

(No Model.)

2 Sheets—Sheet 1.

H. NORTHWOOD.

GLASS PRESSING AND ORNAMENTING APPARATUS.

No. 369,296.

Patented Aug. 30, 1887.

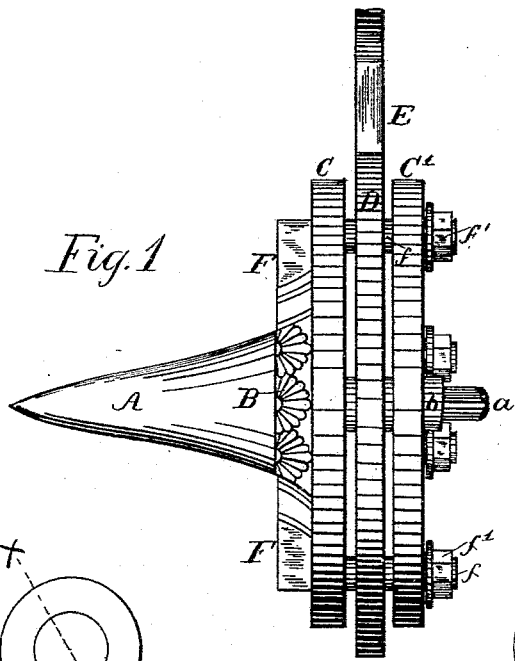


Fig. 1

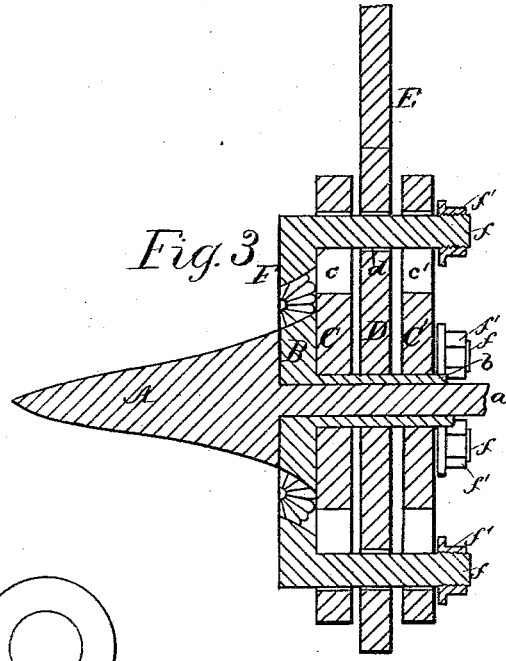


Fig. 3

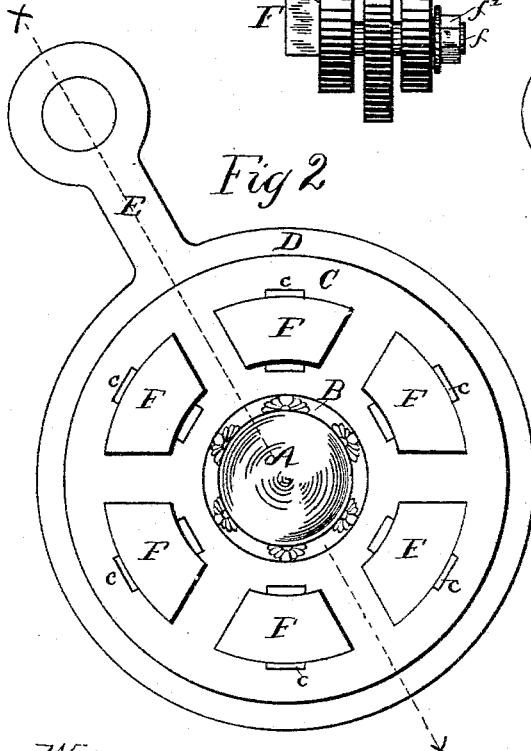


