April 10, 1951 C. W. SCHREIBER 2,548,743

APPARATUS FOR FINISHING GLASSWARE

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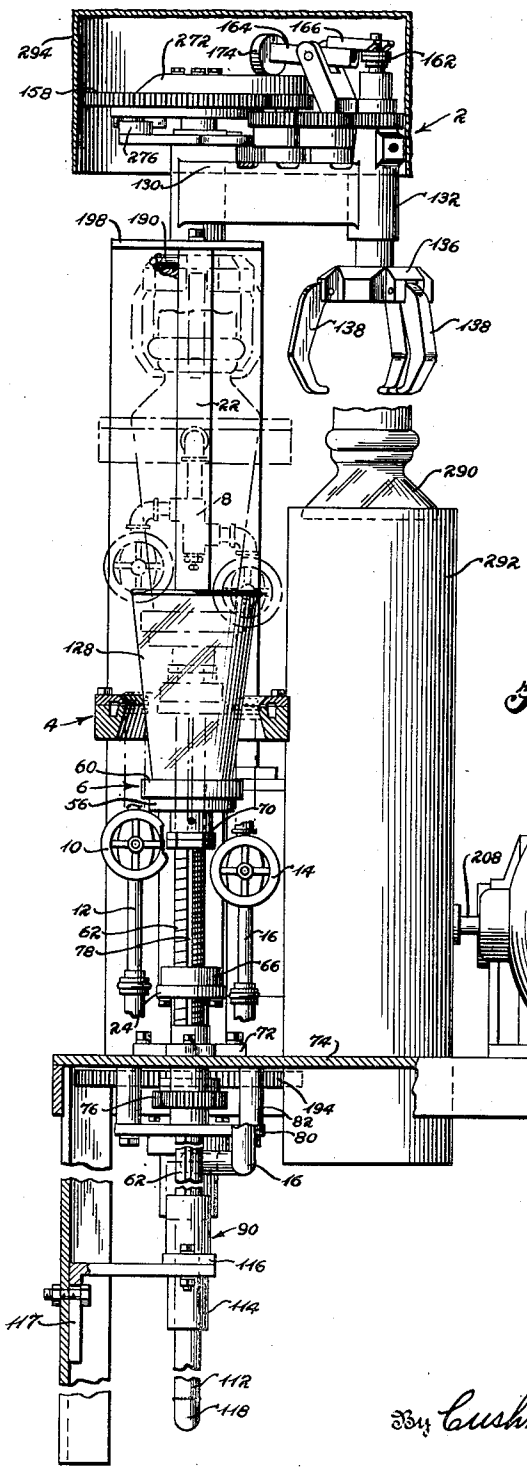


Fig. 1

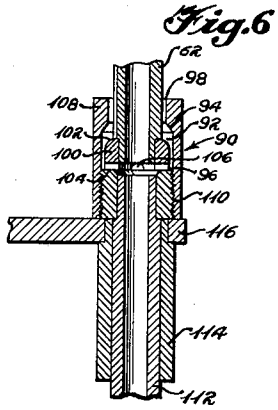
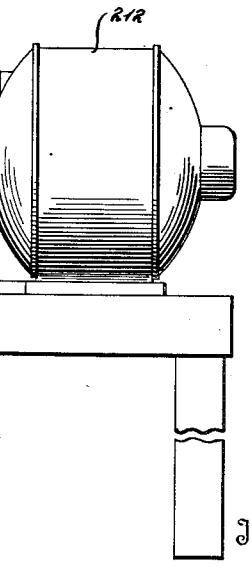


Fig. 6



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APPARATUS FOR FINISHING GLASSWARE

