Oct. 12, 1943. B. H. REDFORD ET AL 2,331,506

APPARATUS FOR PUNCHING CIGARS

Original Filed April 18, 1941 6 Sheets-Sheet 1

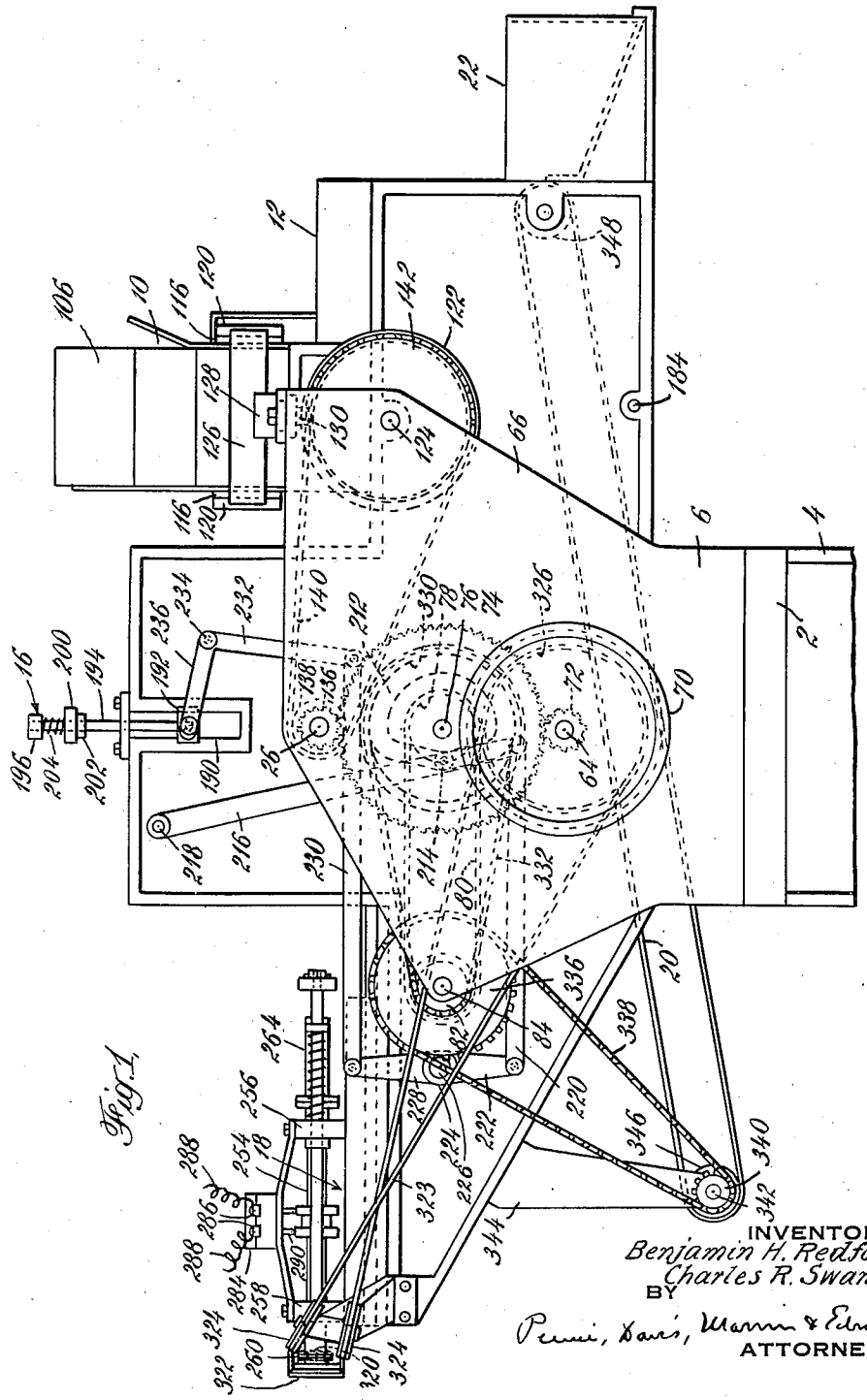


Fig. 1.

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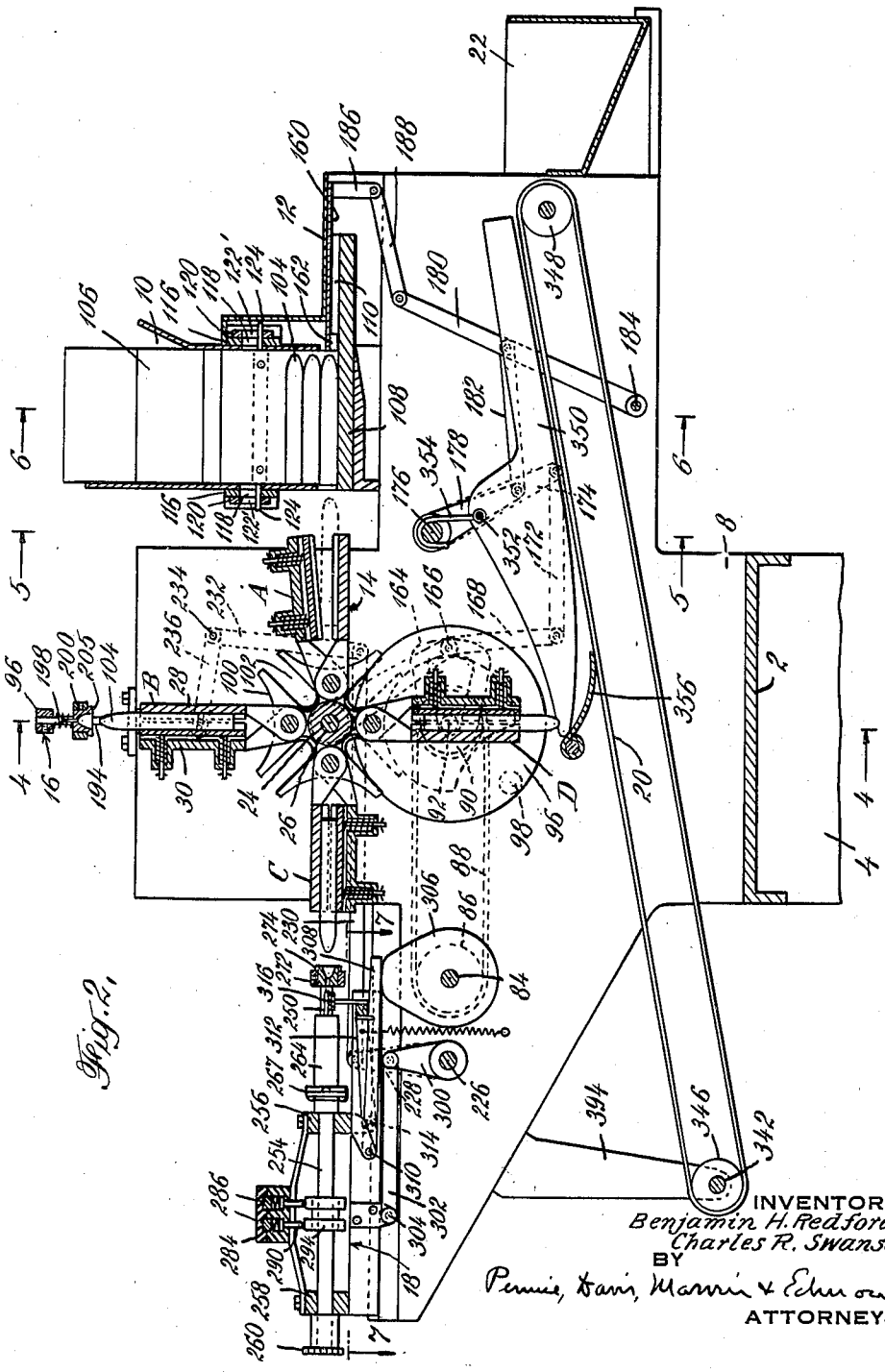


