(No Model.)

F. SHUMAN.

LADLE FOR DIPPING GLASS.

No. 545,826. Patented Sept. 3, 1895.

FIG 3

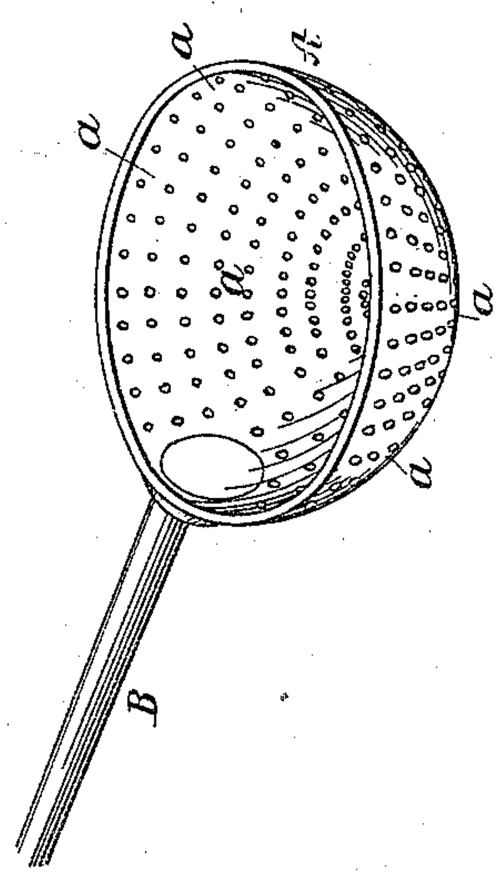
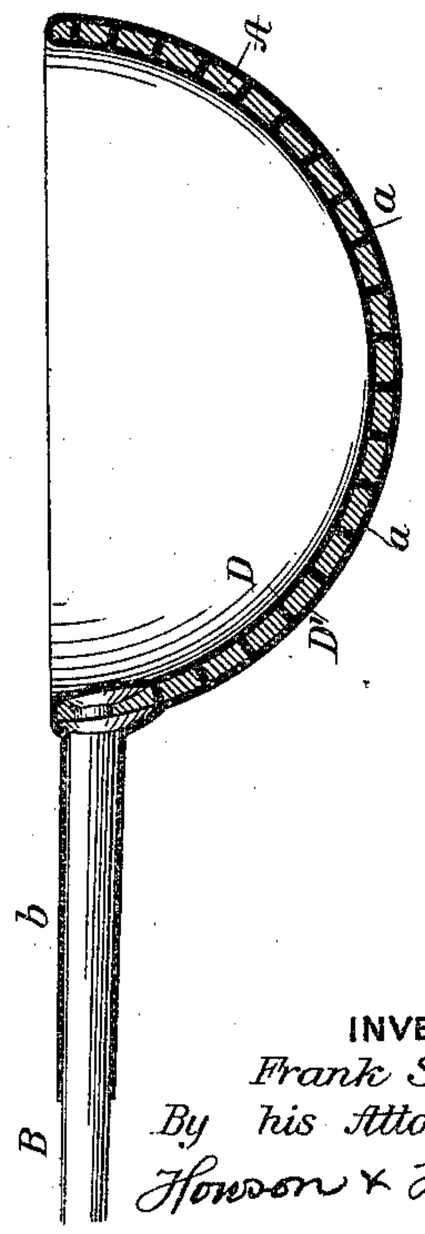


FIG 1

FIG 2



WITNESSES

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FRANK SHUMAN, OF PHILADELPHIA, PENNSYLVANIA.

LADLE FOR DIPPING GLASS.

SPECIFICATION forming part of Letters Patent No. 545,826, dated September 3, 1895.

Application filed May 3, 1894. Serial No. 509,889. (No model.)

To all whom it may concern:

Be it known that I, FRANK SHUMAN, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Ladles for Dipping Glass, of which the following is a specification.

The object of my invention is to prevent molten glass from adhering to the dipping-ladles employed in glass-works to dip the glass from the crucibles or pots. Heretofore these ladles have been made of iron or steel, as great strength is required owing to the heat of the glass and its weight. It has been impossible to use copper ladles owing to the fact that the bowl portion of the ladle will become distorted and break away from the handle. I overcome this difficulty in the following manner, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved ladle. Fig. 2 is a sectional view of the bowl portion. Fig. 3 is a perspective view of the body portion before being plated.

I have found that the only material which can be used for glass-ladles which will stand the heat and the weight of the glass is iron or steel; but the glass will adhere to either iron or steel when a certain temperature is reached, so that after each pouring the ladles are dipped in cold water to cool them, or at frequent intervals the glass has to be broken away from the ladle by hammering, and where it is required that a certain amount of glass shall be poured at each dipping—for instance, when plates of a given size have to be made—the accumulated glass that has become attached to the iron prevents the proper quantity of glass being dipped; but when the ladle is dipped in water it chills a certain portion of the glass, forming what is termed a "cold spot" in the sheet of glass.

All metals to which glass does not adhere—such as nickel, copper, and its alloys—are not substantial enough to hold their own as a ladle, because the heat and weight of the glass will draw the ladle out of shape and the bowl of the ladle will break away from the handle.

I have found that by making the body A of the bowl and the handle B of iron or steel and securely fastening the handle to the bowl, preferably by riveting, as shown in Fig. 2, and by electroplating the ladle with copper or other metal the body A will be provided with a lining D of copper and a casing or shell D′ of copper, and when part of the handle is plated a copper sleeve *b* is formed, as shown in Fig. 2.

The copper-plating is preferably done in one operation, so as to obviate any joints at the junction of the handle and bowl.

I preferably perforate the bowl A with a series of holes *a*, as shown in Figs. 2 and 3, before it is plated, so that during the plating the electrodeposit of copper or equivalent metal will fill the holes *a* and will lock the lining D of the bowl to the casing or shell D′, thus thoroughly uniting the two electrodeposited surfaces to the body A, preventing them buckling or warping, which in some instances would happen owing to the difference in the expansion and contraction of the metal. It will be understood that the perforations may be of any shape and that the bowl or a part of the bowl may be made of bands so spaced as to form the perforations; but I prefer to use a solid steel or iron bowl perforated as shown.

I have found that a ladle made in the manner above described will have the proper strength, and the glass will not adhere to the metal, thus keeping the ladle always free from glass and obviating the necessity of cooling or cleaning the ladles, and the amount of glass poured will be the same at each pouring.

I claim as my invention—

The combination in a ladle for pouring glass, of the perforated bowl, a handle secured thereto, a lining and an outer shell, said lining and shell being formed on the bowl by electro plating with a metal to which glass will not adhere, said metal passing through perforations in the bowl thus binding the shell and lining to the bowl, substantially as described.

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

FRANK SHUMAN.

Witnesses:
WILL. A. BARR,
JOSEPH H. KLEIN.