

No. 762,879.

PATENTED JUNE 21, 1904.

J. A. CHAMBERS.
METHOD OF DRAWING GLASS.
APPLICATION FILED OCT. 26, 1903.

NO MODEL.

Fig. 1.

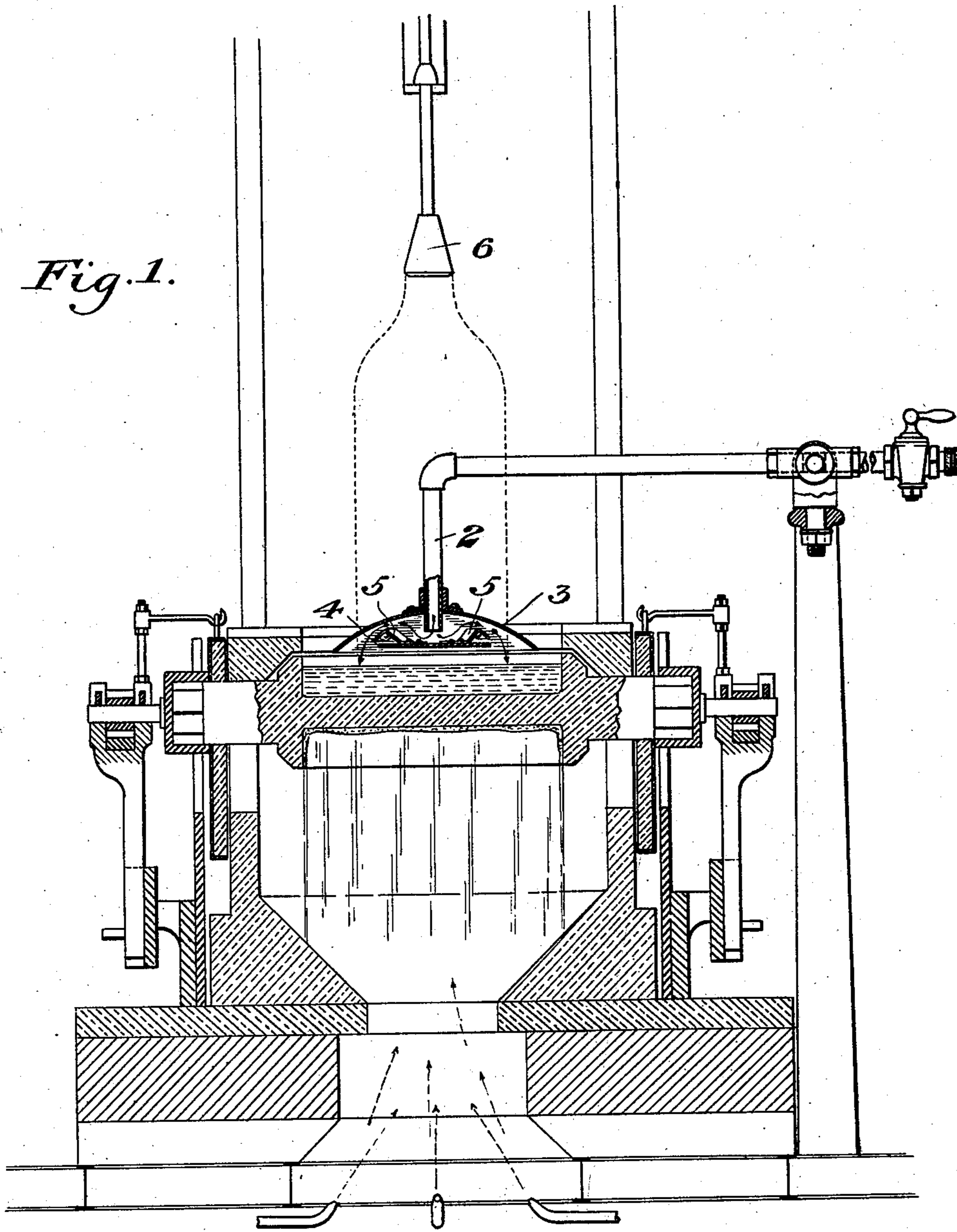
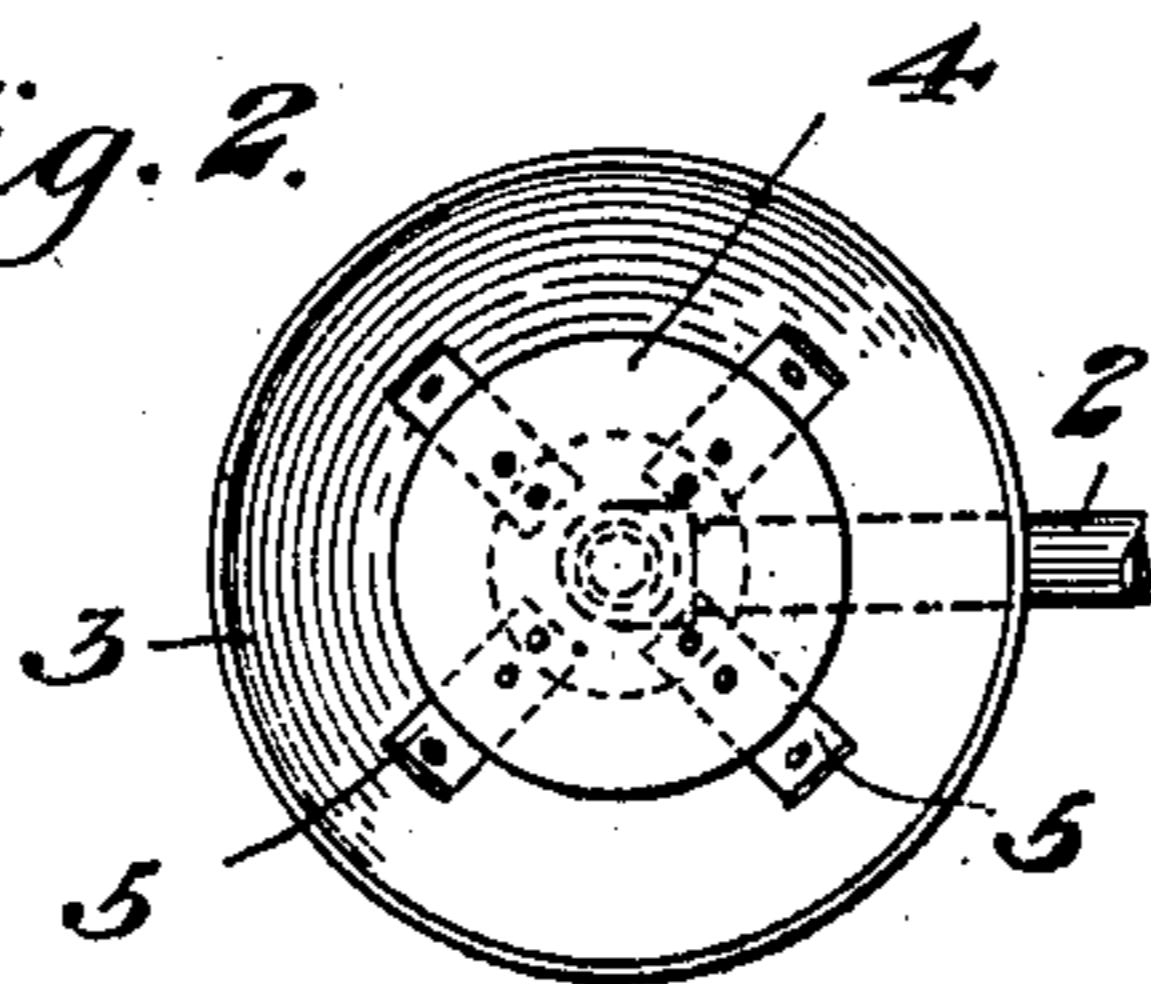


Fig. 2.



