May 15, 1951 R. C. COBEL 2,553,358

PROCESS FOR STRAIGHTENING STEMS OF GLASSWARE

Filed Dec. 31, 1948 2 Sheets-Sheet 1

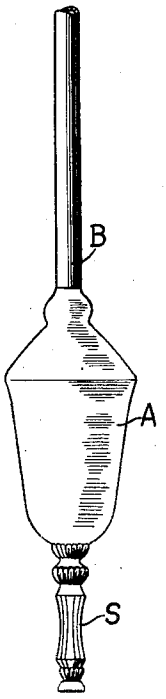


Fig. 1

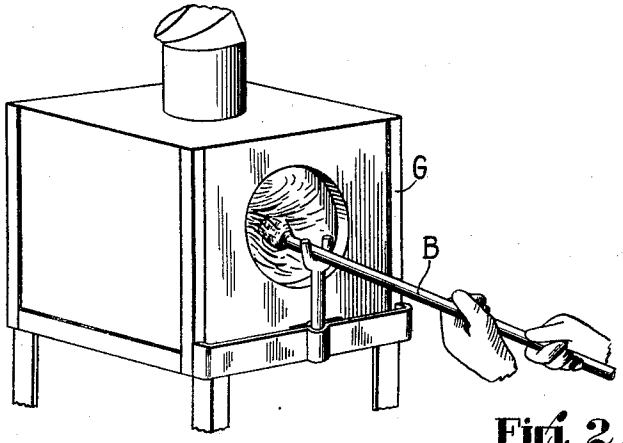


Fig. 2

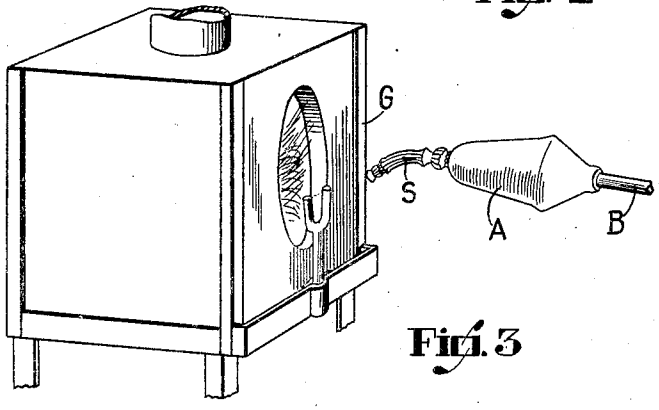


Fig. 3

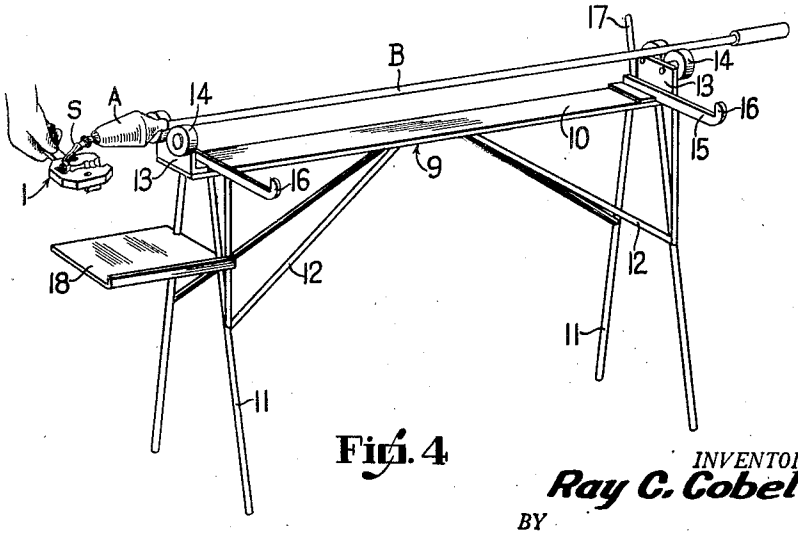


Fig. 4

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PROCESS FOR STRAIGHTENING STEMS OF GLASSWARE

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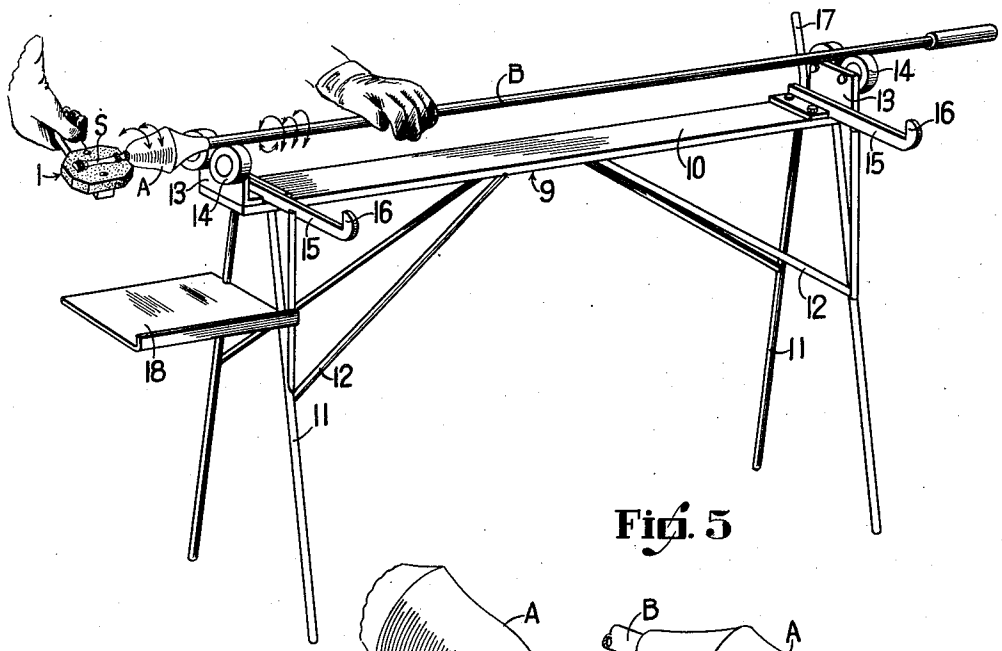


Fig. 5

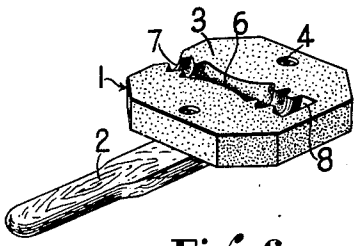


Fig. 6

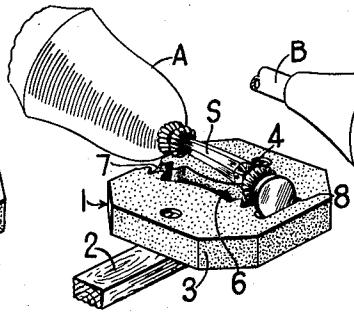


Fig. 7

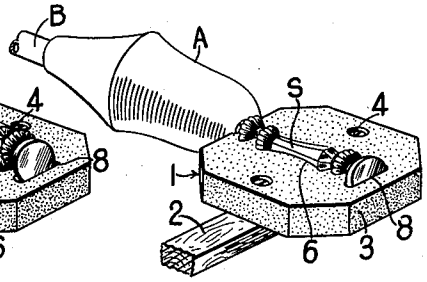


Fig. 8

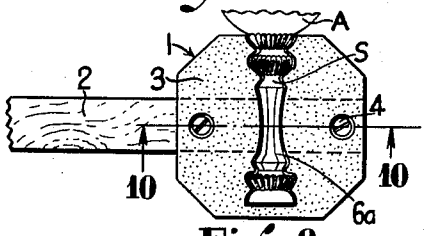


Fig. 9

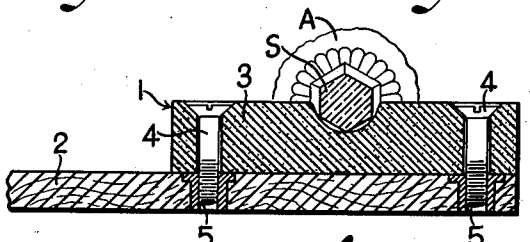


Fig. 10

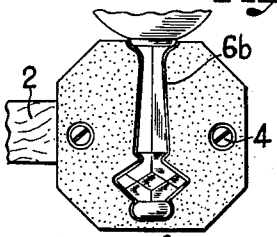


Fig. 11

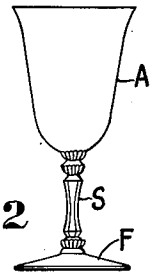


Fig. 12

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PROCESS FOR STRAIGHTENING STEMS OF GLASSWARE

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Application December 31, 1948, Serial No. 68,622

3 Claims. (Cl. 49—84)

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My invention relates to process for straightening stems of glassware. It has to do, more particularly, with a process for straightening the stems of glassware after they have been formed and attached to the blown body of the article by a pressing operation and just prior to the time a foot is cast on each stem.

