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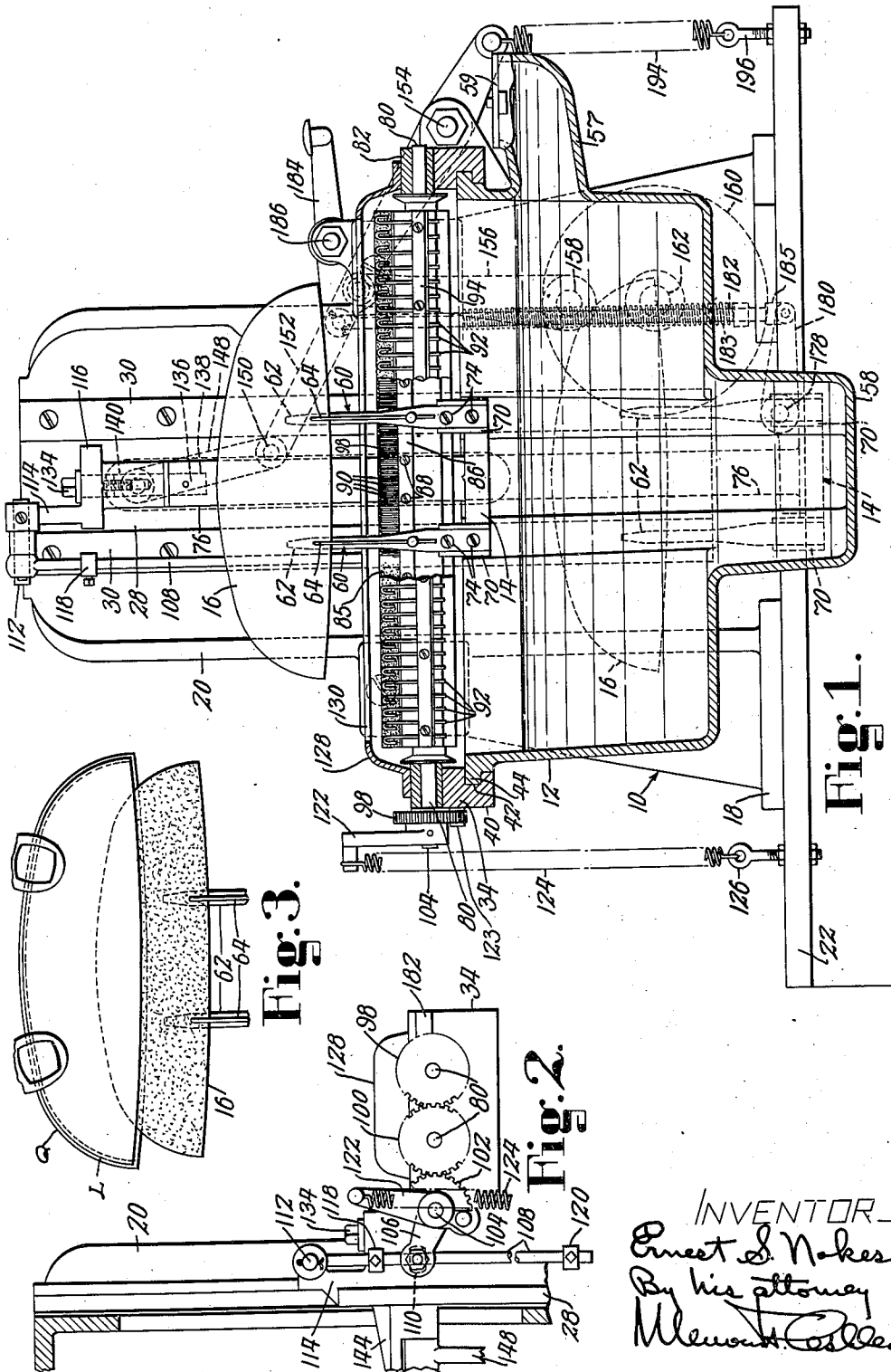
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2,326,249

