

C. E. BLUE.
MACHINE FOR GATHERING GLASS.
APPLICATION FILED FEB. 8, 1908.

1,047,731.

Patented Dec. 17, 1912.

2 SHEETS—SHEET 1.

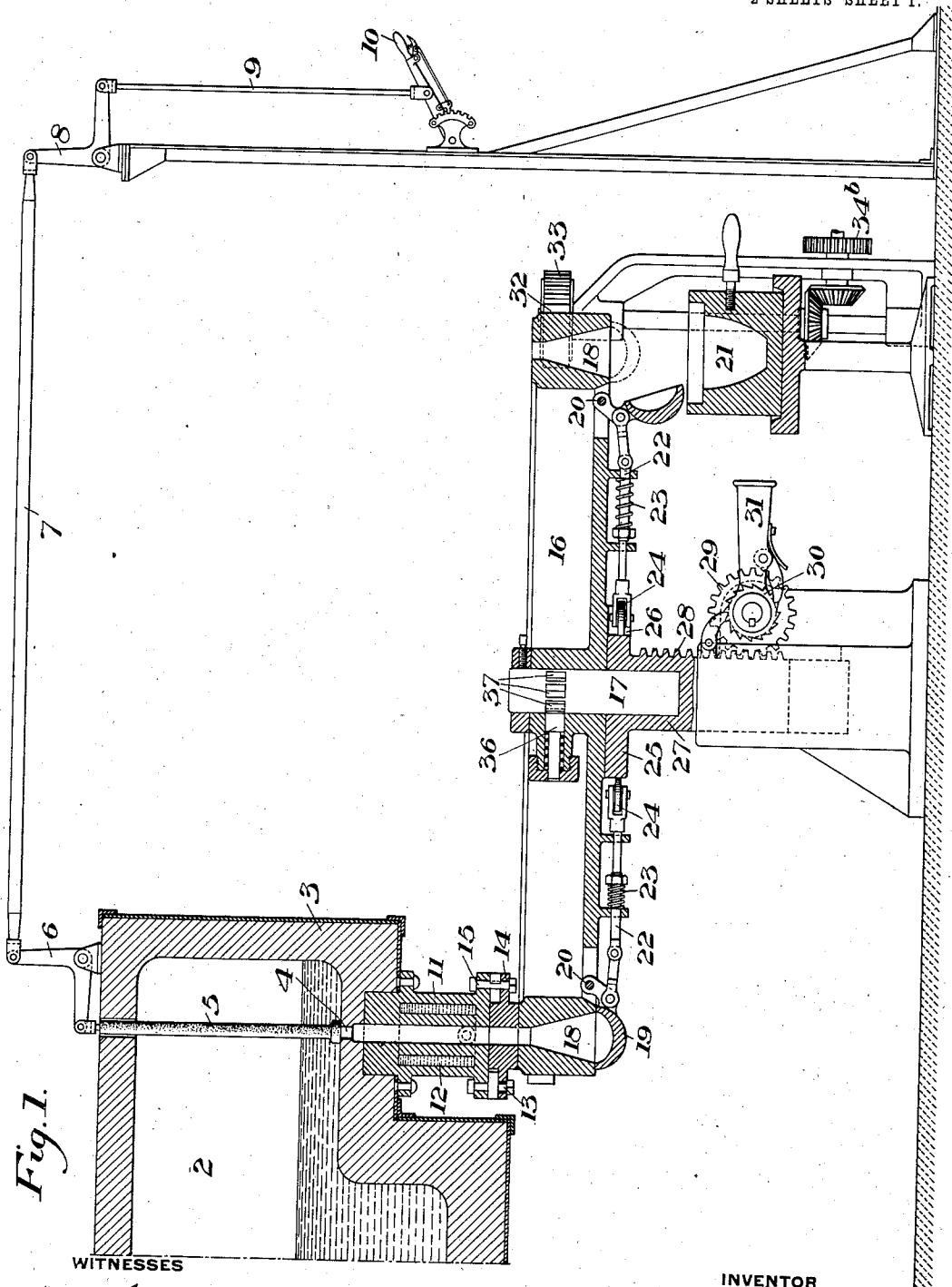


Fig. 1.

