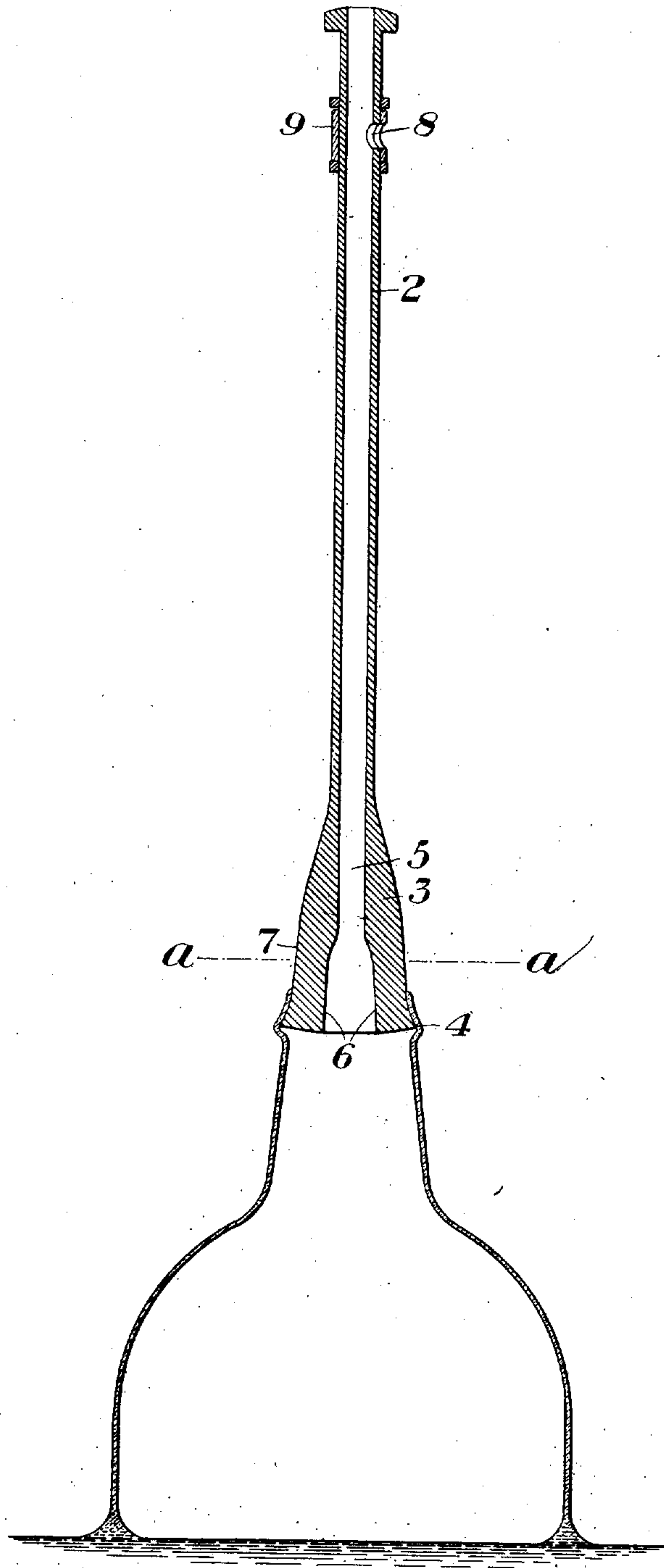


R. L. FRINK.
BAIT FOR DRAWING GLASS.
APPLICATION FILED APR. 23, 1908.

973,934.

Patented Oct. 25, 1910.



WITNESSES

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UNITED STATES PATENT OFFICE.

ROBERT L. FRINK, OF BELLE VERNON, PENNSYLVANIA, ASSIGNOR TO WINDOW GLASS MACHINE COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

BAIT FOR DRAWING GLASS.

973,934.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Application filed April 23, 1906. Serial No. 313,204.

To all whom it may concern:

Be it known that I, ROBERT L. FRINK, of Belle Vernon, Fayette county, Pennsylvania, have invented a new and useful Bait for Drawing Glass, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, in which the figure is a sectional side elevation showing the preferred form of my improved bait.