Fig. 2.

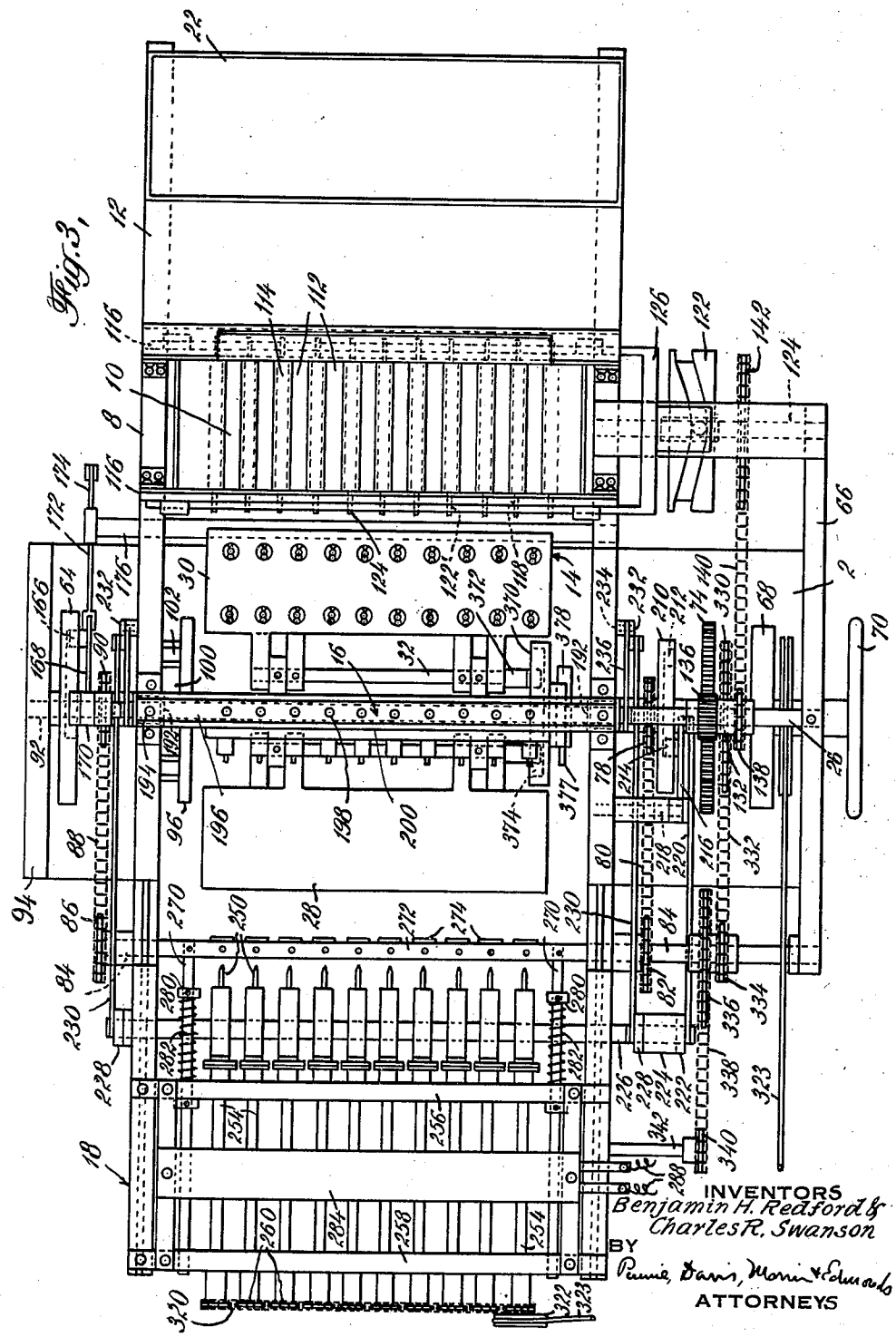
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Fig. 3.



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APPARATUS FOR PUNCHING CIGARS

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Fig. 4.

