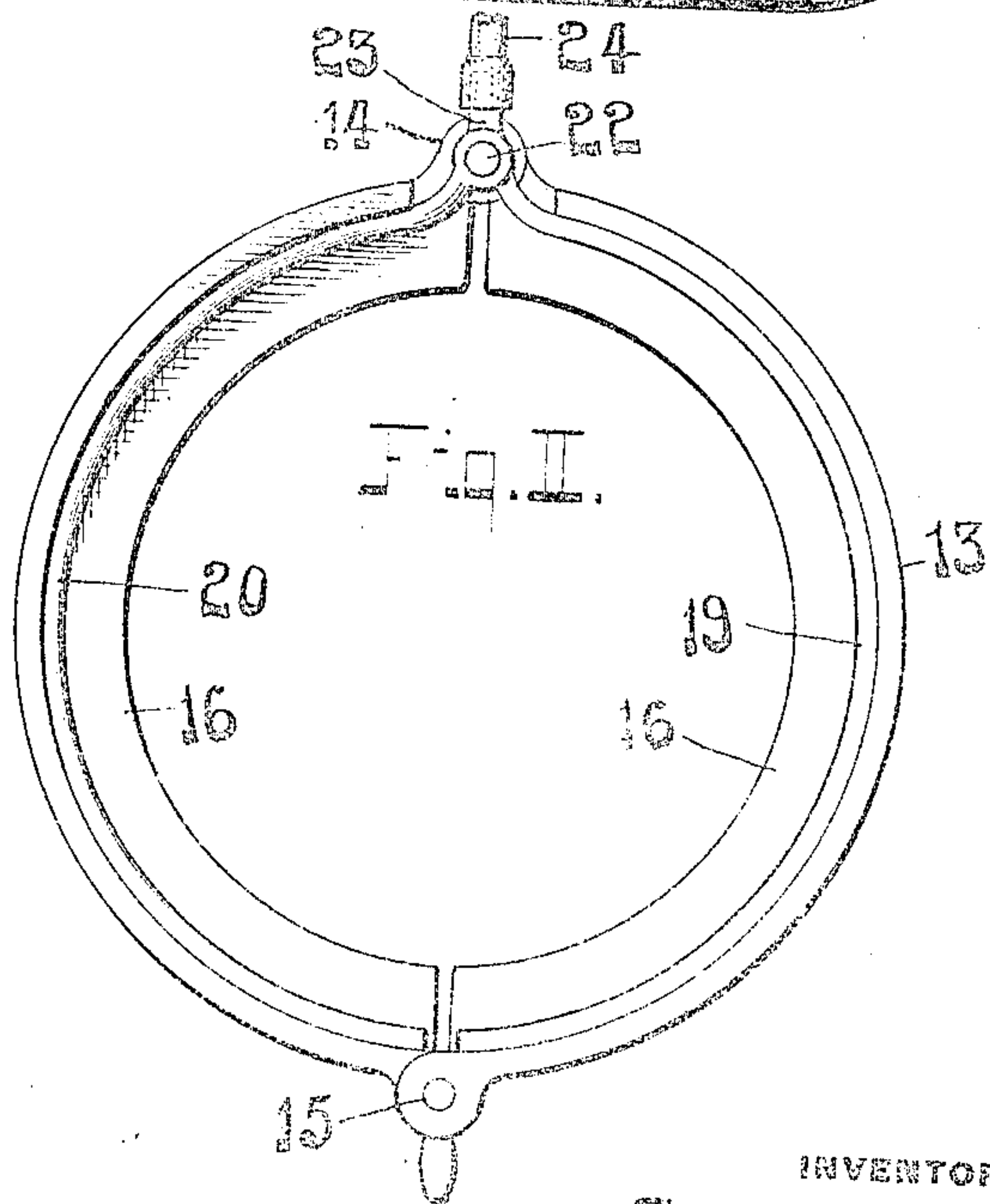
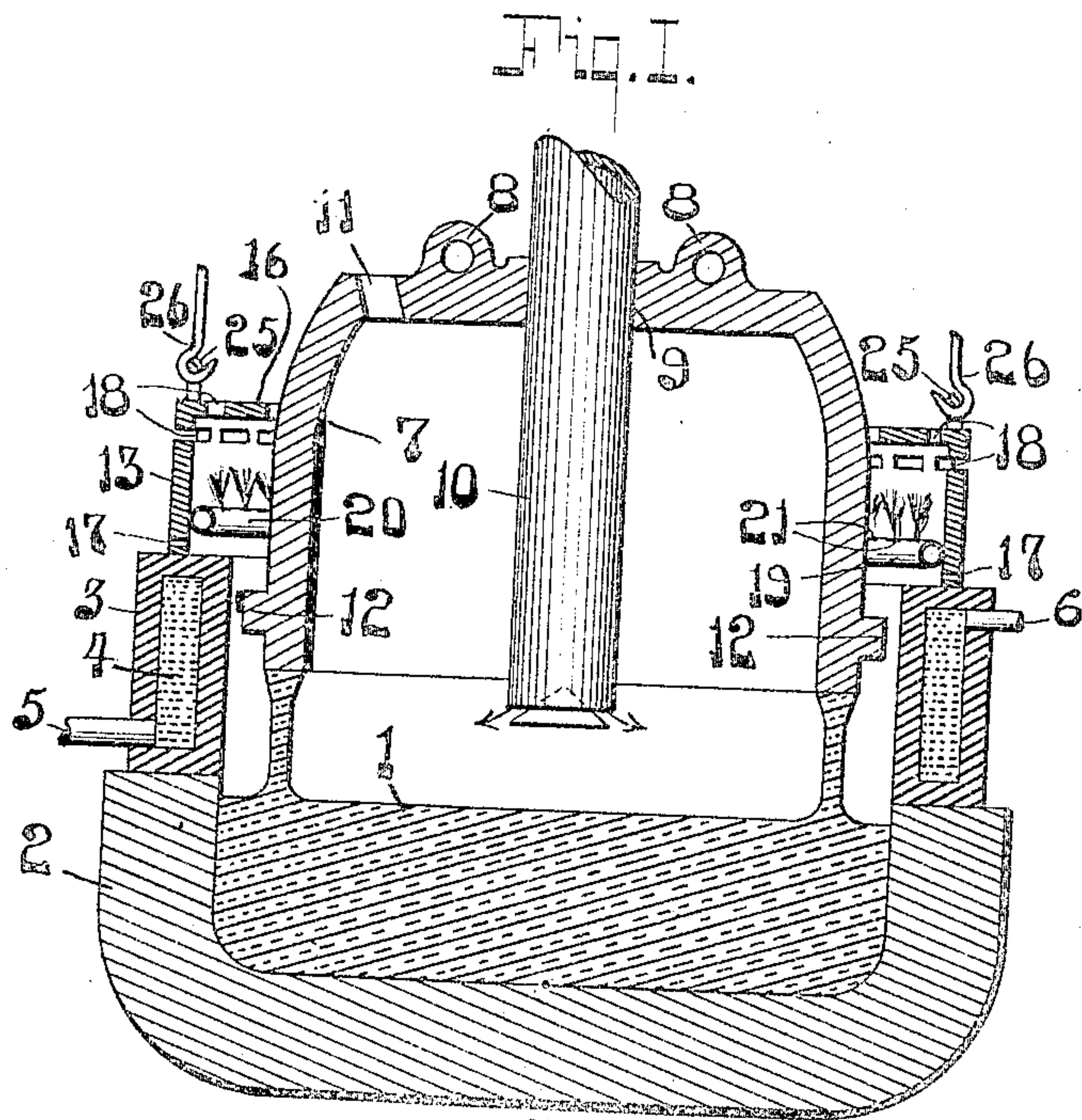


