2 Sheets—Sheet 1.

J. HALEY.

Machine for Etching Glassware.

No. 219,813 **Patented Sept. 23, 1879.**

Fig. 1.

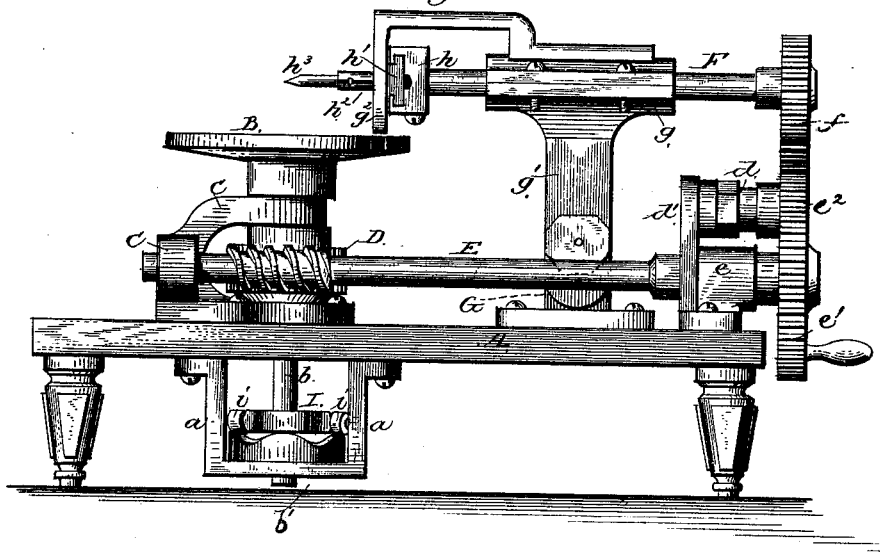
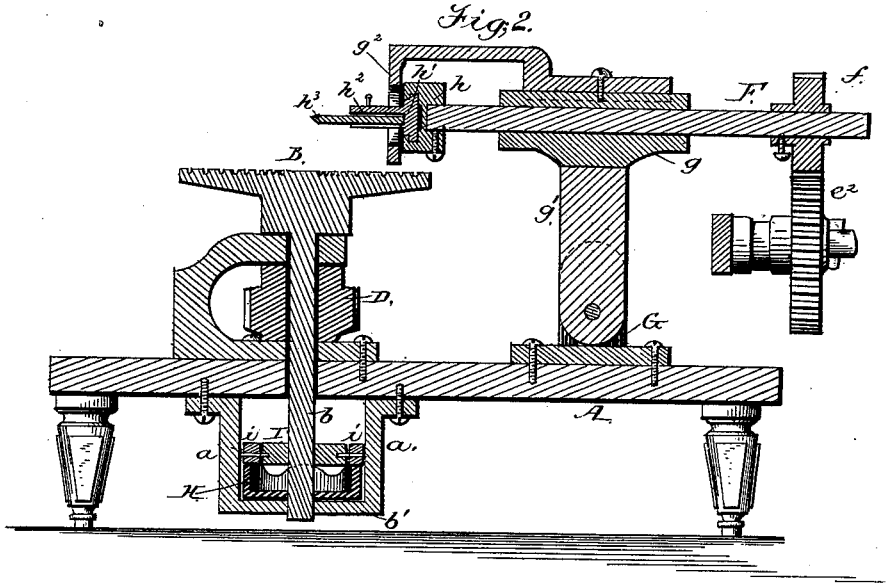


Fig. 2.



Witnesses;
F. Walter Fowler,
R. K. Evans

Inventor;
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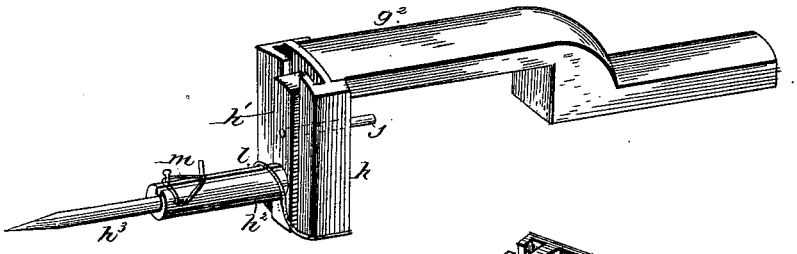
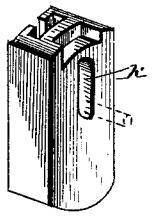
No. 219,813. Patented Sept. 23, 1879.

Fig; 3.



Fig; 4



Fig; 5.

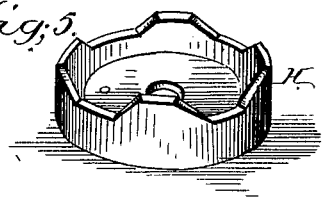
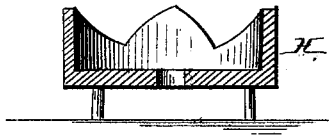
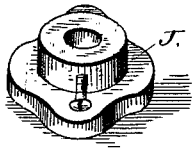


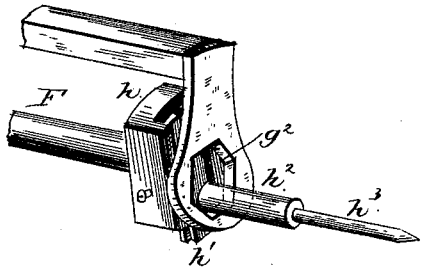
Fig. 6.