CEMENTING MACHINE

Filed Sept. 26, 1940

3 Sheets-Sheet 1



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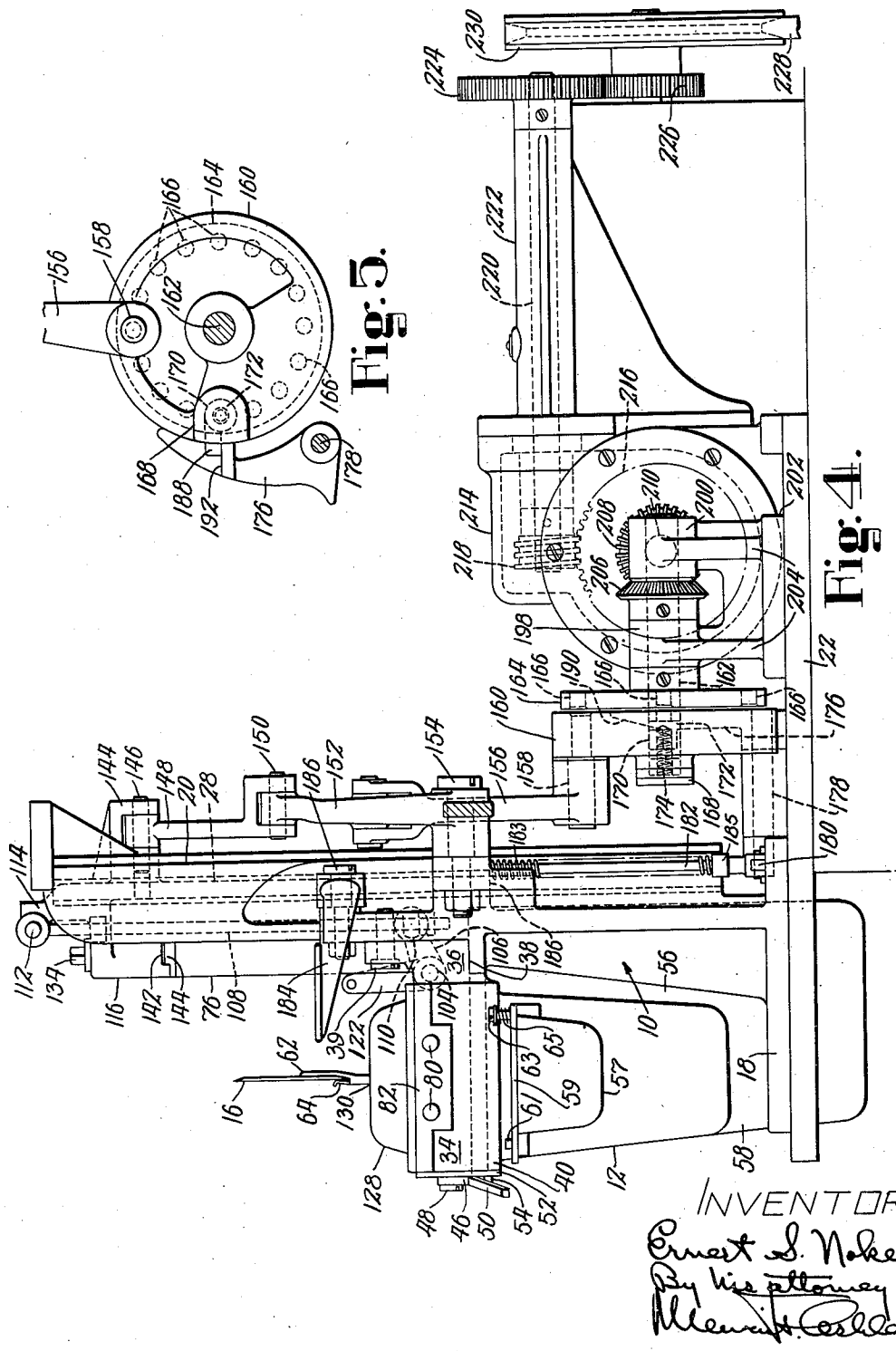
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CEMENTING MACHINE

