T. HIPWELL.

GLASS-GRINDING MACHINE.

No. 180,584. Patented Aug. 1, 1876.

Fig. 1

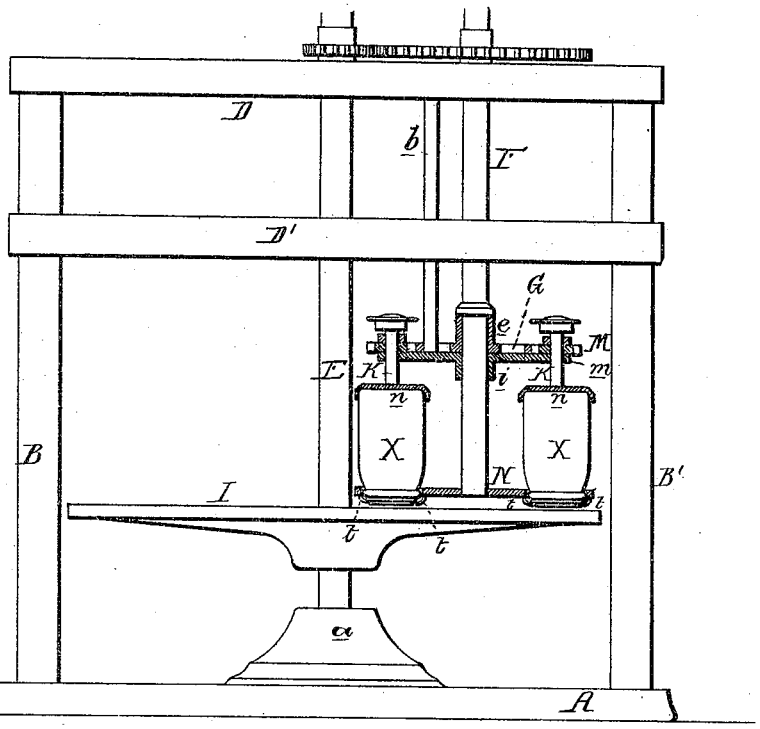


Fig. 3.

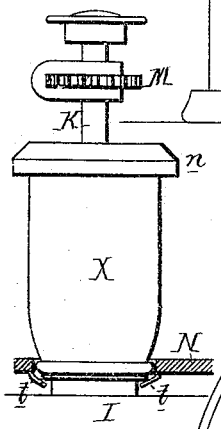
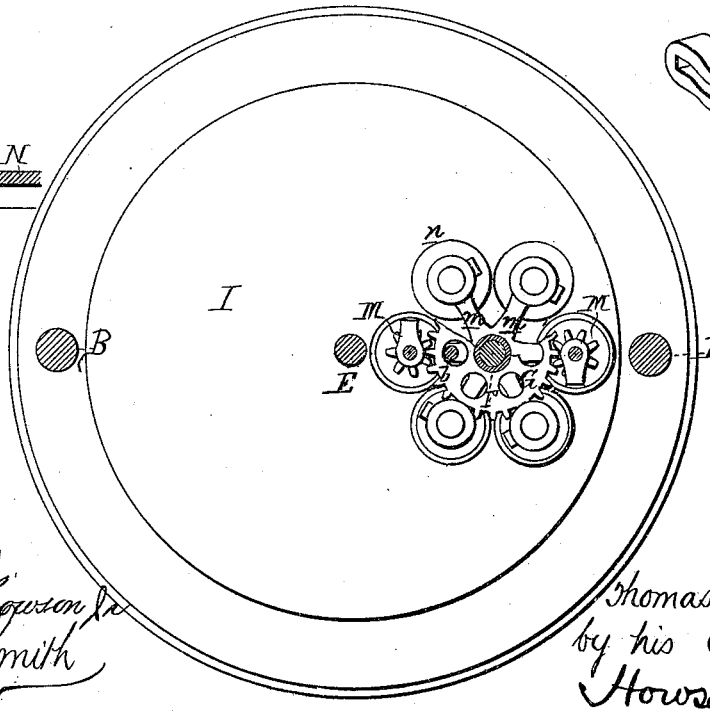


Fig. 2.