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Fig. 2

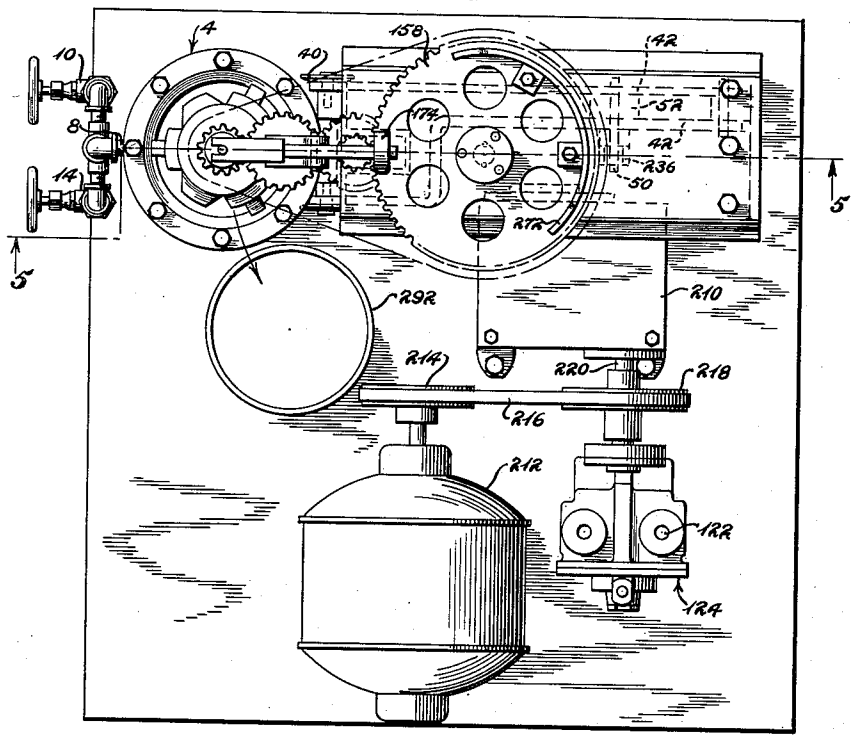

Fig. 3

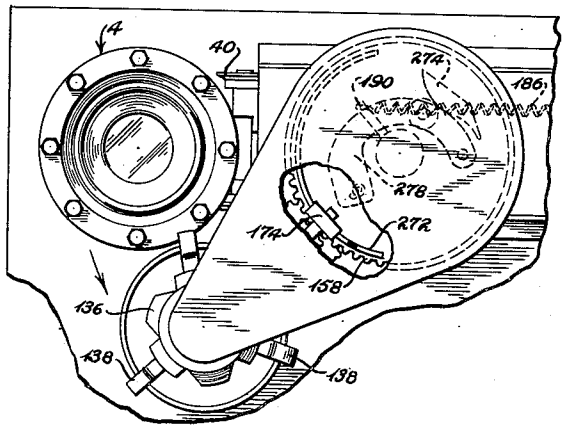

Fig. 4

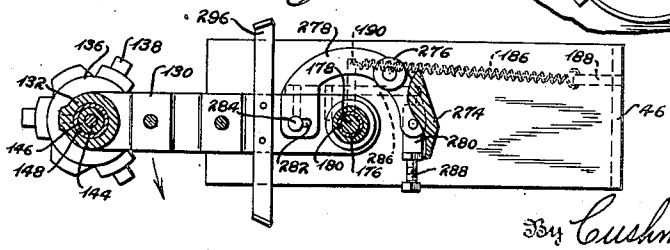

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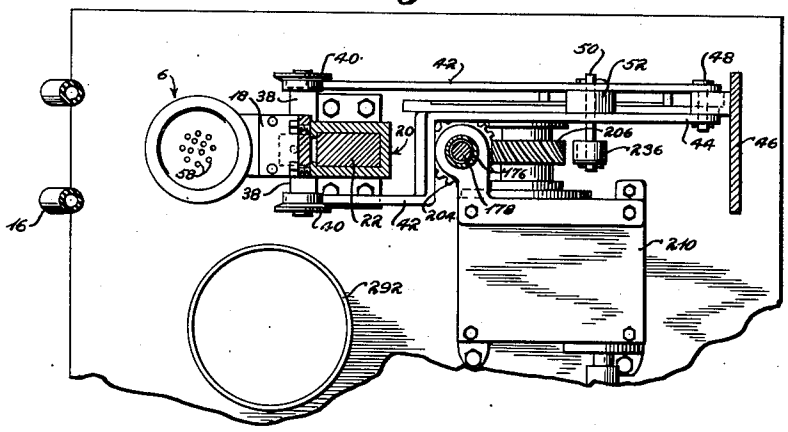
Fig. 7