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3 Sheets-Sheet 2



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CEMENTING MACHINE

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3 Sheets-Sheet 3

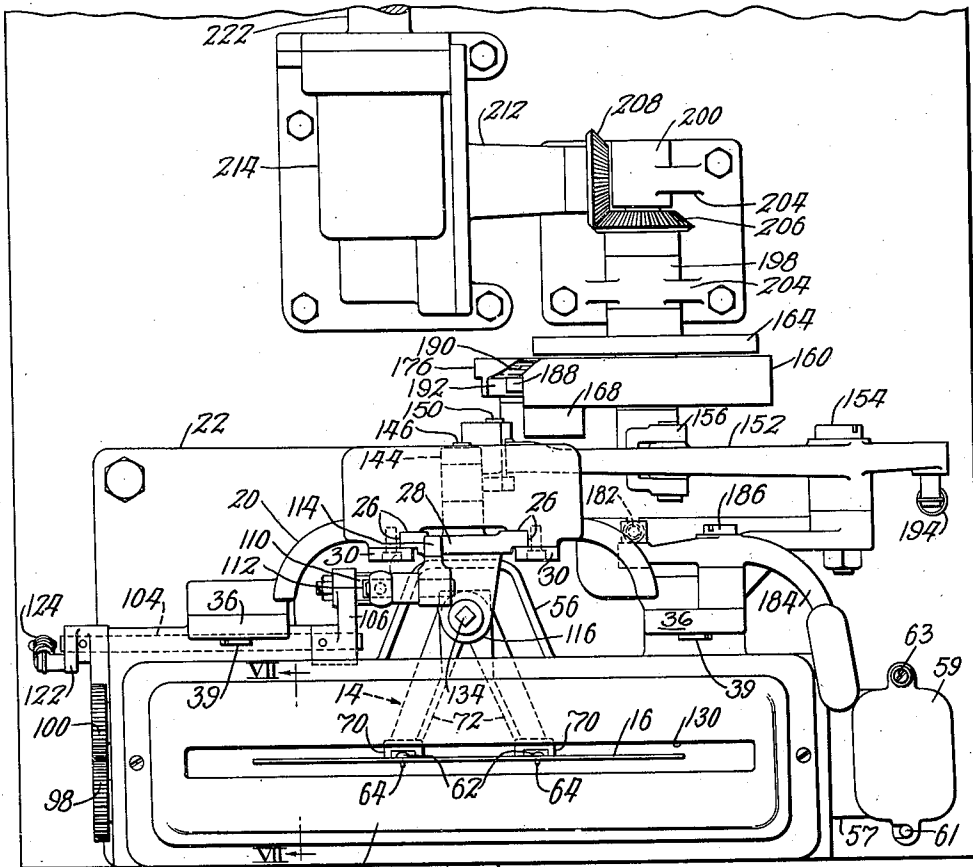


Fig. 6.

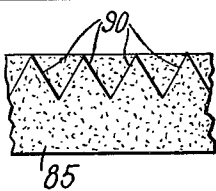


Fig. 8.

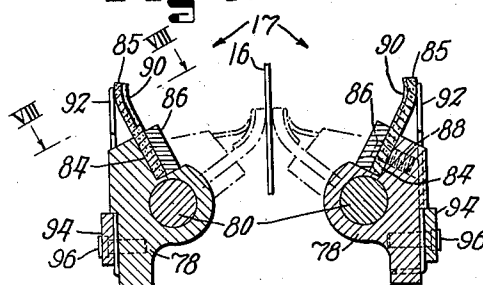


Fig. 7.

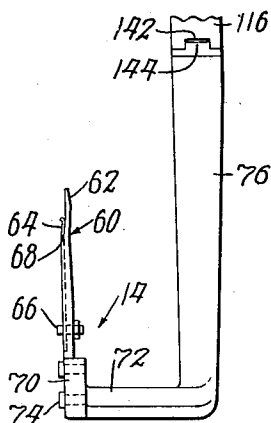


Fig. 9.

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CEMENTING MACHINE

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Application September 26, 1940, Serial No. 358,503

14 Claims. (Cl. 91—32)

This invention relates to a machine for coating articles and as illustrated herein is more particularly related to a machine for dipping shoe counters into a coating composition preparatory to placing the same between a partially assembled quarter and lining.

Machines heretofore employed for applying paste to counters have not been provided with means for governing the quantity of paste applied to the counters. Consequently, there has been very little uniformity in the quantity of paste on the counters. Furthermore, most of these machines apply paste to a number of counters at the same time and, since all of the counters cannot be used at once, many of them are exposed to the air so long prior to use that the adhesiveness of the paste is impaired. Another undesirable feature is that many of these machines rapidly accumulate an objectionable coating of dirty paste which is frequently transferred to parts of the upper during assembly.

