R. HEMINGRAY.

Machines for Flaring and Crimping Lamp-Chimneys and other Glass Articles.

No. 212,850. Patented Mar. 4, 1879.

FIG. 1.

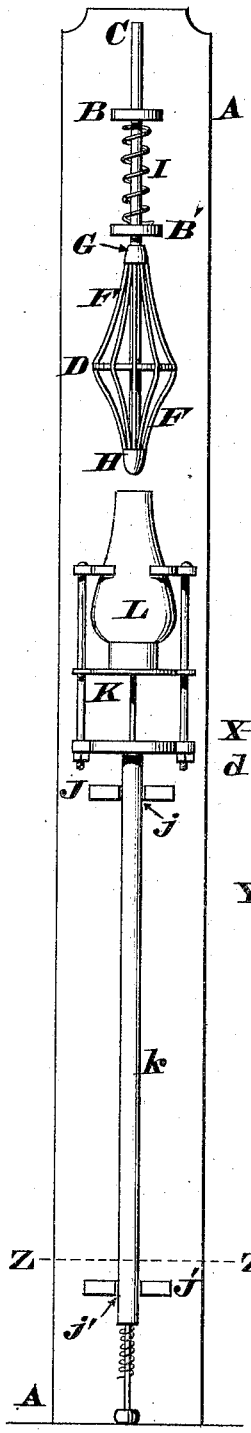


FIG. 2.

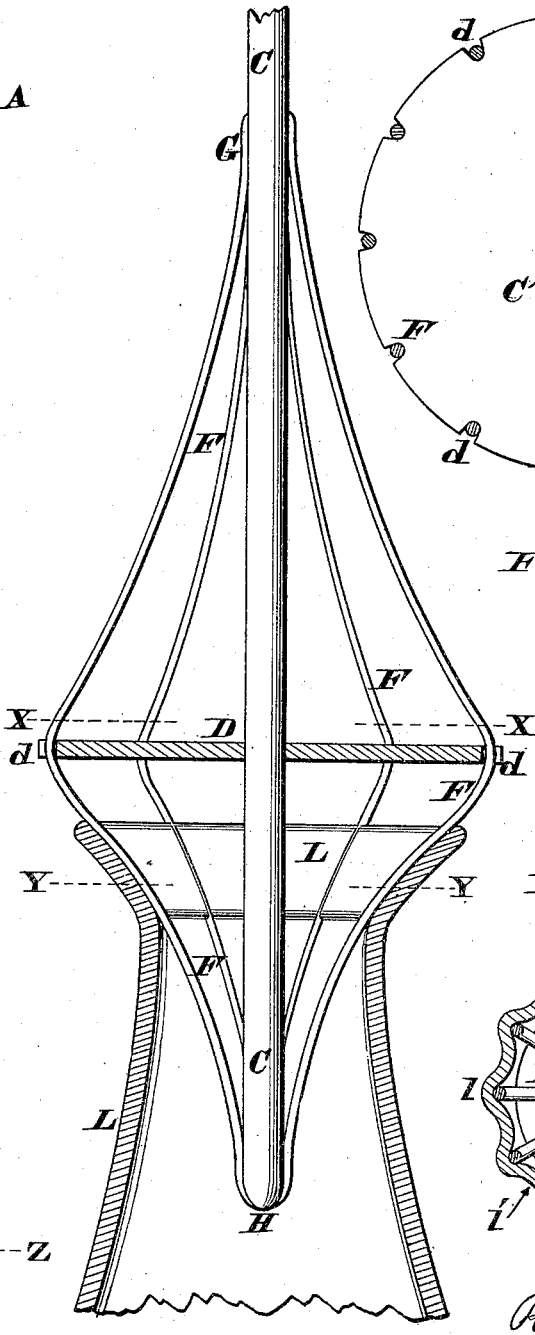


FIG. 3.