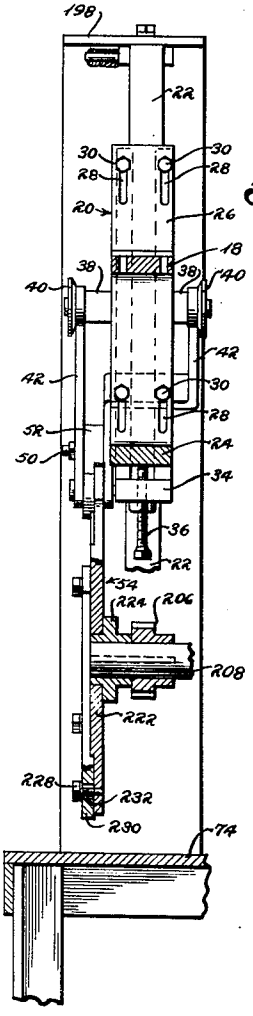


Fig. 9

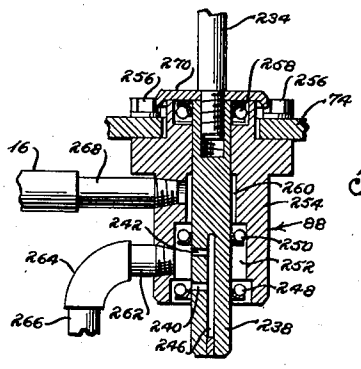


Fig. 8

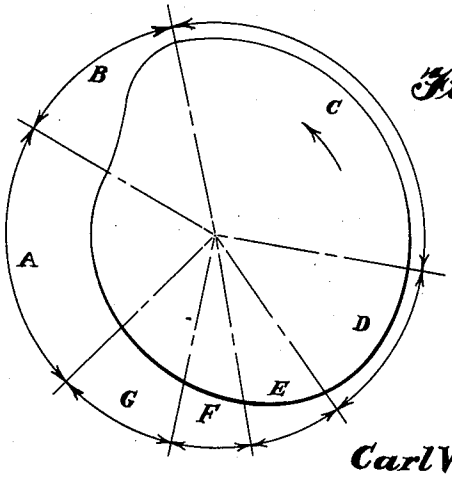


Fig. 10

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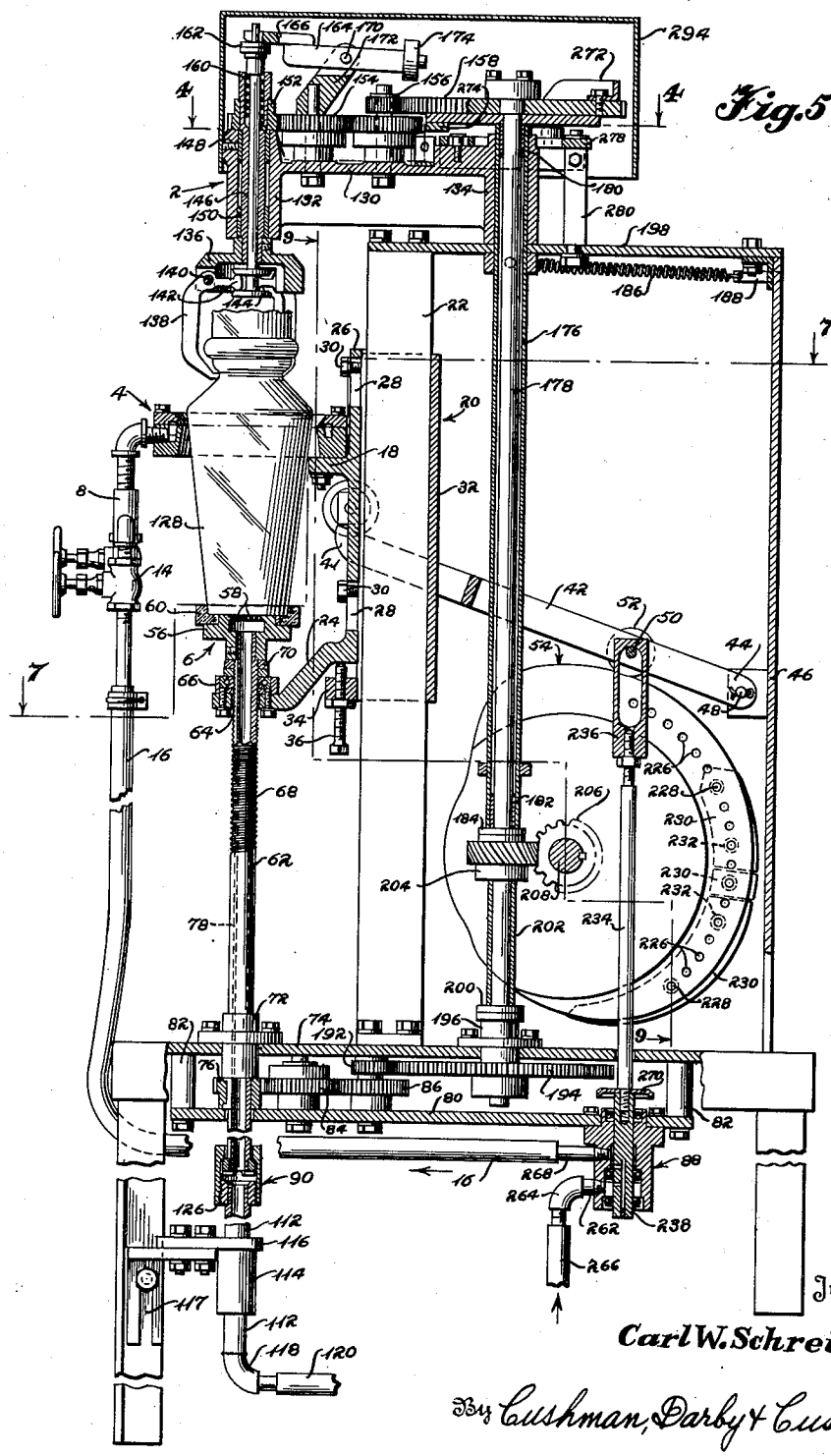
Fig. 5



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UNITED STATES PATENT OFFICE

2,548,743

APPARATUS FOR FINISHING GLASSWARE

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Application June 19, 1947, Serial No. 755,789

10 Claims. (Cl. 49—50)

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This invention relates to improvements in apparatus for finishing glassware. More particularly, it is concerned with apparatus for the severance of a moil from an article of glassware, for the formation of a bead on the severed edge of the ware, for polishing of and the annealing of the treated ware.

A principle object of this invention is the provision of new apparatus for severing a moil from an article of glassware, polishing and finishing the ware.

Further objects include:

(1) The provision of such apparatus which employs the stretching method for severing the moil from the ware by the use of a burner having an impinging annular flame applied to the wall of the glassware wherein the stretching is accomplished by control of the separation of the mechanisms used to grip the moil and the bottom of the ware during the severance operation;

(2) The provision of an automatic means for disposal of the severed moil;

(3) The provision of means for automatically polishing and annealing the ware as a step in the cycle of operation.

(4) The provision of new suction control means for holding the ware in position during the treatment operation.

(5) The provision of a novel mechanism for the automatic control of the flame quality during the operation of such apparatus.

(6) The provision of the subject type of apparatus in which a bead is formed on the severed edge of the ware as a result of the operation of the process.