It is an object of the present invention, therefore, to provide an improved machine for dipping each counter individually just prior to its use and immediately thereafter removing the excess material so as to obtain a coating uniform in quantity and adhesiveness. To effect this, the machine comprises an open-mouthed container for the coating material, a holder for the counter mounted above the container, and means for moving the holder from its initial position above the container into and out of the container. In accordance with the invention, wiper means is mounted adjacent to the container and means is provided for moving the wiper means from an inoperative position to an operative position intersecting the path of movement of a counter held by the counter holder as it rises from the mouth of the container. As illustrated, the aforesaid wiper means comprises a pair of squeegees mounted at the opposite sides of the container in such a manner that when they are moved into an operative position they engage the opposite sides of the counter thereby to wipe the excess coating material from the counter and to serve at the same time to close the mouth of the container.

The structural details and mode of operation will now be described with reference to the accompanying drawings, in which

Fig. 1 is a front elevation, partly in section;

Fig. 2 is a detail of the squeegee operating mechanism;

Fig. 3 illustrates the placing of the quarter and lining over the coated counter;

Fig. 4 is a side elevation as seen from the right end of Fig. 1;

Fig. 5 is a detail of a one-revolution clutch;

Fig. 6 is a plan view of the machine;

Fig. 7 is a detail section enlarged on the line VII—VII of Fig. 6 and showing the action of the squeegees;

Fig. 8 is a section on the line VIII—VIII of Fig. 7 showing a detail of the squeegee strip; and

Fig. 9 shows the details of the counter holding device.

Referring to the drawings, the machine comprises essentially a frame 10 (Fig. 1), a coating composition container 12, a holding device 14 for supporting a counter 16, squeegees 17 (Fig. 7), and mechanism for actuating the counter holding device and the squeegees.

The frame 10 consists of a base 18 and an upright 20 formed integral therewith, the base 18 being secured to a platform 22. The front side of the upright 20 is provided with a way 26 (Fig. 6) for the reception of a slide 28, the purpose of which will be described hereinafter, the slide being retained in the way by strips 30 screwed to the upright on each side of the way with their inner edges overlapping the slide.

The coating composition container 12 is supported on the upright 20 by a bracket 34 (Fig. 4) which extends horizontally from the front face of the upright. The bracket is provided with a flange 36 adapted to rest against the front face of the upright and upon a ledge 38 formed transversely of the upright and is fastened in place by screws 39. The bracket is substantially a hollow rectangle, the opposite ends 40 (Fig. 1) being extended below the sides and having formed on their inner sides channels 42 for the reception of upper flanged edges 44 of the container 12. When the container is mounted in the bracket its mouth registers with the walls of the rectangular bracket which in effect form an upper extension of the walls of the container. A spring-pressed latch 46 (Fig. 4) is fastened by a screw 48 to the front wall of the bracket and is adapted to be turned so that a projecting finger 50 thereon engages a boss 52 formed on the front wall of the container, thereby holding the container in place. A pin 54 on the boss 52 acts as a stop for the latch.

A rearwardly extending bay 56 (Fig. 6) is formed in the rear wall of the container which extends from the top edge of the container down-

wardly below the bottom of the container where it runs into a well 58 (Fig. 1) formed at the bottom of the container, for a purpose to be hereinafter described. While the over-all dimensions of the container could be made to include the bay 56 and the well 58, it is considered to be better practice, from the standpoint of the conservation of the coating composition, to use as small a quantity as feasible, and for this reason the present container has been reduced in capacity in the way illustrated. To permit filling or replenishing the container with coating composition, a spout 57 is formed at one end thereof, the open end of the spout being closed by a cover 59 pivotally mounted thereon by a screw and spring 63 and 65, respectively, and arranged to close against a stop pin 64 (Fig. 6).

The holding device 14 (Fig. 1) for the counter comprises a pair of clips 60 (Fig. 9) consisting of fingers 62 and spring strips 64 secured thereto by bolts 66. Each finger is provided with a ledge 68 upon which the lower edge of the counter 16 rests, the spring strips holding the counter against the fingers 62 in a vertical position. The fingers are fixed in spaced relation to the ends 70 of a pair of arms 72 (Fig. 6) by means of screws 74. The arms 72 are formed at the bottom of a leg 76 which occupies the bay 56 of the container and is vertically reciprocated therein to move the counter holder into and out of the container. The well 58, as shown in Fig. 1, accommodates the bottom part of the leg 76 and the arms 72, thereby permitting the clips 60 to be submerged sufficiently to carry the counter below the surface of the coating material.

