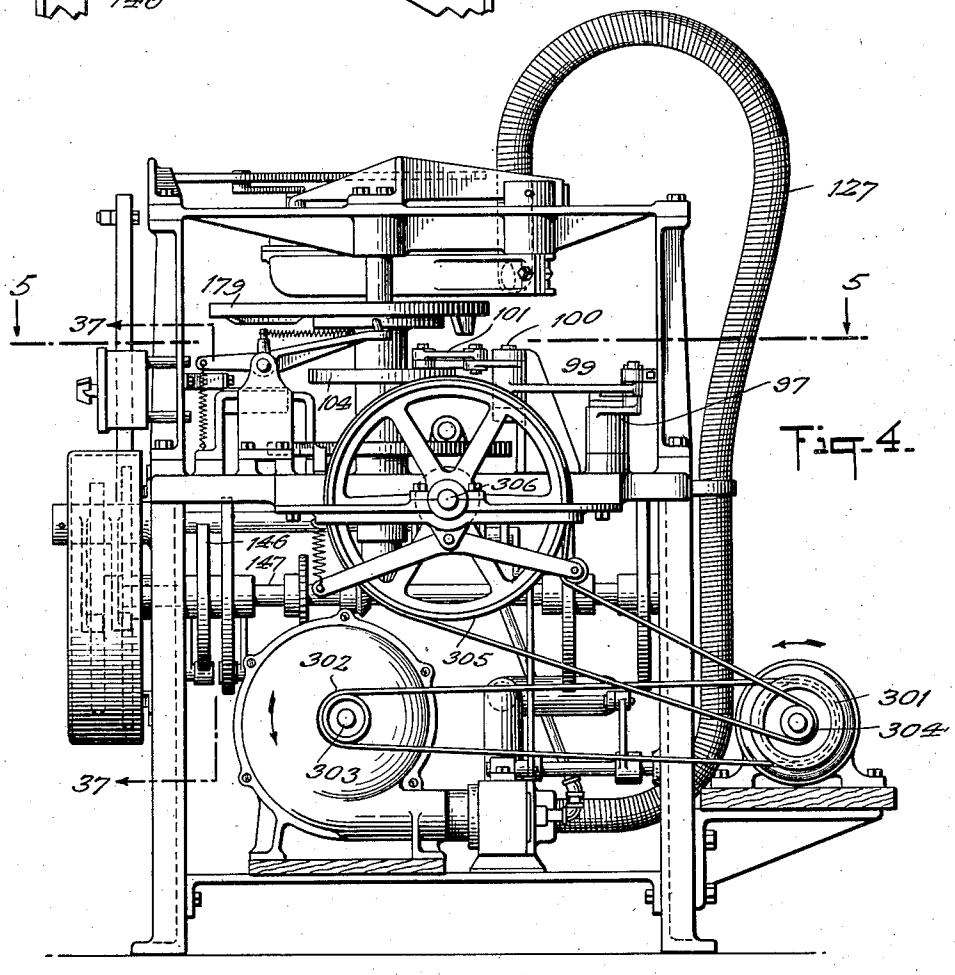


Fig. 4.

INVENTOR
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BY
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CIGAR WRAPPING MACHINE

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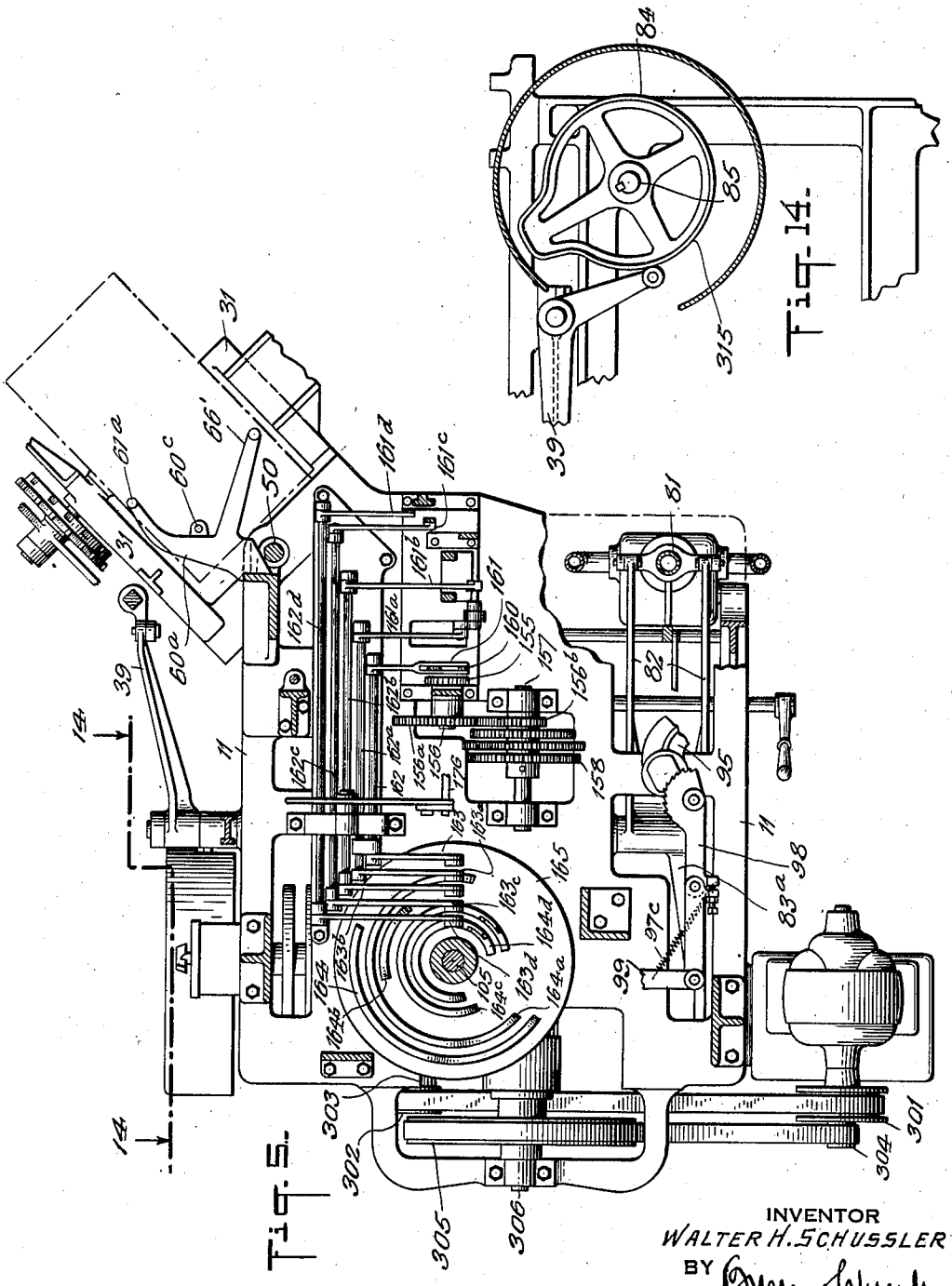


Fig. 5.

Fig. 14.

INVENTOR
WALTER H. SCHUSSLER
BY Brosen & Schussler
ATTORNEYS

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CIGAR WRAPPING MACHINE

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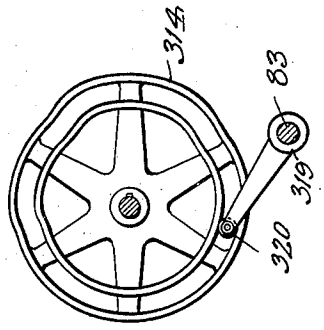
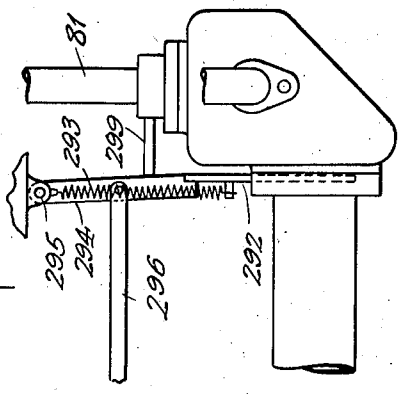


Fig. 41a.

Fig. 51.



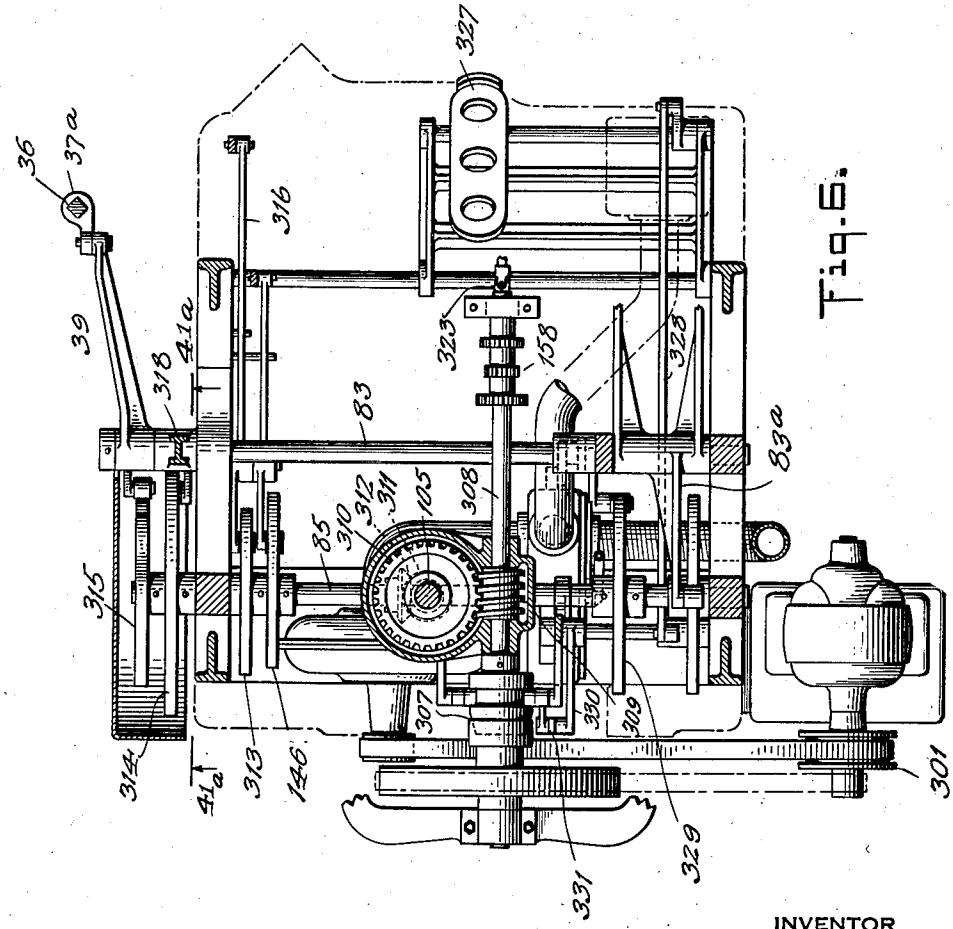


Fig. 6.

INVENTOR
WALTER H. SCHUSSLER
BY Brown Schuyler
ATTORNEYS

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CIGAR WRAPPING MACHINE

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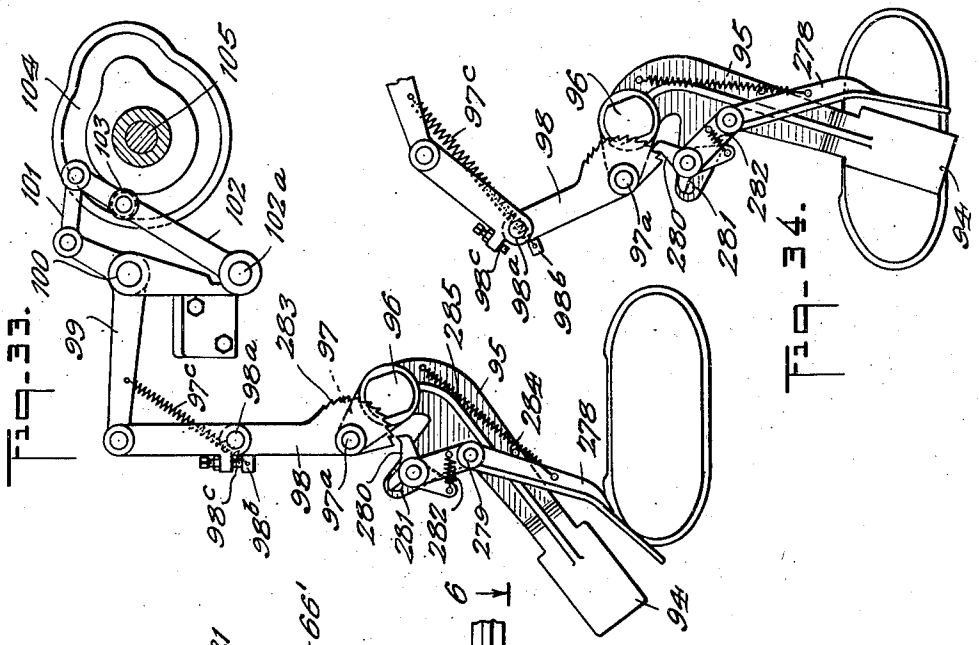


Fig. 33.

Fig. 34.

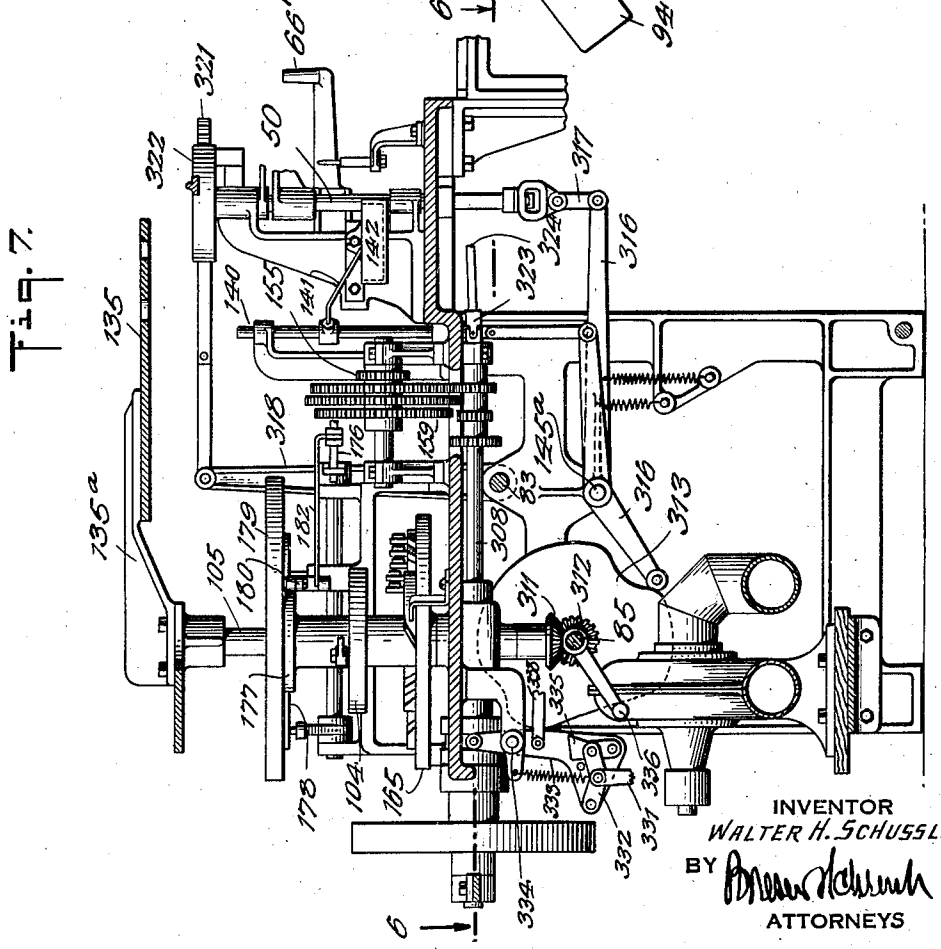


Fig. 7.

INVENTOR
WALTER H. SCHUSSLER
BY
ATTORNEYS

Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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Fig. 8.