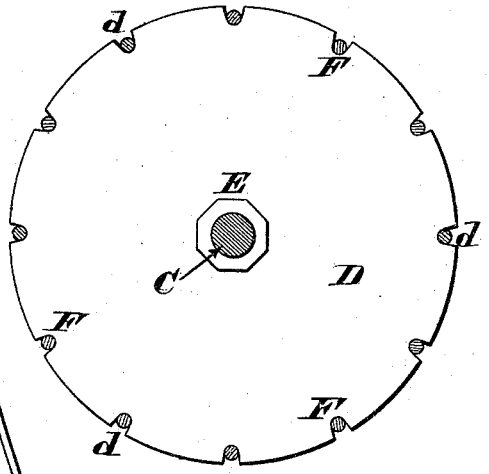


FIG. 5.

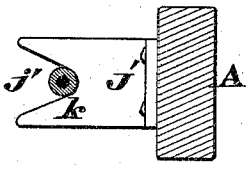
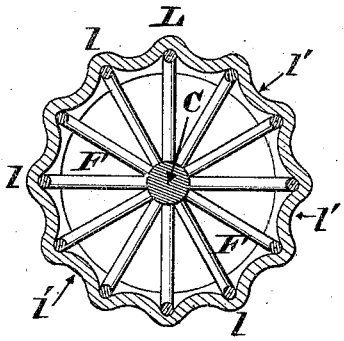


FIG. 4.



Attest.
Charles Schimmel

Robert Hemingray,
per Wm. Hubbell Fisher,
his Att'y.

UNITED STATES PATENT OFFICE.

ROBERT HEMINGRAY, OF COVINGTON, KENTUCKY.

IMPROVEMENT IN MACHINES FOR FLARING AND CRIMPING LAMP-CHIMNEYS AND OTHER GLASS ARTICLES.

Specification forming part of Letters Patent No. **212,850**, dated March 4, 1879; application filed February 17, 1876.

To all whom it may concern:

Be it known that I, ROBERT HEMINGRAY, a resident of the city of Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Machines for Flaring and Crimping Lamp-Chimneys, of which the following is a specification:

This invention relates to that class of devices which are employed for flaring and at the same time crimping the reheated ends of lamp-chimneys, shades, smoke-bells, and similar articles of tubular glassware; and my improvement comprises a novel construction of the crimping-tool. Heretofore such tools have been made, to a greater or less extent, of solid metal, which extended metallic surface, when brought in contact with the highly-heated glass, almost invariably acts to chill the material, and consequently the flaring portion of chimney is thereby checked, cracked, or otherwise marred, so as to detract both from its appearance and durability.

My improved form of crimping-tool, on the contrary, has no extended metallic surface, but is composed exclusively of small wires, whose limited bearing upon the glass can never chill the material of which the chimney is composed.

In the accompanying drawings, forming part of this specification, Figure 1 is a front elevation of my complete apparatus for flaring and crimping lamp-chimneys, the wire crimper being shown in its elevated position and about to engage with a chimney held by a "snap." Fig. 2 is an enlarged axial section through the wire crimping-tool, which is shown in the act of operating on a lamp-chimney so as to flare and at the same time corrugate. Fig. 3 is a section of the tool at the line X X. Fig. 4 is a section through the tool and crimped chimney at the line Y Y; and Fig. 5 is a section of the upright frame at the line Z Z.

A represents a frame or post, which is preferably maintained in a vertical position, so as to render the operative parts as accessible as possible, and thereby facilitate the manipulations to be subsequently described. Projecting horizontally from this post are two boxes or bearings, B B′, which confine to a vertical path the reciprocating shaft or mandrel C, that carries the plunger or crimping-tool. This tool consists of a horizontal disk, D, located a suitable distance from the lower end of shaft C, and maintained in position by nuts E, if preferred. The periphery of the disk is notched at regular intervals, as at *d*, for the reception of wires F, of comparatively small diameter. The upper ends of these wires are joined to the shaft at G, while their lower ends are united to said shaft so as to form a rounded apex, H. By thus arranging the various wires with reference to the shaft and disk, a cage or plunger is formed whose outline approximates that of two cones joined at their bases. In constructing this plunger care must be taken to arrange the wires below the disk so as to impart the desired flare and crimp to the chimney; but above said disk the wires may be disposed in any convenient manner, as the upper portion of the plunger has nothing whatever to do with shaping the glassware.

I is a helical spring, which surrounds the shaft C, one end of said spring being adapted to rest upon the bearing B′, while the upper end engages with the shaft, so as to retract or elevate the latter after it has been depressed by the operator.

