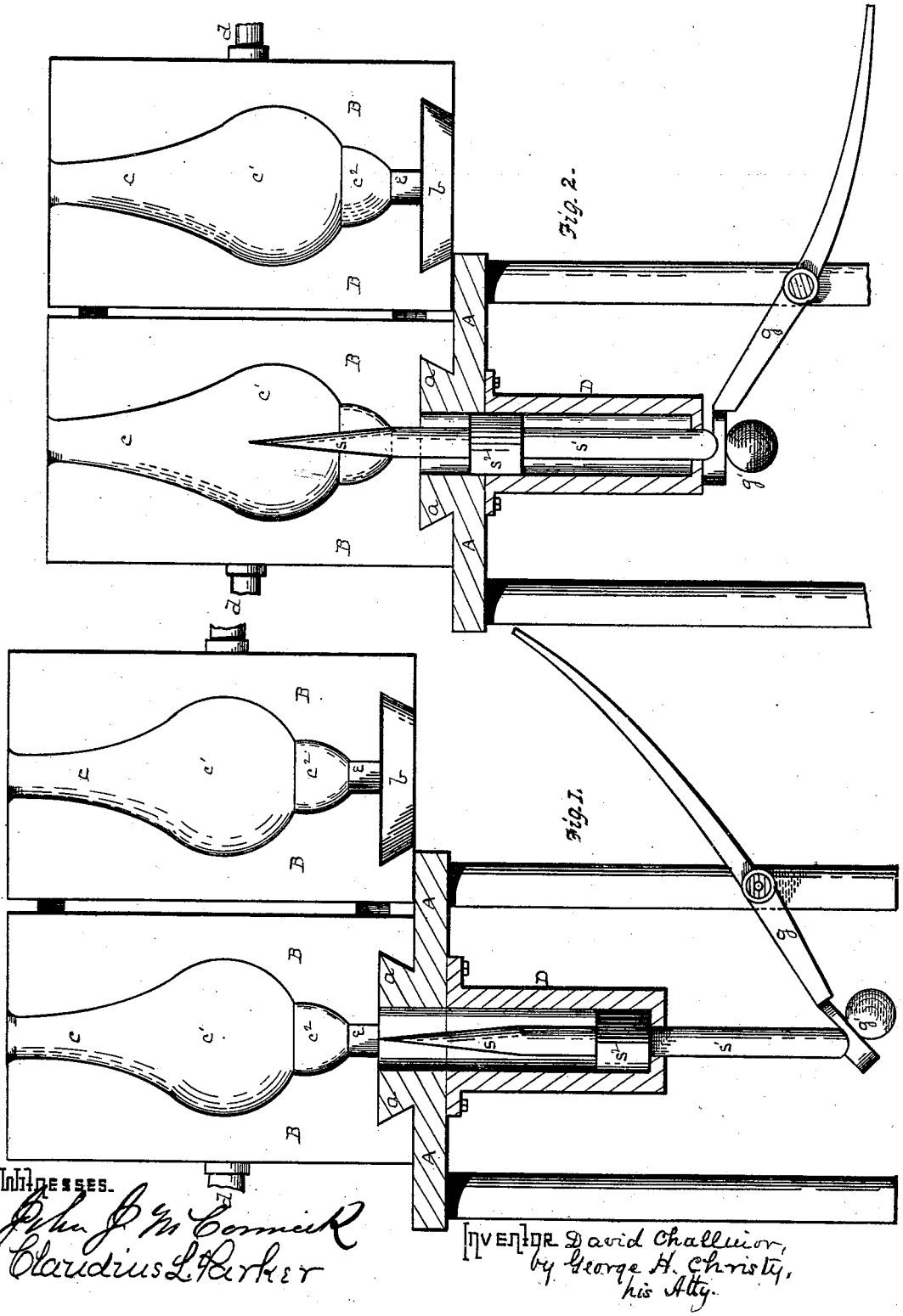
D. CHALLINOR.

Manufacture of Glassware.

No. 199,030. Patented Jan. 8, 1878.



Witnesses.

John J. McCormick

Claudius L. Parker

Inventor David Challinor,
by George H. Christy,
his Atty.

UNITED STATES PATENT OFFICE.

DAVID CHALLINOR, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN THE MANUFACTURE OF GLASSWARE.

Specification forming part of Letters Patent No. **199,030**, dated January 8, 1878; application filed December 24, 1877.