Fig; 7.



Fig; 8.



Witnesses;
J. Walter Fowler
R. K Evans

Inventor;
Jonathan Haley
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A. H. Evans & Co

UNITED STATES PATENT OFFICE.

JONATHAN HALEY, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR ETCHING GLASSWARE.

Specification forming part of Letters Patent No. **219,813**, dated September 23, 1879; application filed July 29, 1879.

To all whom it may concern:

Be it known that I, JONATHAN HALEY, of Pittsburg, county of Allegheny, State of Pennsylvania, have invented certain new and useful Improvements in Machines for Etching Glassware; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a longitudinal vertical section. Figs. 3 to 8 are details to be referred to.

This invention relates to certain new and useful improvements in machines especially designed for etching glassware; and the invention consists in the general construction and combination of parts, as will be hereinafter fully described and claimed.

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 table, upon which the operating mechanism is mounted. B represents a circular plate, mounted on the upper end of a vertical shaft, *b*, passing down through the table A, and through a cross-plate, *b'*, suspended by hangers *a a* from the under side of the table A. C represents a forked standard secured upon the table A, and through which the shaft *b* passes, the circular plate resting on top of said standard. Upon the shaft *b*, between the forks *c c* of said standard, is mounted a gear-wheel, D, which meshes with a worm-gear on the shaft E, which is journaled in a projecting plate, *c'*, of standard C and the vertical standard *e*, said shaft being operated by a gear-wheel and crank, e^1, mounted on one end thereof. The wheel e^1 meshes with a gear-wheel, e^2, mounted on a stub-axle, *d*, secured to the slotted and adjustable bar *d'*, journaled or pivoted to the upright standard *e*. The gear-wheel e^2 meshes with a gear-wheel, *f*, mounted on one end of the shaft F, which is mounted in the extended-journal box *g*, secured on top of the standard *g'*, which is pivoted to the upright support G, secured on top of table A. Mounted upon the forward end of shaft F is a grooved block, *h*, for the reception of the sliding chuck h^1, carrying the spindle h^2, in which the etching-point h^3 is mounted, and which passes through the slotted former g^2, and extends over the circular plate B, upon which the glassware to be etched is placed.

H H H are a series of interchangeable grooved dies or formers, secured upon the cross-plate *b'*, below the table A, and over which passes the friction-rollers *i*, journaled to a plate, I, mounted on the shaft *b*. The object of the interchangeable grooved dies or formers is to raise the circular plate in its revolution, and thus produce different scallops and other figures on the glassware. The sliding chuck h^1 and the former g^2 is for the purpose of giving different figures other than the common circulars, the slot through the former g^2 being made of any desired shape to suit figures required to be made on the glassware.

J represents a grooved former, which, when used, is mounted on the spindle h^2, and former g^2 is fastened on top of the journal-box *g*. The shaft being then revolved, the grooved chuck coming in contact with the circular plate B gives motion to the sliding chuck h^1 and pointer h^3, thus forming almost any figure required on the glassware. When the grooved former J is substituted for the slotted former, the sliding chuck h^1 is provided with a pin, *j*, which passes through a slot, *k*, in the grooved block *h*, a retracting-spring, *l*, returning the sliding chuck to its original position when raised by the revolving grooved chuck. The sliding chuck can be provided with one or more points, as the figures to be formed may require.

The object of the pivoted standard is to change the angle of the pointer to suit bevel of the article of glassware to be ornamented, the slotted arm *d'* permitting of the intermediate gear-wheel, e^2, being adjusted so as to keep the gear-wheels always in mesh, at whatever angle the pointer may be adjusted to. The pointer is always kept pressed against the glassware being ornamented by means of the spring *m*.

The operation of my improved machine is as follows: The glass to be ornamented is first covered with wax or other suitable substance, and then placed on the revolving plate B, the hand crank-wheel is then turned, which gives

motion to shaft E, and also shaft F, revolving plate B and etching-pointer, which removes the wax or other substance in the path of the pointer, thus producing the desired figures on the glassware, which are afterward cut in by acids, in the usual manner.

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

1. In a machine for etching glassware, the combination, with the revolving plate B, of the shaft *b*, provided with the plate I, having friction-rollers *i*, and the interchangeable grooved dies or formers H, substantially as and for the purpose shown and described.

2. In a machine for etching glassware, the combination, with the revolving shaft F, of the grooved block *h*, mounted thereon, the sliding chuck h^1, carrying the spindle h^2, in which the pointer h^3 is secured, and a stationary slotted or revolving grooved former, substantially as and for the purpose shown and described.

3. In a machine for etching glassware, the combination, with the revolving plate B, of the shaft *b*, provided with the plate I, having friction-rollers *i*, interchangeable dies or formers H, shafts E F, and intermediate connecting mechanism, grooved block *h*, sliding chuck h^1, carrying the spindle h^2, in which the pointer h^3 is secured, and a stationary revolving slotted or grooved former, substantially as and for the purpose shown and described.

JONATHAN HALEY.

Attest:

JOSEPH BLACKSHAW,
WILLIAM HALEY.