

Feb. 12, 1929.

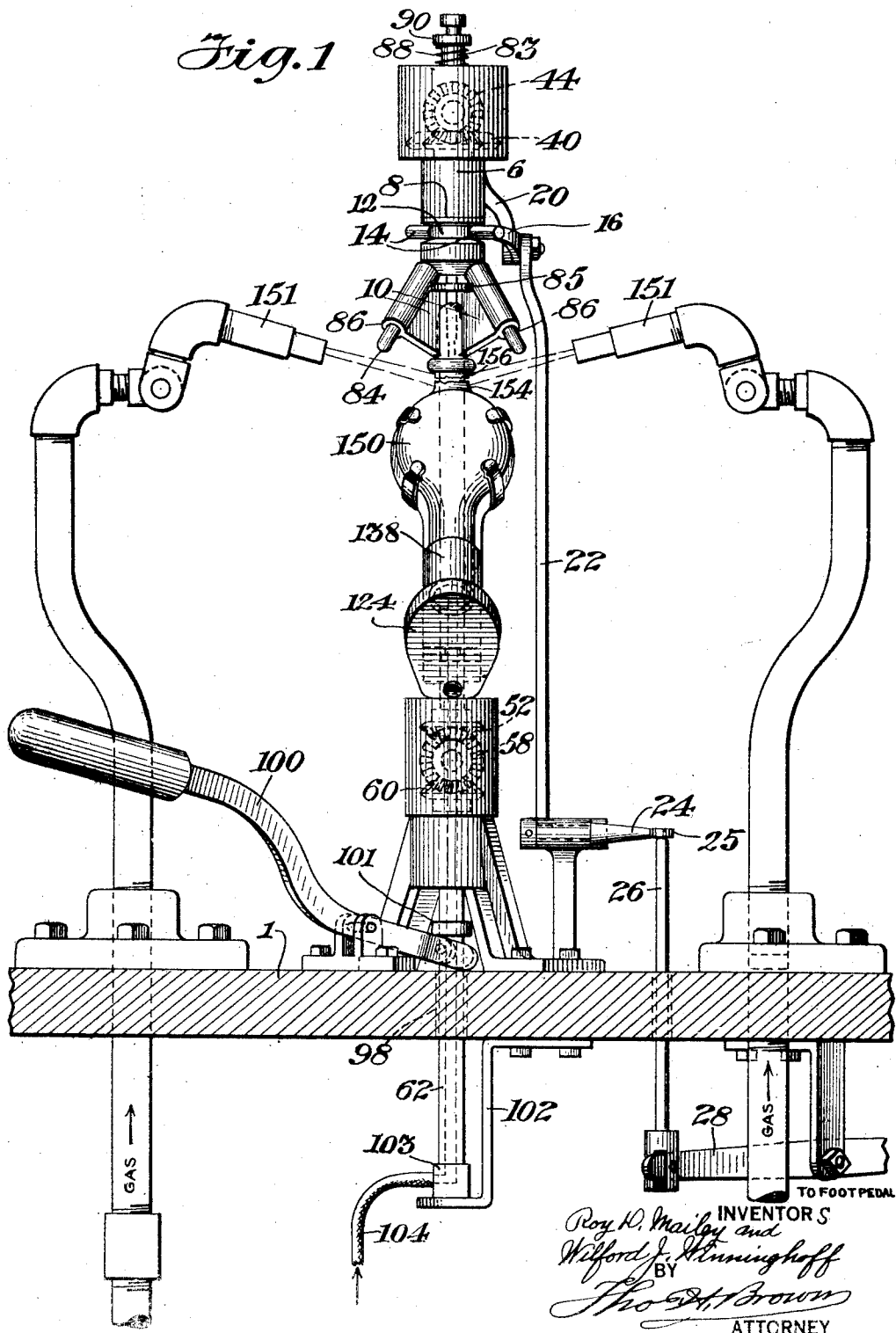
1,701,758

R. D. MAILEY ET AL

GLASS WORKING MACHINERY

Filed Feb. 5, 1927

3 Sheets-Sheet 1



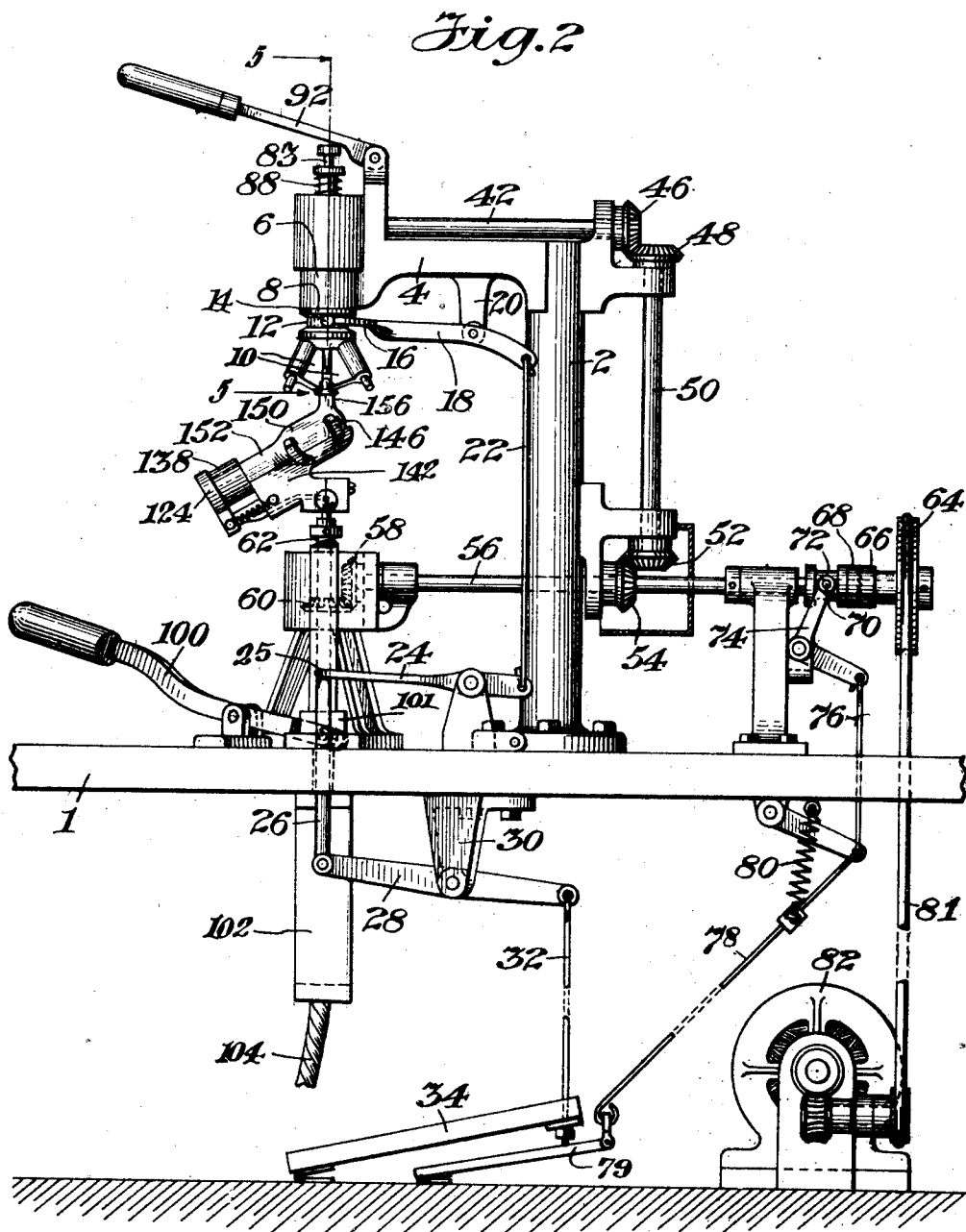
Feb. 12, 1929.

1,701,758

R. D. MAILEY ET AL
GLASS WORKING MACHINERY

Filed Feb. 5, 1927

3 Sheets-Sheet 2



INVENTORS
Roy D. Mailey and
Wilford J. Humminghoff
The J. H. Brown
ATTORNEY

Feb. 12, 1929.

