W. SCULLY.

MACHINE FOR GRINDING AND POLISHING HOLLOW WARE.

No. 189,505. Patented April 10, 1877.

Fig. 1.

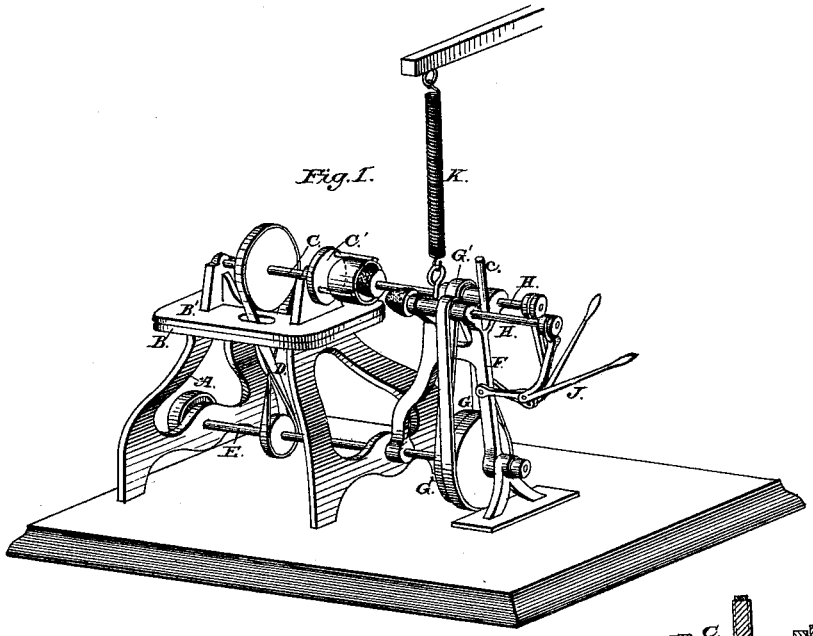


Fig. 3.

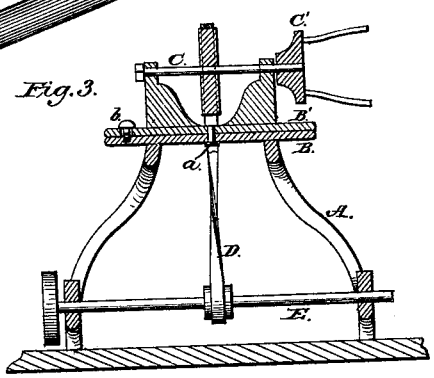
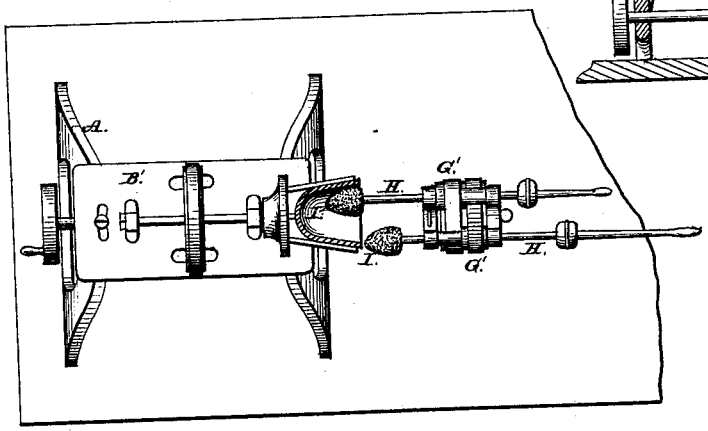


Fig. 2.



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WILLIAM SCULLY, OF DETROIT, MICHIGAN, ASSIGNOR TO THE DETROIT IRON AND BRASS MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN MACHINES FOR GRINDING AND POLISHING HOLLOW-WARE.

Specification forming part of Letters Patent No. **189,505**, dated April 10, 1877; application filed November 25, 1876.

To all whom it may concern:

Be it known that I, WILLIAM SCULLY, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Machines for Grinding and Polishing Hollow-Ware, of which the following is a specification:

The object of my invention is to provide a machine by means of which the inner surfaces of hollow-ware may be more rapidly ground and polished than heretofore; and it consists, mainly, in a swinging frame carrying a gang of rapidly-rotating spindles, each carrying at the inner end an emery or other grinding wheel, which wheels may be successively brought into contact with the interior surface of the vessel or article, which is also rotated by a belt from the same shaft which gives motion to the spindles.

Figure 1 is a perspective view. Fig. 2 is a sectional plan view. Fig. 3 is a longitudinal vertical section of the chuck-table.

In the drawing, A represents the main frame, supporting a table, B, on which a chuck-table or stock, B′, is pivoted at *a*, to permit of an angular adjustment, in which it may be secured by a set-screw, *b*, tapped into the bed or table B through a slot. C is the tail-spindle, journaled in the stock B′, and is driven by a crossed belt, D, from a pulley on the main shaft E, journaled through the lower part of the frame, giving said tail-spindle a comparatively slow motion. The spindle C carries a chuck, C′, in which the pot or other article to be ground is secured. F is a swinging frame, whose lower ends are sleeved on the projecting end of the driving-shaft, on which is a drum, G, between the legs of said frame, the head of which is T-shaped at each end, so as to permit of two parallel spindles, H H, being journaled therein, each carrying at the front end a pear-shaped emery-wheel, I, and susceptible of a longitudinal movement in its bearings through a bell-crank lever, J, at the back end. A pulley, G^1, is feathered on each spindle H, between the bearings of the latter, which is driven at a high rate of speed by a belt, G^2, from the drum G, both spindles being driven in the same direction. The frame F is normally kept in a vertical position by a spiral spring, K, or an equivalent cord and counter-weight, which will allow it to be swung laterally, it being provided with a handle, *c*, for that purpose.

One of the emery-wheels is coarse in grain, so as to rapidly cut away the skin of the metal, while the other is fine, so as to produce a polish on its roughly-ground inner surface.

A vessel being secured in the chuck, and in motion, to grind it, the operator takes the handle *c* in one hand, and swings the frame F so as to bring the spindle carrying the coarse wheel opposite the vessel. With the other hand on the bell-crank he projects the spindle into the vessel, keeping the outer edge and end of the coarse wheel in contact with the interior surface of said vessel until it is roughly ground; then, withdrawing the coarse wheel, he swings over the frame, and in like manner introduces the finer wheel, with which he completes the grinding and polishing of the surface of the vessel or other article.

In polishing skillets, spiders, and other flat-bottomed vessels, the tail-stock may be "set over" a little, so as not to have the article revolve in an axis parallel with that of the grinding-spindles, whereby all chance of grinding the surface in concentric and parallel lines is avoided, thereby producing a much finer polish, while the abrasive surface of the wheels is constantly changed, so that the grinding and polishing process is much more rapid.

What I claim as my invention is—

1. The combination, with a rotary tail-spindle and chuck adapted to receive and secure an article of hollow-ware, of a swinging frame and a gang of grinding-wheel spindles, susceptible of longitudinal adjustment in their bearings, all of which spindles are driven from the same shaft, substantially as described.

2. In a grinding-machine, substantially as described, the swinging frame, carrying a gang of grinding-spindles, all driven by belts from a pulley on the main shaft, and susceptible of independent longitudinal adjustment to and from the surface of the work, substantially as set forth.

WILLIAM SCULLY.

Witnesses:
H. F. EBERTS,
H. FALLS.