Still further objects and the entire scope of applicability of the present invention will become apparent from the detailed description given hereinafter; it should be understood, however, that the detailed description, while indicating preferred embodiments of the invention, is given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

The apparatus of this invention will become more readily apparent by reference to the attached drawing, in which:

Figure 1 is a vertical view, partly in section, of one embodiment of apparatus of this invention. The view shows in solid the relative position of parts at the completion of a cycle of operation with the ware completely treated and ready to be removed. The figure also shows in dotted elevation the relative position of parts during the glass heating operation prior to stretching;

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Figure 2 is a plan view of the apparatus shown in Figure 1 with the cover over the moil gripping chuck unit removed;

Figure 3 is a detailed plan view of the moil gripping chuck unit partly broken away;

Figure 4 is a detailed sectional view of a portion of the moil gripping chuck unit shown in Figure 3, taken along the line 4—4 of Figure 5;

Figure 5 is a vertical sectional view of the apparatus taken along the line 5—5 of Figure 2;

Figure 6 is a detailed, vertical, sectional view of the suction control valve shown in Figure 5;

Figure 7 is a sectional plan view of the cam and slide arrangements taken along the line 7—7 of Figure 5;

Figure 8 is a detailed, vertical, sectional view of the flame quality control unit shown in Figure 5;

Figure 9 is a vertical sectional view of the cam and slide arrangement taken along the line 9—9 of Figure 5;

Figure 10 is a diagrammatic view of the main control cam and illustrates the relation between successive steps which constitute one complete cycle of the apparatus shown in the preceding figures.

Briefly, the invention utilizes a chuck for gripping the moil and a holder for holding the ware in axial alignment with a burner. At the start of the operation, the glassware with moil attached is placed in the holder. The burner then moves vertically with its annular flame against the walls of the glass serving as a means to polish the glass. The continued vertical movement of the unit causes the ware holder to be picked up and moved vertically along with the burner so as to bring the moil into engagement with the moil gripping chuck. At the same time, suction is applied to the base of the ware by the holder. The jaws of the chuck grip the moil and together with the holder cause the relative rotation between the glassware and fixed annular flame.

A cam control mechanism holds the burner and the ware holder units at a fixed elevation for a principal glass wall softening period and immediately thereafter, the ware is lowered away from the moil a predetermined distance and the softened wall of the glass is stretched. The severance of the moil of the ware is completed by continued application of the flame at the stretched section of the glass. The ware and burner then begin to descend during which time the application of flame at the severed edge with rotation of the ware results in the formation of

a bead on the severed edge. Thereafter, the ware is stopped and the burner continues the downward movement with the hot impinging annular flame effecting a further polishing and annealing of the ware. At the same time, the severed moil is swung to the side by the chuck mechanism and dropped through a pipe to a cullet receiver placed under the apparatus by the opening of the chuck jaws.

By the time the ware completes its descent, the suction on the base thereof is released and then as soon as the burner completes its descent or at any other portion of the travel of the burner as may be desired, the oxygen supply of the flame is stopped and the temperature of the flame is dropped. This results in the finished article being elevated above the burner with the suction removed ready to be replaced by another piece of glassware for a repeated cycle of operation.

Referring in detail to the drawing, the apparatus consists of a moil gripping chuck unit 2, a burner 4, and a ware holder unit 6, all of which are in axial alignment when positioned for severance of the moil from the ware. However, for the disposal of the moil, the chuck unit swings out of the axial alignment as shown in Figure 3.

The burner 4, which is of conventional type, is supplied through injector 8 which connects through globe valve 10 to a gas line 12 and through globe valve 14 to an oxygen supply line 16. The burner 4 is supported upon bracket 18 which is mounted upon the slide 20, which, in turn, is carried by the rectangular slideway 22 for vertical reciprocation. A second bracket 24 is also mounted upon the slide 20, this latter bracket 24 serving to raise and lower the ware holder as will be described more fully hereinafter.

The brackets 18 and 24 constitute angular extensions of a plate member 26 which has slots 28 through which bolts 30 extend for fastening the plate 26 to the rear portion 32 of the slide 20.

At the base of the slide 20, there is a lug 34 which carries an adjustment screw 36. The adjustment screw 36 permits the plate 26 and the integral brackets 18 and 24 to be raised or lowered by sliding the plate 26 on the bolts 30, so as to adjust the position of the burner and holder relative to the moil gripping chuck during the severing operation and thus, permit the accommodation of glass articles of different size.

The slide 20 is provided with extensions 38 and which carry rollers 40. These rollers 40 rest upon levers 42 which are pivoted at the fulcrum end 44 on the brace 46 by means of pin 48. Between the free end 41 and the fulcrum end 44 of the lever 42, there is positioned by means of a pin 50, and between the two separate levers, a roller 52. This roller 52 rides upon a cam 54 and thus, serves to raise and lower the slide 20 through movement of the lever 42 by the cam 54.