1,701,758

R. D. MAILEY ET AL
GLASS WORKING MACHINERY

Filed Feb. 5, 1927

3 Sheets-Sheet 3

Fig. 3

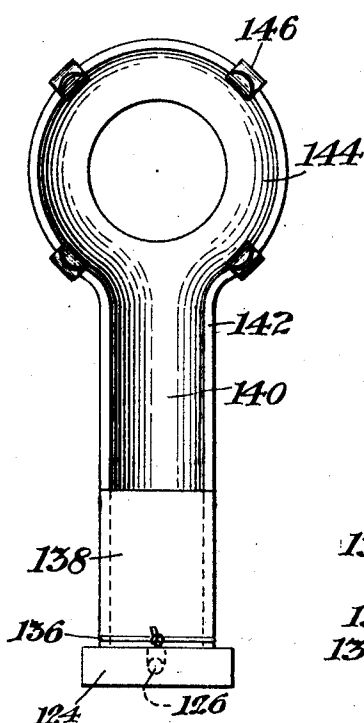


Fig. 4

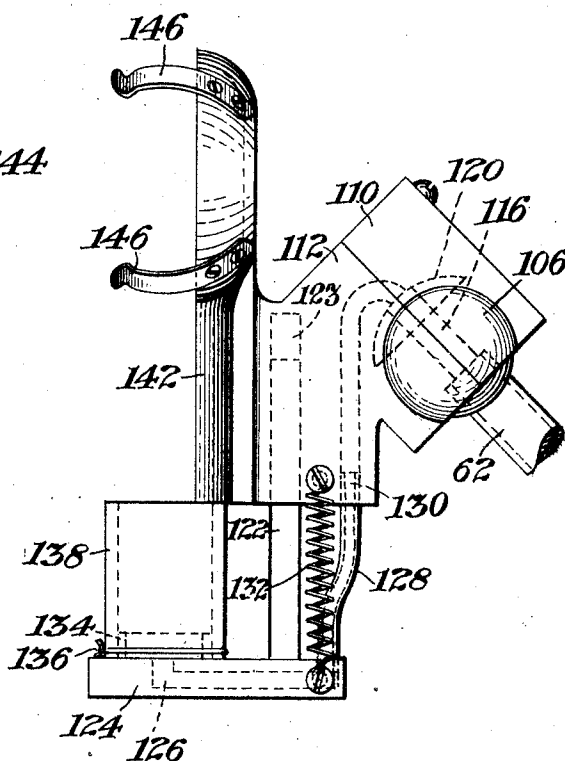
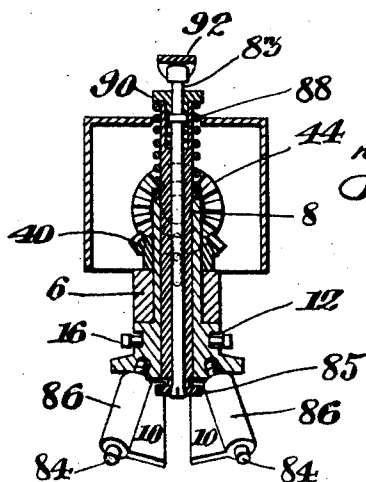


Fig. 5.



ROY D. MAILEY and
WILFORD J. WINNINGHOFF
BY
THO. D. BROWN
ATTORNEY

UNITED STATES PATENT OFFICE.

ROY D. MAILEY, OF EAST ORANGE, AND WILFORD J. WINNINGHOFF, OF SOUTH ORANGE, NEW JERSEY, ASSIGNORS TO COOPER HEWITT ELECTRIC COMPANY, OF HOBOKEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

GLASS-WORKING MACHINERY.

Application filed February 5, 1927. Serial No. 166,112.

The present invention relates to glass working machinery and particularly to machinery for joining together pieces of hollow glassware.

5 Various objects and advantages of the invention will be obvious from the following particular description of one form of apparatus embodying the invention or from an inspection of the accompanying drawing; and the invention also consists in certain new and useful features of construction and combinations of parts hereinafter set forth and claimed.

15 In the accompanying drawings there is shown for purposes of illustration one form of apparatus embodying the invention, in which

Fig. 1 is a front elevation view of a glass working machine embodying the invention,

20 Fig. 2 is a side elevation view thereof, and

Figs. 3 and 4 are respectively front and side elevation views of details of a work holding means.

25 Fig. 5 is a sectional view of the operating mechanism of a work holder taken on the line 5—5 of Fig. 2.

In the drawings the table 1 supports the standard 2 which carries at its upper end the outwardly extending arm 4 which at its outer end carries the vertical bearing 6 in which is rotatable the shaft 8 which at its lower end carries the set of clamps 10, 10. Said shaft 8 has extending thereabout near its lower end the annular groove 12 into which extend the supporting and actuating fingers 14, 14 one on either side, which are carried by the fork member 16 on the outer end of an arm 18 which is pivotally mounted by the bracket 20 to said arm 4. At the end opposite from said fork member 16 said arm 18 is pivotally connected through the connecting rod 22 to one end of the arm 24 which is pivoted to said table 1 at an intermediate point and at its other end has a handle 25 which is adapted to be engaged by the vertically movable rod 26 which is slidable in an opening in said table 1 and which has pivotal connection to one end of the arm 28. Said arm 28 is pivoted to the bracket 30 mounted on the lower side of said table 1 and at its outer end makes pivotal connection through the connecting rod 32 to the foot treadle 34.

