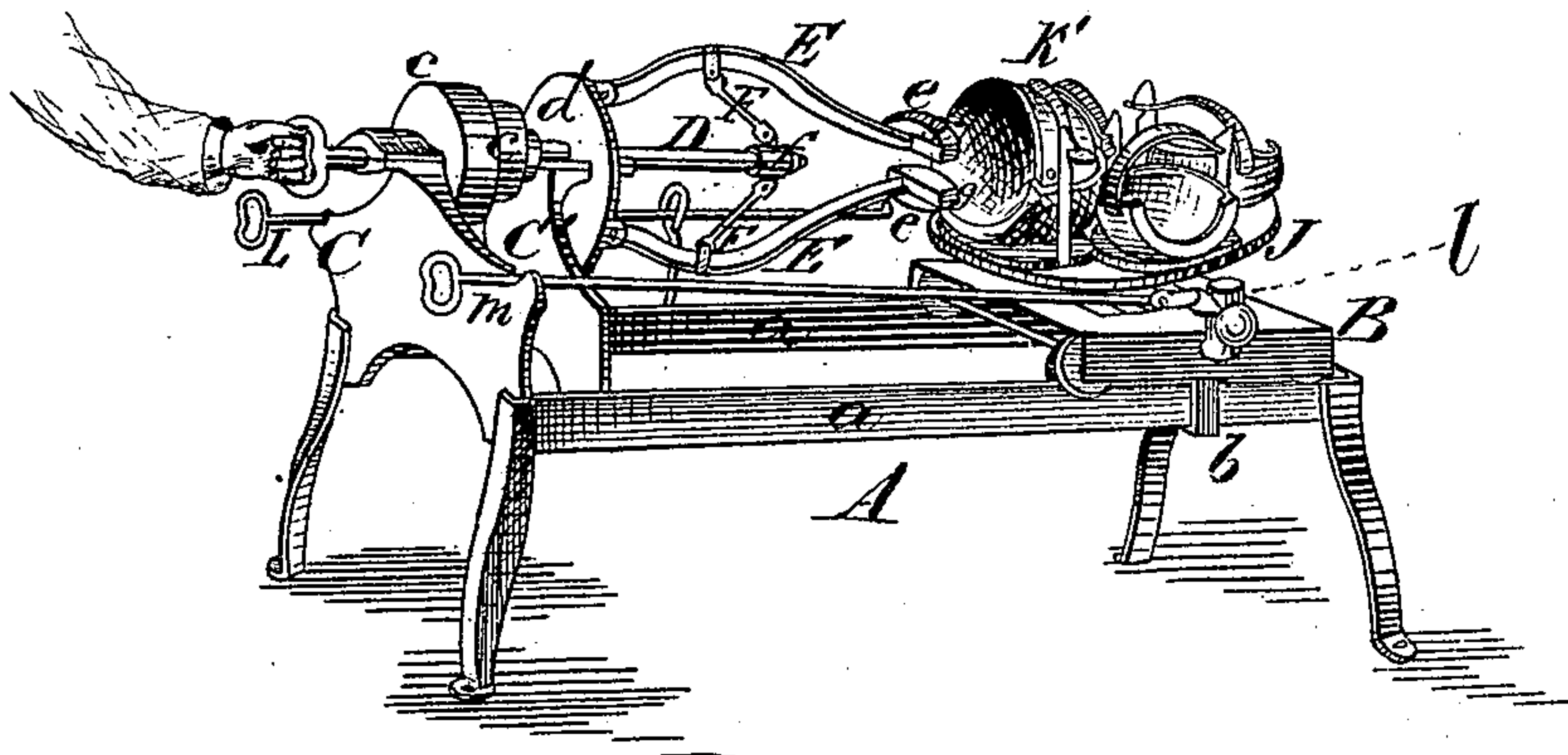