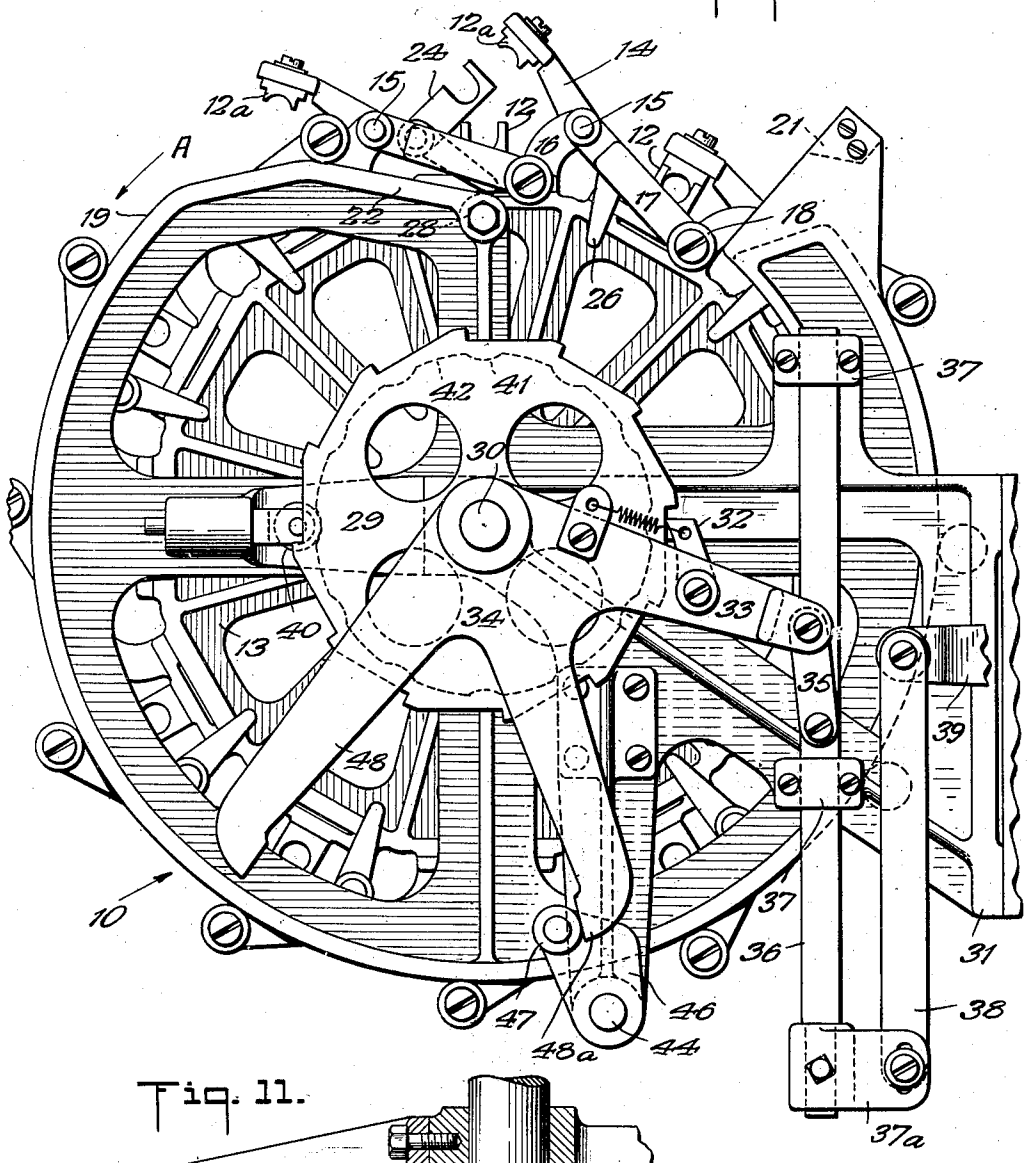
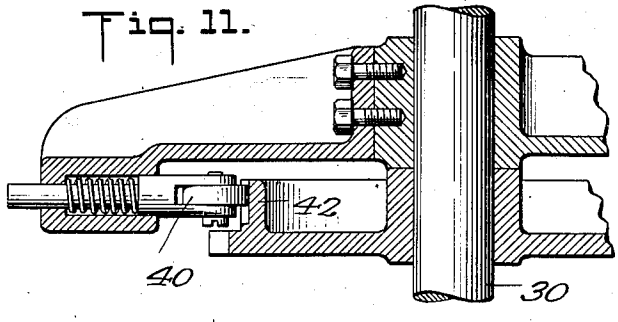


Fig. 11.



INVENTOR
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BY
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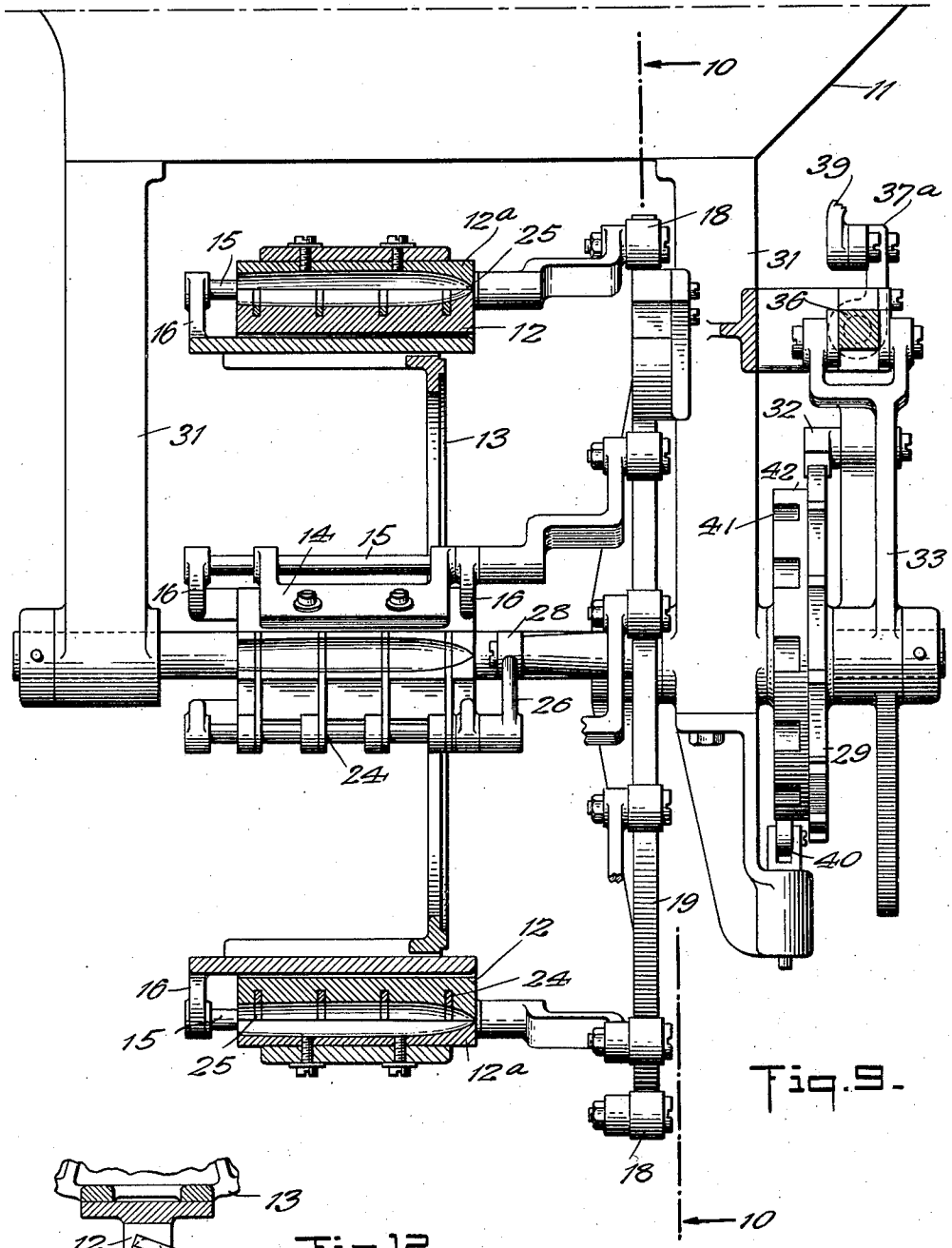


Fig. 9.

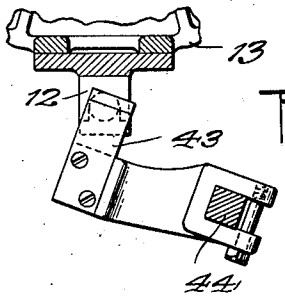


Fig. 12.

INVENTOR
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Fig. 10.

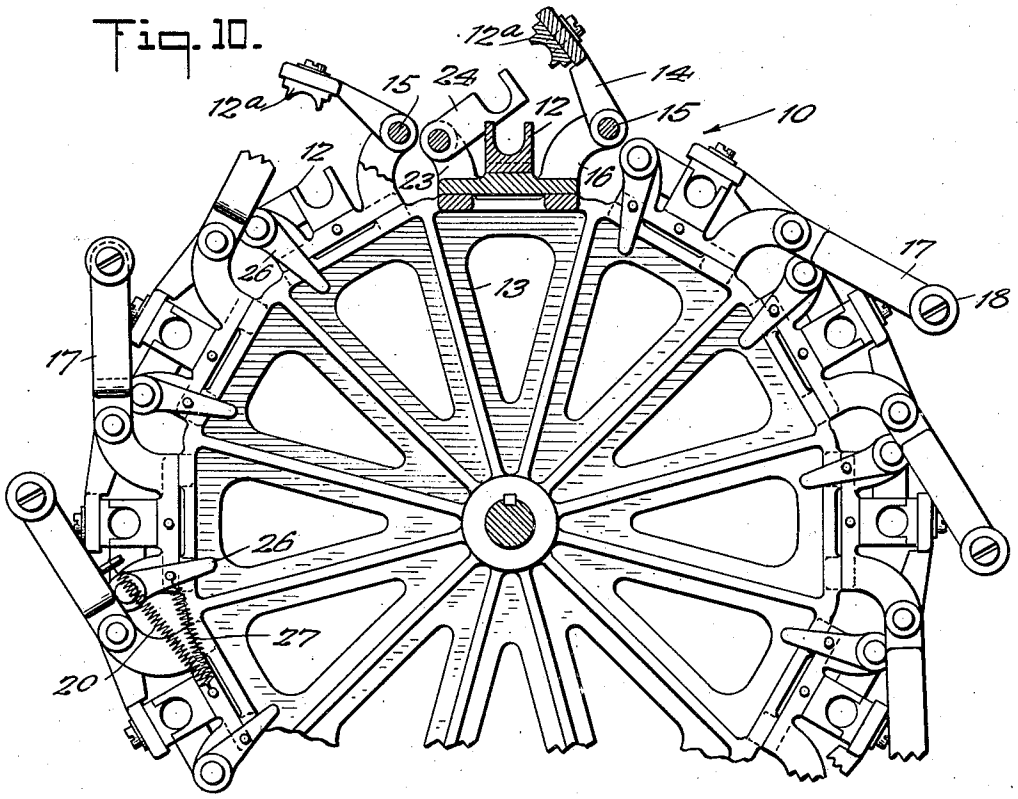
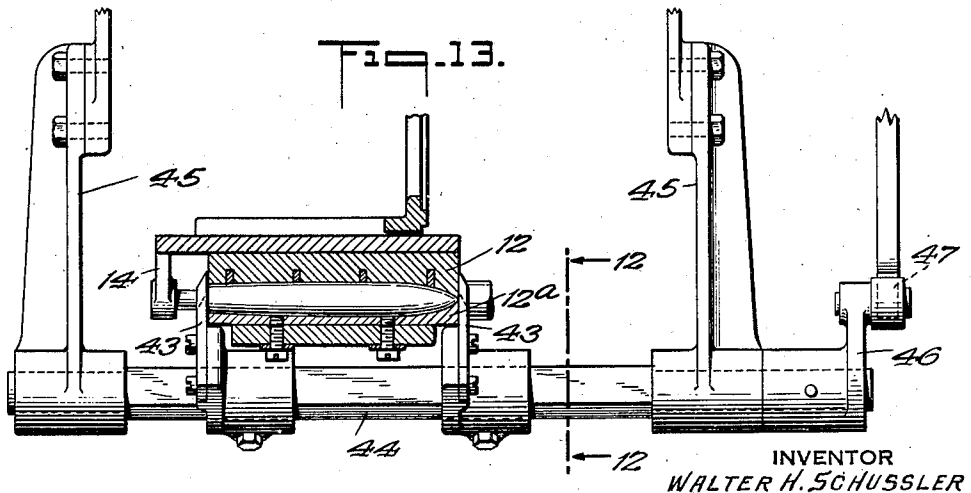


Fig. 13.



INVENTOR
WALTER H. SCHUSSLER
BY
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Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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Fig. 15.

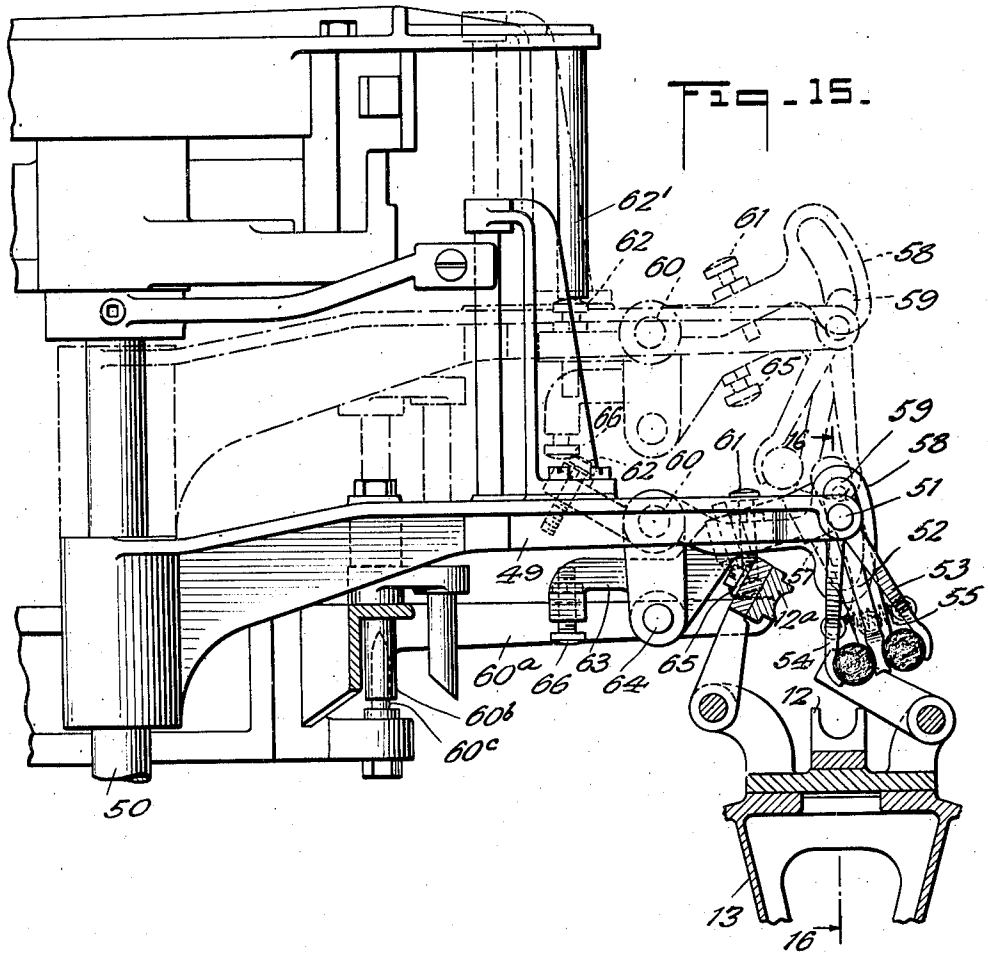
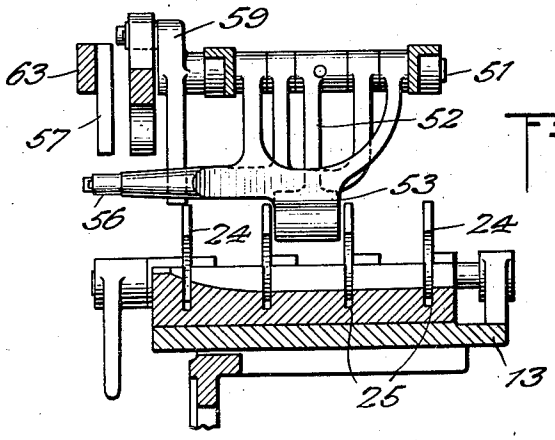


Fig. 16.



