J. OESTERLING.

Manufacture of Stemmed Glassware.

No. 143,778. Patented Oct. 21, 1873.

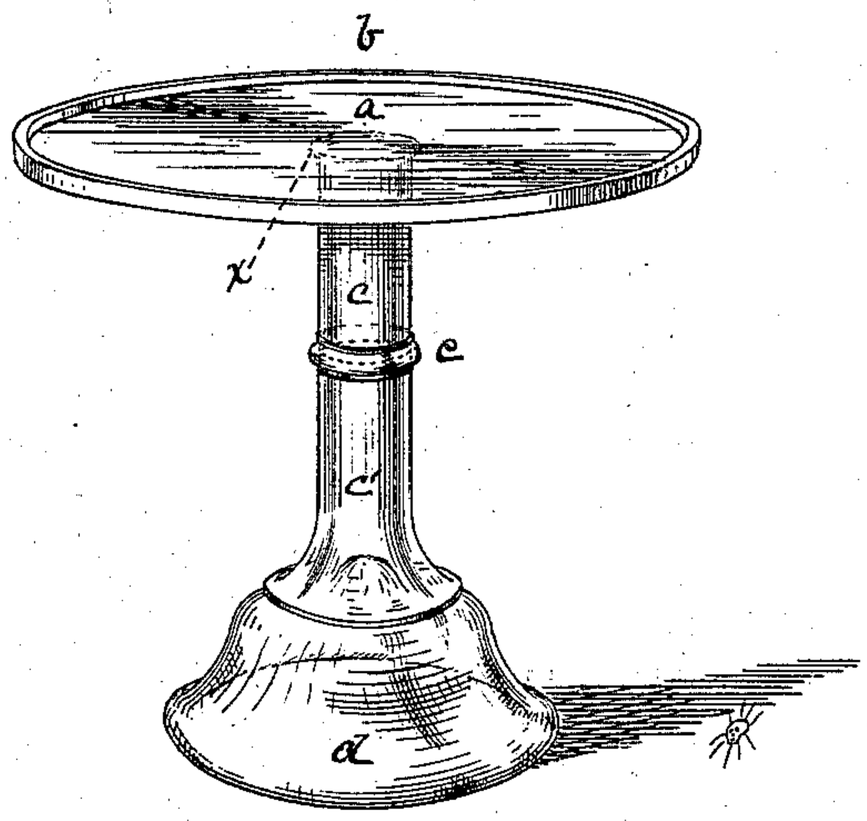

Fig. 1.