Mounted to said shaft 8 is the pinion 40

which is fixed for rotation about a given point and to which said shaft 8 has a sliding connection. A shaft 42 carried by said standard 2 and said arm 4 carries at one end a pinion 44 which meshes with said pinion 40 and at its other end a pinion 46 which meshes with a pinion 48 carried by a vertically extending shaft 50 mounted at the back of said standard 2. A pinion 52 mounted on the lower end of said shaft 50 engages a pinion 54 mounted to a horizontal shaft 56 at an intermediate point thereof. At its forward end said shaft 56 carries a pinion 58 which meshes with a pinion 60 mounted on a vertical shaft 62 mounted axially in line with said shaft 8. At its other end said shaft 56 carries the loose pulley 64 to which is mounted the friction or clutch member 66. A corresponding friction or clutch member 68 which is slidable axially on said shaft 56 into and out of engagement with said clutch member 66. Pins 70, 70 extend into the annular channel 72 in said clutch member 68 and are carried by the bell crank 74 which is actuable through the connecting rods 76 and 78 which connect therefrom to treadle 79. A tension spring 80 mounted at one end to said table 1 and at its other end to said connecting rod 78 tends to move said clutch member 68 out of engaging position. The motor 82 through the belt 81 serves to drive said pulley 64 and said driving gear described have such ratios and proportions as to rotate said shaft 8 and said shaft 62 at the same rate of movement.

Movable longitudinally in said shaft 8 and through the center thereof is the spindle 83 which extends therethrough and at its lower end carries the annular flange 82 which engages horizontal notches in said clamp members 10, 10 for the actuation of said clamp members. Each of these clamp members is slidable obliquely downwardly on the posts 84, 84 which extend through the bosses 86, 86 on said clamp members 10, 10. The inner edges of said members 10, 10 are vertical and thereby provide cooperating clamping surfaces which are parallel with each other at any slidable position of said members 10, 10 on said posts 84, 84. Compression spring 88 mounted about said spindle 83 and between the upper end of said shaft 8 and the lower surfaces of a boss 90 on said spindle 83 tends to move said members into closed position, and a lever 92 pivoted to said arm 4 and ex-

tending over the top of said spindle 83 serves to move said spindle downwardly to open said clamping members 10, 10 against the action of said spring 88.

5 Said vertical shaft 62 is hollow and is slidable axially in the opening 98 of said table 1 through which it extends. A handle lever 100 pivoted at an intermediate point to said table 1 and at another point engaging collar 101 on said shaft 62 serves for raising and
10 lowering said shaft 62, and a bracket 102 mounted to the lower side of said table 1 serves to limit the downward movement of shaft 62. A hose pipe 104 serves with swivel connection 103 to connect shaft 62 to a source
15 of air pressure not shown. At its upper end said hollow shaft 62 carries the ball 106 which forms a ball and socket joint with the members 110, 112 with hollow depressions therein to fit about said ball 106. Connect-
20 ing with the interior of said hollow shaft 62 is the opening 116 in said ball 106 which at its other end connects with a depression 120 in the inner surface of the said members 110 and 112 which fit about said ball 106.
25 This depression 120 extends over sufficient area for the opening 116 to connect therewith in any position to which said members 110 and 112 can be moved with respect to said ball 106. A post 122 slidably mounted in
30 the longitudinal passage 123 in said member 112 supports a plate 124 which extends upwardly and outwardly at an angle of about 45° from said hollow shaft 62, and has an opening 126 therethrough which extends
35 through said plate 124 from the upper face thereof, a hollow post 128 which connects with and slides in a passageway 130 extending therefrom to said member 112 to said depression 120. A tension spring 132 connects
40 from said member 112 to said member 124 and tends to hold said plate 124 at a predetermined relation to member 112. On said member 124 about the termination of the opening 126 in the upper surface there-
45 of is the annular ridge or collar 134 onto which is held by wire 136 one end of the flexible hose 138 which extends upwardly from said plate 124 and serves to receive one
50 end of a piece of hollow glassware and to connect it through said opening 126 and the connecting passages to the source of air pressure to which said hose 104 connects. Mounted to said member 112 and having a
55 channel 140 aligned with the opening through said hose 138 is the holding member 142 which at its upper end has a circular depression 144 with which said channel 140 connects. Spring fingers 146, 146 mounted
60 to said member 142 extend upwardly and over said annular depression 144 and have outwardly turned tips which provide for the easy insertion of a bulb such as 150 shown in Figs. 1 and 2 under said outer ends. A
65 pair of gas jets 151, 151 are mounted to

discharge flames at a point between said clamp members 10, 10 and said bulb 150 when held by said spring fingers 146, 146.