INVENTOR
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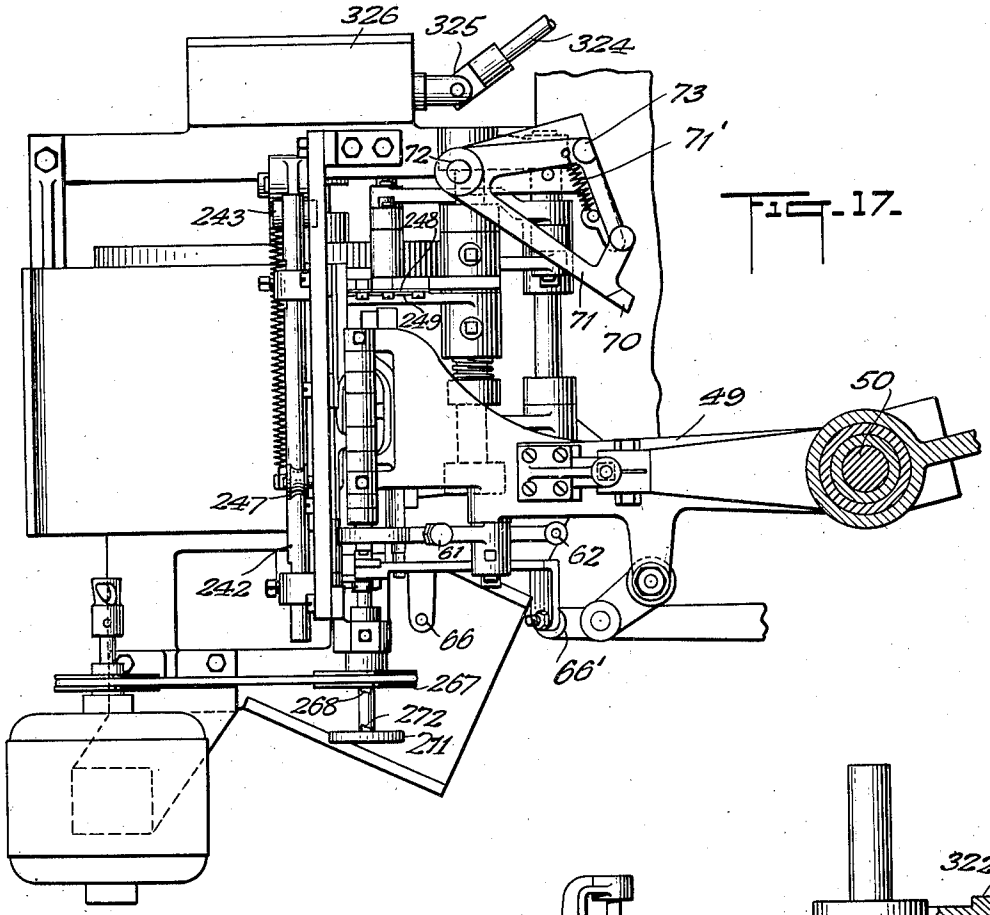


Fig. 17.

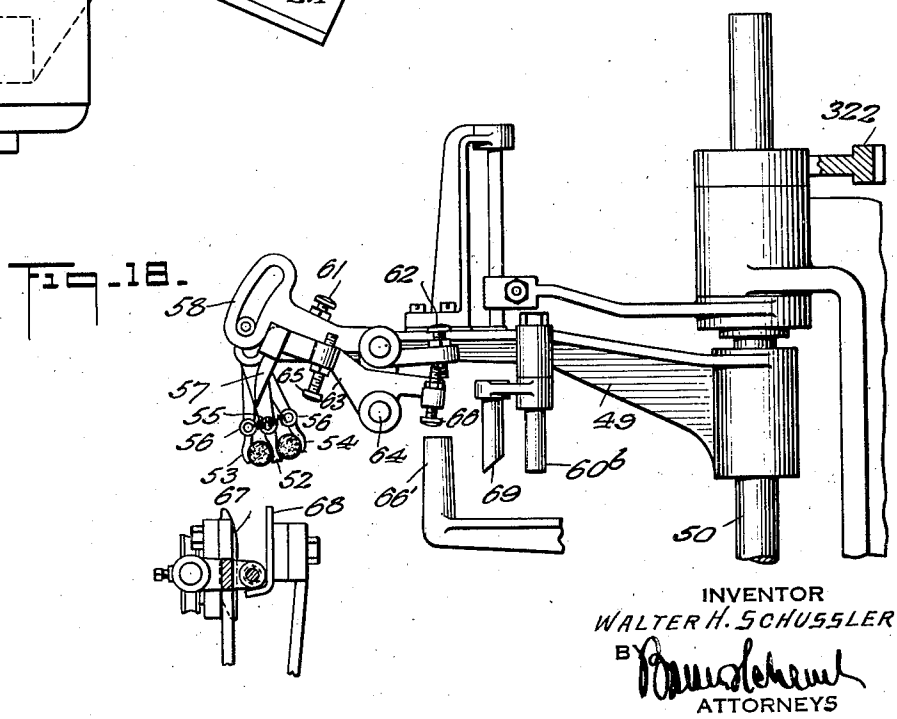


Fig. 18.

INVENTOR
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CIGAR WRAPPING MACHINE

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Fig. 19.

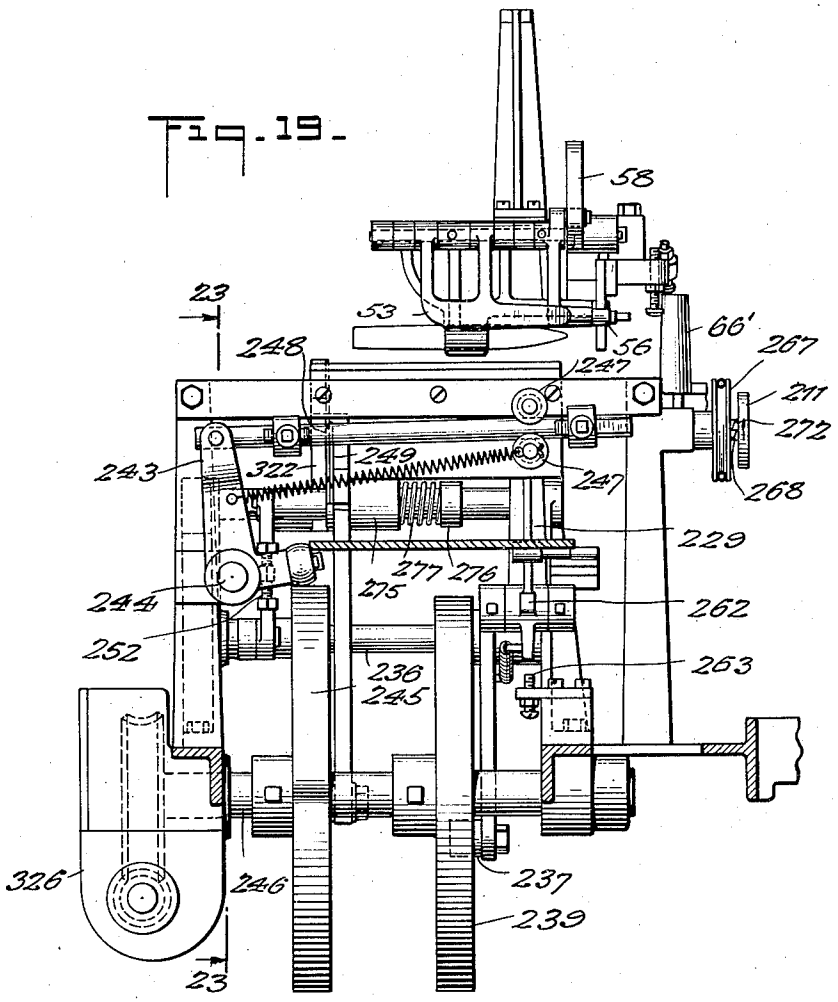
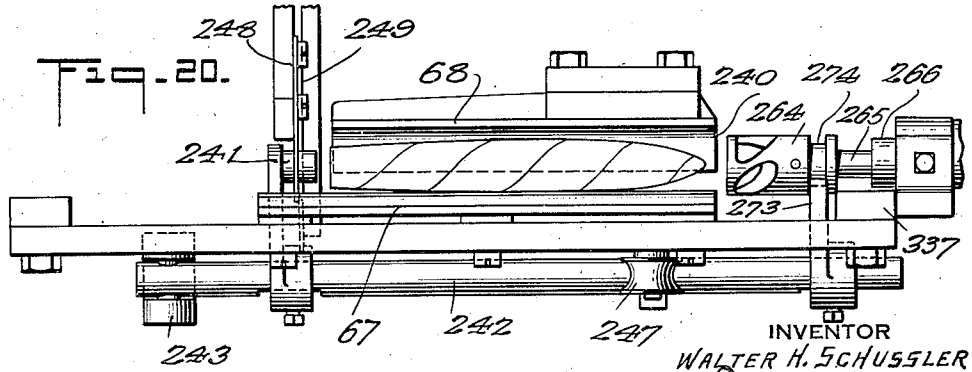


Fig. 20.



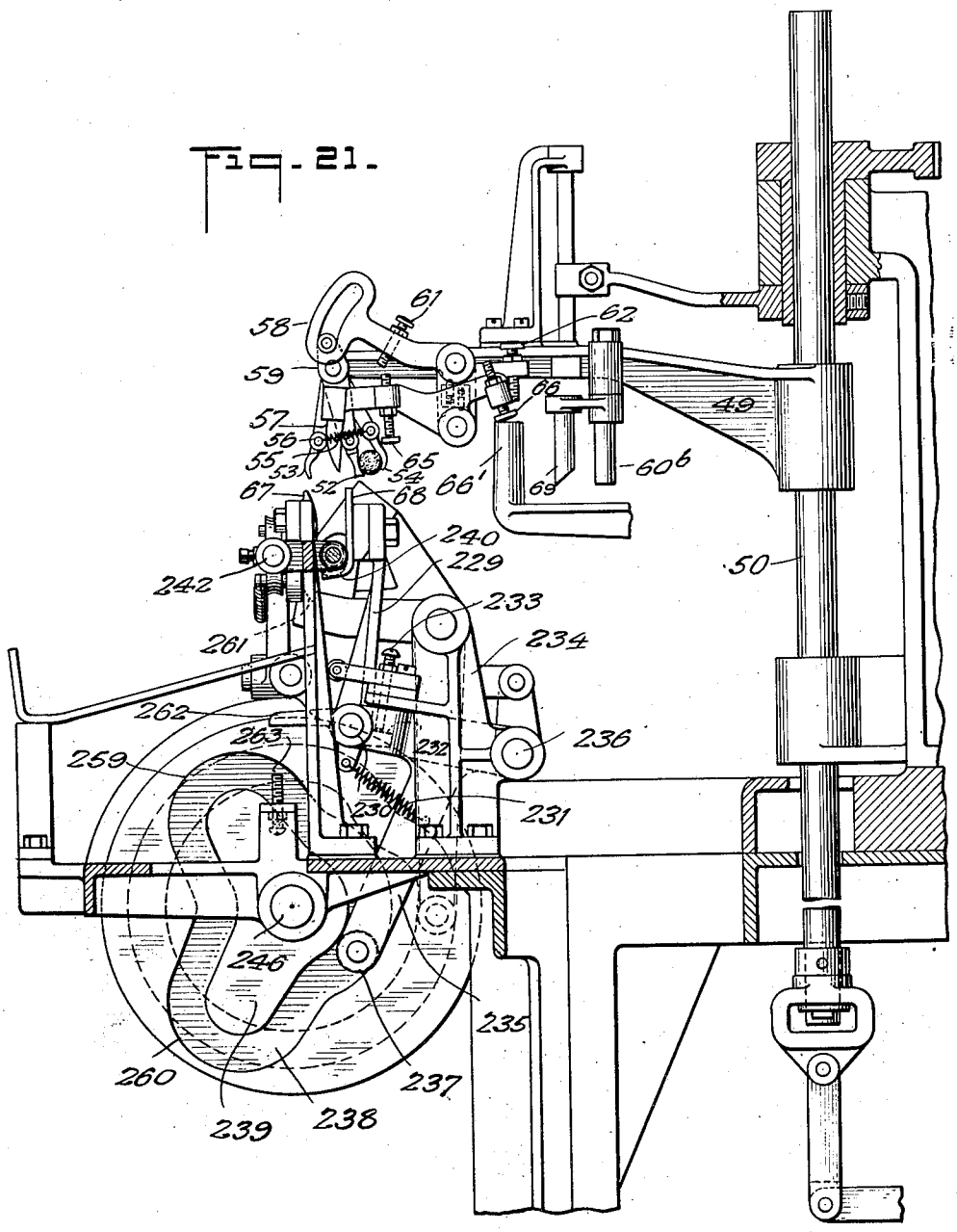
INVENTOR
WALTER H. SCHUSSLER
BY
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Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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Fig. 21.



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CIGAR WRAPPING MACHINE

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Fig. 22.

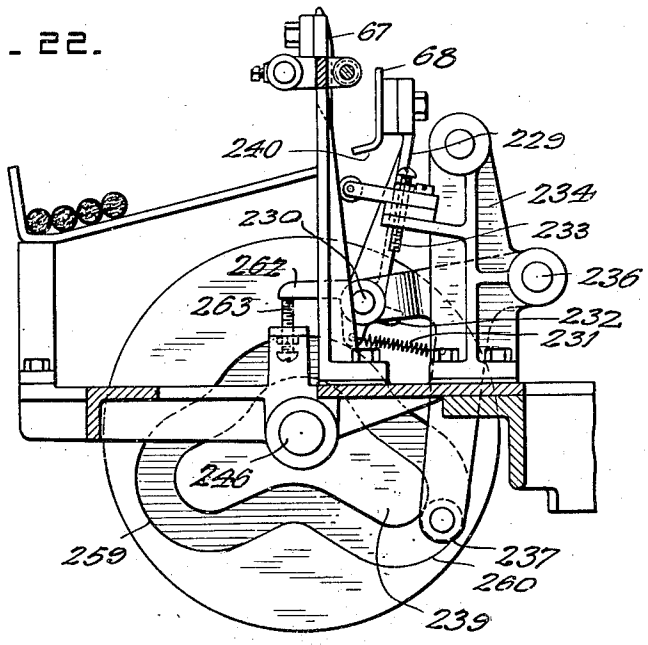
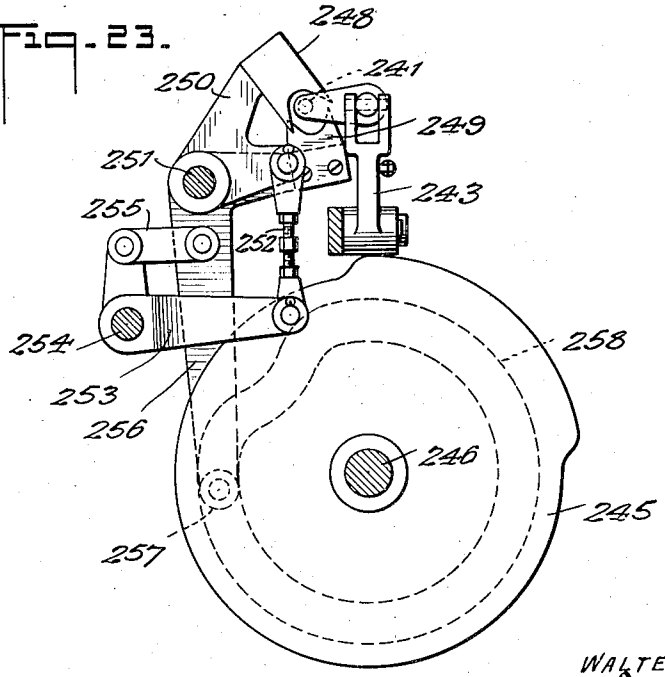


Fig. 23.



INVENTOR
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CIGAR WRAPPING MACHINE

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Fig. 35.

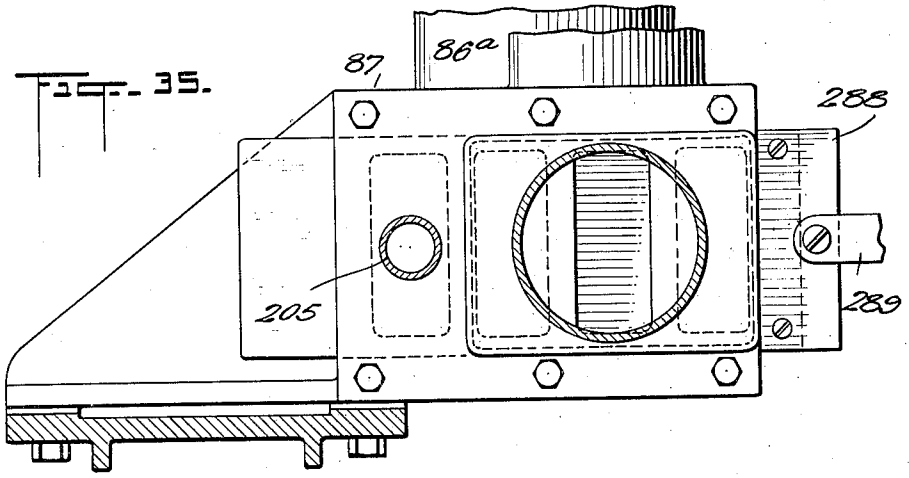


Fig. 36.