When the counter is withdrawn from the container, it carries on its surface an excess of paste and it is desirable to remove the excess paste and return it to the container. To this end, a pair of squeegee members 17 (Fig. 7) are mounted at opposite sides of the container. The squeegee members consist of castings 78 mounted on rods 80 journaled at their ends in bearing blocks 82 (Fig. 1) which in turn are fixed to the ends of the bracket 34. Each casting 78 is recessed at 84 through its entire length and a rubber or other flexible strip 85 is laid therein and secured thereto by backing strips 86 screwed to the casting by screws 88. The overhanging edges of the rubber strips are more than long enough to meet when the castings are rotated from the upright position, shown in Fig. 7, to the closed position, shown in dotted lines, whereby the marginal portions of their under surfaces are pressed against each other, thereby forming squeegees for removing excess coating material from the counter 16 as it is withdrawn from the container. The engaging surfaces of the rubber strips are striated, as shown at 90 (Fig. 8), so that all the paste will not be squeezed from the surface of the counter. In order to securely press the marginal portions of the rubber strips together in the closed position, each strip is backed by a plurality of spring fingers 92. The spring fingers consist of a series of individual hooked fingers (Fig. 1) fastened to the castings 78 with their hooked portions bearing against the marginal portion of the rubber strips. The spring fingers have inturned lower ends (Fig. 7) received in sockets in the casting 78 and are secured in place by strips 94 overlying the stems of the fingers and fixed to the casting by screws 96.

In order to keep the paste of uniform consistency and to reduce loss by hardening and drying, it is desirable to keep the container closed

and to open it only long enough to permit the introduction of the counter. This is effected by the arrangement and operation of the aforesaid squeegees 17. The squeegees are so constructed that in their operative position they engage one another over the top of the container, thereby acting as a cover to close the mouth of the container. The squeegees are so timed in their movement that they are opened to the position shown in Fig. 7 in full lines for the admission of the holder and counter and are closed to the position shown in dotted lines just prior to the withdrawal of the counter. As a result, the counter is pushed up between the spring-pressed margins of the rubber strips 85 which remove the excess paste from the surface of the counter, the excess paste running back into the container.

The rods 80 upon which the squeegees are mounted are operated in timed relation with the counter dipping means as follows: Meshing gears 98 and 100 (Fig. 2) are fixed to the ends of the rods, the gear 100 being turned by a gear sector 102. The gear sector 102 is fixed to one end of a shaft 104 to the opposite end of which is fixed a lever 106 loosely connected to a reciprocating rod 108 by means of a pivoted collar 110. The rod 108 is supported at its upper end by a pin 112 which in turn is fixed to an upstanding bracket 114 projecting from a stub 116 extending laterally and downwardly from the top of the slide 28. A pair of adjustable collars 118 and 120 are mounted on the rod 108 and the adjusted position of said collars determines the time when the lever 106 will be moved down or up to open or close the squeegees. In order to give a rapid or snap action to the opening and closing of the squeegees, a lever 122 is also fixed to the gear segment 102, the end of the lever being urged to turn the shaft 104 in either direction by a spring 124 fastened at one end to the lever 122 and at the other end to an eye bolt 126 fixed to the platform 22. By this arrangement, as soon as either collar 118 or 120 pushes the arm 106 so that the lever 122 passes dead center in either direction, the spring will take hold and snap the gear segment around so that the squeegees are thrown open or closed rapidly. A stop pin 123 limits the opening movement of the sector 102.

In order to reduce the possibility of stray paste coming in contact with the operator's hands, a cover 128 is mounted on the upper edges of the bracket 34 and is adapted to enclose the squeegees, the cover 128 being provided with a narrow slot 130 through which the counter holder may move freely.

The reciprocation of the leg 76 supporting the counter holder 14 is accomplished by the slide 28 to which it is secured by means of the stub 116, the lower end of which is secured in end-to-end relation with the upper end of the leg 76 by a screw 134 (Fig. 1). It may be necessary to adjust the length of the leg 76 so that the counter holder may be lowered enough to insure complete submerging of the counter and yet not permit the arms 72 to strike the bottom of the container. To this end, a thimble 136 is pinned in an axial bore 138 formed in the leg 76, the upper end of the thimble being telescopically received in a bore 140 formed in the stub 116. The screw 134 is passed through the stub into the bore 140 where it is threaded into the upper end of the thimble, thereby permitting vertical adjustment of the leg 76. To prevent turning of the leg with respect to the stub 116, the lower

end of the stub is provided with a groove 142 (Fig. 9) which dovetails with a tongue 144 formed at the upper end of the leg.