Fig. 2

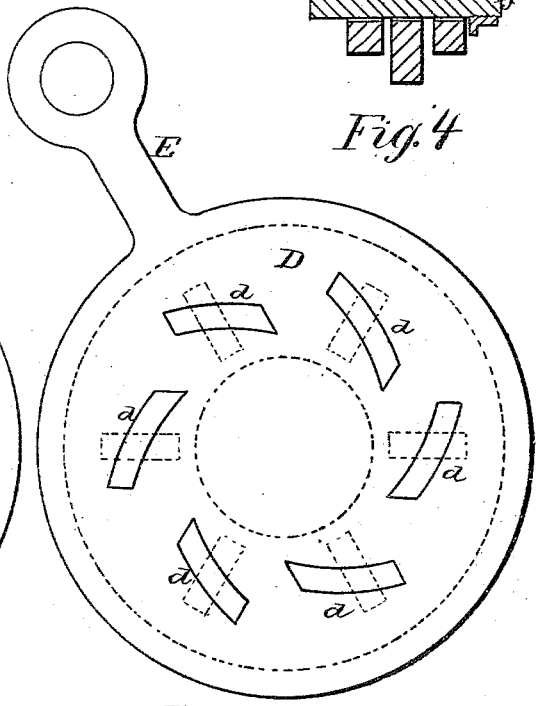


Fig. 4

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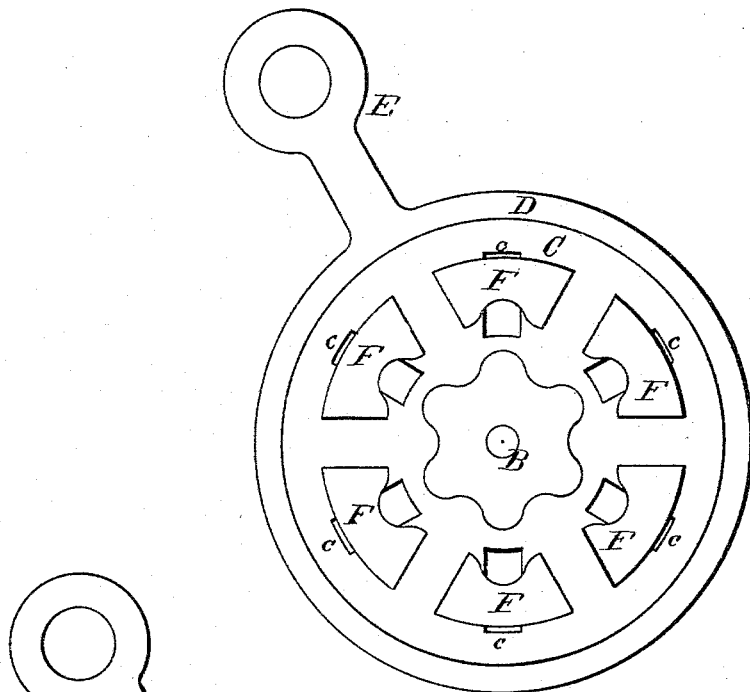


Fig. 5

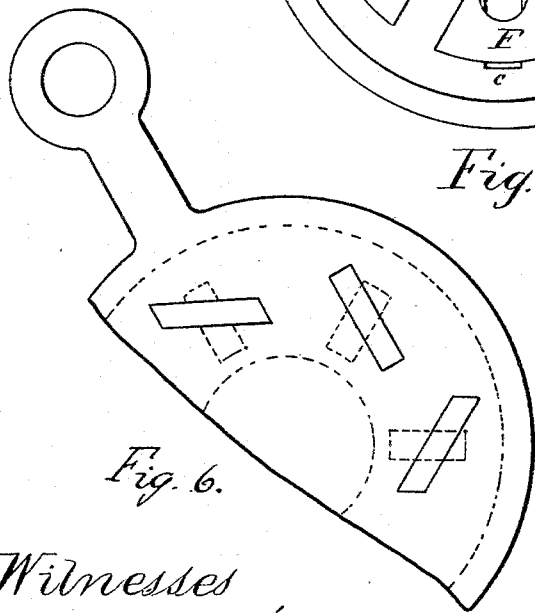


Fig. 6.

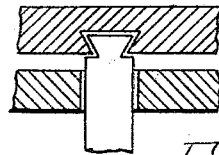


Fig. 7.