WITNESSES

W. V. Swartz
R. A. Balderson

INVENTOR

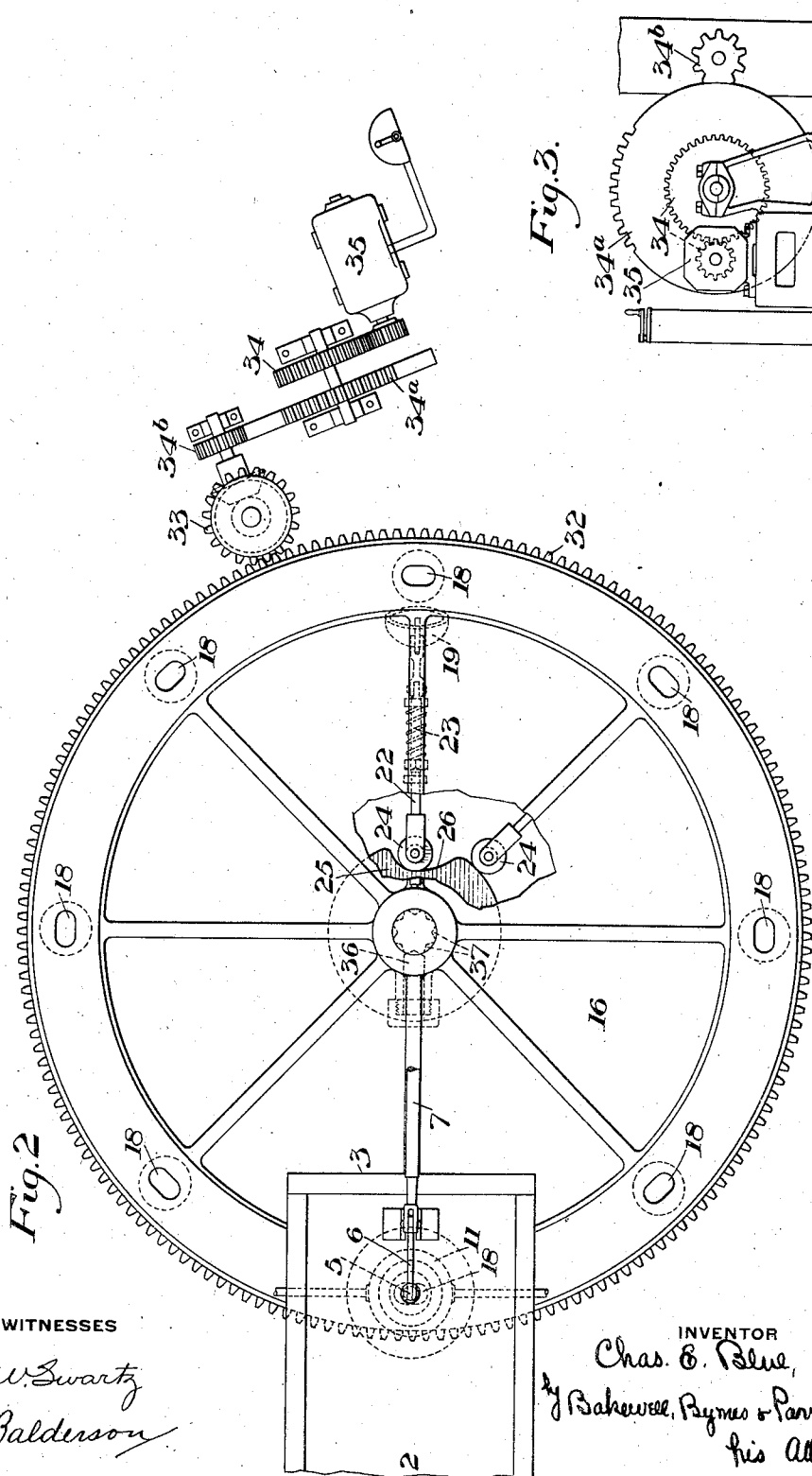
Chas. E. Blue,
By Baker, Byrnes & Parmelee,
Attys.

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INVENTOR
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UNITED STATES PATENT OFFICE.

CHARLES E. BLUE, OF WHEELING, WEST VIRGINIA.

MACHINE FOR GATHERING GLASS.

1,047,731.

Specification of Letters Patent.

Patented Dec. 17, 1912.

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To all whom it may concern:

Be it known that I, CHARLES E. BLUE, of Wheeling, Ohio county, and State of West Virginia, have invented a new and useful
5 Improvement in Machines for Gathering Glass, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a vertical section of one form of apparatus embodying my invention; Fig. 2 is a plan view of the same partly broken away; and Fig. 3 is an end elevation of a portion of the gearing.

15 My invention has relation to machines for gathering glass, and is designed to provide a machine whereby the mechanical gathering of glass and its delivery to molds may be accomplished with accuracy and certainty.