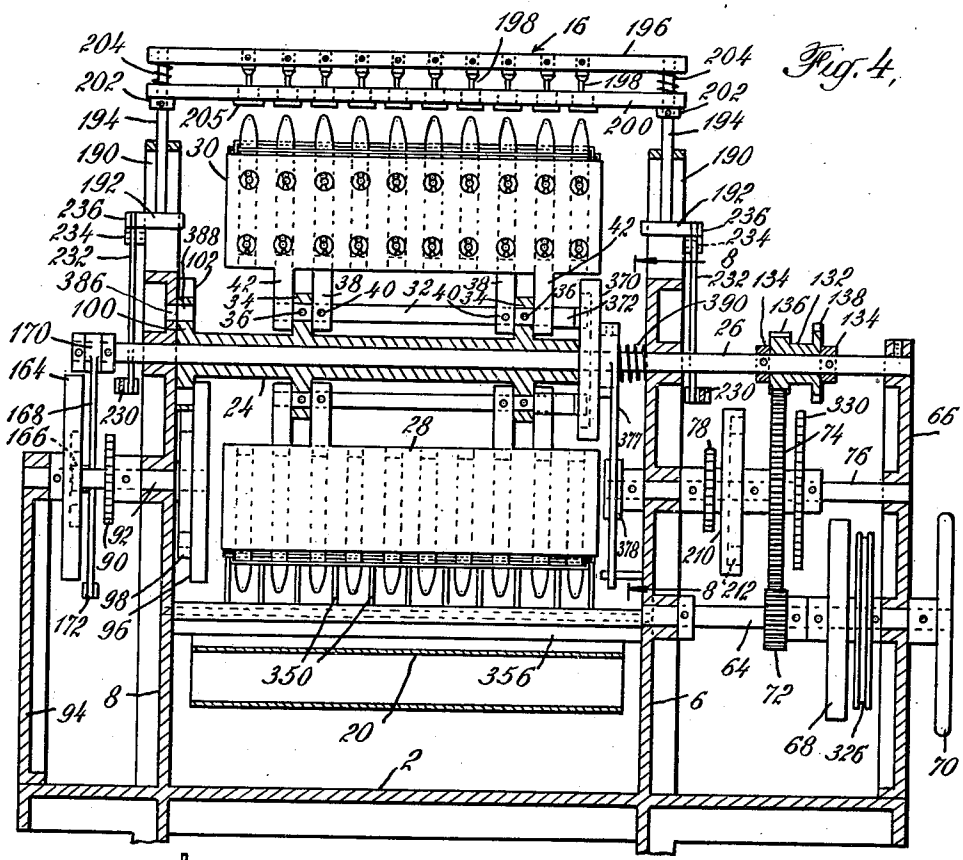
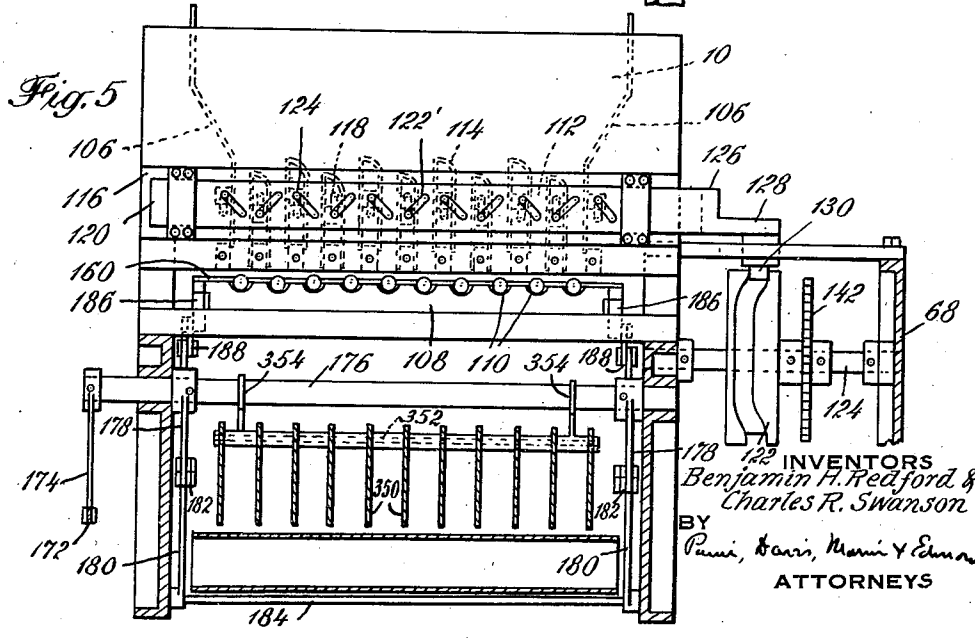


Fig. 5



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APPARATUS FOR PUNCHING CIGARS