In the use and operation of the embodiment of the invention illustrated a bulb 150 70 is mounted in said annular depression 144 and under the outer ends of said spring clips 146, 146 and has a tubular extension 152 which is inserted in said hose 138. Said bulb 150 has a tubulation or punctured collar 154 ex- 75 tending therefrom at an angle of about 45° from the extension of the axis of said tube 152 thereby and to this tubulation 154 a hollow terminal cup 156 held by said members 10, 10 is to be sealed. When said bulb 150 is 80 held in the manner described by said spring fingers 146, 146 said tubulation 154 and said part 156 are axially aligned and their upper and lower edges respectively can be moved to positions to be heated by flames from said 85 jets 151, 151 by means of said lever 100 and said handle 25 respectively. When said handle 25 is moved to bring the edge of member 156 into the flames said clutch member 68 is moved into engagement with said clutch 90 member 66 by means of pedal 79 and the parts 150 and 156 are rotated in the flames for uniform heating and fusion. The parts 150 and 156 can be moved further relatively toward and from each other for the working 95 of the glass by means of said handle 100. To accurately align said member 156 at a proper angle movement of the parts holding said bulb 150 on said ball 106 can be effected. After fusion of part 156 to the bulb 150 said 100 clamping members 10, 10 are opened by means of handle 92 and foot treadle 34 is depressed to raise said clamp members from the lowered position about the part 156 and pedal 79 is released to disengage clutch mem- 105 ber 68 from member 66 and stop the rotation of the work.

While we have shown and described and have pointed out in the annexed claims certain novel features of the invention, it will 110 be understood that various omissions, substitutions and changes in the forms and details of the device illustrated and in its use and operation for joining different shaped glass parts may be made by those skilled in 115 the art without departing from the spirit of the invention.

We claim—

1. In a glass working machine, in combination, means for holding a hollow piece of 120 glass, means for holding another piece of hollow glass to be sealed to first said piece, means for rotating said glass pieces at the same rate, means for moving said holding means relatively toward and from each other, 125 said holding means being movable relatively transversely of each other, and means for heating glass pieces carried by said holding means.

2. In a glass working machine, in combina- 130

tion, means for holding a hollow piece of glass, means for holding another piece of hollow glass to be sealed to first said piece, means for rotating said glass pieces at the
 5 same rate, means for moving said holding means relatively toward and from each other, said holding means being movable relatively transversely of each other in any direction, and means for heating glass pieces carried
 10 by said holding means.

3. In a glass working machine, in combination, means for holding a hollow piece of glass, means for holding another piece of hollow glass to be sealed to first said piece,
 15 means for rotating said glass pieces at the same rate, means for moving said holding means relatively toward and from each other, one of said holding means having a universal mounting whereby it is movable relatively
 20 transversely of the other, and means for heating glass pieces carried by said holding means.

4. In a glass working machine, in combination, means for holding a hollow piece
 25 of glass, means for holding another piece of hollow glass to be sealed to first said piece, means for rotating said glass pieces at the same rate, means for moving said holding means relatively toward and from each other,
 30 said holding means being movable relatively

transversely of each other, and means for heating glass pieces carried by said holding means, one of said holding means comprising a universal support, a flexible tube for receiving hollow glassware, and an adjustable connection from said universal support to said tube with air connection there-
 35 through.

5. For glass working machinery a holding means comprising a universal support, 40 a flexible tube for receiving hollow glassware and an adjustable connection from said universal support to said tube with air connection therethrough.

6. For glass working machinery a holding means comprising a universal support, 45 a flexible tube for receiving hollow glassware, an adjustable connection from said universal support to said tube with air connection therethrough, another work receiving means 50 mounted on said support and cooperating with said tube, and a tension member tending to hold said tube in predetermined position in relation to said other work receiving
 55 means.

Signed at Hoboken, in the county of Hudson and State of New Jersey, this 2nd day of February A. D. 1927.

WILFORD J. WINNINGHOFF.
 ROY D. MAILEY.