The ware holder 6 consists of ring centered bottom plate 56 having perforations 58 about which is placed a ring of asbestos 60. The plate 56 is attached by vapor-tight connection to the tubular shaft 62. This shaft passes through an opening 64 in the bracket 24 and slides in a bearing 66, carried by the bracket 24. The upper portion of the shaft 62 is supplied with threads 68 which serve to position the adjustment nut 70. Adjustment of the distance between the holder 6 and the burner 4, when the burner and holder are both in their uppermost position, so as to accommodate glass articles of various sizes is accomplished by running the nut 70 up or down the threads 68 the required distance to properly position the burner 4 relative to the ware.

The lower part of the shaft 62 passes through a bearing 72 which is attached to the base 74 of the apparatus. At the lower end of the bearing 72 there is a gear 76 which is keyed to the shaft 62 and serves to rotate the shaft 62 and the holder 6. The key way 78 in the shaft 62 extends throughout its length so that the shaft may slide lengthwise in the bearing 72 and the gear 76 while being rotated.

The gear 76 is held in place against the bottom of the bearing 72 by plate 80 which is positioned upon the base 74 by the spacers 82. The plate 80 also supports idler gears 84 and 86, as well as the flame quality control unit 88.

At the lower end of the shaft 62 there is a suction control valve 90. This valve 90, the details of which are shown in Figure 6, consists of a chamber 92 having opposed seating surfaces 94 and 96 and a hole 98 leading into the chamber. The shaft 62 extends into the chamber 92 through the hole 98 and there is provided on the shaft 62 within the chamber an annular collar 100. This collar has seating surfaces 102 and 104 which match with the seating surfaces 94 and 96 respectively of the chamber 92. The lower edge of the annular collar 100 is provided with vent ports 106.

The chamber 92 is formed in an extension 108 that is connected by means of threads 110 upon a tubular shaft 112 which is axially aligned with the shaft 62. The shaft 112 is, in turn, slidably carried in a bushing 114 which is held by means of bracket 116 extending from a portion of the base 74. The opposite end of the bracket 116 is provided with slots 117 which permit the bracket to be adjusted to different vertical heights. The lower end of the shaft 112 is connected through elbow 118 to a flexible tube 120, which, in turn, connects to the vacuum connection 122 upon the pump 124.

The operation of the holder 6, shaft 62, suction control means 90 and associated parts may be briefly described as follows: As seen in Figure 1, at the beginning of an operation, the slide 20 will be lowered by means of the lever 42 to such an extent that the bracket 24 and bearing 66 are disengaged from the adjustment nut 70 and the burner 4 is near to the holder 6 which is held in an elevated position from the bracket 24, because the annular collar 100 on the shaft 62 rests upon the seating surface 96 which, in turn, rests upon the bracket 116. As the slide 20 is raised by the lever 42 through operation of the cam 54, the burner 4 and bracket 24 will correspondingly be raised and the hot annular flame will travel up the side of the ware 128. When the slide 20 had risen sufficiently so that the upper surface of the bearing 66 on the bracket 24 contacts the adjustment nut 70, the holder 6 and the attached shaft 62 will be raised simultaneously with the slide 20 and the burner 4, so that throughout the remainder of the upward ascent of the slide the relative position of the burner 4, holder 6 and ware 128 will remain the same.

As soon as the shaft 62 is raised, the annular collar 100 will be separated from the seat 96 and then a short distance further of travel will cause the seat 102 to contact seat 94. As soon as this contact of seats 94 and 102 results, the bleeding of air from the atmosphere through the hole 98 into the chamber 92 and through the radial ports 106 into the tubular shaft 112 will be stopped and a suction on the base of the ware 128 will result

because of the reduced pressure in the shaft 62 being conveyed to the ware through the perforations 58.

Upon completion of the moil severance operation and the beading of the severed edge of the ware, the burner 4 and holder 6 will descend together for a short distance until the extension 108 again comes to rest upon the bracket 116 at which time the seats 94 and 102 will be disconnected and the suction will be released by the bleeding of air through hole 98 as described above. Further descent of the slide 20 will cause the collar 100 to seat upon surface 96 and prevent further descent of the holder 6, so that the burner 4 will then travel down the sides of the ware until the further descent of the slide 20 is stopped by the cam 54. Throughout this entire operation, the shaft 62 and, in turn, holder 6 and ware 128 are rotated by means of gear 76 and associated gears.

The moil gripping chuck unit 2 consists of a base member 130 which is provided with tubular extensions 132 and 134. The extension 132 carries a housing 136 to which the chuck jaws 138 are attached by means of pins 140. The ends 142 of the chuck jaws 138 engage a rod clutch 144. The rod clutch extends through the jaw spindle 146 which rides in bearings 148 and 150. The upper end of the jaw spindle 146 is keyed to a gear 152 which is driven through idler gears 154 and the gears 156 and 158.

The upper end of the jaw spindle 146 is recessed to receive spring 160 which forces against retaining bearing 162 and serves to actuate the rod clutch 144 and chuck jaws 138.

A lever 164 having a forked end 166 is pivoted on pin 170 which is supported by bracket 172 attached to the base 130. The forked end 166 of the lever rests upon the bearing 162 of the rod clutch 144, while the free end of the lever is provided with a roller 174.

The tubular extension 134 of the base 130 carries a tubular shaft 176. A solid shaft 178 rides within the tubular shaft 176 on the bearings 180 and 182, while the tubular shaft 176 itself rides upon the bearing 184. Thus, it will be seen that the entire chuck unit 2 is indirectly supported upon the bearing 184 through the tubular shaft 176 and is free to rotate with this shaft. However, free rotation of the unit 2 is prevented by means of the spring 186 which is fastened at one end to the brace 46 by means of stud 188 and at the other end to the stud 190 which extends from the tubular shaft 176.