20 The precise nature of my invention will be best understood by reference to the accompanying drawings, in which I have shown one embodiment thereof, and which will now be described, it being premised, however, that various changes may be made
25 therein by those skilled in the art, without departing from the spirit and scope of my invention as defined in the appended claims.

In these drawings, the numeral 2 designates a glass-melting tank or vessel, having an overhanging portion or dog-house 3, formed with a discharge opening 4 in its bottom wall. The discharge through this opening is controlled by a vertically movable
30 stopper 5, which may be actuated in any suitable manner, as by the bell crank and operating lever connections 6, 7, 8, 9 and 10.

That portion of the discharge opening 4 which is nearest the interior of the tank is made of smaller diameter than the exit portion thereof, and the enlarged portion of this opening is extended through a discharging block 11, of refractory material which is secured to the under side of the dog house and
45 which is provided with a water jacket 12, through which water may be circulated in any suitable manner. Secured to the lower end of the discharge block 11 by a hinge pin 13, or other suitable connection, is a discharging ring 14, which is normally held in position by a removable pin or bolt 15.

16 is a rotary table or carrier which is arranged to turn on a central stationary post or axis 17, and which carries a series of

measuring vessels or receptacles 18, so arranged that when the table is rotated, these receptacles will be brought in succession beneath the orifice of the discharge ring 14. These receptacles preferably have a narrow top opening flared downwardly and closed
60 at its lower end by a cup-shaped valve 19, which is hinged at 20, and which is operated by suitable means so that it can be opened after the receptacle has received its discharge of glass and has been moved into discharge position over a mold 21, into which
65 the glass is to be delivered.

As a convenient means for automatically operating the valves 19, I provide each of them with a jointed operating rod 22, provided with a spring 23, which tends to pull the valve open. The inner end of the rod carries a wheel 24, which travels in contact with a stationary cam surface 25, which extends around the central post 17. This cam
75 surface at a point opposite the position of the mold 21, has a recess 26, into which the rod is forced by the spring 23, when the discharging position is reached, thus permitting the spring to pull the valve open, as
80 shown in full lines at the right-hand side of Fig. 1, to thereby discharge the glass from the measuring vessel into the mold below. The opening at the top of each of the receptacles 18 is preferably made oval or elongated in the direction of the rotation of the
85 table.

The support 27 for the table, together with the post 17, is vertically adjustable to the desired height, preferably by means of
90 a rack 28, on the support 27, which is engaged by a pinion 29, operated by a pawl and ratchet 30, the ratchet being carried by a lever 31.

The table may be rotated by any suitable means. In the drawings, I have shown it as provided with a circular rack 32, which is engaged by a spur wheel 33, driven through a train of gearing 34, from a suitable motor
35, said train of gearing having a mutilated gear wheel 34^a and pinion 34^b, to provide for the intermittent movement of the table, the teeth of said wheel and pinion being so related that the table will be rotated step by
100 step to bring the receptacles 18 in succession underneath the discharge orifice of the furnace. For the purpose of stopping the table positively at proper positions, any

suitable braking device may be employed, such as the spring-actuated dog 36, which is mounted on the frame of the table and is arranged to engage notches 37 on the central post 17.

5 The operation is as follows: By depressing the hand lever 10, which controls the stopper 5, glass is allowed to start from the tank or melting furnace and flows in a small hot stream through the contracted portion 10 of the discharge opening 4, and thence into the enlarged water-jacketed portion of said opening. In flowing through this enlarged portion of the discharge opening, the glass 15 is cooled to such an extent that it will pass therethrough by a sliding action rather than by a flow. The purpose of this is three-fold. First, it enables the operation to be started with glass sufficiently hot to flow freely 20 through the small entrance portion of the discharge orifice; second, it permits the glass to chill somewhat before it is discharged, so that by the time it gets to the mold for use, it will not be so hot as to stick to the surfaces 25 with which it comes in contact; and third, it enables the cutting or severing to occur with a column of glass at each operation instead of a stream, so that an absolutely fixed quantity can be delivered out each time by 30 means of the measuring vessel or receptacle. As each measuring vessel or receptacle is filled, the table or carrier is revolved sufficiently to bring another measuring vessel or receptacle into position, the solid plane 35 portion of the table between the measuring vessels or receptacles acting to close the opening in the ring 14, until such time as the measuring vessels or receptacles are brought into proper relation to such opening. 40 After each measuring vessel or receptacle is filled, it is carried around to the mold 21, by the successive rotations of the carrier and is discharged into the mold by the opening of its bottom valve 19, in the manner before described. 45

The machine herein described accomplishes with accuracy and certainty the mechanical measuring of the glass delivered to the mold, the quantity of glass delivered to each mold being the same in all cases. 50

I do not limit myself to the use of the particular form of movable table or carrier which I have herein shown and described, as my invention is independent thereof, and 55 any suitable carrier may be employed for transferring the glass delivered from the tank or furnace to the molds. Various other changes may also be made.