In the drawing of glass cylinders, a neck and cap are ordinarily formed, the cap being of substantially the diameter of the cylinder to be drawn. In such operation a blow-pipe has been lowered into the glass bath, this being then drawn up to form the neck and cap, air being admitted in the proper amounts to first form the neck and then swell out the size to the diameter desired. In the use of ordinary blow-pipes it was found that the glass would choke up the lower end of the air-hole through the pipe and thus prevent proper action. It was also found that the lower end of the pipe would chill during the drawing up of the cylinder, and consequently the glass would crack and become detached from the pipe. It was also found that the glass was liable to pull off from the end of the pipe even where the heat was retained to some extent, by reason of the considerable weight of the long cylinder being drawn.

My invention overcomes these difficulties and provides a bait or blow-pipe having sufficient metal at the lower portion to avoid a too rapid cooling.

The invention further consists in enlarging the hole in the lower part of the blow-pipe, and further in providing an outwardly projecting lip at its lower end which aids greatly in preventing breaking or pulling off of the neck.

In the drawing, 2 represents a blow-pipe having its lower portion enlarged and provided with thickened walls as shown at 3. At the lower edge of these walls they are provided with an outwardly projecting lip 4, and the air-inlet hole 5 is enlarged in its lower portion as shown at 6. The shape of the lower end of the pipe, as shown, is also of advantage, first, in providing the lip, then in providing a slow taper through the part 7, and then tapering down quickly to the normal size of the pipe.

In the use of the pipe it is lowered into

the glass in the ordinary manner, preferably up to about the level $a-a$. The pipe is then lifted slowly to form the neck and the air is then increased to swell out the neck into the cap, as shown. The drawing then proceeds in the ordinary manner, and during the drawing operation the lip 4 aids in holding the glass to the bait while the added metal assists in retaining the heat. When the bait is lowered into the bath the enlarged hole at the lower end prevents clogging and choking by reason of the entrance of glass into the hole. As the neck is drawn up, the glass is drawn out of the central part of the enlarged hole so that the layer of glass on the inside of the hole will still leave an entrance hole into the cylinder, at least as large as the normal diameter of the hole in the blow-pipe. In this connection, it is important to provide a hole 8 in the side of the blow-pipe having a controlling cock 9. This cock is closed during the formation of the neck and cap, and is opened during the drawing of the cylinder to allow exit of air. This air nozzle is found very important in preventing variations in pressure within the tube and consequent fluctuations in the diameter of the cylinder.

The enlarging of the hole at the lower end of the blow-pipe is especially important in connection with the exit hole, since these two features coact in making the cylinder more uniform throughout its length, by providing free circulation and avoiding occasional constrictions of the passage by clogging up the mouth with the glass.

The advantages of my invention result from reducing liability to breaking or pulling off of the glass from the bait, and also from making the cylinder more uniform in size and wall thickness.

Variations may be made in the form and arrangement of the pipe, as well as its material without departing from my invention.

I claim:—

1. In glass-drawing apparatus, a blow pipe having its lower bait-forming end portion provided with a fixed thickened wall enlargement to give a sufficient mass of metal to prevent rapid cooling, the extreme lower end having an outwardly turned adhesion lip, and the enlargement extending above said lip, substantially as described.

2. In glass-drawing apparatus, a blow pipe having its lower bait-forming end por-

tion provided with a fixed thickened wall enlargement to give a sufficient mass of metal to prevent rapid cooling, and having the lower end of its passage formed with an enlargement of increasing diameter to the orifice thereof, substantially as described.

3. In glass-drawing apparatus, a blow-pipe having its lower end portion gradually enlarged downwardly and its walls thickened, the lower portion of the passage

through said enlarged portion being also enlarged beyond the diameter of the remainder of said passage, substantially as described.

In testimony whereof, I have hereunto set my hand.

ROBERT L. FRINK.

Witnesses:

VIRGINIA KIEHL.

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