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Fig. 6,

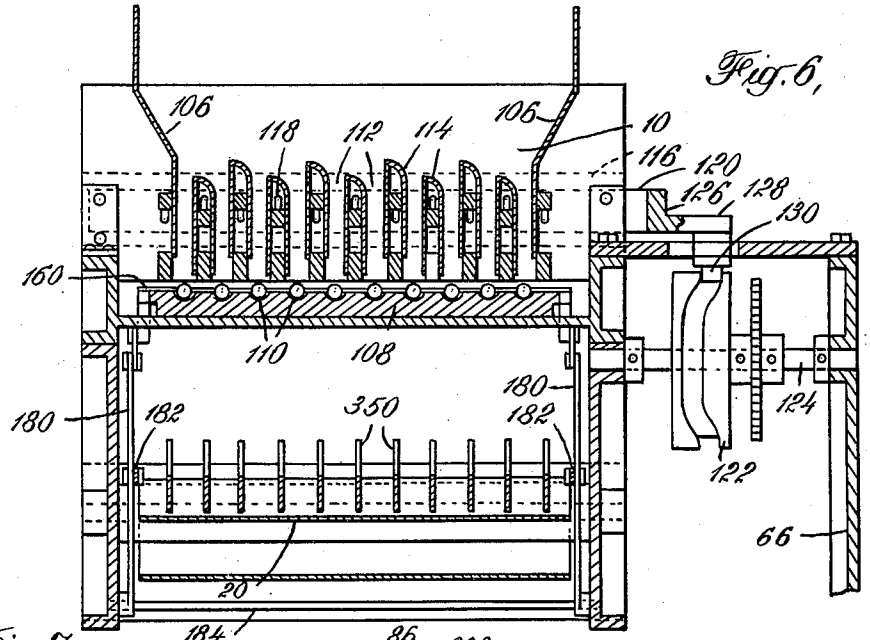


Fig. 7,

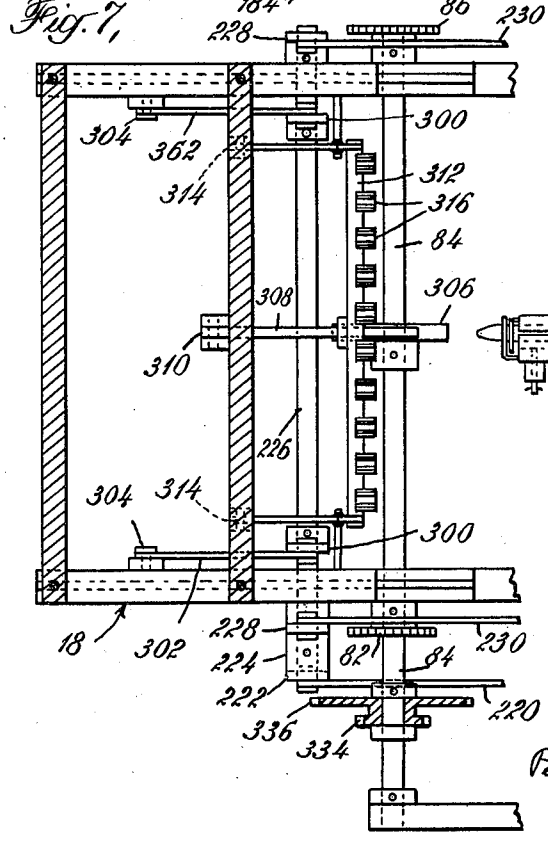
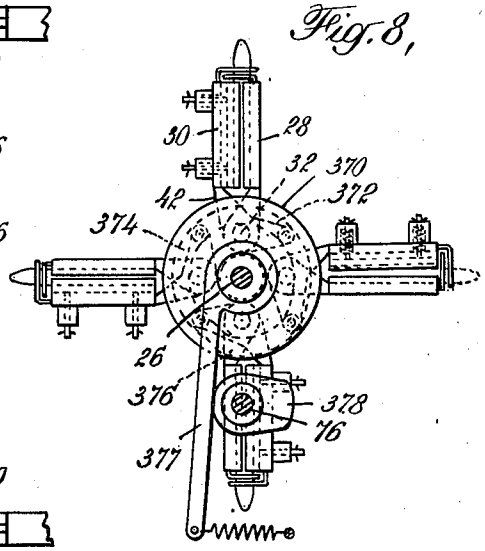


Fig. 8,



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APPARATUS FOR PUNCHING CIGARS

Original Filed April 18, 1941 6 Sheets-Sheet 6

Fig. 12,

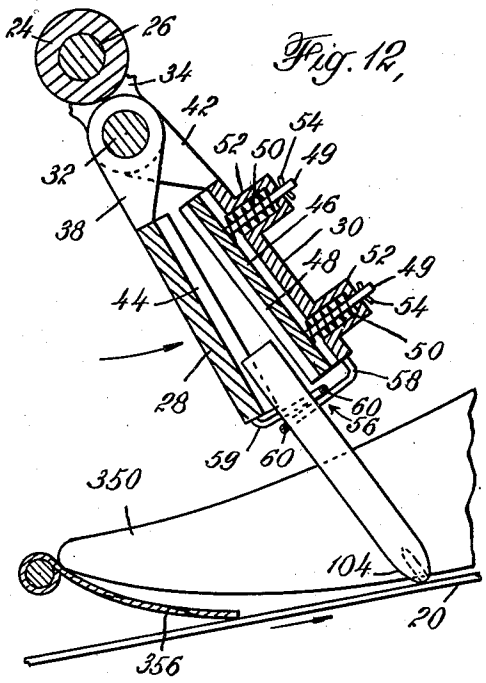


Fig. 9,

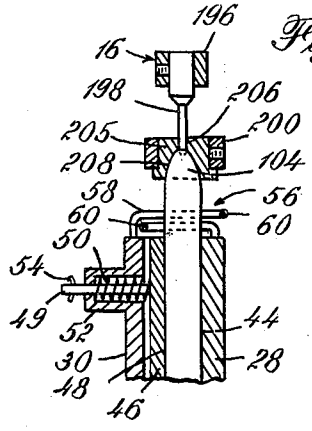


Fig. 11,

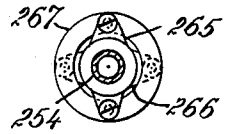


Fig 13,

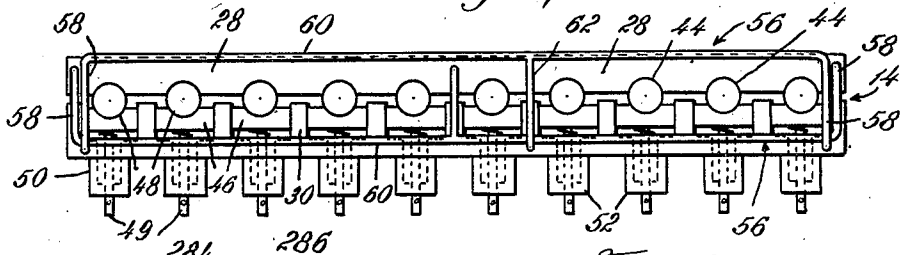
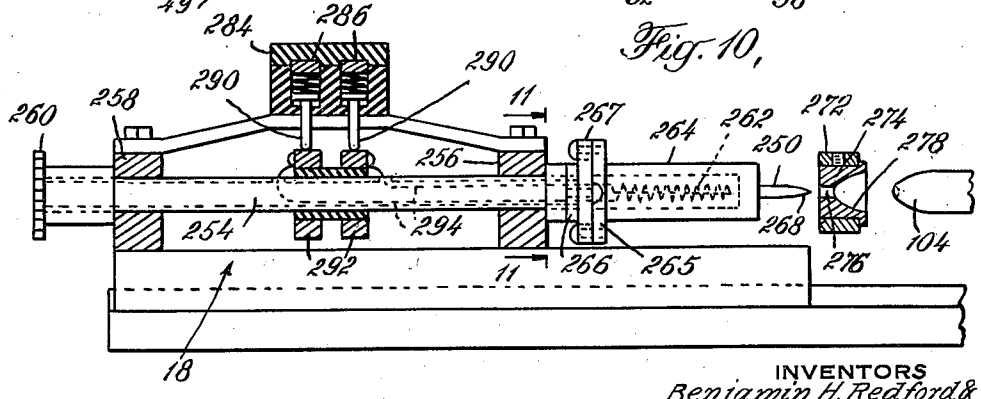


Fig. 10,



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UNITED STATES PATENT OFFICE

2,331,506

APPARATUS FOR PUNCHING CIGARS

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Original application April 18, 1941, Serial No. 389,186. Divided and this application September 3, 1942, Serial No. 457,132

10 Claims. (Cl. 131—254)

This invention relates to apparatus for punching the ends of cigars and more particularly to apparatus wherein the end of a cigar is pierced by a heated needle to form a permanent opening therein. This application is a division of our copending application, Serial No. 389,186, filed April 18, 1941.