The ware holder 6 and the chuck jaws 138 are rotated at the same rate of speed indirectly through the shaft 178. Thus, ware holder 6 is driven by gear 76 which, in turn, is driven by idle gears 84 and 86 and gears 192 and 194, the latter gear being fastened directly to the shaft 178. Likewise, chuck jaws 138 are driven through spindle 146 which is keyed to gear 152 driven by idlers 154 and gears 156 and 158, the latter gear being attached directly to the shaft 178.

The shaft 178 rides in bearings 180 and 182 which are supported by the tubular shaft 176 and bearing 196 which is supported upon the base 74. The tubular shaft 176 is also supported by the arm support 198. Upon the bearing 196 rests a roller bearing 200 which supports a tubular section 202. On top of the tubular section 202 there is a spiral gear 204 keyed to the shaft 178 and supporting the bearing 184 which in turn supports tubular shaft 176.

Rotation of the drive shaft 178 is accomplished through spiral gear 206 which meshes with spiral gear 204 fastened upon the shaft. In turn, gear 206 is attached on the output shaft 208 of the transmission 210, which is driven by motor 212 through pulley 214, belt 216 and pulley 218, which is attached to the input shaft of the transmission 220. The arrangements of these pulleys and motor can best be seen in Figure 2, whereas the arrangement of transmission and gears for the drive shaft can best be seen in Figure 7. At the opposite end of shaft 220 there is attached pump 124 which furnishes the vacuum for provision of suction as described above.

Figures 7 and 9 further show the arrangement of the cam 54 and gear shafts associated with the transmission 210. Thus, the cam 54 which is attached to shaft 208 consists of a plate 222 fastened to a bushing 224 which is keyed to the shaft 208. The plate 222 is provided with a series of holes 226 through which bolts 228 may be extended for fastening adjustment patches 230 to the plate 222. These adjustment patches 230 have over-size holes 232 for receiving the bolts 228, so that the patches may be adjusted as to position relative to the plate 222 with the result that a variation in the contour in the cam 54 may be obtained in order to vary the different steps in the cycle of operation of this invention, as will be more fully described hereinafter in relation to Figure 10.

As indicated above, the cam 54 controls the levers 42 and the roller 52 which rides upon the cam 54 and is carried between the levers by the pin 50. In addition, the cam 54 controls the action of the flame quality control means 88. This latter control is accomplished by the raising and lowering of the rod 234 by means of the clevis 236 which extends over the pin 50.

The details of the flame quality control unit 88 are shown in Figure 8. Thus, at the end of the rod 234, there is threaded a valve plug 238 provided with radial holes 240 and 242 and longitudinal hole 246. The plug 238 rides in fluid-tight bearings 248 and 250 which are contained in the chamber 252 of the valve housing 254. The housing 254 which is attached by means of bolts 256 to the base 74 also carries bearing 258 through which the plug 238 moves. A second chamber 260 is superposed above the chamber 252 and separated therefrom by means of the bearing 250. An inlet tube 262 which is connected by flexible elbow 264 to oxygen supply line 266 enters the chamber 252. The chamber 260 is provided with oxygen outlet line 268 to which is attached the flexible oxygen tube 16. The control means 88 is completed by means of an oil shield 270 which is retained between the end of the rod 234 and the end of the plug 246. This shield 270 performs the dual purpose of limiting the descent of the plug 38 and also prevents oil or other combustible matter from flowing past the bearing 258 into the chambers 252 and 260.

As can be seen by comparison of Figure 5 and Figure 8 when the plug 238 is raised through the action of the cam 54 so that hole 242 is above bearing 250, oxygen will flow from line 266 through control means 88 and line 16 into the burner 4. On the other hand, when the plug is lowered by the action of the cam 54 so that hole 242 is below the bearing 250, the supply of oxygen to line 16 will be cut off. Adjustment can be made by the clevis 236 so that the oxygen supply to the burner 4 will be cut off by unit 88 during any desired portion of ascent and descent of the burner during the steps in the cycle of operation.

Returning for consideration of the chuck unit 2, it will be seen that the gear 158 carries two cams 272 and 274 which are located on opposite sides of the gear 158 from one another. Cam 272 is positioned upon the gear 158 so as to intermittently engage roller 174 on lever 164 as the gear rotates and to thus actuate the jaws 138 of the chuck, so as to grip or release the moil.

The cam 274 is responsible for swinging chuck unit 2 for disposal of the moil. Thus, the cam 274 is located so as to intermittently engage roller 276 which is located upon semi-circular lever 278. This lever 278 is fulcrumed on rectangular post 280 attached to arm 198. The opposite end of the lever 278 is provided with slot 282 which slidably engages pin 284 carried by the base 130.