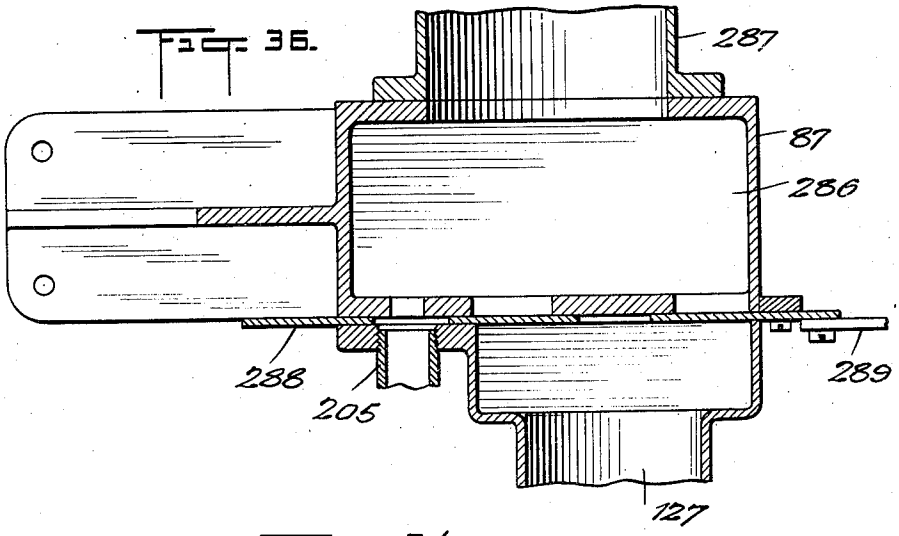
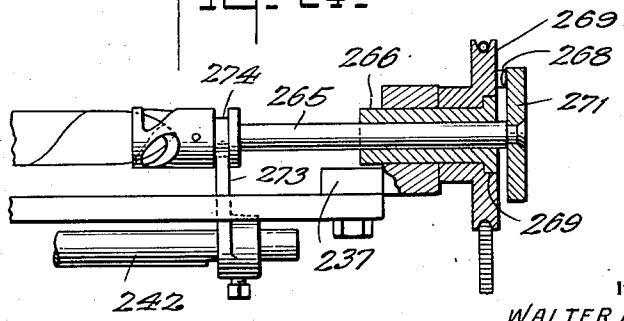


Fig. 24.



INVENTOR
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CIGAR WRAPPING MACHINE

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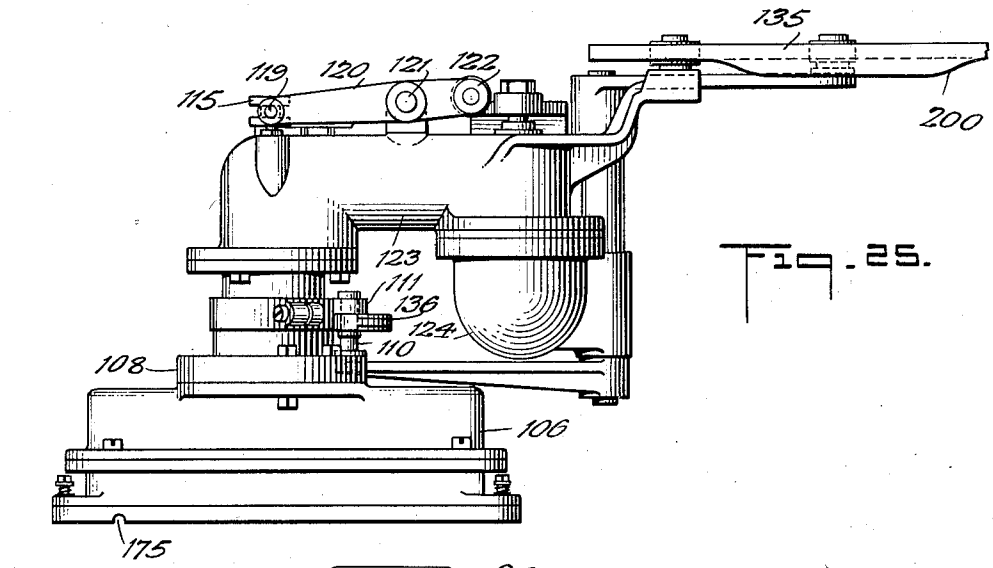
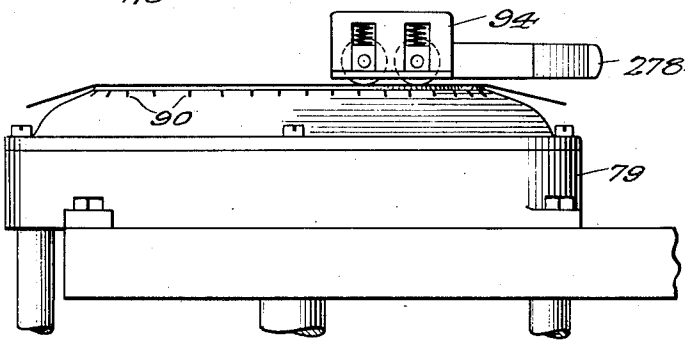


Fig. 25.



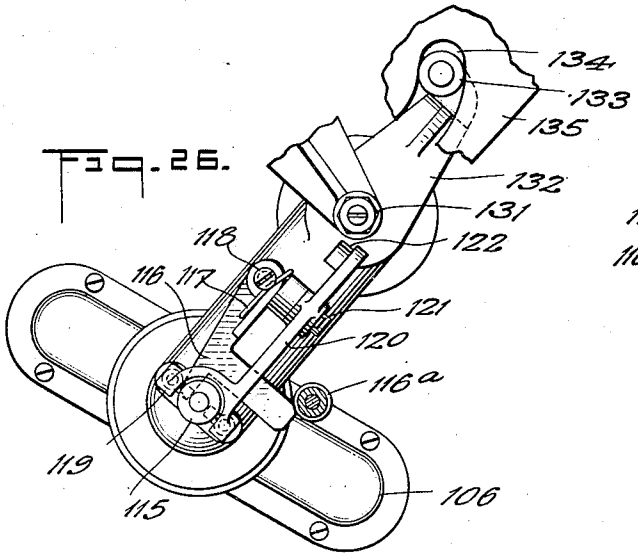


Fig. 26.

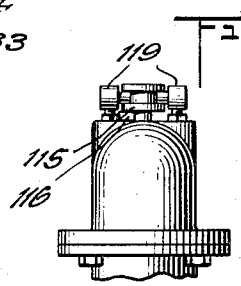


Fig. 27.

INVENTOR
WALTER H. SCHUSSLER
BY Brown & Schrenk
ATTORNEYS

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CIGAR WRAPPING MACHINE

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Fig. 28.

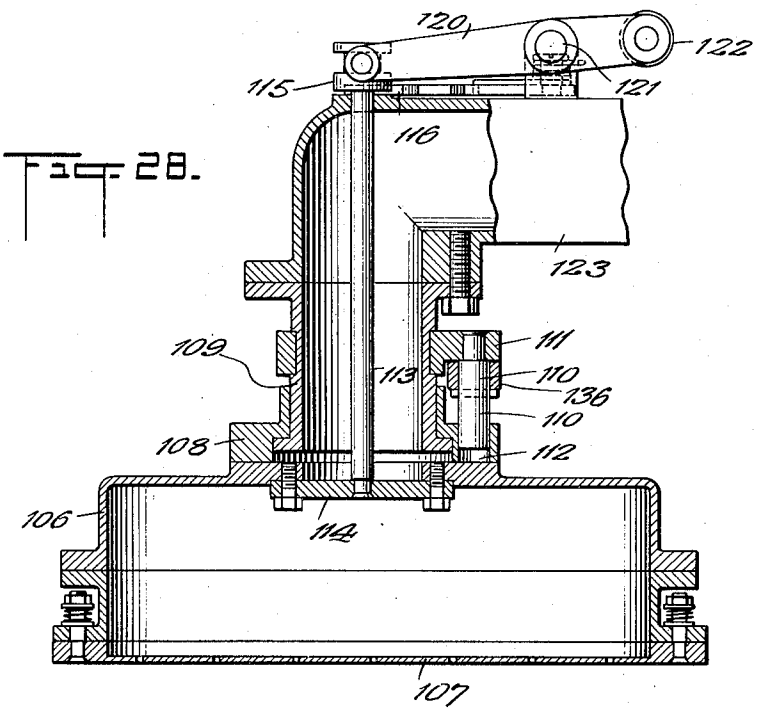
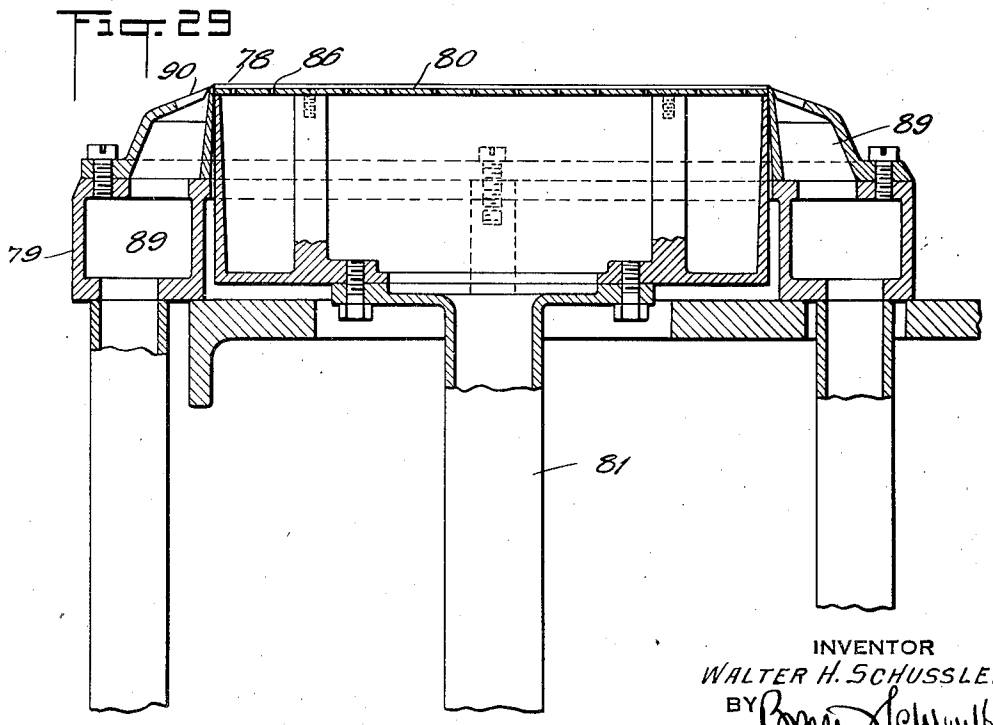


Fig. 29



INVENTOR
WALTER H. SCHUSSLER
BY
ATTORNEY

Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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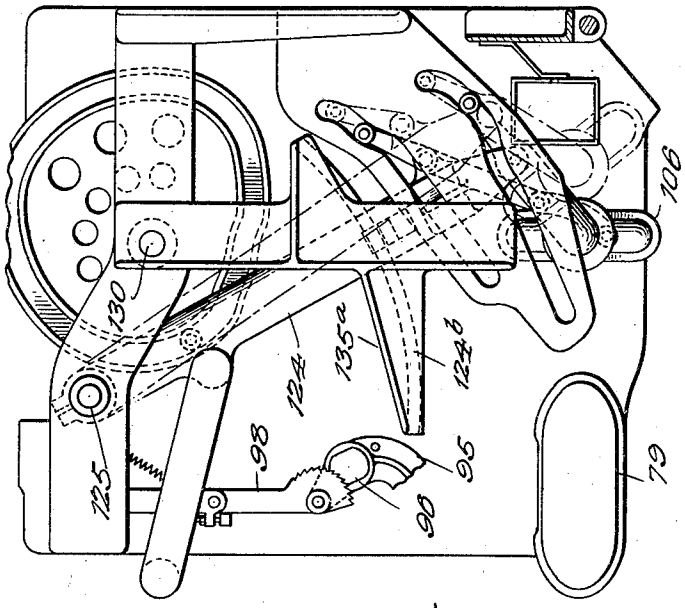


Fig. 31.

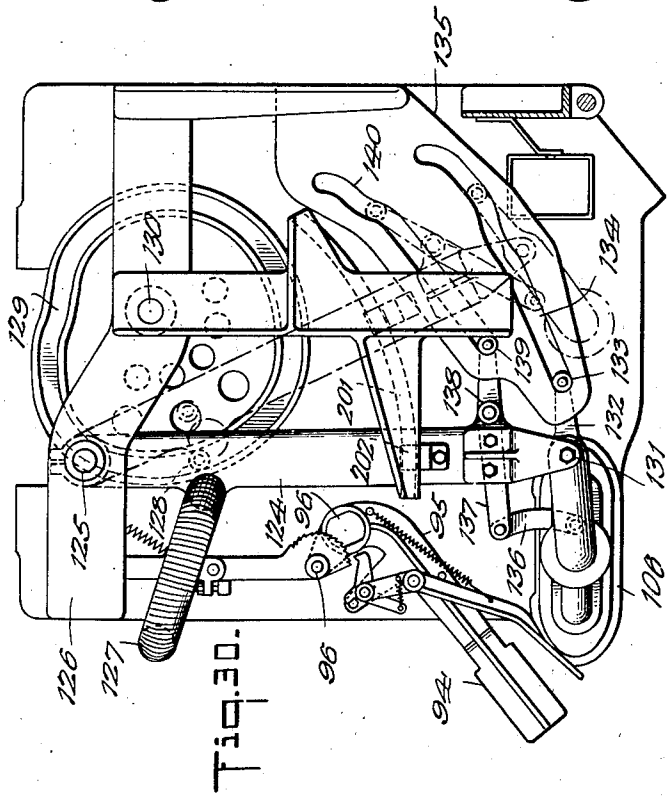


Fig. 30.

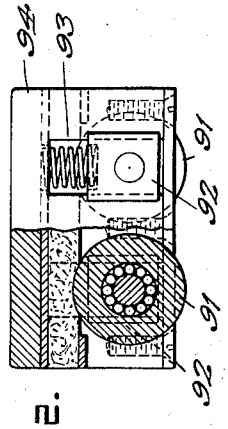


Fig. 32.

INVENTOR
WALTER H. SCHUSSLER
BY
ATTORNEYS

Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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Fig. 38.

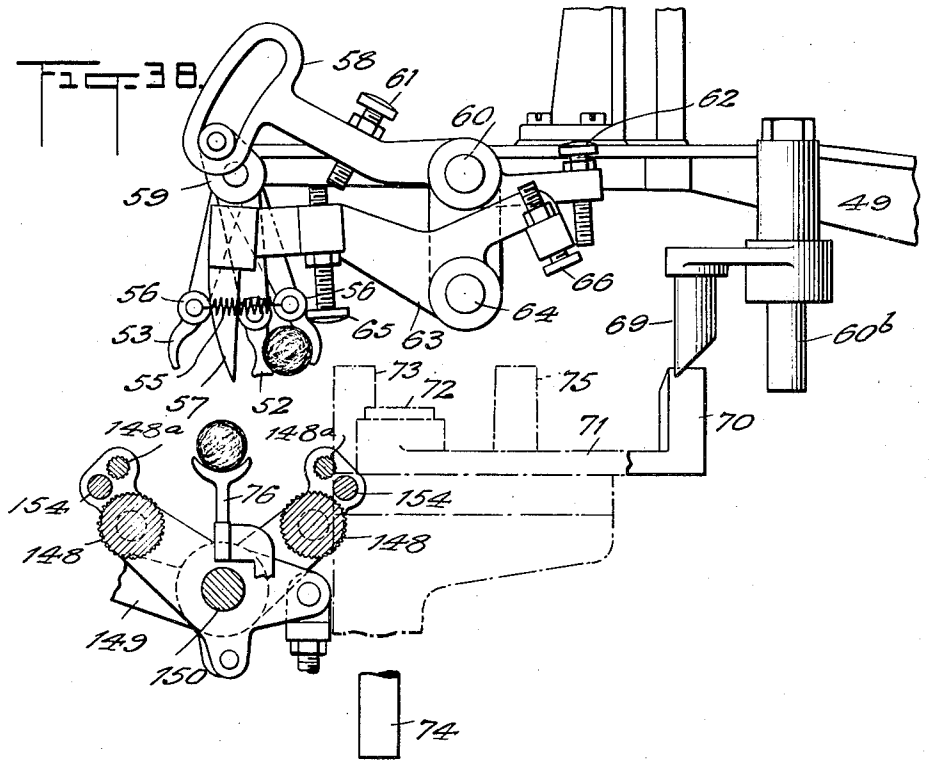
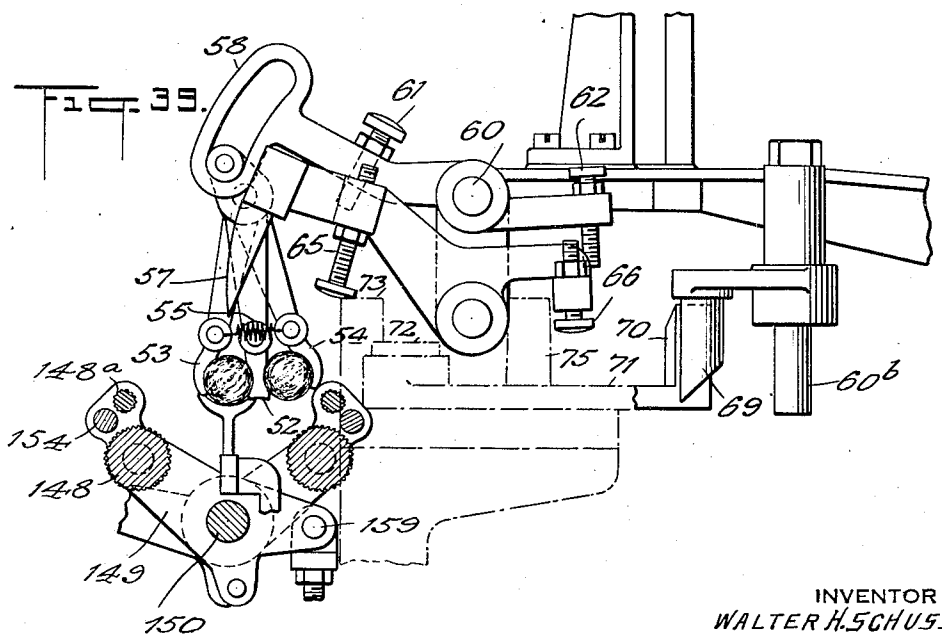


Fig. 39.