Projecting from the post A are two horizontal brackets, J J′, notched respectively at *j j′*, so as to readily receive the handle *k* of an ordinary snap, K, within which is clamped the chimney L, or other article of glassware to be flared and crimped. These notches or recesses *j j′* are so located with reference to the post A as to bring the axis of snap K *k* exactly in line with the axis of mandrel C when the machine is in operation.

The act of flaring and crimping glassware with my improved devices is accomplished in the following manner: The end of chimney L, or other article of glassware to be operated on, is first reheated, and the chimney is then engaged with the snap K, whose handle *k* is at once seated in the sockets *j j′*, which act brings the axis of said chimney directly in line with the apex of plunger D F, and without any special adjustment of said snap. The operator then grasps the plunger at any convenient point above the disk D, and depresses the crimping-tool, the spring I being compressed, so as to permit such a descending movement

to take place. This descending movement of the plunger causes its apex H to first enter the heated end of the chimney and to press outwardly any burr that may have been left when the chimney was broken off from the blow-pipe. The continued descent of the plunger brings the wires F in contact with the inside of the chimney, and, owing to the peculiar curvature of said wires, the upper end of the chimney is gradually deflected from its original shape and caused to have an outward flare, as clearly shown in Fig. 2. A still further descent of the plunger causes the wires to press with greater force against the heated glass, which act results in producing outwardly-swelling ribs Z, as seen in Fig. 4.

As the material between the wires is not subjected to as much pressure as the material in actual contact with them, the result is that flutes or corrugations Z′ are formed between each of two ribs, Z Z, as represented in Fig. 4.

The chimney having been thus flared and crimped, the operator quits his hold of the plunger, and the retracting-spring I at once restores the tool D F to its original or elevated position, as shown in Fig. 1. The snap, with the finished chimney attached to it, is then withdrawn from the sockets *j j′*, and another snap, carrying another reheated chimney, is applied to its place, after which the above-described operations are repeated.

It will be noticed that the heated chimney does not come in contact with a solid metallic surface at any stage of the process; and as a result of this arrangement the temperature of the glass is not suddenly chilled, so as to crack or crizzle the chimney.

By turning the nuts E the disk may be moved along the shaft C and the wires F, and thus make the operating end of the head or plunger more or less obtuse, and shorter or longer, according as it is desired to crimp or flare and crimp glass-openings of different sizes.

Instead of employing the disk D for separating the wires at or near their mid-length, the proper shape may be imparted to the plunger by means of arms radiating from the shaft C, so as to form a wheel or spider.

The upper ends of the various wires may be secured to the disk D, by which means all that portion of the plunger above said disk may be omitted.

My invention can also be used without the appliances described in Fig. 1; but I prefer to employ them.

I am aware that a pointed head made of wires has been used while under rotation to enlarge the orifices at the top of glass chimneys; but

What I claim is—

1. As an improvement in the mechanism for the crimping or flaring and crimping of glass, a wire head, combined with mechanism substantially as described, whereby a blow from the hand upon the upper end of said shaft causes the head to crimp the glass, and, further, whereby the head is retracted when said pressure of the hand is removed.

2. As an improvement in the mechanism for the crimping of glass, shaft I, provided with the diamond-shape wire crimping-head D F E, arranged as shown, and thus capable of adjustment, whereby it can crimp or flare and crimp glass openings of different sizes, combined with mechanism substantially as described, whereby a blow from the hand upon the upper end of said shaft causes the head to crimp the glass, and whereby, further, the head is retracted when said pressure of the hand is removed.

3. As an improvement in the mechanism for crimping or flaring and crimping the orifices of glass vessels, a conically-shaped head, composed of wires whose lengths are parallel with planes passing through the operating-shaft, to which they are secured, and arranged to accomplish the crimping or flaring and crimping of the orifice of the glass vessel by such pressure in the line of the shaft as shall cause the said head to enter the said orifice and impinge without rotation against the edge of said orifice.

4. In a machine for the crimping or flaring and crimping of glass, the adjustable wire crimping-head, consisting of the wires F, fixed at either end to a common shaft, C, and stretched over a disk, D, adjustable along the length of said shaft and wires, and the adjusting-nuts E, substantially as and for the purposes set forth.

R. HEMINGRAY.

Attest:
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