It has long been the practice to position the partially blown article having a pressed stem thereon of final form in a glory hole or furnace in order to fire polish the stem and prepare it for receiving the foot. The heat sometimes permits the free end of the stem to bend downwardly because of its weight but without destroying its cross-sectional shape so that it is necessary to work on the stem with a wooden paddle in order to straighten it. This operation is difficult to perform and requires considerable skill and time. In manipulating the partially completed article to straighten the stem, it is customary to support the blowpipe on a chair, on a pair of rails, or on supports which permit oscillation of the pipe about its axis. Obviously, it would be desirable to have a suitable cradle or support designed especially to support the blowpipe to permit efficient oscillation.

One of the objects of my invention is to provide a very simple, efficient and practical process for straightening the stems of glassware, which stems have been previously pressed to final form and after the pressed stems have been heated for fire polishing and the free ends thereof have been caused to sag or bend.

Various other objects will be apparent.

The preferred embodiment of my invention is illustrated in the accompanying drawings wherein similar characters of reference designate corresponding parts and wherein:

Figure 1 is an elevational view showing a partially completed glass article on a blowpipe, the article having the pressed stem thereon.

Figure 2 is a perspective view showing the article on the blowpipe being inserted in the glory hole to fire polish the stem.

Figure 3 shows the article after it is removed from the glory hole and shows how the free end of the stem has sagged due to the heat and its weight.

Figure 4 is a perspective view of the table which I provide for supporting the blowpipe, the blowpipe being shown in position on the table with the article thereon having the stem in the distorted condition shown in Figure 3, the straightening operation being started by means

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of my novel tool which is illustrated in the position it will be held during manipulation of the pipe.

Figure 5 is a view similar to Figure 4 but illustrating the stem in straightened condition.

Figure 6 is a perspective view of the stem straightening tool.

Figure 7 is a similar perspective view illustrating how the bent stem is subjected to the tool.

Figure 8 is a perspective view showing the stem in the receiving cavity of the tool after the stem has been straightened.

Figure 9 is a plan view of the structure of Figure 8.

Figure 10 is a vertical sectional view taken through the tool substantially on line 10—10 of Figure 9.

Figure 11 is a plan view of the straightening member of the tool showing that the cavity thereof may be of different peripheral outline to receive a different shaped stem.

Figure 12 is a view illustrating the type of article which may be made by my process.

With reference to the drawings, in Figures 6 to 11, inclusive, I have illustrated in detail the stem straightening tool 1 which I preferably provide according to my invention. The tool 1 comprises a handle 2 which may be of any suitable material, preferably a non-conducting material such as wood. Attached to the handle 2 is the stem straightening member 3 of the tool. This member 3 is preferably in the form of a flat section of carbon material, although it may be made of other materials. The member 3 is preferably removably secured to the handle 2 by means of the screws 4 which pass through openings in member 3 and are threaded into sockets 5 disposed in the handle 2. The upper surface of the member 3 is provided with a stem-receiving cavity 6. This cavity 6 is of semi-circular cross-section and is of proper peripheral outline to receive the stem of the glass article which will eventually be worked therein. It will be noted that the one end 7 of the cavity 6 is open while the other end 8 is closed. Obviously, the free end of the stem will be disposed at the end 8 while the end which is attached to the body of the article will be at the end 7.

Because the member 3 is made of carbon, it will not injure the glass stem and will not be injured by the hot glass stem which will eventually be worked into contact with the bottom thereof throughout its length. The cavity 6 will be of a peripheral outline corresponding substantially to

that of the particular shaped stem which has been previously pressed on the article and slightly larger than the stem. It may assume various shapes, for example, the shape illustrated at 6*a* in Figure 9 and the shape at 6*b* in Figure 11. The cavity will always be semicircular in cross-section but in plan will always be of an outline corresponding to that of a longitudinal section substantially through the center of the stem except that it will be slightly larger. As indicated, the cavity will have deepened portions for receiving the enlargements, such as beads, bosses, or knobs, formed on the stem.