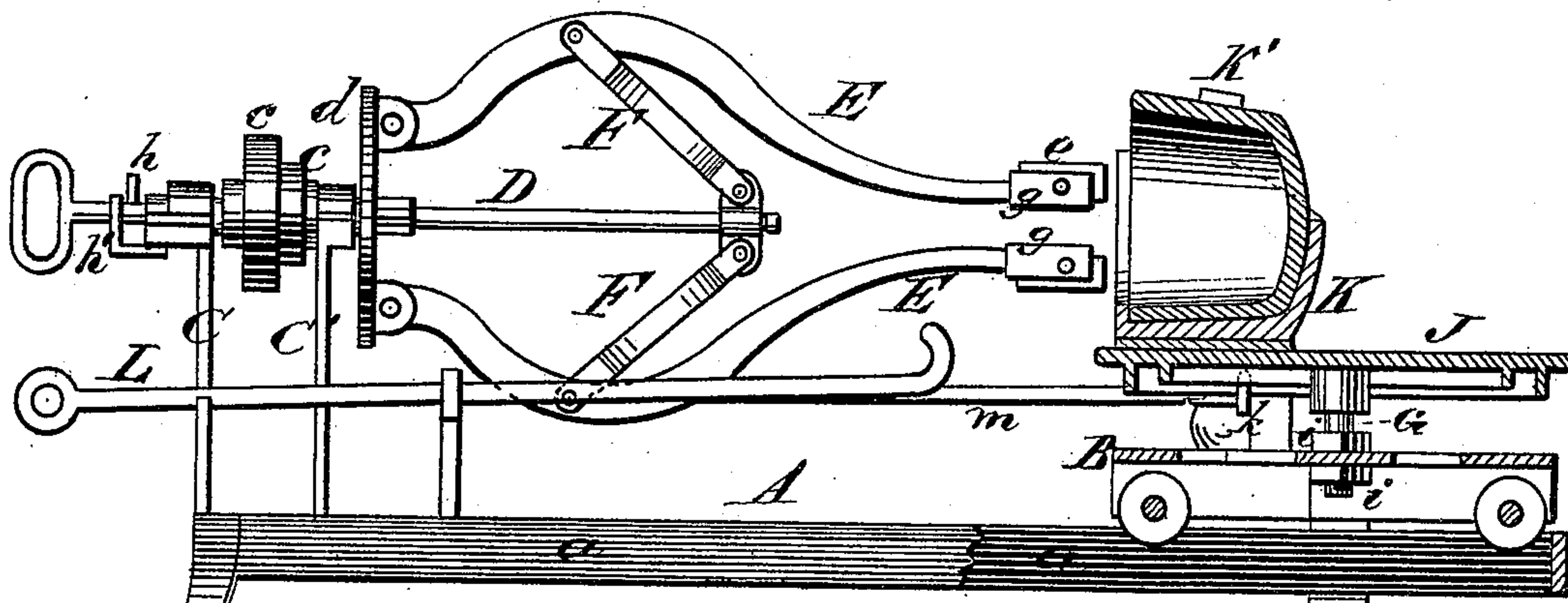
No. 174,808.

Patented March 14, 1876.