No. 813,290.

PATENTED FEB. 20, 1906.

G. H. HARVEY.
GLASS DRAWING MACHINE.
APPLICATION FILED MAR. 3, 1904.



WITNESSES:

R. B. Makfield
J. H. Harrison

INVENTOR,

George H. Harvey,

by his attorney *Edward A. Lawrence.*

UNITED STATES PATENT OFFICE.

GEORGE H. HARVEY, OF GLENFIELD, PENNSYLVANIA, ASSIGNOR, BY
MESNE ASSIGNMENTS, TO BROWNSVILLE GLASS COMPANY, OF
PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

GLASS-DRAWING MACHINE.

No. 813,290.

Specification of Letters Patent.

Patented Feb. 20, 1906.

Application filed March 3, 1904. Serial No. 196,254.

To all whom it may concern:

Be it known that I, GEORGE H. HARVEY, a citizen of the United States, residing in the borough of Glenfield, in the county of Allegheny and State of Pennsylvania, have invented or discovered new and useful Improvements in Glass-Drawing Machines, of which the following is a specification.

In the accompanying drawings, Figure I is a vertical section of a portion of a glass-drawing machine, and Fig. II is a reverse plan view of a portable heater used in connection therewith.

The object of my invention, generally stated, is, to provide preferably portable means for reheating the gatherer and its pendent glass, as will appear from the more detailed description which follows, reference being had to the drawings, which are, however, merely illustrative of the general principles of my invention.

Glass 1 in a liquid or semiliquid condition is contained in receptacle 2, which receptacle may be of any desired design.

3 represents a cooler having an annular chamber 4, inlet-pipe 5, and an outlet-pipe 6 for the admission and discharge of a cooling medium, such as a liquid or fluid.