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# UNITED STATES PATENT OFFICE.

HARRY NORTHWOOD, OF BRIDGEWATER, PENNSYLVANIA.

## GLASS PRESSING AND ORNAMENTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 369,296, dated August 30, 1887.

Application filed May 3, 1887. Serial No. 237,004. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY NORTHWOOD, residing at Bridgewater, in the county of Beaver and State of Pennsylvania, have invented certain new and useful Improvements in Glass Pressing and Ornamenting Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, which form part of this specification.

This invention has relation to apparatus for pressing glassware, and has for its object the provision of means for pressing, imprinting, molding, or crimping the edge or body of an article of glassware formed from a blown or molded cylinder.

In order to render easy an understanding of my invention, I will describe it as an improvement on the well-known apparatus called a "crimper," which consists of a rapidly-revolving tapering mandrel or plug provided at its rear end with a series of stationary projections or ribs arranged radially with respect to the longitudinal axis of the plug, said projections or ribs forming "crimps" upon the edge of the chimney, globe, or other article after it has been expanded upon the plug.

In carrying my invention into effect I propose to employ, in connection with a revolving tapered mandrel, substantially such as is used in the crimping apparatus, a stationary die arranged at the rear end of said mandrel, and a series of movable dies arranged concentrically with relation to the said stationary die and provided with means for causing them to approach toward the latter, and thereby imprint upon the surface of the glass, either interiorly or exteriorly, or both, any desired form, pattern, design, emblem, configuration, or character with which either or both the stationary and movable dies may be provided.

My invention is not to be understood as being confined to the combination, with a revolving tapered mandrel or plug, of a stationary die and movable dies adapted to embrace an article expanded upon said mandrel, as it is applicable to other forms of glass-working apparatus, the tapering mandrel being shown and hereinafter described merely for the purpose of facilitating a correct understanding of my invention.

My invention, accordingly, consists in the

novel construction, combination, and arrangement of parts, hereinafter described, and specifically claimed.

Referring to the accompanying drawings, Figure 1 is a side view of my improvement, two of the movable dies being removed so as to show the stationary die; Fig. 2, a front view of the apparatus complete; Fig. 3, a vertical sectional view on the line *xx* of Fig. 2; Fig. 4, a plan view of the slotted dies by means of which the movement of the movable dies is effected; Fig. 5, a plan view showing a modified form of die, and Figs. 6 and 7 details of modifications.

A designates the tapered plug or mandrel ordinarily employed for expanding glass cylinders. Said mandrel is provided with a shaft, *a*, which is suitably journaled, and through which motion is imparted to the mandrel.

B designates the stationary die, which is arranged at the rear end of the mandrel, its periphery being shaped to conform to or being a continuation of the surface of the mandrel. Said stationary die is made integral with or rigidly secured to a sleeve, *b*, the shaft *a* passing through a hole in the center of the die and through the said sleeve, as shown.

The peripheral surface of the die B may be provided with any suitable design, figure, pattern, or character, and it may be of such form in outline as taste or fancy may dictate—as with alternate longitudinal elevations and depressions, so as to create a flute or otherwise undulating or irregular form upon the body of the article operated upon.

C designates a face-plate, which is rigidly fastened upon the sleeve *b* back of the die B, and C' a similar plate, also secured upon the sleeve *b* at a short distance from plate C.

D designates a third plate, which is placed upon the sleeve *b*, but is free to revolve thereupon, and is provided with a handle, E, by means of which it is turned upon the sleeve, as will be presently described. This plate D I will call the "eccentric plate," it being provided with curved slots *d d d*, eccentrically formed with relation to the sleeve *b*, or with straight slots at any suitable angle to the center of disk D'.

The plates C and C' are each provided with a number of straight radial slots, *e e'*, &c.,

which register with each other and through the slots *c c'*, and the eccentric slots *d d* of the eccentric plate D pass the shanks of the movable dies.

