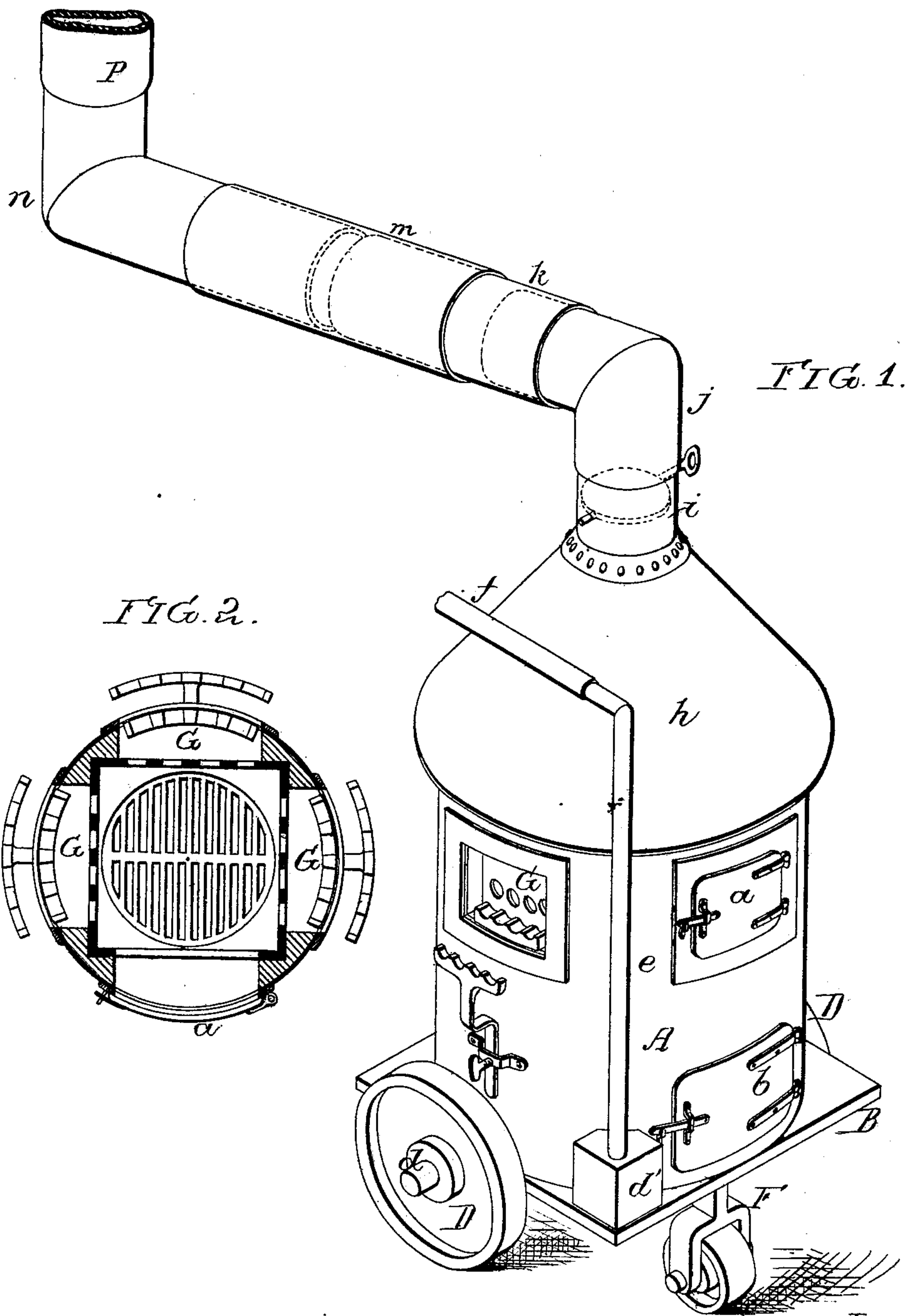


R. M. ATWATER.
 Glory Hole Furnace for Finishing Glassware.
 No. 206,761. Patented Aug. 6, 1878.



Witnesses,
 John M. Deumer.
 Henry Smith

Inventor
 Richard M. Atwater
 by his Attorneys
 Howson and Son

UNITED STATES PATENT OFFICE.

RICHARD M. ATWATER, OF MILLVILLE, NEW JERSEY, ASSIGNOR TO JAMES WHITALL, ROBERT P. SMITH, JOHN MICKLE, JR., CHARLES ROBERTS, WILLIAM H. NICHOLSON, AND CHARLES A. TATUM, OF THE CITIES OF PHILADELPHIA AND NEW YORK.