7 is a gatherer having eyelets 8 or other suitable means for attaching the hoisting mechanism (not shown) used for raising and lowering the same. 9 is an orifice through which a pendent tube 10 passes. 11 is an exit-port in said gatherer. A projection preferably encircles the gatherer 7 and is preferably integral therewith.

13 represents a portable heater used for reheating the gatherer and is preferably composed of two sections hinged together at 14 and capable of being locked together at 15 and also having flanges 16, which engage the projection 12 of the gatherer.

17 and 18 represent inlet and outlet ports in the heater 13 to aid combustion.

19 and 20 represent gas-burners having orifices 21, at which the gas is ignited, and are hinged together by an ordinary hinged coupling 22 similar to those used to connect the air-brake pipes between railway-cars, which coupler permits the burner to swing on its axis in a similar manner to the two sections of the heater 13. A nipple 23 is secured to said coupler 22, and a hose 24 is connected at

its free end, through which the gas-supply for the burners enters. Said hose is so arranged and carried that its outlet into said burners follows the gatherer's movements without difficulty.

25 represents eyelets secured to the heater 13, and 26 represents hooks engaging the same.

If preferred, the heater can be raised by means independent of the gatherer. Such means can be the ordinary rope and pulley, counterbalanced and operated by hands or otherwise and secured to the ends of hooks 26, so that the heater can travel in close proximity to the gatherer, but still not be secured thereto.

The general operation is as follows: Assuming in Fig. I that the glass 1 contained in receptacle 2 is in a condition suitable for drawing in cylindrical, flat, or other forms and that a cooling medium is circulating through the chamber 4 of the cooler 3 and the heater 13 swung open on its hinges 14, the operator then lowers the gatherer 7 by suitable means (not shown) secured in the eyelets 8 within the orifice formed by the annular cooler 3 until the rim of the gatherer 7 is immersed in the glass 1. After the glass adheres thereto the gatherer 7 is raised at the speed best suited to cause the adhering glass to be raised therewith and of a uniform thickness. A gaseous fluid under pressure passes through and out of pipe 10 and fills the space within the draw, while the surplus passes out through port 11. Preferably the heater 13 is swung shut and locked around the shell of the gatherer before the projection 12 of the gatherer 7 reaches the flanges 16 of the heater. The purpose of the heater 13 is to maintain or reinforce the heat of the lower extremity of the gatherer and that portion of the glass pendent therefrom for the following reasons: In the ordinary form of gatherer as used at present the outlet for the surplus gaseous pressure is through a port in the top of the gatherer which tends to produce a cool current of gaseous vapor through the gatherer, chilling its walls and causing a contraction thereof. This contraction of the gatherer frequently causes the adhering glass to crack and break off from the gatherer, thus destroying the draw. The importance, therefore, of maintaining or increasing the heat of

the gatherer, or at least the lower extremity thereof, and that portion of the glass pendent therefrom is evident. Hence I preferably attach a suitable device to the gatherer, preferably as shown, to maintain or reinforce the heat, thus preventing an uneven contraction of the gatherer and pendent glass at their junction, and thereby assuring a means for preventing the adhering glass from becoming dislodged during the time of drawing from the receptacle. As the gatherer 7 continues to rise the projection 12 thereon comes in contact with the under side of the flanges 16 of the heater 13 and carries the heater with it, thus renewing the initial heat of the lower extremity of the gatherer. It is understood that the heater 13 is heated sufficiently to suit the requirements. After the gatherer 7 and the pendent glass have been drawn upwardly to the predetermined height the pendent glass is ready to be disconnected from the glass contained in the receptacle.

For the purpose of illustration I have shown a hollow gatherer as drawing a cylinder of glass in connection with my invention; but a solid gatherer in any desired shape could be used for drawing flat or other shapes and my device could be attached thereto

with advantage for the purpose described. Hence I do not limit its use to the one form of gatherer, but include gatherers of whatever design when a portable reheating agent is carried in proximity to or therewith.

What I claim is—

1. In the manufacture of glass, a gatherer adapted to draw glass from a receptacle, a burner encircling the gatherer, said burner in part being composed of pipes hinged together and a heat-retainer encircling said gatherer and made in pivoted sections.

2. In the manufacture of glass, a gatherer adapted to draw glass from a receptacle, a circular rib on the gatherer, a burner composed of pipes pivoted together, and a heat-retaining device surrounding said burner and also composed of pivoted sections, said rib located so as to pick up said burner and heat-retaining device after the gatherer has ascended to bring the lower end of the gatherer within the zone of heat.

Signed at Pittsburg, Pennsylvania, this 1st day of March, 1904.

GEORGE H. HARVEY.

Witnesses:

J. H. HARRISON,

EDWARD A. LAWRENCE.