I claim:

60 1. In glass gathering apparatus, a tank or vessel having a discharge opening of approximately the same diameter throughout the major portion of its length and an inlet of contracted area, and a water jacket 65 of greater length than diameter surrounding

said opening and arranged to convert the glass from a stream into a plastic body while passing through the discharge opening; substantially as described.

2. In glass gathering apparatus, a tank or 70 vessel having a discharge opening of approximately the same diameter throughout the major portion of its length and an inlet of contracted area, and means to convert the glass from a stream into a plastic body 75 while passing through the opening; substantially as described.

3. In glass gathering apparatus, a tank or vessel having a discharge opening of approximately the same diameter throughout 80 the major portion of its length with an inlet portion of contracted area, and a water jacket surrounding the major portion of said opening; substantially as described.

4. In glass gathering apparatus, a tank or 85 vessel having a discharge opening formed with portions of different diameters, the major portion being of the same diameter throughout its length, means for cooling or chilling the glass as it passes through the 90 major portion of the discharge opening, and a receptacle arranged to receive the glass as it is discharged; substantially as described.

5. In glass gathering apparatus, a tank or 95 vessel having an overhung portion formed with a bottom discharge opening of approximately the same diameter throughout the major portion of its length and having a contracted inlet portion, and means for 100 cooling the glass as it passes through the major portion of said opening, a plurality of measuring vessels or receptacles arranged to receive the glass discharged from said opening, and a movable carrier for said 105 receptacles; substantially as described.

6. In glass gathering apparatus, a tank or vessel having an overhung portion formed with a bottom discharge opening of approximately the same diameter throughout the 110 major portion of its length and having a contracted inlet portion, means for cooling the glass as it passes through the major portion of the discharge opening, a plurality of measuring vessels or receptacles 115 arranged to receive the glass discharged from said opening, a movable carrier for said receptacles, and means for moving said carrier with a step by step movement; substantially as described. 120

7. In glass gathering apparatus, a tank or vessel having a long discharge opening of approximately the same diameter throughout the major portion of its length, means 125 for cooling or chilling the glass in said opening to transform the stream of molten glass from the inlet into a column so as to cause it to slide therethrough, a movable carrier having a plurality of receptacles arranged to receive the glass as it is discharged 130

and to be brought successively into receiving relation thereto; substantially as described.

8. In glass gathering apparatus, a melting tank or vessel having a long tap-out opening 5 of approximately the same diameter throughout the major portion of its length, and means for cooling the major portion of the walls of said opening or passage to transform the stream of molten glass from 10 the inlet into a plastic body while passing therethrough; substantially as described.

9. In a glass gathering apparatus, a tank or vessel having a continuous discharge opening of approximately the same diameter 15 throughout the major portion of its length, and a contracted inlet portion, a stopper for closing the contracted inlet, and means to convert the glass from a stream into a plastic body while passing through the discharge opening; substantially as described. 20

10. In a glass gathering apparatus, a tank or passage having a continuous discharge opening of approximately the same diameter throughout the major portion of its 25 length, and also having a contracted inlet portion, the contracted portion being surrounded by a refractory material and the portion of equal diameter being surrounded by metal, and means to convert the glass

from a flowing stream into a plastic body 30 while passing through a discharge opening; substantially as described.

11. In glass gathering apparatus, a tank or vessel having a continuous discharge opening with a contracted inlet portion and 35 an exit portion of approximately the same diameter throughout the major portion of its length, the contracted portion and the contiguous end of the exit portion being surrounded by refractory material, the continuation of the portion of equal diameter 40 being surrounded by metal and means to convert the glass from a stream into a column while passing through the discharge opening; substantially as described. 45

12. In glass gathering apparatus, a tank or vessel having a continuous discharge opening with a contracted inlet portion and an exit portion of approximately the same 50 diameter throughout the major portion of its length, and of a length materially greater than its diameter; substantially as described.

In testimony whereof, I have hereunto set my hand.

CHARLES E. BLUE.

Witnesses:

C. R. JONES,
C. W. BLUE.