IMPROVEMENT IN GLORY-HOLE FURNACES FOR FINISHING GLASSWARE.

Specification forming part of Letters Patent No. **206,761**, dated August 6, 1878; application filed June 5, 1878.

To all whom it may concern:

Be it known that I, RICHARD M. ATWATER, of Millville, Cumberland county, New Jersey, have invented a new and useful Improvement in Glory-Hole Furnaces, of which the following is a specification:

My invention relates to improvements in that class of furnaces which are known among glass-manufacturers as "glory-hole" or "gaffer" furnaces, and which are used for reheating articles of glassware prior to finishing the same.

In manufacturing mold-blown glassware, the pots containing the glass are placed in a large furnace, which is generally round, and in which are a number of working-holes arranged at different points, each glass-blower having his mold near one of these working-holes.

After the glass vessel—a bottle, for instance—has been formed in the mold, it is withdrawn from the latter and placed in a suitable instrument, and its open end introduced into one of the orifices of the glory-hole furnace, to be there heated prior to the formation of the neck and lip of the bottle by a workman seated near the said furnace.

Prior to my invention glory-hole furnaces were permanent structures, so that it was necessary to employ boys to carry to them the newly-blown vessels from those molds which were not within reach of the said glory-hole furnace.

The object of my invention is to dispense with these carrying-boys by making the glory-hole furnace portable, so that it can be placed in the position where it is most accessible to the glass-blowers, for it should be understood that the blowers frequently change their positions, one or more portions of the main furnace being in use at one time, and other portions at another time, and the working-holes of those portions of the furnace which are not in use being temporarily closed.

In the drawing, Figure 1 is a perspective view of my improved glory-hole furnace, and Fig. 2 a sectional plan view of the same.

A is the body of the glory-hole furnace, made preferably of wrought-iron, and secured to a base, B, of cast-iron, which is converted

into a truck by providing it with opposite wheels D D, hung loosely to an axle, *d*, a third or guiding-wheel, E, being hung to a carrier, F, which is arranged to swivel laterally in the base. The furnace is lined with fire-clay, fire-brick, or other refractory material, and on each of three sides there is a slab, G, with a number of glory-holes, as shown in Fig. 2, so that three operatives can be seated at the furnace, one near each set of glory-holes. On the fourth side of the furnace is an opening, through which fuel is fed to the interior of the same, the opening being furnished with a suitable door, *a*, beneath which is another door, *b*, for the opening of the ash-pit beneath the grate of the furnace. Air under pressure is introduced through a pipe, *e*, into the air-box *d*, and thence into the ash-pit, the air being derived from the fixed blast-pipe of a fan or other blowing mechanism, and being conveyed to the pipe *e* through a flexible pipe, *f*, which will accommodate itself to the different positions to which the furnace may be adjusted.

The furnace is surmounted with a hood, *h*, which terminates in an outlet branch, *i*, furnished with a suitable valve or damper, and to this outlet branch is fitted the vertical branch of an elbow-pipe, *j*, the horizontal branch of which is fitted into a pipe or sleeve, *k*, and the latter into a sleeve, *m*, which is fitted to the horizontal branch of an elbow, *n*, the vertical branch of which is fitted to the fixed pipe or chimney P, the latter passing through the roof of the building, or into any adjoining chimney.

The sleeve *k* can slide in the sleeve *m*, and any desired number of these telescoping sleeves may intervene between the two elbows.

As the elbow *j* can turn on the outlet branch *i* of the furnace, and the elbow *n* can turn in the fixed pipe P, the furnace can be moved to any desired position round the said pipe P as the center, and can also be moved to and from the said center to an extent permitted by the telescoping sleeves *m* and *k*. In other words, the products of combustion pass from the furnace to a fixed chimney through a pipe so articulated that the position of the furnace may

be readily altered without interfering with the proper escape of the said products of combustion.

That portion, *f*, of the air-pipe which forms a communication between the fixed blast-pipe and the pipe *e* may be articulated in the same manner as the smoke-pipe; but I prefer to make it of flexible material.

I claim as my invention—

1. The combination, substantially as described, of a portable glory-hole furnace with an articulated smoke-pipe which communicates with a fixed chimney, and will accommodate itself to the different positions to which

the said furnace may be adjusted, all substantially as described.

2. The combination of a portable glory-hole furnace with a flexible or articulated blast-pipe communicating with a fixed blast-pipe, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RICHARD M. ATWATER.

Witnesses:

JOHN MICKLE, Jr.,

I. H. SIXSMITH.