5 F F F designate the movable dies, and *fff* the shanks or stems upon which said dies are mounted, said shanks, as before said, passing through the slots in the stationary plates C C' and the slots in the eccentric plate D, and  
10 being provided on their ends with nuts *f' f'* or other suitable devices for retaining them in position in the slots. The movable dies, of which there may be any desired number, conform on their inner surfaces to the shape of  
15 the die B, and may be provided with figures, patterns, characters, or designs in relief or intaglio corresponding to those upon the stationary die; or they may be provided with alternate depressions and elevations, so as to  
20 create a fluted or other desired configuration of the article to be operated upon.

In Fig. 5 of the drawings I have shown the movable dies and the fixed die of such configuration as will create a fluted or undulating  
25 edge or body upon the articles submitted to their action, the interjacent space between the fixed and movable dies being of a serpentine or sinuous form.

30 While I have shown the apparatus in such position that the axis of the mandrel is horizontal, it is obvious that it will operate equally as well if the axis be vertical.

The slots in plate D, as shown in Fig. 4 of the drawings, are curved or eccentric to the  
35 axis of the mandrel; but instead of being curved these slots may be straight, but obliquely or tangentially arranged with respect to the sleeve *b*, as shown in Fig. 6 of the drawings.

40 I have shown in Fig. 3, and have hereinbefore described, both plates C C' as being slotted radially for the passage of the shanks of the movable dies; but the plate C', instead of being slotted, as shown at *c'*, may be formed  
45 with radial grooves having dovetail walls, and the ends of the shanks *fff* formed with correspondingly dovetail or flaring heads, as shown in Fig. 7.

In some instances one of the radially-slotted  
50 plates may be dispensed with.

Operation: As seen in the several figures, the movable dies are spread out and the apparatus is ready for the reception of an article to be pressed or ornamented. The article,  
55 which is of course in a sufficiently soft condition to permit of manipulation, is passed up over the mandrel until its edge embraces the fixed die B. The eccentric plate D is then turned by means of the handle E, and the  
60 shanks of the movable dies bearing against the outer edges of the slots *d d* the said dies are gradually and simultaneously caused to

approach the stationary die and compress the article, giving it the desired shape or ornamentation, or both shape and ornamentation  
65 simultaneously. After the article has been pressed between the dies, the handle E is turned in the opposite direction and the dies returned to their normal position.

Having fully described my invention, I  
70 claim—

1. In an apparatus for forming or ornamenting glassware, the combination, with a revolving plug or mandrel, of a fixed die or former and two or more movable dies concentric with the fixed die, and means, substantially as described, for moving the movable  
75 dies in toward the fixed die, as set forth.

2. In an apparatus for pressing the edges or body of cylindrical articles of glass, the combination, with a revolving plug or mandrel and a fixed die having an irregular but symmetrical outline, of two or more movable dies whose working-faces correspond to the outline  
80 of the fixed die, and means, substantially as described, for operating said movable dies, as set forth.

3. In an apparatus for ornamenting glass, the combination of a revolving plug or mandrel and a fixed die having designs, figures,  
85 or the like in relief or intaglio upon its working-face, with two or more movable dies, also provided with designs, figures, or the like, and means, substantially as described, for causing the movable dies to approach the fixed  
90 die, and thereby imprint the design upon the dies into or upon a cylindrical section of glass surrounding the said fixed die, as set forth.

4. In an apparatus for pressing or forming the edges or bodies of cylindrical sections of  
95 glass, the combination, with the fixed die B, the face-plate C, having radial slots *c*, and the plate D, having slots *d*, of the movable dies F, whose shanks *f* project through the slots *c* and  
100 *d*, whereby when the plate D is revolved the movable dies will approach toward the fixed die, substantially as described.

5. In an apparatus for pressing the surface of cylindrical articles of glass, the combination, with the fixed die B, the face-plate C,  
105 having radial slots *c*, the rear plate, C', having radial slots *c'*, and the plate D, having the slots *d*, of the revolving plug or mandrel A and the movable dies F, whose shanks *f* pass through the slots in the plates C, C', and D,  
110 all constructed and arranged substantially as described.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of  
November, 1885.

HARRY NORTHWOOD.

Witnesses:

P. I. BEAUMONT,  
LAURA M. HIBLER.