Fig. 4



Witnesses
Harry Howson Jr
Harry Smith

Thomas Hipwell
by his Attorneys
Howson & Son

UNITED STATES PATENT OFFICE.

THOMAS HIPWELL, OF BRIDGETON, NEW JERSEY, ASSIGNOR TO COHANSEY GLASS MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN GLASS-GRINDING MACHINES.

Specification forming part of Letters Patent No. **180,584**, dated August 1, 1876; application filed March 13, 1876.

To all whom it may concern:

Be it known that I, THOMAS HIPWELL, of Bridgeton, Cumberland county, New Jersey, have invented a Machine for Grinding the Mouths of Glass Vessels, of which the following is a specification:

The object of my invention is to truly, evenly, and rapidly grind the edges of the mouths of first jars, bottles, and other vessels, and this object I attain in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is a side view of the machine partly in section; Fig. 2, a sectional plan; and Figs. 3 and 4, detached views, illustrating parts of the machine.

The frame-work consists, in the present instance, of the base A, the opposite posts B and B′, and the two cross-bars, D and D′. A vertical shaft, E, turns at its lower end in a step, *a*, on the base, and at its upper end in suitable bearings on the cross-bars D D′. This shaft, which carries the grinding-disk I, is geared to another vertical shaft, F, which turns above in bearings on the said cross-bars D D′, and below in the hub *e* of a cog-wheel, G, which is always stationary, as it is connected to the frame-work in the present instance by a bar, *b*. Below this cog-wheel, and to the same shaft, is secured a hub, *i*, from which project a number of arms, *m*—six in the present instance—each arm being bent at the end so as to afford two bearings for a spindle, K, and for the reception and vertical confinement of a pinion, M, the teeth of which gear into those of the stationary wheel G. Each spindle K can slide freely in its bearings in the end of the arm *m*, as well as in its pinion, but cannot turn independently of the latter. To the lower end of each spindle K is secured a flanged cap, *n*, so adapted to the base of the inverted vessel X that it shall serve as a chuck through the medium of which the said vessel is rotated on its own axis. To the lower end of the vertical shaft F is secured a plate, N, having as many openings as there are spindles K, each opening being central with one of the said spindles, and being arranged to receive and guide the neck of the vessel X. As the two shafts E and F are rotated in contrary directions, the former rapidly, and the latter slowly, the vessels X are carried round in a circle, with the edges of their mouths bearing on the grinding-disk I. At the same time each vessel turns on its own axis, owing to the pinion M of each spindle K gearing into the stationary cog-wheel G, the weight of the spindle and its cap *n* causing sufficient friction on the inverted base of the vessel to insure the turning of the same with the spindle.

On reference to Fig. 4 it will be observed that the edge of each opening in the plate N for receiving the neck of the vessel has lips *t* projecting inward and downward for limiting the extent to which the edge of the vessel's mouth shall be ground away, the vessel being arrested in its downward movement by the contact of its shoulder on the neck with these lips, which are essential in all cases where a determinate distance between the ground edge and a shoulder on the jar or bottle is required. As the shaft F revolves at a comparatively slow rate of speed, an attendant or attendants can remove the ground jars and apply others unground to the machine without stoping the same, the removal of each vessel being accomplished by simply raising its spindle and cap and withdrawing the neck of the vessel from the opening in the plate N.

A prominent advantage of the planetary movement imparted to the series of vessels is the effective distribution of the granular grinding material on the face of the disk; but I do not desire to claim, broadly, mechanism for causing a series of articles to be ground to revolve around a common center, while each revolves on its own axis, as this is well known; but

I claim as my invention—

1. In a machine for grinding the mouths of vessels, the combination of a grinding-disk with a plate, N, having openings for receiving the necks of the vessels, and with caps *n* and spindles K, through the medium of which, and suitable gearing, each vessel is caused to revolve on its own axis while it is carried around in a circle with the plate N, all substantially as set forth.

2. The combination of the shaft F, and sta-

tionary cog-wheel G, the spindles K, caps *n*, and pinions M, carried by the arms *m* on the said shaft, and the plate N with its openings, all substantially as set forth.

3. The combination of the plate N and its openings, with lips *t* projecting from the edge of each opening, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS HIPWELL.

Witnesses:

S. T. BODINE, Jr.,

DANIEL SHARP.