As cigars are made it is necessary to remove a portion of the end of the cigar which the smoker places in his mouth to break the wrapper and permit the smoke and gases to pass through the cigar from the lighted end when the smoker puffs it. While the end of the cigar may be removed by a cutting or clipping operation, the majority of smokers bite off the butt end of the cigar. This practice is not entirely satisfactory because it frequently loosens the adjacent portion of the wrapper and the wrapper then continues to unravel during smoking.

It has been proposed to punch the butt end of a cigar, thus piercing the wrapper and eliminating the necessity of removing the tip prior to smoking. Prior attempts to punch an opening into the end of a cigar during the manufacturing operation have not been satisfactory. With the amount of moisture contained by tobacco in the form of a cigar an opening so punched is generally not permanent and the tobacco again fills the opening before the cigar is used.

In the present invention we provide apparatus for punching an opening in the butt end of a cigar which will be permanent, that is, the portion of the cigar surrounding the opening will retain its shape. To obtain this result we employ a heated needle which evaporates the moisture in the tobacco around the opening and makes the opening permanent. For this purpose we provide a head or carrier having a step by step motion with a plurality of cigar receiving sections. At one position of the carrier, cigars are automatically fed into a plurality of pockets of a section of the carrier and the section then moves to a second position. At the second position the ends of the cigars are engaged by a plurality of blunt needles which dent the end of the cigar and push the wrapper in from the surface without breaking it. Upon the next movement of the carrier the cigars in the section are pierced by a series of heated needles which form the holes in the ends of the cigars and push the wrappers into the holes forming clean edges. The heat of the needle also evaporates the moisture in the tobacco. At the fourth step the punched cigars are delivered to a suitable conveyor and discharged from the machine.

In the accompanying drawings we have shown one form of machine forming a part of the invention. In the drawings:

Fig. 1 is a side elevation;

Fig. 2 is a substantially central vertical, longitudinal sectional view;

Fig. 3 is a plan view;

Fig. 4 is a transverse, vertical, sectional view on line 4—4 of Fig. 2;

Fig. 5 is a similar view on line 5—5 of Fig. 2;

Fig. 6 is a similar view on line 6—6 of Fig. 2;

Fig. 7 is a detailed, horizontal, sectional view substantially on line 7—7 of Fig. 2;

Fig. 8 is a vertical, sectional view on line 8—8 of Fig. 4;

Fig. 9 is a detailed, sectional view of one section of the carrier showing the position of the denting punch when in operative position;

Fig. 10 is a detailed, vertical, sectional view of one of the piercing punches;

Fig. 11 is a vertical, sectional view on line 11—11 of Fig. 10;

Fig. 12 is a detailed, sectional view of one of the sections of the head or carrier at the time the cigars are released; and

Fig. 13 is a plan view of one of the sections of the head or carrier.

General description of machine

The machine comprises a bed or table 2 mounted on suitable legs or supports 4 and having a pair of side walls 6 and 8. The cigars are placed in a hopper 10 (see Fig. 2) at the front of the machine by an operator working in front of a table 12 and are delivered from the hopper to one of the sections of the head 14. Each of these sections is provided with a plurality of pockets for reception of the cigars and the cigars are fed into these pockets when the section of the head is in the position A of Fig. 2. At the second position B of the head, the ends of the cigars are slightly dented without perforating the wrapper by means of denting punches carried by a frame 16 (see Figs. 2 and 4). The head then moves to the third position C (Fig. 2) and the ends of the cigars are pierced or punched by punches mounted on a carriage 18. Upon movement of the section to the fourth position D and opening of the section, the punched cigars are delivered to an endless belt 20 which conveys them to a receptacle 22 at the front of the machine.

Carrier or head

The head or carrier is mounted on a sleeve 24 which is in turn supported by a shaft 26 mounted in suitable bearings in the side walls 6 and 8 of the machine (see Fig. 4). Sleeve 24 is driven with a step by step movement and brings each of the four sections of the head to the positions A, B, C and D during each revolution. Each section of the head comprises a relatively stationary member 28 and a relatively movable member 30 (see Figs. 12 and 13). These two members are mounted on a rod 32 (see Figs. 4 and 12) which is supported in a pair of ears or lugs 34 carried by the sleeve 24. The rod 32 is prevented from relative movement with respect to the sleeve by means of pins 36. The relatively stationary member 28 of the head is provided with arms 38 having openings for the reception of the rod 32 and the relatively stationary member is secured against relative movement by pins 40 which pass through these arms and through the rod 32.

The relatively movable member 30 is pivotally supported on the rod 32 to permit opening and closing of the section for the insertion and removal of cigars. As shown, the relatively movable member is provided with arms 42 having openings for the reception of the rod 32 to pivotally support the movable member on this rod.

Member 28 is provided with an inner face having a plurality of substantially semi-circular pockets 44 for the reception of the cigars (see Fig. 13). The other member 30 carries a plurality of cigar engaging plates 46 which are likewise provided with substantially semi-circular recesses 48 for the reception of the cigars. Each of the plates 46 is provided with a pair of pins 49 (see Fig. 12) and these pins are surrounded by springs 50. These springs are received in and engage the bottom of cups or receptacles 52 carried by the movable member 30. The cigar engaging plates 46 are thus yieldingly forced against the cigars to prevent damage to them. Inward movement of the cigar engaging plates 46 is limited by pins 54 which pass through the portions of the pins 49 which project from the receptacles 52. A wire member 56 is secured to the ends of each of the members 28 and 30 and extends transversely of the opposite member 28 or 30 as indicated at 58, then along the entire length of the section as indicated at 60. Each of these wire members may be provided with a substantially central transverse member 62.