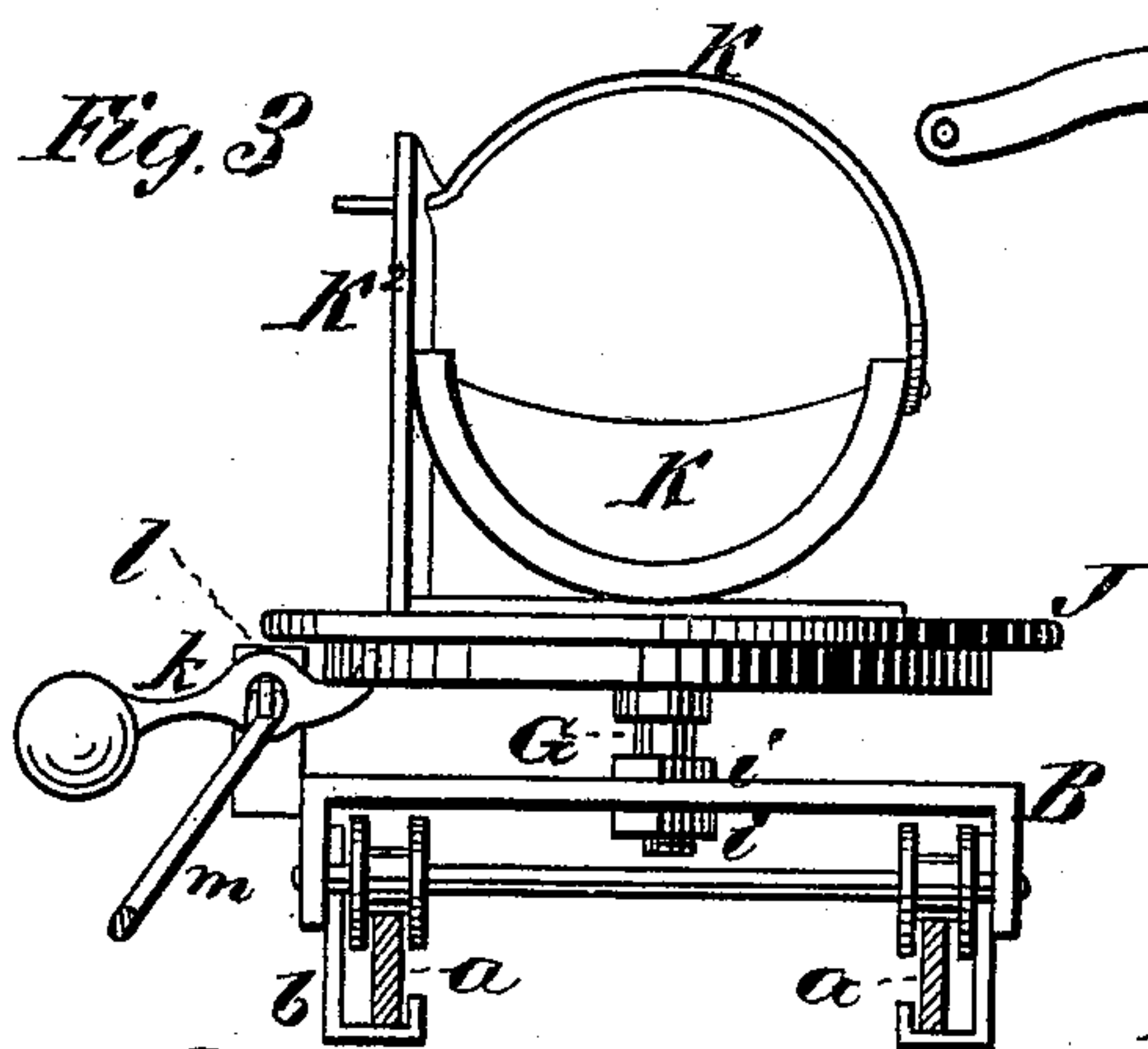
*Fig. 1*



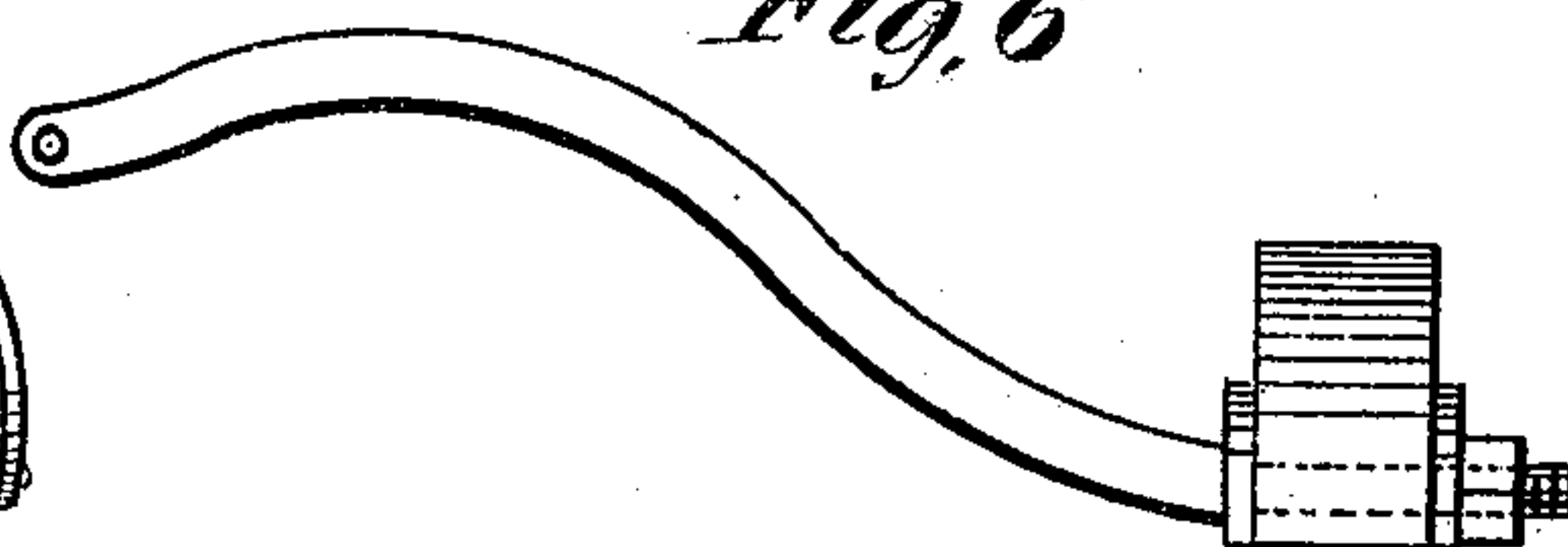
*Fig. 2*



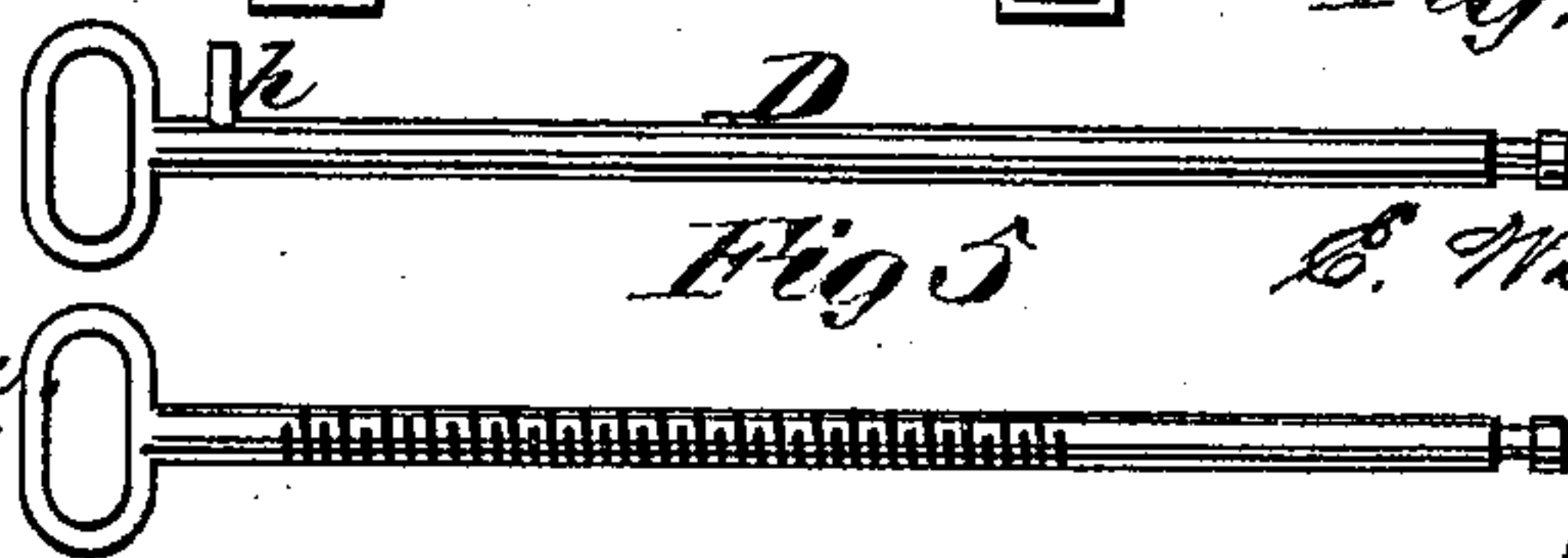
*Fig. 3*



*Fig. 6*



*Fig. 4*



WITNESSES

*E. Pontes*

Гео. Е. Уфаме

INVENTOR,

E. William Gurnee.

Gilmore, Smith & Co.

ATTORNEYS



# UNITED STATES PATENT OFFICE

E. WILLIAM GUNN, OF NEW WOODSTOCK, NEW YORK.

## IMPROVEMENT IN HOLLOW-WARE GRINDERS.

Specification forming part of Letters Patent No. 174,808, dated March 14, 1876; application filed February 5, 1876.