In Figures 4 and 5 I have illustrated a stand or table 9 which is preferably used in performing my process in conjunction with the tool 1. This stand comprises a main support or plate 10 which is preferably of metal and which is carried by the four legs 11 braced by means of the diagonal braces 12 connected to the legs and to the plate 10. At each end of the plate 10, an angle bracket 13 is provided. On the upper edge of each bracket 13 a pair of rollers 14 is mounted and each roller is carried by an anti-friction bearing. These rollers serve as a cradle for receiving the blowpipe B which is illustrated in position on the cradles in Figures 4 and 5. Extending laterally from the plate 10 at each end thereof is a horizontal arm 15 having an upstanding lug 16 at its outer end. These arms 15 serve as supports for receiving the blowpipe B when it is not in use. Opposite the arm 15 at the one end thereof is a pin 17 which will aid in guiding the outer end of the blowpipe to a position on the adjacent cradle. The opposite end of the stand is provided with a projecting horizontal shelf 18.

The body of the article A is blown in the usual manner on the blowpipe B, as shown in Figure 1, with the stem S shaped and attached thereto by the usual pressing operation. The stem is in final form but needs to be fire polished. For this purpose, the article on the blowpipe is inserted in the glory hole G in the usual manner, as shown in Figure 2. Due to the heat required for fire polishing and because of the inherent weight of the stem, its free end will sag or bend downwardly, as shown in Figure 3 which illustrates the article after removal from the glory hole.

To straighten the stem S, the blowpipe is cradled on the stand, as illustrated in Figure 4. The blowpipe is oscillated slightly with one hand and in the other hand the tool 1 is held. This tool is held so that the member 3 will be below the stem and the stem will partially extend into the cavity 6. By slightly oscillating the blowpipe and gradually lifting upwardly with the tool, the stem S will gradually work into the cavity 6 which will serve as a guide to straighten it. The foot F of the article is then cast thereon in the usual manner and the cup C of the article is shaped in the usual way.

It will be apparent that the stem straightening member 3 is not a mold or forming member for shaping the entire stem but that the cavity thereof serves as a supporting guide surface on which the stem can eventually be worked in order to straighten it. At the time the stem is being straightened, the glass is sufficiently set so that the slight oscillation of the stem relative to the cavity will not destroy the cross-sectional contour of the stem, even though it might be of angular

cross-section. Because the surface of the cavity is carbon and, therefore, relatively soft, this further aids in facilitating the straightening of the stem without destroying its cross-sectional contour. In other words, the bottom of the cavity serves as an axially extending support upon which the stem will be worked to bring the portions thereof in axial alignment. In working the stem with the straightening member, the free end of the stem will preferably first be inserted in the cavity, in the manner shown in Figures 4 and 7, and the stem will gradually be worked into the cavity from such free end to its end which is attached to the body of the article A. It will be noted from Figures 9 and 10 that the cavity is slightly larger than the stem. The contact of the stem and bottom of the cavity is throughout the length of the stem including the beads, bosses, and knobs on the stem and the corresponding indented portions in the bottom of the cavity.

It will be apparent from the above description that I have provided a process having many desirable characteristics. Some of these have been discussed and others will be apparent.

Having thus described my invention, what I claim is:

1. The process of producing a glass stem on a glass article which comprises heating the previously formed stem and then straightening it by associating it with a straightening tool which has a cavity of semicircular cross-section for receiving the stem, said cavity having an outline in plan corresponding substantially to a longitudinal section through the central part of the stem but being slightly larger and being of substantially the same length as the stem.

2. A process according to claim 1 wherein the straightening tool is provided with a cavity having a wall of carbon.

3. The process of straightening a pressed stem on a glass article which has been heated for fire polishing, which comprises subjecting the stem to a straightening tool which has an axially extending cavity of semicircular cross-section and of an outline in plan corresponding substantially to the outline of a longitudinal section through the central part of the stem and being slightly larger, and oscillating the stem with at least a portion thereof in the cavity and manipulating the tool until the stem is gradually worked into the bottom of the cavity and contacts therewith throughout its length.

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