INVENTOR
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BY
ATTORNEYS

Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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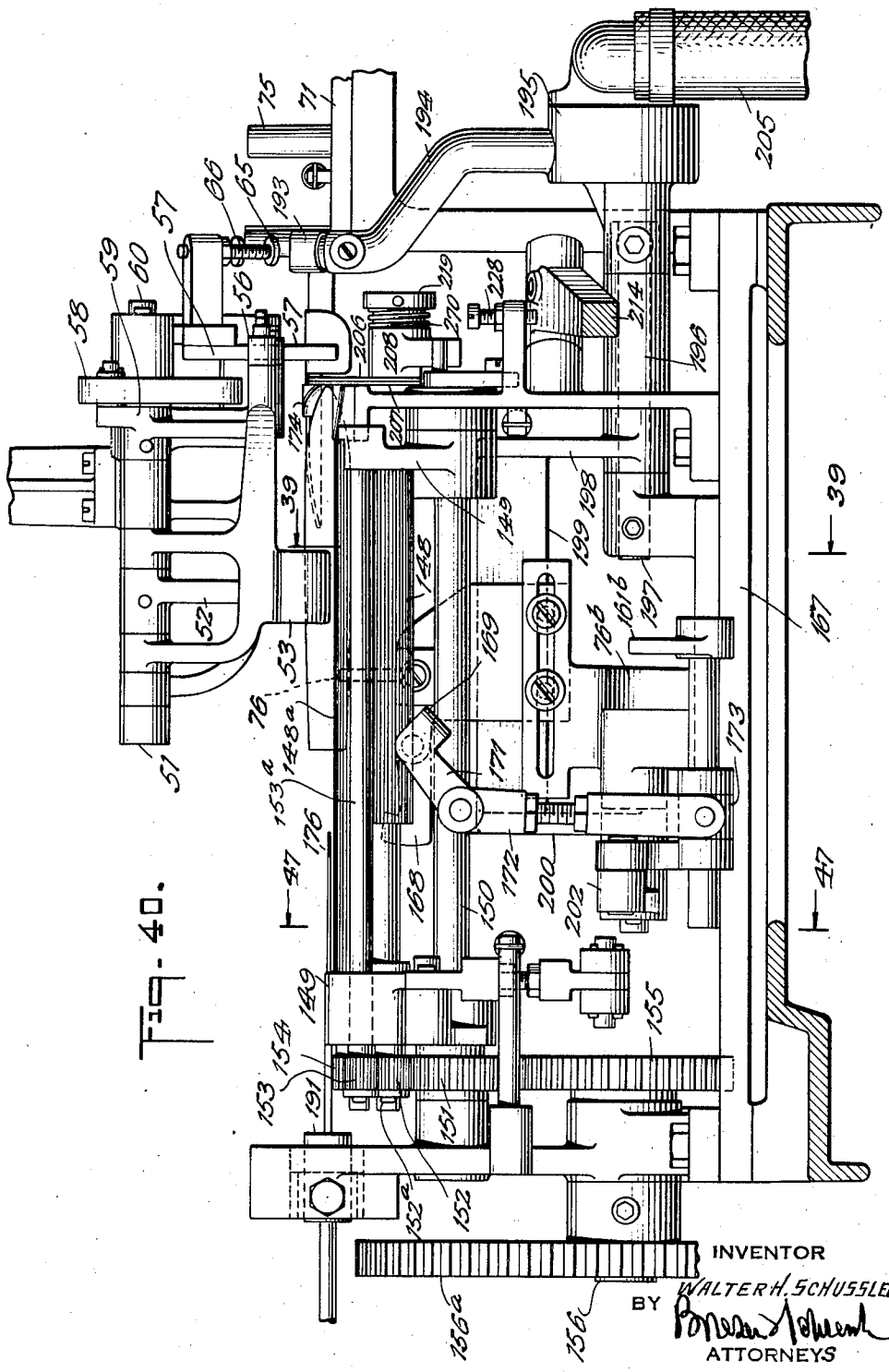


Fig. 40.

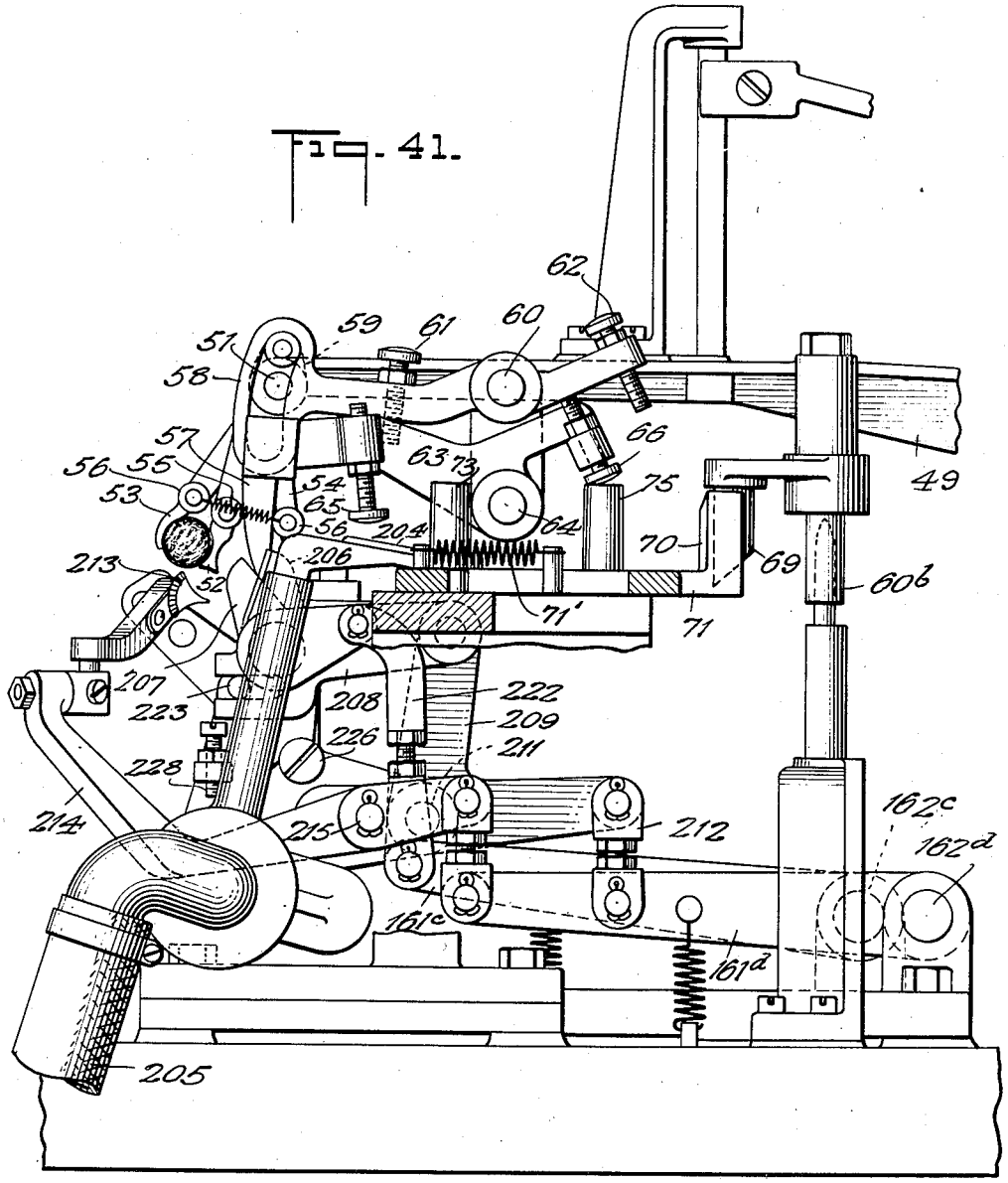
INVENTOR
WALTER H. SCHUSSLER
BY
ATTORNEYS

Sept. 6, 1932. W. H. SCHUSSLER 1,876,027

CIGAR WRAPPING MACHINE

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Fig. 41.



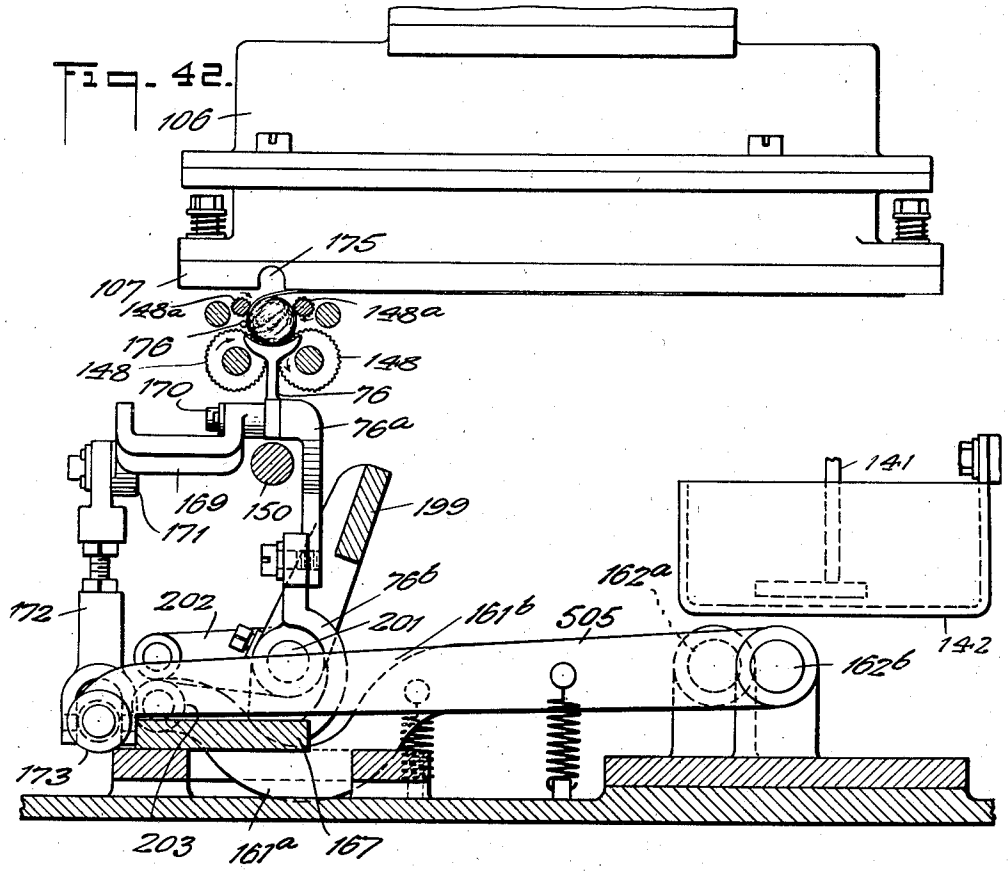
INVENTOR
WALTER H. SCHUSSLER
BY
ATTORNEYS

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CIGAR WRAPPING MACHINE

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Fig. 42.



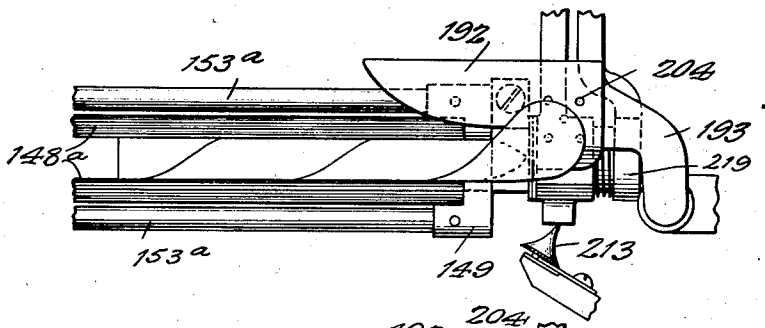


Fig. 48.

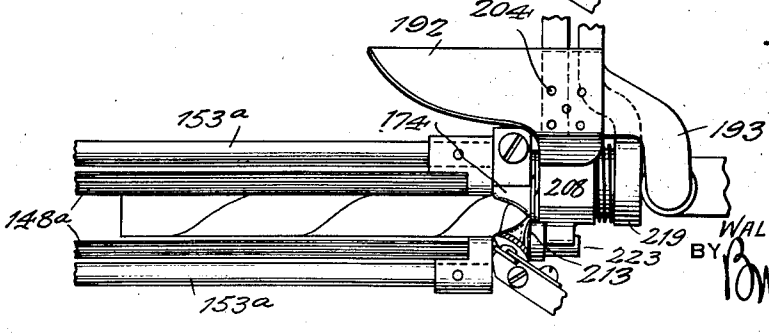


Fig. 49.

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CIGAR WRAPPING MACHINE

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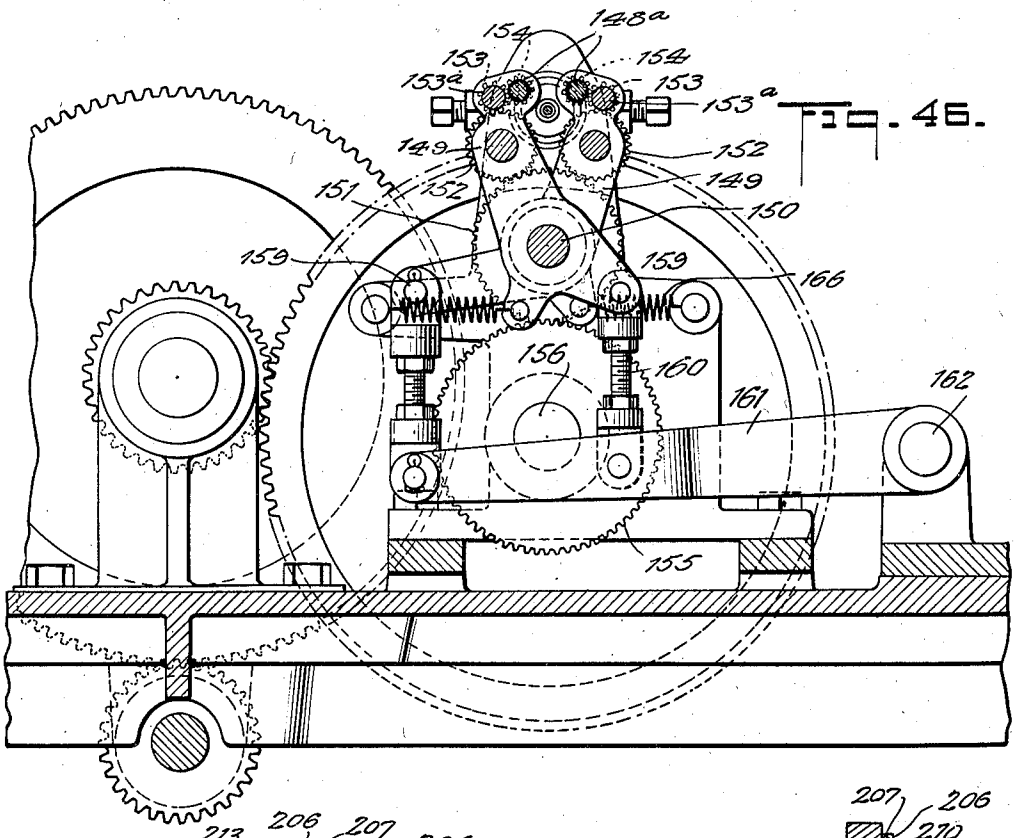


Fig. 46.

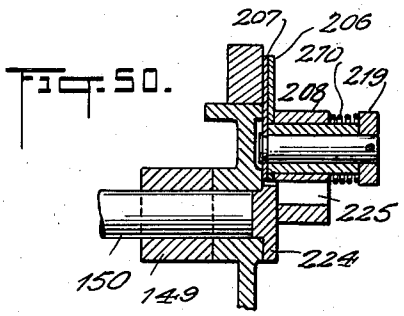


Fig. 50.

Fig. 47.

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UNITED STATES PATENT OFFICE

WALTER H. SCHUSSLER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO INTERNATIONAL CIGAR MACHINERY COMPANY, A CORPORATION OF NEW JERSEY

CIGAR WRAPPING MACHINE

Application filed July 7, 1930. Serial No. 466,192.

My invention relates to cigar-wrapping machines and has for its primary object to provide a machine of this type which is compact in construction and reliable and efficient in operation. Other objects and advantages of the invention will be apparent from the following description and the features of novelty will be pointed out in the appended claims.