To all whom it may concern:

Be it known that I, DAVID CHALLINOR, of Pittsburg, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Manufacture of Hollow Blown Glassware; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a vertical sectional view of apparatus embodying my improvement in one form of its application, and showing the devices in position for blowing; and Fig. 2, by a like view, shows the devices in the position they occupy at the conclusion of the operation, the mold, however, being in both cases shown open and in elevation.

My improvement relates to the making of holes in blown glassware by causing a punch, mandrel, or other form of perforator to enter the blowing-cavity and pass through the article as blown at the desired point, and while the glass in the path of such perforator still retains a sufficient degree of plasticity to be perforated without fracture.

I propose to employ this improvement chiefly in the manufacture of blown lamp-chimneys, and have illustrated such use in the drawings; but, not limiting myself in this regard, I claim the novel features, hereinafter set forth, in the manufacture of blown glassware generally, wherein a perforation other than the blowing-hole is desired, either in the finished product or at any stage of its manufacture.

An ordinary stand or table is shown at A. On its upper face is the base-plate *a* of an ordinary hinged lamp-chimney blowing-mold, the two halves of which are shown at B B. The lower end of each half of the mold has the usual recess *b*, which, by its dovetail form fitting on the counter form of the base-plate *a*, brings both to a common axial line or center.

At *c* c^1 c^2 I have shown the cavities in which to blow the neck, bulb, and base, respectively, of a lamp-chimney. The usual handles are added, as at *d*. The operation of blowing is performed in the usual way, except that, by preference, I rotate the partly-formed chimney in the mold-cavity while it is in progress of formation, so as to avoid the objectionable mold-marks.

The base-cavity c^2 differs from the ordinary cavity only in the fact that it is made dome-shaped, (inverted,) or nearly so, and at its lower end terminates in a hole, *e*, of suitable size for the working therein of a perforator, *s*. The latter is made with a stem, s^1, of sufficient length to receive the proper range of motion or length of stroke from a lever, *g*, which latter, operated by the foot of the workman, or in other convenient way, is intended to operate, by preference, with a quick blow or stroke like a hammer.

In order to guide the perforator in the proper path, I make on it a guide, s^2, which plays in a barrel, D, or between equivalent guiding-posts. The stem s^1, also projecting through a well-fitting hole at the lower end of the barrel D, further facilitates guiding.

With the devices in the position shown in Fig. 1, (except that the two halves of the mold should be closed together,) the blowing is done as already stated. As soon as the glass is properly set or hardened sufficiently to retain its form on the escape of the air, and before the glass at the lower end has become sufficiently chilled to be in danger of fracture, I cause the perforator *s* to pierce the base of the dome formed in c^2, and thereby make a hole in that, which, when finished, will be the base of the chimney. My chief object in doing this is to get the product of the blowing operation in such form that by the use of a machine yet to be patented, and with little or no skilled labor, the base end so perforated can be opened out and finished easily, quickly, and cheaply, and with a good finish. The mold is then opened and the product removed, ready for the next subsequent step, which is the one last referred to.

The lever *g* is preferably counterweighted, as at *g'*, so as to secure the return-stroke of the perforator.

Various modifications can be made in features of form and construction without any substantial departure from the scope of the present invention; and all such modifications as include substantially the features or elements hereinafter claimed are expressly included herein.

The perforator may vary in length, size, or shape. Motion may be imparted to it by any suitable motive power, including a weight, spring, steam-piston, or other mechanical equivalent; and the point at which it may be made to puncture the glass may vary with the purpose for which such result is desired.

Also, by varying the form of the cavities, the same elements of invention may be made operative in the manufacture of lamp-chimneys of other forms; or, if desired, the chimney may be blown the other end up, and the top be perforated instead of the base.

Also, I do not limit myself to a dome-shaped cavity for forming the part to be perforated, as other shaped cavities may be employed in combination with a perforator with a like result.

I claim herein as my invention—

1. The mode of making holes in blown-glass articles by causing a perforator to puncture the glass while inclosed in the mold, and while still retaining the proper degree of plasticity, substantially as set forth.

2. The combination of a perforator and blowing-mold, substantially as and for the purpose set forth.

3. A blowing-mold having a suitably-shaped cavity in its lower end, in combination with a perforator capable of motion in the axial line of the cavity, substantially as set forth.

4. The combination of blowing-mold, perforator, stem-guide, and operating device, substantially as described.

In testimony whereof I have hereunto set my hand.

DAVID CHALLINOR.

Witnesses:

JNO. A. WILSON,

GEORGE H. CHRISTY.