In operation, the gear 158 rotates and carries with it cam 274. At the proper portion of the cycle of operation the roller 276 contacts the cam 274 and in so doing, forces the movable end of the lever 278 against the pin 284, thus causing the base 130 to swing as indicated in Figures 3 and 4, for the disposal of the moil. Further rotation of the gear 158 carries the roller 276 beyond the peak of the cam 274 and permits the base 130 to be drawn back by the action of the spring 186 into position for receival of another piece of glassware. The extent of back swing of the base 130 is governed by stop plate 286, the position of which can be adjusted by means of set screw 288 threaded through post 280.

The cam 272 is so positioned relative to the cam 274 so that when the unit 2 has been swung to the side, as shown in Figure 3, the roller 174 will engage cam 272 causing the jaws 136 to open and drop the severed moil 290 down the pipe 292 to a cullet receiver (not shown).

The entire chuck unit 2 is provided with a removable cover 294 which is held on the unit by brace 296.

The various steps in the cycle of operation can be explained with reference to Figure 10 of the drawing. This figure shows the various steps of operation in relationship to the portion of the control cam 54 to which they relate. Thus, the cycle of operation comprises a loading and unloading step A, a fire polishing step B, a wall softening step C, a stretching step D, a severing step E and a beading step F and a polishing and annealing step G. As explained above, the relative period of time during which each of these steps is in progress may be varied by means of adjustment of the patches 230 upon hte plate 222.

The operation of the apparatus during the entire cycle may be comprehended by reference to Figure 10 and Figure 1.

At the beginning of the operation, i. e., the loading step, the roller 52 rides upon the portion A of the cam so that the holder 6 and slide 20 are in the position shown in solid in Figure 1. The ware with moil attached is positioned in the holder 6. As the cam 54 revolves, the roller contacts the fire polishing or B portion of the cam so that the slide 20 is raised uniformly with the result that the burner 4 travels upwardly relative to the ware, impinging an annular flame upon the sides of the ware, since during this step of operation the holder 6 and ware 128 do not move vertically, but merely rotate. Within this period of time the bracket 24 has been raised sufficiently so that the bearing 66 has contacted the adjustment nut 70 and the shaft 62 together with holder 6 and ware 128 has been raised along with the burner 4. At the same time, atmospheric

bleeding of the suction valve 90 has been stopped in the fashion described above so that the ware is firmly held in the holder 6 by means of the applied suction through the perforations 58 in the plate 56. During the same period of time, the chuck unit 2 has been swung into the position shown in dotted section in Figure 1 and the jaws 138 have been clamped over the moil.

As the cam continues further rotation, the roller 52 contacts the wall softening or C portion of the cam. During this period, the glass is rotated within the annular flame without vertical movement, so that the glass at the junction of the moil and ware becomes soft.

Further rotation of the cam brings into play the stretching portion D, with the result that the slide 20, burner 4 and holder 6, together with the ware 128, are drawn down a short distance away from the moil, which is retained against vertical movement by the jaws 138. There after, the severing portion E of the cam operates to cause the flame to completely burn through the stretched section of the glass. Then the beading section F of the cam operates so that the burner proceeds downwardly with the ware forming a bead upon the severed edge of the ware. Finally, the polishing and annealing section G causes further lowering of the slide so that the bearing 66 disengages from the adjustment nut 70 and the burner proceeds down the ware to the unloading position, as shown in solid section in Figure 1. At the same time, the position of the plug 238 in the control unit 38 has been adjusted through the action of cam 54 and rod 234 so that the oxygen supply to the burner has been discontinued. The completely severed, polished and annealed ware is then removed from the holder, from which the suction has been by this time discontinued, and a new piece of glassware inserted for a repetition of the finishing operation.

I claim:

1. In an apparatus for severing a moil from an article of glassware, polishing and finishing the article, a chuck for gripping the moil, a holder for the ware, a burner for applying flame about the glass, automatic means to vary the quality of the flame, automatic means for moving the burner toward the holder and away from the chuck at the same time along the common axis of rotation of chuck and holder, means for rotating the chuck and holder in unison about their common vertical axis, and automatic means for swinging the chuck in a plane perpendicular to the common longitudinal axis of the chuck, holder and burner.

2. In an apparatus for severing a moil from an article of glassware, polishing and finishing the article, a chuck for gripping the moil, a holder for the ware, a burner for applying flame about the glass, automatic means to vary the quality of the flame, automatic means for moving the burner toward the holder and away from the chuck at the same time along the common axis of rotation of chuck and holder, means for rotating the chuck and holder in unison about their common vertical axis, automatic means for swinging the chuck in a plane perpendicular to the common longitudinal axis of the chuck, holder and burner, and means for applying a suction to the base of the ware while in said holder in order to retain the ware in the holder.

3. The apparatus of claim 2 in which said suction applying means comprises in combination a tubular shaft, a perforated plate in the bottom of the holder, a fluid-tight connection between one

end of the tubular shaft and said perforated plate, an annular collar provided with seating surfaces on the shaft at the opposite end, a radial vent port in the collar, a second tubular shaft, an extension on the second shaft having a hole in the end thereof through which said first shaft extends and a cylindrical chamber therein receiving said annular collar, and seating surfaces at both ends of said chamber for contact with corresponding surfaces upon said annular collar, the end of said second shaft opposite to said extension being adapted for connection to a low pressure source.

