A. H. HEISEY.

Machine for Shaping Tubular Glassware.

No. 212,932 Patented Mar. 4, 1879.

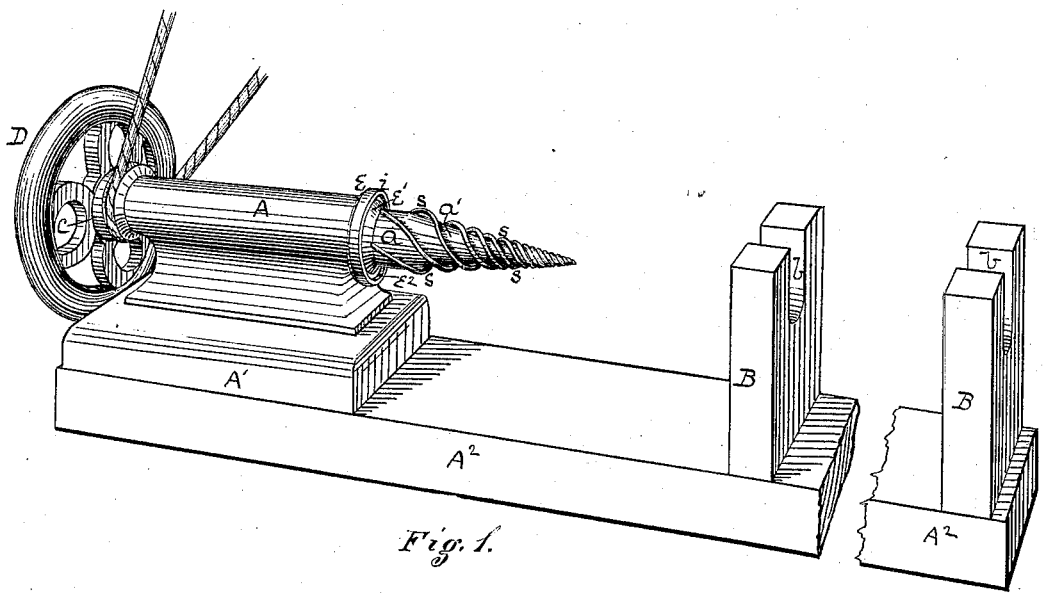

Fig. 1.

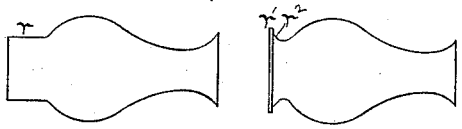

Fig. 2. Fig. 3.

Witnesses
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AUGUSTUS H. HEISEY, OF BELLVUE, (PITTSBURG P. O.,) PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR SHAPING TUBULAR GLASSWARE.

Specification forming part of Letters Patent No. **212,932**, dated March 4, 1879; application filed January 10, 1879.

To all whom it may concern:

Be it known that I, AUGUSTUS H. HEISEY, of Bellvue borough, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Machines for Shaping Tubular 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 perspective view of my improved machine for shaping tubular glassware, and Figs. 2 and 3 are outline views of different styles of lamp-chimneys as shaped and finished by my improved machine.

In the manufacture of lamp-chimneys and similar articles of blown glassware, the body of the chimney is blown in a mold adapted to give the desired form to this part of the chimney, or such body part may be blown "off-hand," and in so doing the lower end of the chimney may be given a general globular form of sufficient size for subsequent shaping into the base of the chimney; or the general form of the desired base may be given in the mold, while the surplus glass is forced into a part of the mold adapted to form a "blow-over." When the chimney is removed from the mold this blow-over is broken off, which leaves an opening into the chimney at such end; or, in case no blow-over is formed, an opening may be made in any suitable way in the part designed to form the base of the chimney; and in either case this perforated or open part is then opened out, and suitably shaped and finished to form the desired chimney-base, whether cylindrical, as in "slip" chimneys, (shown in Fig. 2,) or "lipped" chimneys, as shown in Fig. 3.

My present invention relates to apparatus adapted to perform this opening out, shaping, and finishing of the perforated end of the glass article or chimney, and it is constructed as follows:

A revolving shaft, *a*, is journaled in a suitable box or bearing, A, which is seated upon the base-plate A^2, with one or more intermediate blocks, A^1, or equivalent devices, for raising the shaft *a* to the desired height above the base. A pulley or band wheel, *c*, is attached to this shaft, preferably at its outer end, by means of which the shaft may be driven. A hand or balance wheel, D, may also be attached to the outer end of the shaft, if desired.