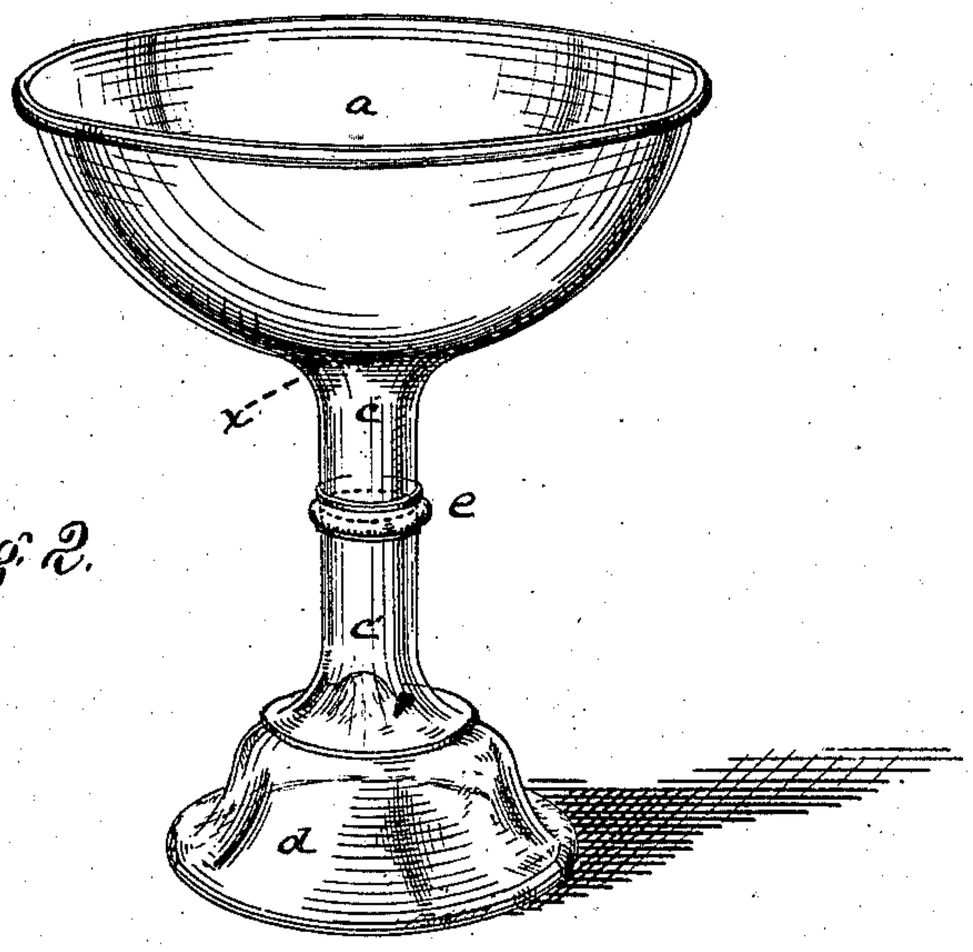

Fig. 2.

Witnesses
James L. Kay
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Inventor John Oesterling
by Bakewell Gridley & Kerr
his attorneys

UNITED STATES PATENT OFFICE.

JOHN OESTERLING, OF WHEELING, WEST VIRGINIA.

IMPROVEMENT IN THE MANUFACTURE OF STEMMED GLASS-WARE.

Specification forming part of Letters Patent No. **143,778**, dated October 21, 1873; application filed September 9, 1873.

To all whom it may concern:

Be it known that I, JOHN OESTERLING, of Wheeling, in the county of Ohio and State of West Virginia, have invented a new and useful Improvement in the Manufacture of Stemmed Glass-Ware; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, which forms a part of this specification, and which illustrates, by two views, my invention.

Like letters of reference indicate like parts in each.

Heretofore stemmed articles of glass-ware of large size have been made by pressing the foot and stem and the bowl in separate bowls, and joining them together, by welding, by a piece of molten glass. The welding-point is shown at *x*. These articles have been subject to a peculiar kind of breakage, which, by glass makers and dealers, is termed "flying." This breakage is the cause of such serious loss and damage that it is extremely desirable to remedy it. It consists in the sudden fracture, without apparent cause, of the bowl or disk *a*, such fracture invariably starting from the center of the bowl, just above or at the joint. It sometimes takes place immediately after the article has been finished, sometimes after it has stood upon the shelf for months, and sometimes after it has been in use for a long time. The stand *b* is frequently used in the construction of pyramids for the purpose of exhibiting goods in stores and for table use. Instances have been known by almost every glass-dealer and confectioner where the whole pyramid has been destroyed, with great loss and inconvenience, by the flying of the lower stand.

Upon investigating the subject with care I came to the conclusion that this breakage arose from the expansion and contraction of the bowl operating upon the imperfect joint formed by welding the stem to the bowl. The stem being, at that point, solid, and of comparatively small surface, and the bowl being of a very large diameter, the latter, in expanding and contracting under the influence of different temperatures, gradually fractures the stand at the welding-point *x*. This fracture may become complete at any instant; and at that instant, on account of the brittle nature of the material, the parts, being suddenly freed from each other, fly in all directions. This view was further strengthened by the fact that the joint formed between the two parts is very liable to be imperfect, from the fact that small air-bubbles are inclosed by the molten glass at the moment of welding. These, remaining in the stem, of course weaken it greatly. Reasoning upon this theory, I concluded that if I formed a bowl in which the jointed portions were exactly of the same nature, while the bowl parts of the article were supported by a solid part or body of glass, this kind of breakage would be entirely obviated. Hence, I make the bowl *a*, with a portion, *c*, of the stem *o*, and the foot *d*, with another portion, *c'*, of the stem, in separate molds. The portion of the stem which is attached to each part is solid, and serves to support and strengthen those parts. Then I make the joint between the two parts of the stem at the point *e*, at or near the middle of the same. This joint may be formed in the old way, by welding the two parts together by means of a piece of molten glass; or else the foot may be joined to the bowl by means of the apparatus described in the patent granted to me October 15, 1872.

The article thus formed I find supports, in every particular, the theory upon which I worked. The solid portion of the stem, which is formed with the bowl and the foot, respectively, supports and strengthens them; while the joint *e*, being between two parts which are analogous in their structure—both being solid and of the same size—is unusually perfect and strong, and not subject to an unequal expansion or contraction of either part.

The article thus formed will not fly, and is much stronger in other respects than those made by the old method.

What I claim as my invention, and desire to secure by Letters Patent, is—

A stemmed article of glass-ware in which the joint between the bowl and the foot is formed in the stem, substantially as described.

In testimony whereof I, the said JOHN OESTERLING, have hereunto set my hand.

Witnesses: JOHN OESTERLING.

A. P. HALL,

WM. L. EWING.