4. In an apparatus for severing a moil from an article of glassware, a moil gripping, rotating and disposal assembly comprising a drive shaft, a base member pivotally mounted on the drive shaft at the top thereof, a gear train carried by the base member, the first gear of the train being fastened to said shaft, said first gear carrying two cams on opposite sides of the gear from one another, a rotary spring actuated chuck carried by the base member, the last gear in said gear train being connected to the chuck for rotation thereof, chuck release means comprising a lever pivoted upon the base member in such position that a free end thereof will intermittently engage one of said cams, means for swinging said base about said shaft comprising an arcuate lever pivotally mounted at one end and engaging said base member at the opposite end by a pin extending through a slot in said arcuate lever, said arcuate lever carrying an element for intermittent engagement with the second of said gear carried cams, and a spring connected to said base for preventing free rotation of the base about said shaft.

5. In an apparatus for severing a moil from an article of glassware, polishing and finishing the ware, the combination of a chuck for gripping the moil, a holder for the ware, a burner for applying flame around the outside of the ware, said burner being mounted for reciprocation between said chuck and said holder along the common axis of rotation of said holder and chuck, automatic means for positively moving the burner as stated in coordination with the operation of the chuck and holder, and automatic means for swinging the chuck in a plane perpendicular to said axis of rotation.

6. In an apparatus for severing a moil from an article of glassware, polishing and finishing the ware, a moil gripping, rotating and disposal assembly comprising a base member, a rotary chuck, a circular gear which serves to rotate said chuck, the chuck and gear being supported on the base member, a spring for actuating the closing of said chuck, a cam carried by said gear, a chuck opening lever positioned relative to said cam so that a free end of the lever may intermittently engage the cam, and means for horizontally swinging said assembly comprising an arcuate lever pivotally mounted at one end and slidably engaging said base member at the opposite end, a second cam carried by said gear and an element on said arcuate lever for engaging said second cam.

7. In an apparatus for severing a moil from an article of glassware, polishing and finishing the ware, the combination comprising a rotary chuck for gripping the moil, a vertically positioned rotary, tubular shaft in axial alignment with the chuck, a holder for the ware carried on the top of said shaft, means associated with the holder for applying suction to the ware positioned in the holder, a base unit, a slide mounted on said base unit for vertical reciprocation, a bracket on the slide having an opening therein through which said shaft slidably extends, outside threads on the upper end of said shaft, a nut threaded upon said shaft above said bracket for adjusting the position of closest approach of said holder to said bracket, a second bracket carried by said slide above said first bracket, a ring-type burner supported by said second bracket in axial alignment with said chuck and holder, means for rotating said chuck in unison with said shaft, and means associated with said slide for raising and lowering the same.

8. In an apparatus for severing a moil from an article of glassware, polishing and finishing the ware, the combination comprising a vertically mounted rotary chuck for gripping the moil, a vertically positioned rotary, tubular shaft n axial alignment with the chuck, a holder for the ware carried on the top of said shaft, a perforated bottom in the holder, means connected to the shaft for applying a suction to said perforated bottom, a base unit, a slide mounted on said base unit for vertical reciprocation, a horizontal bracket on the slide having an opening therein through which said shaft slidably extends, outside threads on the upper end of said shaft, a nut threaded upon said shaft above said bracket for adjusting the position of closest approach of said holder to said bracket, a second horizontal bracket carried on said slide above said first bracket, a ring-type burner supported by said second bracket in axial alignment with said chuck and holder, a gear carried by said base unit having an opening therein through which said shaft slidably extends for rotating said shaft, a lever, a cam cooperating with said lever for raising and lowering the lever, and a roller on the slide for engagement with the upper end of said lever for causing the slide to move with said lever.

9. Apparatus as claimed in claim 8 having a flame quality control unit comprising a valve having a reciprocating flow control member, the outlet of the valve being connected to said burner for fluid flow, a rod connected to the valve-reciprocatory member, a clevis on the end of said rod and a pin on said lever about which said clevis slides.

10. Apparatus for severing a moil from an article of glassware comprising a moil-gripping, rotating and disposal assembly which oscillates in a horizontal plane said assembly comprising a rotary chuck, spring means for holding said assembly in a normal moil-gripping and rotating position, means to rotate said chuck, a chuck-opening lever, a cam moved by said chuck-rotating means, which engages a portion of said lever moving the same to open said chuck, and means to swing said assembly out of said normal position for disposal of a moil comprising a second lever pivotally mounted at one end on a fixed pivot point and slidably engaging said assembly at the other end and a second cam moved by said chuck-rotating means which engages a portion of said second lever causing the lever to move said assembly in a horizontal plane.

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(References on following page)

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 19,040	Sanford	Jan. 2, 1934
1,577,538	Parker	Mar. 23, 1926
1,577,543	Schrader	Mar. 23, 1926
1,577,654	Parker	Mar. 23, 1926
1,577,655	Parker	Mar. 23, 1926
1,596,049	Kienast	Aug. 17, 1926
1,741,662	Schoonenberg	Dec. 31, 1929
1,982,045	Clithers	Nov. 27, 1934
1,996,814	Kadow	Apr. 9, 1935
2,141,018	Ring	Dec. 20, 1938
2,215,980	Schreiber	Sept. 24, 1940
2,239,627	Schultz	Apr. 22, 1941
2,361,824	Dorman	Oct. 31, 1944
2,402,452	Schreiber	June 18, 1946