The head or carrier 14 is driven with a step by step movement from a shaft 64 which is supported in bearings carried by the side frame member 6 and an auxiliary frame member or bracket 66 (see Fig. 4). This shaft is provided with a pulley 68 by means of which the shaft may be driven, or it may be directly connected to a motor or other source of power. It is also provided with a hand wheel 70 on its outer end to permit manual operation. Shaft 64 is provided with a pinion 72 which drives a gear 74 mounted on a shaft 76 to rotate therewith. The shaft 76 is also mounted in suitable bearings in the side plate 6 and the auxiliary side plate 66 (see Fig. 4). A sprocket 78 is mounted on the shaft 76 and a chain 80 passes over this sprocket and over a sprocket 82 mounted on a shaft 84 (see Fig. 1). The shaft 84, which is thus constantly driven, extends across the machine and is provided with a sprocket 86 on its other end (see Fig. 3). A chain 88 passes over this sprocket and over a sprocket 90 on a shaft 92. The shaft 92 is mounted in suitable bearings carried by the side plate 8 and by an auxiliary side plate or bracket 94 and is arranged substantially opposite to the shaft 76 (see Fig. 4). On the inner side of the side plate 8 this shaft carries a disc 96 forming one element of a Geneva movement. This disc has a pin 98 through which it drives the other element of the Geneva drive (see Fig. 2). A star wheel 100 is mounted upon the sleeve 24 and is provided with four slots 102. Revolution of the shaft 92 thus imparts a step by step movement to the sleeve 24, through the Geneva movement and each section of the head is in turn moved to each of the four positions and remains in that position a sufficient length of time to permit the operation which is performed at that station.

Cigar feed

As stated, the cigars are manually placed in the hopper 10 by an operator, the cigars being so placed that the ends 104 which are to be pierced are toward the front of the hopper so that they will be delivered to the carrier with these ends projecting from the cigar holders. The end walls of the hopper are inclined as at 106 (see Fig. 5) to facilitate feeding the cigars into pockets in the bottom of the hopper. These pockets are aligned with the pockets formed by the recesses 44 and 48 in the sections of the head when the section is in position A and insure proper delivery of a cigar into each section of the head. The bottom of the hopper is provided with a plate 108 having substantially semi-circular recesses 110 for the reception of individual cigars. Above each of these recesses there is provided a vertical channel 112, the channels being separated from each other by members 114. The members 114 are vertically oscillated to agitate the cigars in the bottom of the body portion of the hopper and feed them into the channels 112. Plates 116 (see Fig. 2) are secured to the front and rear walls of the hopper and these plates and the walls of the hopper are provided with vertical slots 118 (see Fig. 5). An oscillating plate 120 is arranged on the outside of each of the plates 116 and these oscillating plates are provided with inclined slots 122'. Pins 124 pass through the slots 118 and 122' and are connected to the members 114. The upper ends of the members 114 are rounded as shown to facilitate delivery of the cigars into the guide-ways 112 when the members 114 are agitated.

To oscillate the plates 120 we provide a cam 122 mounted on a shaft 124 (see Figs. 5 and 6). Shaft 124 is mounted in bearings carried by the side plate 6 and the auxiliary side plate 66. The ends of the plates 120 are connected to a transverse member 126 which is in turn provided with an arm 128 having a pin or roller 130 adapted to be received in the groove of the cam 122. Shaft 124 is driven from shaft 76. A sleeve 132 is loosely mounted on the shaft 26 between a pair of collars 134 (see Fig. 4). This sleeve carries a gear 136 meshing with gear 74 and also carries a sprocket 138. The sprocket 138 receives a chain 140 (see Fig. 3) which also passes over a sprocket 142 mounted on the shaft 124.

With a cigar mounted in each of the pockets 110 of the bottom plate 108 of the hopper and with a section of the head in the position A (see Fig. 2) of the drawings, a cigar is fed to each of the pockets of the section. A reciprocating plate 160 is mounted beneath the table 12 and this plate carries pushing members 162 on its inner end. One pushing member 162 is provided for each of the pockets 110. The pushing device

is actuated from shaft 92 (see Fig. 4). A cam 164 is mounted on this shaft and this cam is provided with a cam groove to receive a pin 166 carried by an arm 168 (see Fig. 3). The upper end of the arm 168 is provided with a sleeve 170 which receives the shaft 26 to form a pivot for this arm. The lower end of the arm 168 is connected to a link 172 and the opposite end of this link is connected to an arm 174. Arm 174 is mounted on a transverse shaft 176 (see Fig. 5) to thus oscillate the shaft 176. Adjacent each end the shaft 176 is provided with an arm or crank 178 (see Fig. 2). These arms are connected to arms 180 by links 182. The arms 180 are pivoted on the side walls of the machine as at 184. Arms 180 are connected to arms 186, which are secured to the plate 160, by means of links 188.

Cigar denting punches

At the position B, Fig. 2, each of the cigars in the pockets of a section are engaged by denting punches. These punches are provided with blunt ends and merely dent the end of the cigar without piercing the wrapper to properly center the later punching operation by the piercing punches. The side walls of the machine are provided with slots 190 to form guides for carriers or crossheads 192 (see Fig. 4). A rod 194 extends upwardly from each of these carriers or crossheads. The upper ends of these rods are connected by a cross-member 196 carrying a plurality of punches 198. Beneath the cross-member 196, a second cross-member 200 is slidably mounted on the rods 194. The cross-member 200 is provided with openings for the reception of the rods 194 and its downward movement is limited by collars 202 fixed to rods 194. Its upward movement toward the upper cross-member 200 is limited by springs 204, which surround the rods 194 between the cross-members 196 and 200. As shown in Fig. 9 the cross-member 200 carries a plurality of guide blocks 205 having openings 206 for the passage of the punches 198 and having recesses 208 on their lower sides shaped to receive the ends of the cigars. The punches 198 and the guide-blocks 205 are removably mounted so that they can be replaced by similar members when different types or shapes of cigars are being handled.

The entire punching assembly is caused to reciprocate downwardly when a section of the head has reached the position B and come to rest. It is driven from the shaft 76 by means of cam 210. This cam is provided with a groove 212 (see Fig. 1) which receives a roller 214 carried by an arm 216. The arm 216 is pivoted to the side wall of the machine at 218. The lower end of this arm is connected to a link 220. The opposite end of the link is connected to an arm or crank 222 carried by a sleeve 224 mounted on a shaft 226. The shaft 226 is thus oscillated. Shaft 226 extends across the machine and is provided with cranks or arms 228 at each end (see Fig. 3). These arms are connected to links 230 extending longitudinally of the machine. The other ends of these links are connected to the ends of bell crank levers 232 (see Fig. 1). The bell crank levers are pivoted in the side walls of the machine at 234. The other arms 236 of the bell crank levers are connected to the guides or crossheads 192.