My invention will best be understood from the following description taken in connection with the accompanying drawings which show by way of example a preferred embodiment of the invention.

To facilitate the reading of the specification, the location of the various figures on the different sheets is indicated as follows:

Figure	Sheet
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	8
12	9
13	10
14	5
15	11
16	11
17	12
18	12
19	13
20	13
21	14
22	15
23	15
24	19
25	16
26	16
27	16
28	17
29	17
30	18
31	18
32	18
32*a*	2
33	7
34	7
35	19
36	19
37	4
38	20
39	20
40	21
41	22
41*a*	6
42	23
43	2
44	2
45	2
46	24
47	24
48	23
49	23
50	24
51	6

In the said drawings, Fig. 1 is a top plan view of my improved machine, certain parts being omitted for the sake of clearness, and other parts being indicated diagrammatically to avoid complicating the drawings; Fig. 2 is a side elevation of the machine; Fig. 3 is a front elevation, the parts being in the position in which a cut leaf is transferred to the suction carrier head; Fig. 4 is a rear view of the machine showing the suction fan and the driving mechanism therefor; Fig. 5 is a horizontal section taken along the line 5—5 of Fig. 4; Fig. 6 is a similar view taken along the line 6—6 of Fig. 7; Fig. 7 is a longitudinal section through the machine along the line 7—7 of Fig. 1, with parts omitted for the sake of clearness; Fig. 8 is a side view of the turret which introduces the cigar bunches into the machine; Fig. 9 is a partial top plan view of the turret; Fig. 10 is a vertical section, with parts broken away, along the line 10—10 of Fig. 9; Fig. 11 shows the detent or holding mechanism for the turret; Fig. 12 is a detail of the filler bunch trimmer and is taken along the line 12—12 of Fig. 13; Fig. 13 is an enlarged detail showing a cigar bunch mold on the turret; Fig. 14 (Sheet 5) is a

view of the cam for intermittently rotating the turret and is taken along the line 14—14 of Fig. 5; Fig. 15 is a view showing the cigar transfer mechanism in position for receiving a cigar bunch from the turret, the mechanism being shown in raised, shifted position in dotted lines; Fig. 16 is a partial view taken at right angles to that shown in Fig. 15 along the line 16—16; Fig. 17 is a plan view showing the cigar transfer in position over the re-rolling device; Fig. 18 is an end view showing the cigar transfer mechanism in its initial position above the re-rolling device; Fig. 19 is a front elevation, showing the transfer mechanism in lowered position just prior to the release of the wrapped cigar; Fig. 20 shows a plan view of the wrapped cigar in the re-rolling device; Fig. 21 shows an end view of the mechanism shown in Fig. 20; Fig. 22 is an end view showing the re-rolling device at the end of a re-rolling operation; Fig. 23 illustrates the cam mechanism for operating the positioning and knurling mechanism associated with the re-rolling device; Fig. 24 (Sheet 19) is a plan of the knurling mechanism associated with the re-rolling device; Figs. 25 to 32*a* show the mechanism for cutting a wrapper leaf to the desired shape and transferring the cut wrapper to the wrapping machine; Fig. 25 being a view in elevation showing the leaf on the cutter platform and the pressure rollers in the act of cutting the same to form, Fig. 26 a plan view of the suction transfer head, Fig. 27 a detail, Figs. 28 and 29 partial, central vertical sections through the suction transfer head and the cutting platform, the former being shown in the lowered position which it assumes over the wrapping mechanism, Fig. 30 a plan view of the transfer head and its control cams at the instant of transfer of the cut leaf thereto, Fig. 31 a view showing the transfer head in full lines, over the wrapping mechanism and, in dotted lines, adjacent to the paste applying device, Fig. 32 a view, partially in section, of the pressure rollers, Fig. 32*a* (Sheet 2) a plan view of the cutter platform; Figs. 33 and 34 (Sheet 7) are plan views illustrating the mechanism for operating the pressure rollers and the safety device associated therewith, Fig. 34 showing the safety device in operative position; Figs. 35 and 36 are respectively, an elevation and a horizontal section through the suction valve; Fig. 37 (Sheet 4) shows the paste applying apparatus to which the suction head is moved before it positions the cut leaf over the wrapping mechanism; Fig. 38 is an end elevation showing the cigar transfer mechanism in position above the wrapping mechanism, a wrapped cigar being shown elevated preparatory to its removal; Fig. 39 is a similar view showing the wrapped cigar engaged by the transfer mechanism and is taken partly along line 39—39 of Fig. 40; Fig. 40 is a front view of the wrapping mechanism in the position shown in Fig. 39; Fig. 41 is an end view showing the cigar transfer device in shifted position above the wrapping mechanism and after it has been operated to deposit the cigar bunch onto the wrapping rollers; Fig. 41*a* (Sheet 6) is a view along the line 41*a*—41*a* of Fig. 6 showing the cam for operating the rack associated with the cigar transfer mechanism; Fig. 42 is a view showing the tuck end of the wrapper leaf stripped from the suction head and being wrapped about the cigar bunch; Fig. 43 (Sheet 2) is a plan view of the mechanism for operating the leaf stripping needle; Fig. 44 (Sheet 2) is an elevation thereof; Fig. 45 (Sheet 2) is an enlarged detail taken along the line 45—45 of Fig. 43; Fig. 46 is an end view showing the driving mechanism for the wrapping rollers and is taken along the line 47—47 of Fig. 40; Fig. 47 shows the mechanism for controlling the knives at the flag end of the wrapping mechanism; Fig. 48 is a plan view showing the flag end of the leaf held by the suction plate as it is slitted; Fig. 49 shows the knurling roller in position toward the end of the wrapping operation; Fig. 50 is a section taken through the slitting knives shown in Fig. 47; and Fig. 51 is a view illustrating the control of the suction line to the leaf cutting mechanism.

Briefly described, my improved machine comprises a turret mechanism which presents the cigar bunches at predetermined intervals to a transfer mechanism which, arriving from the wrapping mechanism with a wrapped cigar thereon, travels to the turret mechanism and then, while on its way back to the wrapping mechanism, deposits the wrapped cigar in a re-rolling device. The transfer mechanism, after picking up a wrapped cigar, deposits the cigar bunch in the wrapping mechanism. While these operations are taking place, a wrapper-leaf cutting mechanism is actuated to cut a leaf to the proper shape, the cut leaf being then carried by a suction head to a paste-applying device where it receives a coating of adhesive at its flag end. A cigar bunch having now been deposited in the wrapping mechanism, the suction head is swung into position above such mechanism, whereupon a stripping needle is operated to strip the tuck end of the leaf from the suction head and tuck such end between the cigar bunch and the wrapping rollers. After the bunch has been wrapped and trimmed, it is picked up by the transfer mechanism which, after first proceeding to the turret mechanism to pick up a new cigar bunch, deposits the wrapped cigar in the re-rolling device.

Turret mechanism

The cigar bunches are received in bunched condition and are charged either manually or automatically into molds forming part of a turret mechanism 10 (Figs. 8 to 16) sup-

ported from the main frame 11 of the machine and rotated by means hereinafter to be described in step-by-step manner in the direction indicated by the arrow A (Fig. 8). Each mold comprises a bottom section 12 and a top section 12*a* suitably hollowed out to receive the cigar bunch. The bottom mold sections are fixed upon the spider wheel 13 of the turret, while the upper sections are connected with bifurcated arms 14 fixed to shafts 15 which are journalled in brackets 16 supported by the spider wheel. The shafts 15 are connected at one end with arms 17 whose free ends are provided with rollers 18 arranged to engage a stationary cam 19 which is so formed that for the greater part of a revolution of the turret, the rollers 18 on arms 17 are urged outwardly to close the mold; along the upper path of the molds, however, the cam is recessed (Fig. 8) to permit the rollers to swing downwardly or inwardly to cause the molds to open. A spring 20, anchored on the spider wheel, is attached to each arm 17 to urge the roller 18 into contact with the cam. I prefer to provide, in advance of the recessed portion of the cam, an upper guide cam 21 to insure opening of the mold as the roller leaves the raised portion of the cam. After the rollers have traversed the recessed portion of the cam, they engage the inclined portion 22, during which interval a new bunch is placed into the bottom section of the mold, and the mold gradually closed.

For removing the cigar bunch from the mold upon the opening of the latter, the following mechanism is provided: Brackets 23 (Fig. 10) are fixed upon the spider 13 at each side of each mold section 12 opposite to the brackets 16 and rotatably support a shaft upon which are keyed a plurality of fingers 24 which are adapted to fit within transverse slots 25 in the mold section 12 and are cut away to conform to the outline of such section (see also Figs. 8, 9, 15 and 16). The shaft of the fingers 24 is rocked at a predetermined instant by means of an arm 26 against the action of a spring 27, the arm being arranged to engage a cam roller 28 (Figs. 8 and 9) shortly after the associated mold section 12*a* has been lifted, to present the cigar bunch to the transfer mechanism soon to be described.

The turret is given an intermittent movement by means of a ratchet mechanism which includes a ratchet wheel 29 keyed to a shaft 30 to which the spider wheel 13 also is fixed. The shaft is journalled in brackets 31 extending from the main frame 11 of the machine. The ratchet wheel is engaged by a pawl 32 pivotally mounted upon an arm 33 of a plural-armed lever 34 (Fig. 8) loosely supported on the shaft 30.

The arm 33 is connected by a link 35 with a rod 36, which is mounted for vertical reciprocation in guides 37 fixed upon the frame of the machine. The rod 36 is connected through an arm 37*a* and a link 38 with a bell-crank lever 39 (Figs. 5, 8 and 14) which is oscillated by means of a cam mechanism to be described hereinbelow. Mounted upon an extension of the bracket 31 is a spring pressed roller 40 (Fig. 11) which is adapted to engage in depressions or recesses 41 in a peripheral flange 42 integral with the ratchet wheel 29, the roller operating as a holding pawl to prevent rearward movement and also overthrow of the wheels to insure proper indexing of the turret.

Mechanism is also provided for trimming the bunches while they are in position in the molds on the turret and before they are transferred therefrom. In the form of the invention illustrated, the trimming mechanism comprises a pair of knives 43 adjustably mounted upon a square shaft 44 (Figs. 12 and 13), the ends of said shaft being journalled in hangers 45, the knives being adjusted upon the shafts 44 in such manner that the molds 12 pass in succession over such knives during the rotation of the turret. The shaft 44 is oscillated to effect the trimming or cutting operation by means of an arm 46 fixed thereon and provided with a roller 47 which is engaged by the free end of a second arm 48 of the plural-armed lever 34 to effect oscillation of the knives 43 with every advance movement of such lever, the knives being returned by a third lever 48*a*. It is to be noted that the cutting action takes place while the cigar bunch is traveling at an angle to the direction of movement of the knives and roughly in opposite direction thereto, so that a slicing or shearing action is obtained.

Transfer mechanism

The means for transferring the trimmed cigar bunches from the turret to the wrapping mechanism will now be described. The transfer mechanism includes an arm 49 (Fig. 15) secured to a vertical shaft 50 for vertical and rotary movement therewith. The arm 49 carries at its free end a spindle 51 to which is rigidly attached a central finger 52. The spindle carries also an outer finger 53 and an inner finger 54 which are loosely mounted thereon and are connected by a spring 55 (Fig. 21) which urges them toward the central finger 52. The fingers 53 and 54 are provided with extensions having rollers 56 thereon (Fig. 16) adapted to be engaged by a separating cam finger 57 which is arranged to pass between the relatively fixed roller on the extension of the central finger and the roller mounted upon either the outer or inner finger depending upon the angular position of the shaft 51 as will be explained more fully hereinafter.

The fingers of the transfer mechanism are

operated in such manner that they alternately receive, each between itself and the central finger, either a cigar bunch or a wrapped cigar, the shaft 51 being periodically rocked to bring either the inner or outer fingers into operative receiving (or discharging) position above the several stations in the machine, the other finger being simultaneously moved into the inoperative or idle position. To effect such periodic rocking of the shaft 51, I provide a cam member 58 having a cam groove therein which receives a crank 59 fixed upon the shaft 51. The groove is so formed that when the cam is in its lowermost position, as shown in full lines in Fig. 15, the shaft 51 is rocked to such extent and in such direction that the inner finger 54 is located directly above a station while the finger 53 is in inoperative or idle position. Upon oscillation of the cam member 58 to its upper position, as shown in dotted lines in Fig. 15, the shaft 51 is rocked in an opposite direction to bring the finger 53 into operative position above a station while the finger 54 is brought into idle position. The cam member 58 is pivoted upon a stud 60 and is provided with abutments 61 and 62 upon either side of the stud which are engaged by stops hereinafter to be described, for oscillating the cam member.

The separating cam finger 57 is mounted upon a lever 63 pivoted intermediate its ends at 64 upon a bracket depending from the arm 49 and provided at either side of such pivot with abutments 65 and 66 which are engaged by stop members hereinbelow to be described for oscillating the separating finger to effect movement of either of the fingers 53 and 54 away from the central finger 52, either to discharge a cigar bunch or a wrapped cigar from between such fingers or to receive such cigar or bunch at the several stations of the machine. It will be understood that only one separating finger is provided and that it is operative to separate one or the other of the fingers 53 and 54 depending upon the angular position of the rock shaft 51.

In the full-line position of the parts shown in Fig. 15 the transfer mechanism has been shifted from the wrapping mechanism, where the finger 53 received a wrapped cigar, after which finger 54 deposited a cigar bunch in such mechanism by the action of the separating finger 57 (as will be described below) and the arm 49 then raised and swung to a position above the turret with the finger 54 in the operative position and held open by the finger 57. The arm 49 is then moved downwardly, and substantially simultaneously with such movement, the fingers 24 of the turret mechanism are operated by their cam to lift the cigar bunch from the bottom half 12 of the mold into the reach of the separated finger 54, the upper part 12*a* of the mold having been swung open a short time prior to this operation. Near the end of such downward movement the abutment 65 engages the end of a bracket 60*a*, whereupon the separating finger 57 is swung counterclockwise (Fig. 15) to permit the finger 54 to engage the bunch. The arm 49 is then lifted, the cigar bunch being held securely against the central finger 52 by the finger 54 under the action of the spring 55. As the arm reaches its uppermost position the abutment 62 engages a fixed stop 62′ whereupon the cam 58 is swung upwardly and the position of the fingers 53 and 54 is reversed, that is, the finger 53 is now in the operative transfer position.

The transfer mechanism is positioned correctly with respect to the turret during its downward movement by means of a socket member 60*b* which is adapted to align with and receive a pin 60*c* supported on the machine frame.

The arm 49 is now oscillated by mechanism later to be described, in a clockwise direction, as viewed in Fig. 1, to bring the transfer mechanism to a position above the re-rolling device. The position of the parts of the re-rolling device for the wrapped cigars is shown in Figs. 17 to 21, inclusive. The arm 49 arrives above the re-rolling mechanism in the position shown in Fig. 18. In this position the arm 49 is lowered and during such movement, the abutment 66 engages a stop 66′ to effect oscillation of the lever 63. The separating cam finger 57 thereupon moves between the rollers on the extensions of the fingers 52 and 53 and separates such fingers, whereupon the wrapped cigar falls into the re-rolling mechanism and is caught between a fixed vertical plate 67 and a movable plate 68, the latter being in its uppermost position in Fig. 18. The re-rolling device will be described in detail hereafter.

After depositing the wrapped cigar in the re-rolling device, the transfer mechanism is swung over to the wrapping mechanism as shown in Fig. 38. The transfer mechanism is thereupon lowered and the finger 53, being held in the open position by the separating finger 57, receives between itself and the central finger 52 a wrapped cigar. During the movement of the transfer mechanism toward the wrapping mechanism a projection 69 fixed to the socket member 60^b engages an up-standing lug 70 (Fig. 39) of a stop plate 71 and swings the latter about a pivot 72 against the action of a spring 71′ (Fig. 17) so as to bring a stop 73 within the path of the abutment 65 on the lever 63. Consequently, when the transfer mechanism is lowered, the abutment 65 engages the stop 73, so that the downward movement of the separating cam finger 57 is interrupted and it slides from between the fingers 53 and 52, whereupon the finger 53 securely engages the wrapped cigar under the action of the spring 55. The transfer mechanism is then lifted until the projection 69 clears the lug 70, the abutment 61 thereupon

striking a fixed stop 74 to oscillate the cam member 58 to bring the finger 54 into operative position directly above the wrapping mechanism. As the projection 69 clears the lug 70, the stop plate is returned by its spring 71', so that the stop 75 is now below the abutment 66. The mechanism is then again lowered, whereupon the abutment 66 engages the stop 75 and oscillates the cam finger 57 to effect separation of the fingers 52 and 54. The cigar bunch held by the finger 54 is thus released and falls upon the cigar rest 76 of the wrapping mechanism.

The cigar bunch is now ready to receive a wrapper which is wound thereabout by the wrapping rollers of the wrapping mechanism, but before the latter mechanism is described the operations performed upon the wrapper leaf prior to its delivery to the wrapping mechanism will first be described.