The slide 28 is provided at its upper end with a rearwardly extending bifurcated bracket 144 (Fig. 4) to which there is pivotally fastened by a pin 146 a link 148. The link 148 is in turn fastened by a pin 150 to one end of a walking beam 152, the latter being pivotally secured near one end to the back of the upright 29 by a bolt 154. Between the bolt 154 and the pin 150 one end of a pitman 156 is pivotally secured to the walking beam 152, the other end of the pitman 156 being secured by a pin 158 to the rim of a disk 160 which forms one element of a one-revolution clutch. The disk 160 is freely mounted on a shaft 162 upon which there is fastened a plate 164 having a plurality of holes 166 (Fig. 5) around its periphery, for a purpose which will appear hereinafter. A boss 168 is formed on the disk 160 close to its edge and in the boss there is an aperture 170 receiving a headed pin 172, the end of the pin extending from the inner face of the disk 160 against the inner face of the plate 164. The pin 172 is adapted to enter one of the holes 166 in the plate 164 to lock the disk and plate together for driving the disk, and in order to hold the pin against the plate so that it will enter one of the holes when the pin and hole register, a spring 174 (Fig. 4) is disposed behind the head of the pin in the aperture 170.

Since the counter is to be held after it is coated in a position for the application of a quarter and lining thereto, the clutch is arranged so that it will make one complete revolution, thereby lowering the holder into the container, lifting it out, and holding it above the container. To this end, a trip lever 176 is provided, the free end of which rests against the periphery of the disk 160 and which may be moved to and from the plate by rotation of a shaft 178 to which it is fixed. The rotation of the shaft 178 is effected by depressing a hand lever 184 pivoted at its mid-point on a bolt 186 fixed to the upright and connected to the shaft 178 (Fig. 1) by a lever 180 and rod 182. The hand lever 184 is returned from operative to inoperative position when released by a compression spring 183 which surrounds the rod 182, one end of the spring bearing against a collar 185 and the other end against a flange 186 on the upright 29.

The headed end of the pin 172 is provided with a projecting tooth 188 which extends from the periphery of the disk, and the free end of the lever 176 is provided with a gradually sloping cam surface 190 (Fig. 4) over which the tooth passes during each revolution of the disk. As the tooth rides up on the cam surface 190, the end of the pin 172 is withdrawn from the hole it occupies in the plate, thereby breaking the drive between the disk and the plate. To prevent the momentum of the disk 160 from carrying by, a ledge 192 is formed on the lever 176 which catches and holds the tooth 188. By pushing down on the hand lever 184, the lever 176 may be withdrawn so that the pin 172 is permitted to again bear against the constantly rotating plate 164, whereupon it will fall into one of the holes 166 and resume the drive for another revolution. To insure stopping of the slide at the top position to hold it during the manipulation of the work, a spring 194 (Fig. 1) is fastened to the lower end of the walking beam and to the platform 22 by an eye bolt 196.

The shaft 162 which drives the plate 164 is

journalled in a pair of bearings 198 and 200 supported on the platform 22 by a plate 202 and uprights 204. A beveled gear 206 is fixed to the shaft 162 between the bearings and meshes with another beveled gear 208 fixed to a shaft 210 mounted at right angles to the shaft 162 (Fig. 6). The shaft 210 is journalled in an outboard bearing 212 extending from a casing 214 bolted to the platform 22. The casing 214 houses a gear 216 (Fig. 4) fastened to the inner end of the shaft 210 and a worm 218 which meshes with the gear 216 fixed to a shaft 220 journalled in a bearing 222. The shaft 220 is driven by way of gears 224 and 226, the gear 226 in turn being driven by a belt and pulley 228 and 230, respectively.

When the machine is in operation, a flat dry or uncoated counter is placed in the clip 60, as shown in Fig. 1, and then the hand lever 184 is depressed. Depressing the hand lever 184 connects the constantly driven plate 164 with the disk 160 which, through the walking beam 152, slide 28, and rod 108, successively opens the squeegees, moves the holder 14 into the container, closes the squeegees, and withdraws the holder, thereby pushing the coated counter upwardly between the wiping surfaces of the strips 85. The cycle is terminated by the declutching of the disk and plate, and the holder is held in its upmost position by the spring 194 so that the joined quarter Q and lining L may be placed over the coated counter and pressed about it, as illustrated in Fig. 3.