Cigar piercing mechanism

At the next station C, the piercing punches engage the ends of the cigars to form the opening in the ends of them. Referring to Figs. 1, 2, 3 and 10 of the drawings, a plurality of piercing punches 250 are carried by the carriage 18 which oscillates on the bed or table of the machine, toward and away from the section of the head in the position C. Each of the punches is mounted on a shaft 254. Shafts 254 are mounted in suitable bearings carried by transverse members 256 and 258 of the carriage. The outer ends of the shafts are provided with sprockets 260 and the punches are continuously rotated when the machine is in operation. In front of the transverse member 256 a heating coil 262 is mounted in a suitable casing 264 and the punch or needle 250 extends through this heating coil and projects therefrom. Casing 264 is connected to the shaft 254 by an insulated joint shown in Fig. 11. As shown a substantially oval shaped plate 265 is mounted on the inner end of the casing, and a similarly shaped plate 266 is mounted on the end of the shaft, and has its major axis at right angles to that of the plate 265. Plates 265 and 266 are each connected to a ring 267 of suitable fibrous heat insulating material. This arrangement not only insulates the shaft from the heating coil but also provides a flexible mounting for the needle. The punch or needle, as shown, is provided with a relatively sharp point 268. A pair of arms 270 (see Fig. 3), which extend longitudinally, support a transverse member 272 carrying guide-blocks 274, similar to the guide-blocks 205 heretofore described. These guide-blocks are provided with openings 276 for the punches and their faces are provided with recesses 278 shaped to receive the end of a cigar (see Fig. 10).

Arms 270 are slidably mounted in the carriage or frame 18 to permit the guide-blocks to yield when they engage the ends of cigars and prevent breakage. As shown collars 280 are fixedly mounted on the rods 270 and coil springs 282 are arranged between these collars and the transverse members.

The coils 262 are heated when the machine is in operation by means of a bus bar 284 which extends across the carriage and is provided with a pair of conductors 286 connected to suitable leads 288 (see Figs. 3 and 10). Above each of the shafts 254 a pair of connectors 290 extend from the conductors 286 and engage rings 292 carried by the shafts. Lead wires 294 connect these rings to the opposite ends of the coil 262.

The carriage 18 is oscillated from the oscillating shaft 226 (see Fig. 7). A pair of cranks 300 are secured to this shaft and connected to links 302, links 302 being in turn connected to the carriage as at 304.

Referring to Figs. 2 and 7 of the drawings we provide means for cleaning each of the punches 250 after each cigar piercing operation. The shaft 84 carries a cam 306. An arm or lever 308 which is pivoted to the carriage at 310 is engaged by this cam. A frame 312 is pivoted to the carriage at 314 and this frame carries a plurality of cleaning devices 316 at its outer end. The cleaning devices are adapted to receive steel wool or the like and when the cam 306 raises the lever 308, the lever in turn raises the frame 312 to bring one of the cleaning devices into contact with each of the needles. The needle being in a state of revolution is cleaned by the contact with the steel wool.

Sprockets 260 on the shafts of the piercing needles are driven by a chain 320 which passes over all of the sprockets. The end shaft 254 is pro-

vided with a pulley 322 (see Fig. 3). A belt or cable 323 passes over the pulley 322 and over a pair of guide pulleys 324 arranged on the frame near the end and in a substantially horizontal position (see Fig. 1). The belt 323 also passes over a pulley 326 on the shaft 64.

Cigar removing mechanism

The endless belt 20 to which the cigars are delivered as each section of the head leaves the station D, is driven from shaft 76. Shaft 76 is provided with a sprocket 330 which receives a chain 332 (see Fig. 1). This chain passes over a sprocket 334 which is loosely mounted on the shaft 84. A second sprocket 336 is also loosely mounted on the shaft 84 but connected to the sprocket 334 to rotate therewith. This sprocket receives a chain 338 which passes over a sprocket 340 on a shaft 342. The shaft 342 is mounted in brackets 344 depending from any suitable portion of the machine. It carries a roller 346 over which the belt passes and the other end of the belt passes over an idler roller 348.

Over the belt and adjacent the point where the cigars are delivered to it (see Fig. 5), we provide a plurality of plates or partition members 350 to keep the cigars separated from each other and cause them to feed longitudinally of the belt. These plates are supported by a rod 352 carried by a pair of arms 354 having sleeve portions loosely received on the shaft 170. We also provide a curved plate or apron 356 (see Fig. 2) adjacent the rear end of the plates 350 to facilitate delivery of the cigars from the sections of the head to the belt.

Pocket opening and closing mechanism

As stated, the member 28 of each cigar receiving section of the head is rigidly mounted on the rod 32 and the section 30 is pivotally mounted thereon to permit opening and closing of the sections for the reception of and delivery of the cigars. As shown in Fig. 2 when a section reaches the position A it is in open position to receive the cigars from the bottom of the hopper. Just as it leaves this position it is closed and remains closed until it reaches the position D, when it is again opened. As indicated in Fig. 12, the cigars then fall from the section primarily by gravity to the belt 20. To effect the opening and closing of the sections of the head, we provide a cam 370 which is loosely mounted on the stationary shaft 26 (see Figs. 4 and 8). The arms 42 which support the movable members of each cigar receiving section are provided with projections 372 received in the groove 374 of cam 370. As shown, the groove is provided with an eccentric portion 376 which the arm 372 enters as it approaches station D to open the section and permit release of the cigars. The arm or projection 372 continues in this portion of the groove, retaining the section in open position, until after it has reached the position A so that the section will remain open for the reception of a new lot of cigars. To cause the closing of the section just as it is about to leave the position A, so that it will be closed before moving, the cam 370 is oscillated. As shown an arm 377 is connected to this cam and this arm in turn engages a cam 378 on the shaft 76.

The cigar receiving sections of the head are assembled so that other sections having different shaped pockets may be substituted for handling cigars of different sizes and types. As shown in Fig. 4 the side wall 8 is provided with an opening 388 and the star wheel 102 is provided with four openings 328 in alignment with the rods 32. To remove a section of the head, the corresponding opening 388 is brought into alignment with opening 386. This can be done by means of the hand wheel 70. Pins 36 and 40 may then be removed. Cam 370, which is loose on shaft 26, is normally held in operative position to receive the projections 372 by spring 390. The cam is moved toward the side wall 6 against the tension of spring 390, and the rod passed through the aligned openings 386 and 388. The section of the head is then loosened from its connection to sleeve 24 and may be removed.