WITNESSES

L. A. Corning
J. M. Corning

INVENTOR

James A. Chambers
by Baker & Byrnes
his attys.

UNITED STATES PATENT OFFICE.

JAMES A. CHAMBERS, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO
WINDOW GLASS MACHINE COMPANY, OF PITTSBURG, PENNSYLVANIA,
A CORPORATION OF NEW JERSEY.

METHOD OF DRAWING GLASS.

SPECIFICATION forming part of Letters Patent No. 762,879, dated June 21, 1904.

Application filed October 26, 1903. Serial No. 178,467. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. CHAMBERS, of Allegheny, Allegheny county, Pennsylvania, have invented a new and useful Method of
5 Drawing 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—

Figure 1 is a sectional side elevation showing one form of apparatus for carrying out my invention, and Fig. 2 is a detail view of the deflector.

In drawing glass cylinders it has been found desirable to first draw up a small neck portion and then enlarge the diameter to substantially that on the final cylinder, thus shaping what is called the "cap." Considerable time is occupied in this forming of the neck and cap, which I have found is due to the fluidity of the upper portion of the glass-bath.
20 My invention is designed to reduce the time occupied in this operation, and thereby to increase the output.

In carrying out my improved process I chill
25 the upper surface of the glass-bath before lowering the bait into it and starting the drawing operation. This chilling of the upper surface forms a skin or top layer of cooler glass, from which the upper end of the hollow article may be more quickly formed than by
30 previous methods.

In the drawings I show the chilling of the top of the bath by compressed air. In this form I preferably employ an air-pipe 2, having at its end a downturned portion leading through a dome-shaped deflector 3. Below the end of the air-pipe I preferably use a flat deflector-plate 4, which is suitably supported from the dome by straps 5 or in any other
40 desirable manner. The air forced through the pipe strikes the plate and then passes between the edges of the plate and outer deflector and is directed upon the surface of the glass-bath. This air chills the surface of the

bath and produces a top skin or layer which 45 is chilled sufficiently to enable the upper end of the article to be quickly and easily formed when the bait is lowered into it. After the chilling operation is carried out the air-blast device is swung to one side, and the bait 6 is
50 lowered into the bath and the neck and cap formed as before if a cylinder is being drawn.

The operation may of course be carried out without forming the neck and cap, and articles of different forms may be drawn. 55

Instead of using an air-blast, as shown, I may throw water or a cooling liquid upon the surface of the bath before starting the drawing operation. Thus I have found that if a small amount of water is thrown upon the
60 bath the heat will evaporate it, and it will give a practically uniform chilled layer upon the surface. This method is more rapid than the air-blast shown.

The deflector for the air-blast is preferably 65 of such a size that the surface will be chilled, especially in those portions of the bath from which the upper end of the hollow article is formed.

The bottom of the pot or receptacle is preferably heated during the operation in order to prevent the glass from getting too cool during the latter portion of the drawing. 70

The advantages of my invention result from the chilling of the upper surface of the glass-
75 bath, since thereby the forming of the upper end of the article is facilitated.

Many changes may be made in the means for cooling, and the method may be used for drawing sheets, cylinders, or other articles. 80

I claim—

1. The method of forming glass articles consisting in chilling the top layer of a molten bath and drawing a glass article from such bath; substantially as described. 85

2. The method of forming glass articles consisting in chilling the upper layer of a molten-glass bath, then lowering a bait into the bath

and drawing an article upwardly therefrom; substantially as described.

3. The method of drawing hollow glass cylinders consisting in feeding molten glass into
5 a pot or receptacle, chilling the upper layer of the glass-bath thus formed, then lowering a bait into the bath, forming a neck and enlarged cap, and then drawing the cylinder

upwardly from the bath; substantially as described. 10

In testimony whereof I have hereunto set my hand.

JAMES A. CHAMBERS.

Witnesses:

GEO. B. BLEMING,

C. P. BYRNES.