Wrapper leaf cutting mechanism

While the above operations take place an operator seated at 77 (Fig. 1) places a dampened leaf upon an annular knife 78 positioned upon a frame 79 (see also Figs. 2, 3, 25, 32a). Within the annular knife is positioned a hollow plunger 80 fixed to a hollow stem 81 adapted to be vertically reciprocated by means of a yoke 82 (Fig. 5) connected therewith and keyed at its outer ends to a shaft 83 (Fig. 2) which is rocked by an arm 83a fixed thereon and provided at its outer end with a roller which engages a cam 84 mounted upon a shaft 85 journalled in the frame of the machine. The top plate of the plunger 80 is provided with a plurality of openings 86, while the stem 81 is connected through a conduit 86a and a valve 292 to be hereinafter described, with a blower 88 (Fig. 51). There is also provided within the fixed frame 79 a hollow chamber 89 encircling the knife 78 and provided with slots 90 in the upper wall thereof adjacent to the knife 78 (Fig. 32a). When the dampened leaf is placed over the plunger 80 and knife 78, the chamber 89 and stem 81 are connected to the blower, so that a suction is produced within the plunger and the chamber which suction holds the leaf flat against the knife 78.

With the wrapper leaf in place upon the knife 78 a pair of pressure rollers 91 (Fig. 32) are swept across the knife to cut the leaf to the shape of such knife. The rollers are mounted in spring pressed blocks 92, which slide in elongated slots 93 in the ends of a housing 94. The rollers may, if desired, be provided with roller or ball bearings as shown. Supporting the housing 94 is a bell-crank lever 95 (Fig. 30) which is pivoted at 96, the other arm 97 of the lever being pivoted at 97a, (Fig. 33) to a two-part lever 98, whose two portions are pivoted at 98a. The outer end of the lever 98 is pivoted to a bell-crank lever 99, which oscillates upon a fixed axis 100 and is connected at its other end by means of a link 101 with a lever 102 pivoted at 102a and provided intermediate its ends with a roller 103 which travels in the groove 104 of a cam mounted on a vertical shaft 105. The two parts of the lever 98 are held in longitudinal alignment by means of a spring 97c, anchored to the lower part of the lever 98 and to the bell-crank lever 99, the spring passing above the pivot 98a and the lever parts being held in position by cooperating abutments 98b and 98c. At the proper instant the cam 104 oscillates the lever 102 and through lever 98 swings the short arm 97 about its pivot 96 and thereby sweeps the cutting rollers 91 on the longer arm of the lever 95 across the wrapper leaf on the knife edge 78.

After the leaf has been cut, the plunger 80 is raised by the lever 82 to present the leaf to a suction transfer head 106 (Figs. 2, 25, 26, 27 and 28). The suction head has at its bottom a removable perforated plate 107 (Fig. 28) and carries at its top a sleeve 108 which is loosely mounted upon a hollow pipe member 109 for axial and rotary movement thereon. A pin 110 fixed to a collar 111 rotatable on the pipe member 109 engages in a recess 112 in the sleeve 108 for rotating the latter upon oscillation of the pin 110 by mechanism described hereinbelow. The suction head 106 is supported by a rod 113 attached at its bottom end to a spider 114 fixed to the suction head, and at its upper end to a head 115. The suction head 106 is maintained in raised position by the engagement of a spacer member 116 beneath the head 115, the spacer member being urged into this position by a spring 117 (Fig. 26) mounted upon a stud 118 upon which the member is pivoted. The head 115 is provided with a groove which is engaged by the bifurcated end 119 of a lever 120, which is pivoted at 121 and is provided at its outer end with a roller 122.

The pipe member 109 is in communication with a pipe section 123 of inverted U-form rigid with the pipe 109 and mounted for rotary movement upon the free end of a hollow lever 124 (Figs. 30, 31) which is pivoted at its other end at 125, on a bracket 126 positioned above the main frame of the machine. The hollow lever 124 is connected by a flexible hose 127 with the valve 87. (Fig. 3.)

The suction head 106 is placed into communication with the suction side of the fan shortly after the plunger reaches its uppermost position. When the plunger is raised by its lever it is brought directly beneath the suction head and in close proximity thereto, whereupon the valve 292 is operated to connect the suction head with the suction side of the blower. The suction head then sucks the cut leaf against the perforated plate 107 and holds the same in such position during the subsequent movements of the plunger

head and until the leaf is stripped from the latter.

The plunger head is now swung to position to receive a coating of gummy or adhesive material upon the flag end of the leaf, after which it is swung into position above the wrapping rollers to deliver the leaf thereto. The mechanism for accomplishing these movements of the suction head is the following:

The hollow lever 124 is provided with a roller 128 (Figs. 30 and 31) which is received in a groove of a cam 129 fixed upon a shaft 130. It will be evident that rotation of the cam 129 will cause the transfer head 106 and the parts connected therewith to swing about the pivot 125. The suction head and the pipe member connected therewith are also caused to swing about a pivot 131 at the end of the lever 124 by means of an arm 132 rigid with such pipe member and provided with a roller 133 which engages in a cam slot 134 in a horizontal plate 135 fixed to a bracket 135*a* above the main frame of the machine. The suction head 106 is also caused to oscillate about its supporting rod 113 as an axis and to this end the pin 110 (Fig. 28) is connected by means of a link 136 with a lever 137 which is pivoted intermediate its ends at 138 upon the lever 124 and carries at its free end a roller 139 engaging in a cam slot 140. The cam slots 134 and 140 are so designed that when the lever is at the end of its counter-clockwise movement as viewed in Fig. 30 the parts assume the position shown in dotted lines in Fig. 31, wherein the suction head is adjacent to and above the adhesive applying mechanism; while at an intermediate position, as shown in full lines in Fig. 31, the suction head is located immediately above the wrapping mechanism. The hollow lever 124 is supported near its free end by means of a trolley 124*a* (Fig. 2) which rides on a fixed rail 124*b* suspended from the bracket 135*a*.

In the dotted line position of the parts shown in Fig. 31, a paste-applying member 141 (Figs. 1 and 37) preferably in the form of a disc, is lifted out of a tank 142, which contains the adhesive fluid and is raised into contact with the flag end of the wrapper leaf. The member 141 is fixed to a shaft 143 which is reciprocated through the medium of a link 144, a lever 145 and a cam 146 mounted on the horizontal shaft 85 of the machine (Fig. 4).

As the arm 124 reaches the end of its counter-clockwise movement, an extension of the spacer member 116 (Figs. 3, 25, 26 and 27) engages a fixed pin 116*a* depending from the plate 135 and is oscillated against the tension of its spring 117, so that it moves out from under the head 115 and permits the suction head 106 to drop. The suction head is thus brought very close to the wrapping mechanism so that when the leaf is pulled off the suction head, only a very small portion thereof extends between the cigar bunch and such head, whereby folds or wrinkles in the leaf are prevented.

After the adhesive has been applied to the leaf the hollow lever 124 is returned to the position shown in full lines in Fig. 31 and is maintained in such position by means of a portion of the cam 129 which is concentric with the shaft 130, until the leaf has been completely stripped therefrom.

Cigar wrapping mechanism

During the above described movements of the suction head the transfer mechanism has been operated, as described hereinabove, to deposit a cigar bunch in the wrapping machine. As described, after the finger 53 has lifted a wrapped cigar from the cigar rest 76 (Figs. 38 and 39) the shifter cam 58 is operated to shift the finger 54 into discharging position, the transfer mechanism is lowered (Fig. 41), and the separating finger 57 is swung downwardly to separate finger 54 from the central finger 52, whereupon the cigar bunch is deposited upon the yoke or rest 76.

During the removal of the wrapped cigar and the deposit of the cigar bunch the wrapping rollers are in open or inoperative position. The wrapping rollers comprise a pair of large corrugated rollers 148 and small corrugated rollers 148*a* (Figs. 38 and 39). These rollers are journalled in two pairs of spaced arms 149 pivoted upon a common shaft 150. The rollers are driven by means of a driven gear 151 (Fig. 40) loose upon the outer end of the shaft 150 and meshing with gears 152 fixed to the axles 152*a* of the rollers 148. The gears 152 are in mesh with idlers 153 which drive gears 154 fixed to the axles of the rollers 148*a*. The idler gears 153 are loosely mounted upon tie rods 153*a* which connect and hold the arms 149 in spaced relation. Motion is conveyed to the gear 151 by means of a gear 155 fixed to a stub shaft 156 upon which is mounted a gear 156*a* meshing with a pinion 156*b* driven from a change speed gearing 158 (Fig. 5).

The opening and closing movement of the wrapping rollers is controlled by the following mechanism:

One pair of adjacent arms 149 is made in the form of bell-crank levers to whose other arms there are pivoted at 159 links 160 (Fig. 46) whose other ends are pivoted to a bifurcated lever 161 fixed to a rock shaft 162 (Fig. 5) to the other end of which is fixed an arm provided at its free end with a roller which is positioned to engage on an arcuate cam 164 on a cam plate 165 mounted upon the vertical shaft 105. The rollers are urged toward their closed position by means of springs 166 (Fig. 46).

The yoke or cigar rest member 76 is attached to an arm 76*a* (Fig. 42) adjustably connected with a bracket 76*b* supported by the wrapping mechanism sub-frame 167.

After a cigar bunch has been placed upon the cigar rest it is positioned by means of a positioning dog 168 (Figs. 40 and 42). The latter is rigid with a U-shaped member 169 which pivots on one arm on a stud 170, projecting from the arm 76*a*, the other arm of the U-shaped member having an extension 171 which is connected with an adjustable link 172. The bottom end of the link is bifurcated and embraces a collar 173 upon the end of a lever 161*b* rigid with a rock shaft 162*b*. The latter is rocked through an arm 163*b* (Fig. 5) whose free end is provided with a roller arranged to engage an arcuate cam 164*b* mounted upon the cam plate 165. Upon rocking of the shaft 162*b*, the dog is rocked clockwise (Fig. 40) and engages the tuck end of the cigar, thereby determining the position of such end. The cigar rest 76 engages the cigar near such tuck end, while the flag end is supported upon a conical tip support 174 (Fig. 40). After the cigar is positioned the wrapping rollers are closed through the operation of their control lever 161.

After depositing the cigar bunch the transfer mechanism is raised and with the cigar-engaging finger 54 in operative and in open position, is swung in a reverse direction into position above the turret mechanism where it receives a new cigar bunch as hereinabove described. Shortly after the transfer mechanism has left its position above the wrapping rollers, the suction head passes over the wrapping rollers on its way to the paste applying mechanism where the flag end of the cut leaf receives a coat of adhesive as hereinabove set forth, the spacer lever 116 being first tripped by the fixed pin 116*a* to permit the suction head to drop to the position shown in Fig. 28. The suction head mechanism as a whole is now swung back a short distance while the suction head is turned about its axis until it is brought to a position above the wrapping rollers (shown in full lines in Fig. 31), such that a notch 175 in the plate 107 is in alignment with a stripping needle 176 (Fig. 40), which at this moment is moved longitudinally so as to enter such notch and is then operated to strip the tuck end of the leaf from the suction head and direct the same upon the cigar bunch. The needle presses the tuck end against the cigar and follows the leaf around the cigar, as indicated in Fig. 42, as the cigar is rotated by the wrapping rollers, whereby engagement of the leaf about the bunch is insured. The movements of the needle are controlled by two cams, one of which, 177 is fixed to the shaft 105 (Fig. 43) while the other, 178, is mounted upon the underside of the cam plate 179 (Fig. 2) likewise fixed to the shaft 105. The axial longitudinal movement of the needle is effected by cam 177 which operates a lever 180 which is forked as shown in Fig. 44, the upper fork having a roller 181 journalled thereon, while the lower fork has pivoted thereto a rod 182 whose other end is looped and is received within a circumferential groove in a collar 183 fixed to the needle 176 adjacent to the inner end thereof as shown in Fig. 43. The inner end of the needle passes through a hole 184 in a plate 185 (Fig. 45) which is adjustably mounted upon a rocking lever 186 provided with an open slot with which the hole 184 aligns. The lever 186 is fixed intermediate its ends upon a shaft 187 journalled in the arms of a U-shaped support 187*a*. The latter is rocked by means of an arm 188 fixed thereto and having a pin 189 (Fig. 7), which is arranged to engage the annular cam 178. The pin 189 is held against the cam 178 through the action of a spring 190 which engages the lever 186, (Fig. 43). Rocking of shaft 187 will thus impart vertical movement to the needle 176.

The needle passes through a universally pivoted guide sleeve 191 (Fig. 40) so that upon rocking of the shaft 187, the flexible outer end of the needle is moved vertically, while at the same time it is moved longitudinally by the cam 177 and enters the notch 175, the flexibility of the outer end of the needle and the swivel guide 191 permitting the needle to oscillate about a horizontal axis as it follows the wrapper about the cigar bunch on the wrapping rollers.

A suction plate 192 (Figs. 40, 42, 48, 49), whose function will be described hereinafter, is positioned near the flag end of the roller mechanism. This plate 192 comprises the outer end of a hollow elbow 193 which is connected with a hollow arm 194 rigid with the walls of a chamber 195. The chamber is connected with a sleeve 196 to be rocked thereby about a shaft 197. The sleeve 196 is connected by means of an arm 198, a connecting plate 199, and a second arm 200, with a shaft 201 (Fig. 42) operated through a rocking arm 202 by a lever 161*a* (see also Fig. 5) which rocks upon a shaft 162*a* and is provided with a roller 203 at its outer end which engages the outer end of the arm 202. The shaft 162*a* is controlled through an arm 163*a* by a cam 164*a* on the plate 165. When the suction head is in position over the wrapping mechanism the flag end, as it is stripped off the suction head, sweeps across the suction plate 192 (Fig. 48). This plate is provided with a number of openings 204 which communicate with the interior of the chamber 195, which in turn is connected by flexible hose 205 with the valve 87.

While the flag end is held by the plate 192 it is slit by means of knives 206 and 207

(Figs. 40, 47 and 50). The knife 206 is fixed on a shiftable member 208 which is operated by a bell crank 209 to which it is pivoted at 210 (Fig. 47). The bell crank is pivoted at 211 upon the wrapping machine sub-frame and is connected by an adjustable link 212 with a rock lever 161*d* (see also Fig. 5) fixed to a shaft 162*d*. The latter is operated by a rock lever 163*d* from the curved cam 164*d* on the cam plate 165. The lever 161*d* also controls a cigar tip roller 213 fixed to an arm 214 pivoted intermediate its ends at 215 to the sub-frame and joined to the lever by an adjustable link 216.

As indicated above, the knife 206 is rigid with the member 208. The knife 207, on the other hand, is mounted on a sleeve 217 loosely supported by a stub shaft 218 journalled in the member 208. The sleeve passes through the member 208 and ends in an abutment 219 (Figs. 40 and 50). A compression spring 220 is positioned between the abutment and the member 208 and operates to hold the movable knife 207 against the relatively fixed knife 206.

The sleeve 217 is connected by an arm 221 and an adjustable link 222 with a rock arm 161*c* fixed to a shaft 162*c* (see also Fig. 5) which is rocked by an arm 163*c* controlled by a cam 164*c*. Upon oscillation of the shaft 162*c*, the knife 207 is moved relatively to the knife 206, so that the two become separated in scissor fashion, and upon the return of the knife 207, the flag end of the cigar is slitted. Upon oscillation of the shaft 162*d*, (which occurs shortly before the transfer mechanism reaches a position above the wrapping mechanism) both the roller 213 and the knives 206, 207 are moved leftwards (Fig. 47), the member 208 being guided by means of a pin 223 fixed to a plate 224, the pin engaging in an open slot 225 in said member. The plate is fixed to the wrapping machine sub-frame by a screw 226 and is provided with a curved cutout 227 for adjusting the vertical position of the pin 223 and hence of the knives 206, 207. The movement of the arm 214 is limited by an adjustable stop 228.

Re-rolling mechanism

The movable plate 68 is mounted upon a lever 229, which pivots about 230 (Fig. 21) and is provided with an extension engaged by a spring 231 anchored to a fixed part of the machine. The spring tends to swing the plate 68 toward the fixed plate 67. The swinging movement of the lever 229 is normally limited by the engagement of a lug 232, fixed to such lever, with an adjustable stop 233, which is mounted upon a fixed bracket 234. The pivot 230 is located upon a T-shaped lever 235 pivoted at 236 upon the bracket 234 and is provided with a cam roller 237, which engages in a cam groove 238 in a cam disk 239. When the wrapped cigar is dropped between the plates 67 and 68 it falls upon a flange 240, which extends inwardly from the plate 68. The cigar is first positioned by means of a member 241 (Fig. 20) which is mounted upon a shiftable rod 242, whose left hand end is fixed within the bifurcated end of a bell crank lever 243. The latter is pivoted at 244 to a fixed part of the machine and is provided with a roller, which engages the outer surface of the cam 245 which, like the cam disk 239, is mounted upon a shaft 246. The rod 242 is supported at its right hand end by the rollers 247 (Fig. 19). It will be understood that upon shifting of the rod 242 by its control cam the member 241 will position the cigar upon the flange 240, after which the lever 229 is oscillated by the spring 231 to compress the cigar against the fixed plate 67.