Operation

The operation of the machine will be apparent from the foregoing description. An operator standing in front of the machine takes cigars from the table 12 and places them in the hopper 10 with the end of the cigars to be pierced toward the front of the machine. With a section of the head in the position A, the pushing devices are then actuated to feed the cigars from the pockets 110 at the bottom of the hopper into the pockets of the head. Before movement of the head, cam 370 is oscillated by cam 378 to close the pockets of the section. The Geneva movement then moves the section of the head to position B.

While the head is in a state of rest in position B, punches 198 descend and dent the end of the cigar without piercing the wrapper. The bar 200 which supports the guide-blocks 205, upon contact with the ends of the cigars, places the springs 204 under slight tension and the springs hold the guide-blocks in position against the ends of the cigars and prevent breakage. After retraction of the punches and guide-blocks the Geneva movement then moves the section of the head to position C.

While the head is in a state of rest in this position, carriage 18 moves forwardly. Guide-blocks 278 engage the ends of the cigars and the cross-member 272 which carries these guide-blocks is also yieldingly supported so that the guide-blocks may be held in engagement with the cigars without damaging them. The flexible mounting of the punches prevents binding if one or more of the guide-blocks should be warped by the heat of the punches. The piercing punches, which constantly rotate with the shaft 254, enter the cigars. The punches are heated by coils 262 to a temperature in excess of 500° F. The result is that the moisture in the tobacco adjacent the piercing punches is evaporated and the punched opening remains permanently in the end of the cigar.

After the carriage has been retracted to the position shown in Fig. 2 of the drawings, cam 306 raises the frame 312 which carries the cleaning devices and the steel wool, or other material, in each of the cleaning members 316, contacts with the revolving needle and cleans it. The Geneva movement then moves the section of the carrier to position D.

At position D the section of the head is opened by cam 370. Arm or projection 372 riding in the groove of this cam opens the section and the cigars move outwardly to the position shown in Fig. 12 engaging the belt 20. The wire members 56 carried by the members 28 and 30 assure removal of the cigars. As the sections are opened, one of these members comes in contact with the cigar, as shown in Fig. 12, to release it from the depression or pocket 44 or 48 in the other mem-

ber. Movement of the belt causes the cigar to travel along the belt and at the beginning of this movement, the cigars are properly guided by the plates 350.

We claim:

1. Apparatus of the character described comprising means for holding a plurality of cigars in parallel spaced relation, a reciprocating carriage, a plurality of shafts mounted on the carriage, a needle mounted on the end of each shaft, a pair of electrical conducting members extending across the carriage, a pair of conducting rings on each shaft in electrical engagement with said conducting members, a heating coil surrounding a portion of each needle, connections between the coils and the conducting rings, and means for rotating the shafts.

2. Apparatus of the character described comprising means for holding a plurality of cigars in parallel spaced arrangement, a reciprocating carriage, a plurality of piercing needles mounted on the carriage, means for rotating the needles, a frame pivoted to the carriage, cleaning members carried by the frame, and means for raising the frame to bring the cleaning members in contact with the needles.

3. In an apparatus of the character described, a holder to receive a plurality of cigars, a reciprocating carriage, a plurality of shafts mounted on the carriage, means for rotating the shafts, a piercing needle mounted on the end of each shaft, a heating coil surrounding a portion of the needle, a yieldable member mounted on the carriage in advance of the needles, guide blocks carried by the yieldable member in alignment with each of the needles, a pivoted frame mounted on the carriage, cleaning members carried by the frame, and means for raising the frame to cause the cleaning members to contact with the needles.

4. Apparatus of the character described comprising means for holding a plurality of cigars in parallel spaced arrangement, a reciprocating carriage, a plurality of piercing needles mounted on the carriage, means for rotating the needles, a frame mounted on the carriage, cleaning members carried by the frame, and means for actuating the frame to bring the cleaning members in contact with the needles.

5. Apparatus of the character described comprising means for holding a plurality of cigars in parallel spaced arrangement, a reciprocating carriage, a plurality of piercing needles mounted on the carriage, means for rotating the needles, means for reciprocating the carriage, the needles being aligned with the ends of the cigars in the holding means to pierce the ends of the cigars on forward reciprocation of the carriage, a frame mounted on the carriage, cleaning members carried by the frame, and means for actuating the frame when the carriage is in its rearward position to clean the needles.

6. Apparatus of the character described comprising means for holding a plurality of cigars in parallel spaced arrangement, a reciprocating carriage, a plurality of piercing needles mounted on the carriage, means for rotating the needles, means for reciprocating the carriage, the needles being aligned with the cigars in the holding means to pierce the ends of the cigars on forward reciprocation of the carriage, a frame pivoted to the carriage, cleaning members carried by the frame, and a cam engaging the frame when the carriage is in its rearward position to raise the frame and bring the cleaning members into contact with the needles.

7. Apparatus of the character described comprising means for holding a plurality of cigars in parallel spaced relation, a reciprocating carriage, a plurality of shafts mounted on the carriage, a casing mounted on the end of each shaft, a needle mounted in the casing and projecting therefrom, a heating coil mounted in the casing adjacent the needle, and a flexible joint between the shaft and the casing to insulate the shaft from the coil and form a flexible mounting for the needle.

8. Apparatus of the character described comprising means for holding a plurality of cigars in parallel spaced relation, a reciprocating carriage, a plurality of shafts mounted on the carriage, a casing mounted on the end of each shaft, a needle mounted in the casing and projecting therefrom, a heating coil mounted in the casing adjacent the needle, and a ring of fibrous material connecting the casing to the shaft to insulate the shaft from the coil and to form a flexible mounting for the needle.

9. Apparatus of the character described comprising means for holding a plurality of cigars in parallel spaced relation, a reciprocating carriage, a plurality of shafts mounted on the carriage, a needle mounted on the end of each shaft, electrical conducting members extending across the carriage, electrical conducting members on each shaft in electrical engagement with the first mentioned electrical conducting members, a heating coil arranged adjacent each needle, connections between the coils and the conducting members carried by the shafts, and means for rotating the shafts.

10. Apparatus of the character described comprising means for holding a plurality of cigars in parallel spaced relation, a reciprocating carriage, a plurality of shafts mounted on the carriage, a needle mounted on the end of each shaft, a pair of electrical conducting members extending across the carriage, a pair of conducting rings on each shaft in electrical engagement with said conducting members, a heating coil surrounding a portion of each needle, connections between the coils and the conducting rings, means for rotating the shafts, and heat insulating means to insulate the shafts from the coils.

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