The machine is so constructed and arranged that it may be used as a bench machine or it may be mounted on any machine which performs the succeeding operation after the quarter, lining and counter are assembled, such, for example, as a heel end forming and counter molding machine. Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a machine for coating a counter, a container, a holder for said counter, said holder being mounted above the container, means for moving said holder from its initial position above the container into and out of the container, wipers mounted adjacent to the container, and means to move said wipers from an inoperative position to an operative position intersecting the plane of the path of movement of the counter holder as it is withdrawn from said container, said wipers in their operative position closing the mouth of the container.

2. In a machine for coating a counter, a container having a mouth, a holder for said counter, said holder being mounted above the container, means for moving said holder from its initial position above the container into and out of the container, wipers mounted adjacent to the container, and means operable to move the wipers from an inoperative position to an operative position intersecting the plane of the path of movement of the counter holder, said means being interconnected with the means for moving the counter holder so that the movement of the counter holder into and out of the container is preceded and followed by the movement of the wipers out of and into operative position.

3. In a machine for coating a counter, a container, a holder for said counter, means for moving said holder into and out of the container, squeegee means mounted adjacent to said container, and means to move said squeegee means toward the plane of the path of movement of

the counter holder as it is withdrawn from said container.

4. In a machine for coating a counter, a container having a mouth, a holder for said counter, means for moving said holder into and out of the container through said mouth, a member mounted adjacent to said container, a squeegee fixed to said member, and means to move said member across the mouth of said container toward the plane of the path of movement of said counter holder as it is withdrawn from the container.

5. In a machine for coating a counter, a container, a holder for said counter, means for moving said holder into and out of the container, squeegees mounted at opposite sides of the container, and means for moving said squeegees into engagement with each other in the plane of the path of movement of the counter holder as it is withdrawn from the container.

6. In a machine for coating a counter, a container, a holder for said counter, means for moving said holder into and out of the container, opposed squeegees, means for moving said squeegees into contact with the opposite sides of the counter as it is withdrawn, and means for yieldably pressing said squeegees against said counter.

7. In a machine for coating a counter, a container, a holder for said counter, means for moving said holder into and out of the container, squeegees, transverse striations on the inner marginal portions of said squeegees, and means for moving said striated marginal portions into contact with one another between the opposite sides of the container as the counter holder is withdrawn from the container.

8. In a machine for coating a counter, a container, a holder for said counter, means for moving said holder into and out of the container, flexible wipers mounted at opposite sides of the container, the width of each wiper being greater than half the distance between said opposite sides, and means for moving said wipers into engagement with one another whereby the marginal portions of said wipers are bent back into face-to-face contact.

9. In a machine for coating a counter, a container, a holder for said counter movable into and out of the container, wipers movable to and from each other, and means for successively operating the wipers and the holder to cause the wipers to move away from one another simultaneously with the movement of the holder into

the container and to move into engagement with one another before the holder is moved out of the container.

10. In a machine for coating a counter, a container, a holder for said counter, means for moving said holder into and out of the container, wiper means mounted adjacent to said container, and means to move said wiper means into contact with said counter, said last-named means being operatively connected to the means for moving the holder.

11. In a machine for coating a counter, a container, a holder for said counter, wipers movable into contact with the counter, reciprocable means, means connecting said holder with said reciprocable means, mechanism operable to move said wipers, means connecting said mechanism with the reciprocable means, driven means, and means for connecting said reciprocable means with said driven means for one cycle of reciprocation.

12. A machine for coating a flat counter comprising a container, means for holding the counter, means for moving said counter holding means into and out of the container, squeegees movable into and out of engagement for contacting the opposite sides of the counter, said means for moving said counter holding means being arranged to initiate the movement of the squeegees, and other means for completing the movement of the squeegees.

13. A machine for coating a flat counter comprising a container, means for holding the counter, means for moving said counter holding means into and out of the container, squeegees movable toward one another for contacting the opposite sides of the counter, said means for moving said counter holding means being arranged to initiate the movement of the squeegees, and a spring for completing the movement of the squeegees.

14. A machine for coating a flat counter comprising a container, parallel shafts journaled at the opposite sides of the container, squeegees mounted on said shafts, meshing gears on adjacent ends of said shafts, a gear sector meshing with one of said gears, means for turning said sector, and means operable at a predetermined point in the angular movement of said sector rapidly to accelerate the turning of the sector to impart a snap action to the squeegees.

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