The tuck end of the cigar is now trimmed by means of knives 248 and 249, the first of which is mounted upon a bell crank lever 250 pivoted at 251 and connected by an adjustable link 252 with a bell crank lever 253, which is pivoted at 254 and is connected by a link 255 with a lever 256. The latter is provided with a roller 257 at its free end which engages in a cam groove 258 of the cam 245 (Figs. 19 and 23). The other knife 249 is mounted upon the lever 256 and cooperates with the knife 248 in such manner as to shear or trim the cigar. The linkage above described operate to cause these knives to move toward each other to effect the trimming operation at an instant predetermined by the form of the cam groove 258.

The rolling of the cigar between the plates 67 and 68 is effected when the roller 237 is swung counter clockwise, as viewed in Fig. 21, by its cam, whereupon the lever 229 is swung downwardly, after which, due to the formation of the cam groove 238, it moves upwardly and then again downwardly. The cam groove 238 includes two portions 259 and 260, which latter is further removed from the cam shaft. When the roller 237 is engaged within the portion 260 of the cam, the lever 229 is swung downwardly for a greater distance than in its previous downward movement, and to such an extent that the cigar is caused to clear the bottom end 261 of the stationary plate (See Fig. 22). At the same time the downward movement of the lever 229 is arrested by engagement of an arm 262 fixed to such lever with a stop 263, whereupon, upon continued oscillation of the T-shaped lever 235, the lever 229 swings clockwise to move the plate 68 away from plate 67 against the action of the spring 231. It will be understood that during the first downward movement of the plate 68 during which cycle the arm 262 fixed to such lever will not engage the stop 263, the cigar will not be released. The flag end of the cigar may be smoothed down after the posi-

tioning, clamping and trimming thereof and prior to the re-rolling, by means of a thimble 264 fixed upon a shaft 265 (Figs. 20 and 24) passed loosely through a sleeve 266 upon which is mounted a driven pulley 267, having upon its outer surface a lug 268. The pulley is held in position by means of a collar 269, on the end of sleeve 266. The outer end of the shaft 265 has fixed thereon a disk 271 provided at its inner face with a lug 272 which, upon leftward movement of the shaft 265 engages the lug 268 so that rotary movement is transmitted from the pulley to the thimble. The shifting of the shaft 265 is effected by means of an arm 273, which engages in a circumferential groove 274 in the thimble and is fixed to the rod 242.

The knife 249 is rigid with the lever 256 to which is affixed a hub 275 (Fig. 19). A collar 176 is fixed on the pivot shaft 251 and between said collar and the hub 275 is arranged a compression spring 277 which operates to urge the knife 249 against the knife 248.

Safety device

To render the pressure rollers of the leaf cutting mechanism inoperative should the hand of the operator be upon the plunger 80, the following mechanism is provided:

A lever 278 is pivoted intermediate its ends at 279 upon the lever 95 (Figs. 33 and 34), one end of the lever 278 extends in front of the roller housing 94 in spaced relation thereto, while at the other end of the lever is pivoted a dog 280, having an arm which is urged against the stop 281 by spring 282. The pivot 97*a* of the two-part lever 98 is located in the vicinity of the dog 280 and the end of such lever is provided with a series of ratchet teeth 283, the lever 278 being held against a stop 284 by a spring 285, so that the dog 280 is held away from the teeth 283. Upon engagement of the forward end of the lever 278 with the hand of an operator, or with another obstruction, the lever is oscillated in such manner that the dog 280 engages the teeth 283 and thereby makes the two-part lever 98 rigid in one direction with the lever 95. Any tendency, therefore, on the part of the bell crank lever 99 to swing the two-part lever 98 about its normal pivot 96 is prevented and the roller housing 94 consequently ceases to oscillate. The movement of the bell crank lever 99 is absorbed by the breaking of the lever 98 as shown in Fig. 34.

Suction control mechanism

As indicated above, the flexible suction pipe connected with the hollow lever 124 supporting the suction head 106, runs to a valve 87 (Figs. 2, 3, 35 and 36) the valve comprises a chamber 286, which is directly connected by conduit 287 with the blower or fan 88. This chamber 286 is placed in and out of communication with the flexible hose 127 leading to the hollow arm 184, and also with the flexible hose 205 connected with the suction plate 192 by means of a slide valve 288, which is operated by means of a lever 289 (Figs. 2 and 3) loosely pivoted upon the shaft 83 and having an integral arm 290 which is periodically oscillated by a cam 291 mounted upon a shaft 85. It will be understood that the valve is so operated that both the suction head 106 and the suction plate 192 are connected simultaneously with the blower at about the time when an operator places a leaf upon the plunger 80, and that such connection is interrupted just prior to the transfer of the cut leaf from the raised plunger to the suction head 106.

The suction line to the plunger 80 is controlled by a valve 292 (Fig. 51) which is urged to rest position by a spring 293 anchored to a fixed part of the machine. The valve 292 is held in its lowered conduit-opening position by means of a locking pawl 294 pivoted at 295 and connected by a link 296 to a bell crank lever 297 whose free arm is arranged in the path of a pin 298 on the cam 84 (See also Fig. 2). Upon rocking of the lever 297 by the pin 298, the pawl 294 is oscillated in a manner to release the valve 292, which thereupon is raised by its spring 293. This action occurs when the plunger is in its raised position. The valve is returned to its lowered position by a projection 299 on the hollow stem 81.

Driving mechanism

The machine is driven by a motor 300, having a pulley 301 on its armature shaft, which is connected by a belt with a pulley 302 mounted on a shaft 303 (Fig. 5) which drives the blower or fan. The motor shaft also carries a pulley 304, which is connected by a belt with a pulley 305, which drives a shaft 306. The latter is connected by a coupling 307 (Fig. 6) with the main horizontal drive shaft 308 upon which a fixed set of gears of the change speed gearing 158 is mounted. The shaft 308 has a worm 309 thereon meshing with a worm wheel 310 keyed to the main vertical shaft 105. The latter is provided with a bevel gear 311, which meshes with a bevel gear 312 on the horizontal shaft 85 (Fig. 7).

Upon the vertical shaft 105 are mounted the cam 179 having cam groove 129, which operates the suction head 106; the cam 178 which operates the stripping needle; and the cam plate 165 upon which are mounted the annular cams 164, 164*a*, 164*b*, 164*c* and 164*d*, which operate parts of the wrapping mechanism. Upon the shaft 85 (Figs. 2 and 6) are mounted the cam 84 for operating plunger 80; the cam for operating the valve 87; the cam 146 for the paste applying mechanism; a cam 313 for imparting vertical recipro-

cation to the cigar transfer mechanism; a cam 314 for imparting horizontal oscillatory motion to such transfer mechanism (as will be described in detail below); and a cam 315 for operating the lever 39 which imparts movement to the turret.

The mechanism for controlling the movements of the transfer mechanism includes a lever 316 (see Figs. 3, 6, 7 and 21) pivoted intermediate its ends upon the shaft 145*a* and connected by a link 317 with the vertical shaft 50 of the transfer mechanism. Vertical reciprocation is imparted to the shaft 50 by the rocking of the lever 316.

Horizontal oscillation is imparted to the transfer mechanism by means of a bell crank lever 318 (Figs. 6, 7, 15 and 18) pivoted at 319 (Fig. 41) one of whose arms is provided with a roller 320, which engages with the cam 314, while the upper arm is linked to a rack 321, best seen in Fig. 7. The rack 321 engages a gear segment 322 fixed to the shaft 50 of the transfer mechanism.

The shaft 308 is connected by a universal joint 323, shaft 324 and a second universal joint 325 with a speed reduction gearing in a casing 326, which drives the shaft 246.

The machine is controlled by a foot pedal 327 (Figs. 2 and 6) which is connected by means of a link 328 with a rock shaft 329 upon which is mounted a lever 330 connected by a link 331 with a toggle mechanism 332. The latter is mounted upon a lever 333 pivoted at 334 upon a fixed part of the machine and engaging at its other end within the clutch lever 333 which has a cam 335 thereon adapted to be engaged by an arm 336 fixed on the shaft 85. At every revolution of the shaft 85 the lever 333 is swung by the arm 336 to throw out the clutch. The lever 333 may also be operated from a hand lever 337 connected thereto by a link 338.

I claim:

1. In combination with a wrapping machine having a plurality of stations, of a cigar transfer mechanism comprising two cigar engaging fingers, mechanism for moving said fingers over said stations in predetermined sequence, a relatively fixed finger cooperating with said first mentioned fingers and located therebetween, and means for separating each of said first mentioned fingers from said third finger at predetermined instants.

2. In combination with a wrapping machine having a plurality of stations, of a cigar transfer mechanism comprising an oscillatable arm, a pivot shaft thereon, a pair of cigar engaging fingers loosely mounted on said shaft, a middle finger fixed to such shaft and having a cigar engaging portion positioned between said first mentioned fingers, and means for rocking said pivot shaft to bring one or the other of said first mentioned fingers into operative position.

3. The combination as set forth in claim 2 wherein said means comprises a shifter element having a cam slot therein and a crank on said pivot shaft engaging within said cam slot.

4. In combination with a wrapping machine having a plurality of stations, of a cigar transfer mechanism comprising an oscillatable arm, a pivot shaft thereon, a pair of cigar engaging fingers loosely mounted on said shaft, a middle finger fixed to such shaft and having a cigar engaging portion positioned between said first mentioned fingers, means for rocking said pivot shaft to bring one or the other of said first mentioned fingers into operative position, and means for separating each of said first mentioned fingers from the middle finger at predetermined instants.

5. In combination with a wrapping machine having a plurality of stations, of a cigar transfer mechanism comprising an oscillatable arm, a pivot shaft thereon, a pair of cigar engaging fingers loosely mounted on said shaft, a middle finger fixed to such shaft and having a cigar engaging portion positioned between said first mentioned fingers, means for rocking said pivot shaft to bring one or the other of said first mentioned fingers into operative position, and means for separating each of said pair of fingers from the middle finger at predetermined instants, said means comprising a cam finger pivoted upon said arm in fixed relation to said pivot shaft, and means for oscillating said cam finger at predetermined instants to effect separation of the finger in the operative position from the middle finger.

6. In combination with a wrapping machine having a plurality of stations, of a cigar transfer mechanism comprising an arm having two cigar engaging fingers thereon, means for oscillating said arm in a substantially horizontal plane to bring said fingers over said stations in predetermined sequence, means for reciprocating said arm vertically to bring the fingers close to said stations and to remove the same therefrom, and mechanism operative during the vertical movements of said arm to move one or the other of said fingers into operative cigar receiving or discharging position.

7. In combination with a wrapping machine having a plurality of stations, of a cigar transfer mechanism comprising an arm having two cigar-engaging fingers thereon, means for oscillating said arm in a substantially horizontal plane to bring said fingers over said stations in predetermined sequence, means for reciprocating said arm vertically to bring the fingers close to said stations and to remove the same therefrom, a relatively fixed middle finger cooperating with said first mentioned fingers, and mechanism operative during the vertical movement of said arm to

separate one or the other of said first-mentioned fingers from the middle finger.

8. In combination with a wrapping machine having a plurality of stations, of a cigar transfer mechanism comprising an arm having two cigar engaging fingers thereon, means for oscillating said arm in a substantially horizontal plane to bring said fingers over said stations in predetermined sequence, means for reciprocating said arm vertically to bring the fingers close to said stations and to remove the same therefrom, a relatively fixed middle finger cooperating with said first-mentioned fingers, mechanism operative during the vertical movement of said arm to bring one or the other of said two fingers into operative position, and mechanism likewise operative during such vertical movement to separate one or the other of said fingers from said middle finger.

9. In a wrapping machine, a turret having a plurality of molds thereon for receiving cigar bunches, each of said molds comprising a fixed lower member and a movable upper member, said lower member being slotted, fingers pivoted upon said turret and engaging in said slots, means for lifting the upper mold member, and means for lifting said fingers to raise a cigar bunch out of said lower member at a predetermined instant.

10. In a wrapping machine, in combination, a turret mechanism having a plurality of molds thereon for receiving cigar bunches, each of said molds comprising a fixed lower member and a movable upper member, said lower member being slotted, fingers pivoted upon said turret and engaging in said slots, means for lifting the upper mold member, means for lifting said fingers to raise a cigar bunch out of said lower member at a predetermined instant, a cigar transfer mechanism comprising an oscillatable arm, a plurality of cigar engaging fingers movably mounted upon said arm, and means for opening one of said fingers to receive a cigar bunch presented by the first-mentioned fingers.

11. In a cigar wrapping machine, the combination with a cigar bunch transfer mechanism of a turret mechanism, comprising a rotatable wheel and a plurality of molds, each composed of a bottom portion and a top portion, said portions being hollowed out to fit a cigar bunch, said bottom portion being provided with transverse rests distributed along the length of the mold, and a plurality of fingers associated with each mold and pivoted upon said wheel and means for oscillating said fingers to lift a cigar bunch out of the mold.

12. The combination, as set forth in claim 11, including cam mechanism for lifting the top of said mold at a predetermined instant, and a cam mechanism for operating said fingers.

13. In a cigar wrapping machine, a turret mechanism comprising a rotatable wheel, a plurality of molds on said wheel adapted to receive and retain cigar bunches therein, means for rotating said wheel, and a knife operable during the motion of said wheel and movable at an angle to the direction of movement of an adjacent mold to trim the cigar bunch retained by such mold.

14. In a cigar wrapping machine, a turret mechanism comprising a rotatable wheel, a plurality of molds on said wheel, means for intermittently rotating said wheel, a pair of knives in registry with the ends of an adjacent mold and means for moving said knives during the advance movement of the wheel across the ends of such mold at an angle to the direction of movement of the latter whereby the ends of the cigar bunch retained by such mold are sheared and trimmed.

15. In a cigar wrapping machine, the combination with a leaf cutting mechanism, of a suction head for receiving the cut leaf from said cutting mechanism, a cigar wrapping mechanism and means for effecting lowering of said suction head whereby the same may be brought into closer proximity to the wrapping mechanism.

16. In a cigar wrapping machine, the combination with a leaf cutting mechanism of a suction head for receiving the cut leaf from said cutting mechanism, including a supporting arm and a head vertically movable with respect to said arm, means for holding said head in raised position, means for tripping said last mentioned means to permit said suction head to fall and means for restoring said suction head to its original position.

17. In a cigar wrapping machine, in combination, a wrapping mechanism comprising a plurality of wrapping rollers, means for operating said rollers, mechanism for depositing a cigar bunch upon said rollers, means for transferring a wrapper leaf to said wrapping mechanism, a hollow perforated plate positioned adjacent to said wrapping rollers and arranged in the path of movement of the flag end of such leaf and a suction line connected to said plate.

18. In a cigar wrapping machine, in combination, a wrapping mechanism comprising a plurality of wrapping rollers, means for operating said rollers, a suction head operative to deliver a cut leaf to said wrapping rollers, said suction head being movable vertically for a limited distance, means for holding said suction head in raised position, mechanism for tripping said last mentioned means to permit said suction head to fall whereby the same comes into close proximity to the wrapping rollers, means for depositing a cigar bunch upon said rollers, a hollow perforated suction plate arranged adjacent to said rollers and in the path of movement of the flag end of said leaf, and a suction line connected to said plate.

19. A cigar rerolling mechanism comprising a pair of plates arranged to receive a wrapped cigar therebetween, and means for reciprocating said plates relatively to each other.

20. A cigar rerolling mechanism comprising a fixed plate, a movable plate positioned in spaced relation to said first plate, and means for reciprocating said movable plate.

21. In a cigar wrapping machine, a rerolling mechanism comprising a fixed plate, a movable plate, means for reciprocating said second plate a plurality of times during each cycle and means operative during the last reciprocation in each cycle to release the cigar from said mechanism.

22. In a cigar wrapping machine, a rerolling mechanism comprising a fixed plate, a movable plate, means for reciprocating said movable plate, means operative to cause said movable plate to move toward said fixed plate to clamp a cigar therebetween, means for positioning a cigar trimming mechanism operative to trim the end of a cigar and means operative to effect release of the cigar from said mechanism.

23. In a cigar wrapping machine, a rerolling mechanism comprising a fixed plate, a movable plate, a rockable lever, said movable plate being pivoted on said lever, means operative upon rocking of said lever to move said movable plate toward the fixed plate and means operative upon further movement of said lever to move said movable plate away from the other plate.

24. In a cigar wrapping machine, a cigar wrapper cutting mechanism including a knife and a roller mechanism movable across said knife, a lever supporting said roller mechanism, a two-part lever connected to the first mentioned lever to oscillate the latter, means for moving said two-part lever, and means operative upon abutment against an obstruction for breaking the operative connection between said two-part lever and said roller carrying lever.

25. The combination as set forth in claim 24, wherein said last mentioned means comprises a lever pivoted intermediate its ends upon the roller-carrying lever and extending, at one end, forwardly of the cutting rollers, and a releasable connection between the other end of the last mentioned lever and said two-part lever.

In testimony whereof I have hereunto set my hand.

WALTER H. SCHUSSLER.