*To all whom it may concern:*

Be it known that I, E. WILLIAM GUNN, of New Woodstock, county of Madison and State of New York, have invented a new and valuable Improvement in Hollow-Ware Grinders; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a perspective view of my machine, and Fig. 2 is a longitudinal sectional view thereof. Figs. 3, 4, 5, and 6 are detail views.

This invention has relation to machines which are designed for various kinds of hollow ware; and the nature of my invention consists, mainly, in revolving expansible arms having grinding-blocks on their free ends, and applied to a revolving mandrel, in combination with a horizontal table which can be turned about its axis and raised or depressed, and which is mounted upon a carriage, as will be hereinafter explained.

The invention also consists in a loaded locking device and a long handle for working it, in combination with a table which is perforated and shouldered, as will be hereinafter explained.

In the annexed drawings, A designates the frame of the machine, which is constructed with horizontal ways *a*, on which roll the grooved wheels of a carriage, B, that is held upon the said ways by means of clasps *b*. C C' designate two standards, having journal-boxes secured to their upper ends, in which turns the hollow mandrel of belt-pulleys *c c*, through which mandrel a rod, D, passes freely, and is allowed to receive endwise movement. On one end of the mandrel a disk, *d*, is secured, to which two bowed arms are pivoted, lettered E E, and bearing on their free ends grinding and polishing blocks *e e*, of any suitable size and shape, which blocks are embraced by tapered holders *g g*, thus preventing their displacement. The arms E E are connected by toggle-levers F F to a collar, *f*, which embraces freely a groove made in the end of the rod D. By these means the arms E E, with their grinding-blocks *e e*, can be ro-

tated. At the same time the attendant, by grasping the handle of rod D and moving this rod endwise, can expand or bring together the blocks *e*, and thus adapt them to different diameters of hollow ware. A lug, *h*, on rod D, and a stop, *h'*, on standard C, will prevent the separation of the arms E E when the blocks *e e* are not grinding. Instead of using the endwise-sliding rod D, a screw-threaded rod (shown in Fig. 5) may be used, in which case this rod will be tapped through the mandrel of pulleys *c c*, and applied to the collar *j* in the same manner as rod D. Rising from the center of the carriage B is a post, G, which is vertically adjustable by means of nuts *i i*, and which is free to turn. To this post a circular table, J, is secured, which, in practice, will be provided with four holders for the hollow ware, arranged at regular intervals apart. Each holder consists of a semicircular flanged portion, K, of proper size, a clamping-strap, K<sup>1</sup>, and a catching-standard, K<sup>2</sup>. The holders will vary in shape and size, according to the different shapes and sizes of the articles to be ground and polished. On one side of the carriage B is a loaded locking-catch, *k*, which is pivoted to a vertically-adjustable post, *l*, and has a long rod, *m*, connected to it, which can be rested upon the standard C when it is not in immediate use. The inner hooked end of the catch *k* engages in one of several holes made through the table J, and holds the table firmly when a vessel is in position for being polished. By giving the rod *m* a slight turn the catch can be disengaged from the table, and the latter turned one-quarter around by means of a hooked rod, L. Rod *m* is used for moving the carriage B back and forth on its ways. The arms E E may be crossed, and, instead of the grinding-blocks *e e*, (shown in Figs. 1 and 2,) semi-cylindrical grinding-blocks (shown in Fig. 6) may be used for grinding cylindrical pipes or vessels. A spiral spring may be adjusted to the sliding rod to help resist the centrifugal force of the grinding-blocks.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a hollow-ware grinder, revolving expansible grinders *e e*, applied to arms E E, and controlled by means of a rod, D, in combina-

tion with a turn-table, J, on a carriage, B, substantially as described.

2. The gravitating locking device *k* on a post, *l*, of frame A, in combination with the rod *m* and turn-table J, as and for the purposes set forth.

3. The table J, made vertically adjustable on carriage B, in combination with the catch *k* and its vertically-adjustable posts *l*, substantially as described.

4. The hollow-ware holder on table J, composed of the parts K K<sup>1</sup> K<sup>2</sup>, as described.

5. The endwise-movable rod D, levers F, and arms E, in a machine constructed as and for the purpose set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

E. WILLIAM GUNN.

Witnesses:

JAS. ALLEN,  
G. H. MOFFETT.