J. HALEY.

MACHINES FOR GRINDING GLASSWARE.

No. 185,227. Patented Dec. 12, 1876.

Fig. 1.

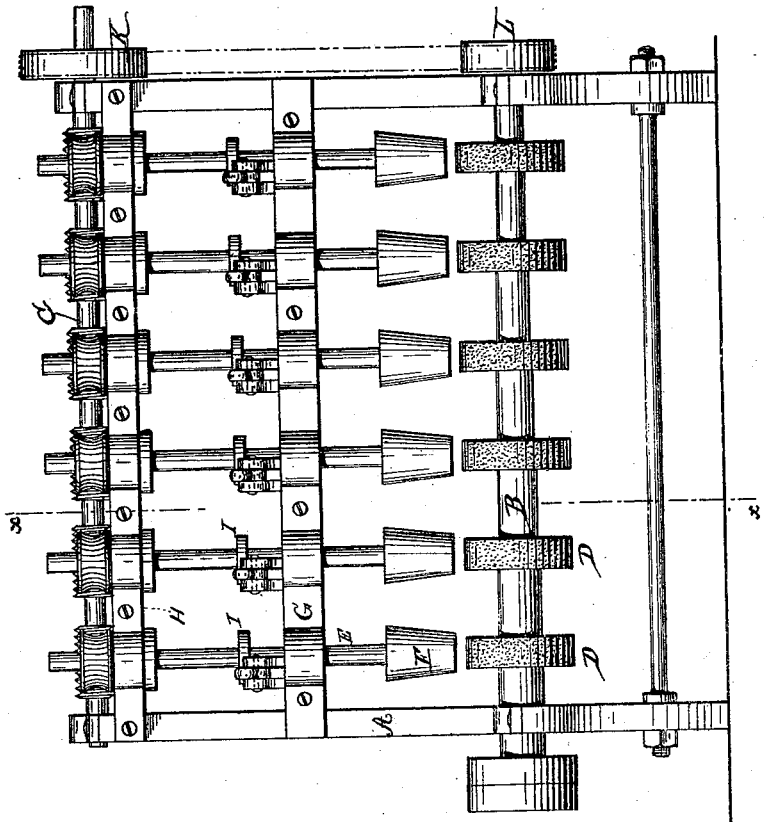


Fig. 2.

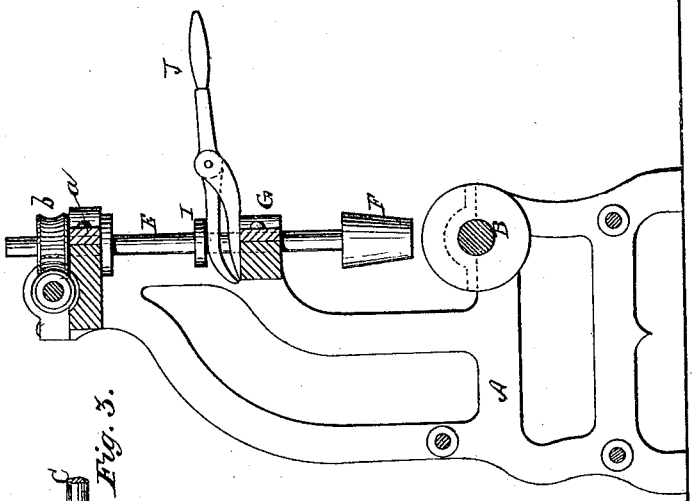


Fig. 3.

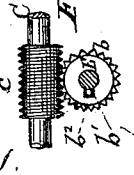
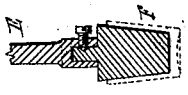


Fig. 4.



Witnesses:
R. K. Evans
H. H. Mayow.

Inventor:
Jonathan Haley
by attys
H. N. Evans & Co.

UNITED STATES PATENT OFFICE.

JONATHAN HALEY, OF ROCHESTER, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR GRINDING GLASSWARE.

Specification forming part of Letters Patent No. **185,227**, dated December 12, 1876; application filed October 21, 1876.

To all whom it may concern:

Be it known that I, JONATHAN HALEY, of Rochester, Pennsylvania, have invented certain new and useful Improved Grinding, Punting, and Flatting Machine for Glassware, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a front elevation of my invention. Fig. 2 is an end elevation of the same. Figs. 3 and 4 are details referred to.

My invention relates to the grinding, punting, and flatting of glassware; and it consists of the combination of devices, hereinafter described and claimed, by which the skilled labor heretofore employed may be in a great measure dispensed with.

To enable others skilled in the art to make and use my invention, I will proceed to describe the exact manner in which I have carried it out.

In the drawings, A represents a frame-work, in which are bearings for the horizontal shafts B and C. On the shaft B are rigidly secured any desired number of suitable mills D, over each of which is placed a vertical shaft, E, provided on its lower end with a convenient means for attaching a block or plug, F, over which the tumbler to be ground is placed, as shown in Fig. 4. The vertical shafts have bearings in the cross-beams G and H of the frame-work, and are provided with the collars I, against which the horizontal levers J press to raise the shafts, as shown in Fig. 2. The bearings in the cross-beam H are provided with sleeves or bushings *a*, the upper portions or heads *b* of which are provided with short threads, which mesh into a series of worm-gears, *c*, on the horizontal shaft C, as shown in Fig. 3. The heads *b* are grooved at b^1, as shown in Fig. 3, to receive a feather, b^2, on the vertical shafts, and prevent the shafts from turning independently of the heads when the operation of grinding is going on. When the vertical shafts are raised by the levers J, and the tumblers are thus withdrawn from the mills, the feathers are lifted from the grooves b^1, and the shafts cease to revolve while changing or handling the tumblers. When the shafts are again lowered to a position for grinding, the feathers engage in the grooves b^1, and the shafts revolve with the heads *b*, which are driven by the worm-gears *c* on the shaft C, as above described, power being applied to the horizontal shaft B at K, and transmitted, through a proper connection, to the shaft C at L.

When a glass of a different shape is to be ground, the plugs F are changed to suit the shape of the glass. These plugs I usually make of iron or other suitable material, with rubber or cork covering.

The tumbler being placed on the plug, the shaft is lowered to the mill, and the weight of the shaft will press the tumbler on the mill sufficiently to secure the proper grinding.

The attendant will repeat the same on the other plugs until they are all in operation, when he will return to the first shaft and take off the tumbler, replacing it with another. Thus the operation is continuous.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The horizontal shaft B, provided with the mills D, and the shaft C, provided with the worm-gears *c*, in combination with the vertical shafts E, provided with the plugs F and feathers b^2, collar I, and sleeves or bushings *a*, provided with the threaded heads *b*, having grooves b^1, all constructed to operate substantially as and for the purpose set forth.

JONATHAN HALEY.

Witnesses:

SAMUEL M. KANE,

HENRY C. FRY.