The box or bearing A may be cast in one piece, as shown, with a longitudinal hole for receiving the shaft, and in such case the shaft may be inserted or removed endwise, the pulley *c* and wheel D being made removable for such purpose; or the box may be made in two parts, so that the shaft may be readily removed.

A collar, *e*, on the shaft prevents endwise motion, and also may be made to perform a separate or additional function, as presently described.

The inner end of this shaft *a* is tapered, as shown at *a'*, to a conical point, such taper being, by preference, for ordinary uses, three or four inches in length. A wire or wires, *s*, preferably two or more in number, are wound spirally around this tapered or conical end *a'*, such spirals decreasing in pitch from base to apex of the cone, and being so arranged as to form a gimlet or screw point. At or near the base of the taper *a'* the wires are so disposed or bent around the shaft *a* as to describe or form a cylindrical periphery about their outer surfaces, and give the interior of the article operated on a cylindrical form, as shown at *r*, Fig. 2, of the requisite size and length. This extended cylindrical part is designed more especially, however, when slip-chimneys, such as shown in Fig. 2, are desired.

When a lip or flange, r^1, Fig. 3, is required, there is usually no extended cylindrical part at the base of the chimney, and in such case the collar *e* is arranged at or near the base of the tapered part *a'*, and its lateral face adjacent to such taper is recessed, as shown, such recess having an inclined face, e^1, adapted to flare the base of the chimney outward, as at r^2, Fig. 3, and a narrow vertical face, e^2, adapted to bend the edge into a lip, r^1. A rim, *i*, projecting over this face e^2 furnishes an edge-bearing, by means of which the edge of the lip is properly limited and finished.

Rests B B are erected on the plate A^2 in line with the opening and finishing tool *a a'*, and, if desired, recesses *b b* may be made in these rests adapted to receive the blow-pipe or snap,

to which the chimney is attached. These rests may be made vertically adjustable by a screw-connection with the base, or in other convenient way.

In operation the chimney usually, while still connected with the blow-pipe, is perforated at the base end, and then, being properly heated, is laid in the rests B B and fed forward, so that the point of the tool *a a'* may enter the perforation made in the end of the chimney. The tool being rotated, the spiral ribs or wires *s* engage or come in contact with the article, and operate by means of their spiral arrangement to draw or feed the chimney onto the tapered tool, and in so doing open out the perforated end, and as the chimney is carried up to the base of the tool form such end into a cylindrical or lipped base, as previously described.

Instead of wires *s*, equivalent blades may be used, which, being spirally arranged, will operate as described; or such wires or blades may be coiled into the desired tapered spiral form, and, being properly secured or connected at point and base, the interior tapered plug may be dispensed with.

On account of cheapness of construction and strength, I prefer to use an interior supporting-plug, as described, or an equivalent frame, to carry the spiral wires or blades. Neither do I limit myself to the particular pitch or arrangement of spirals shown, as the same may be varied to suit different requirements, and still perform the same functions and come within my invention.

If desired, a crimping-tool, combined with a flaring-tool, may be connected with the extended outer end of the shaft *a*, and extra driving machinery dispensed with, thus combining two machines in one; and an ordinary crimping-tool may be arranged in lieu of the plate *e* at the base of a tool of proper shape for doing ordinary flaring, such flaring-tool having the spiral wires described.

When slip-chimneys having a cylindrical-shaped base are required, the outer surface of such cylindrical part may be finished by any suitable outside forming-tool, combined with the opening-tool described.

The chief advantage possessed by machines having the spirally-constructed tool described consists in the fact that such a tool is substantially self-feeding, and the pitch of the spiral being adapted to the rapidity of feed desired, in accordance with well-known mechanical rules, I am enabled to obviate the evils resulting from irregularities of feeding by hand, or from the lack of skill on the part of the operator; or, in other words, I am enabled to get better and more uniform work without the necessary use of skilled labor.

I claim herein as my invention—

1. A tool for shaping the interior of tubular articles of glassware, consisting of a wire or wires, or equivalent screw-shaped blades having operative faces each transversely narrow, and each running spirally through all, or the greater part, of its operative length, substantially as set forth.

2. In a tool for shaping the interior of tubular articles of glassware, a gimlet or screw point, which gradually merges into a base or enlarged part, having the shape desired in the finished article, substantially as set forth.

3. The revolving grooved lip-forming plate *e*, arranged at the base of and in combination with a revolving tapering shaping-tool, substantially as set forth.

In testimony whereof I have hereunto set my hand.

AUGUSTUS H. HEISEY.

Witnesses:

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