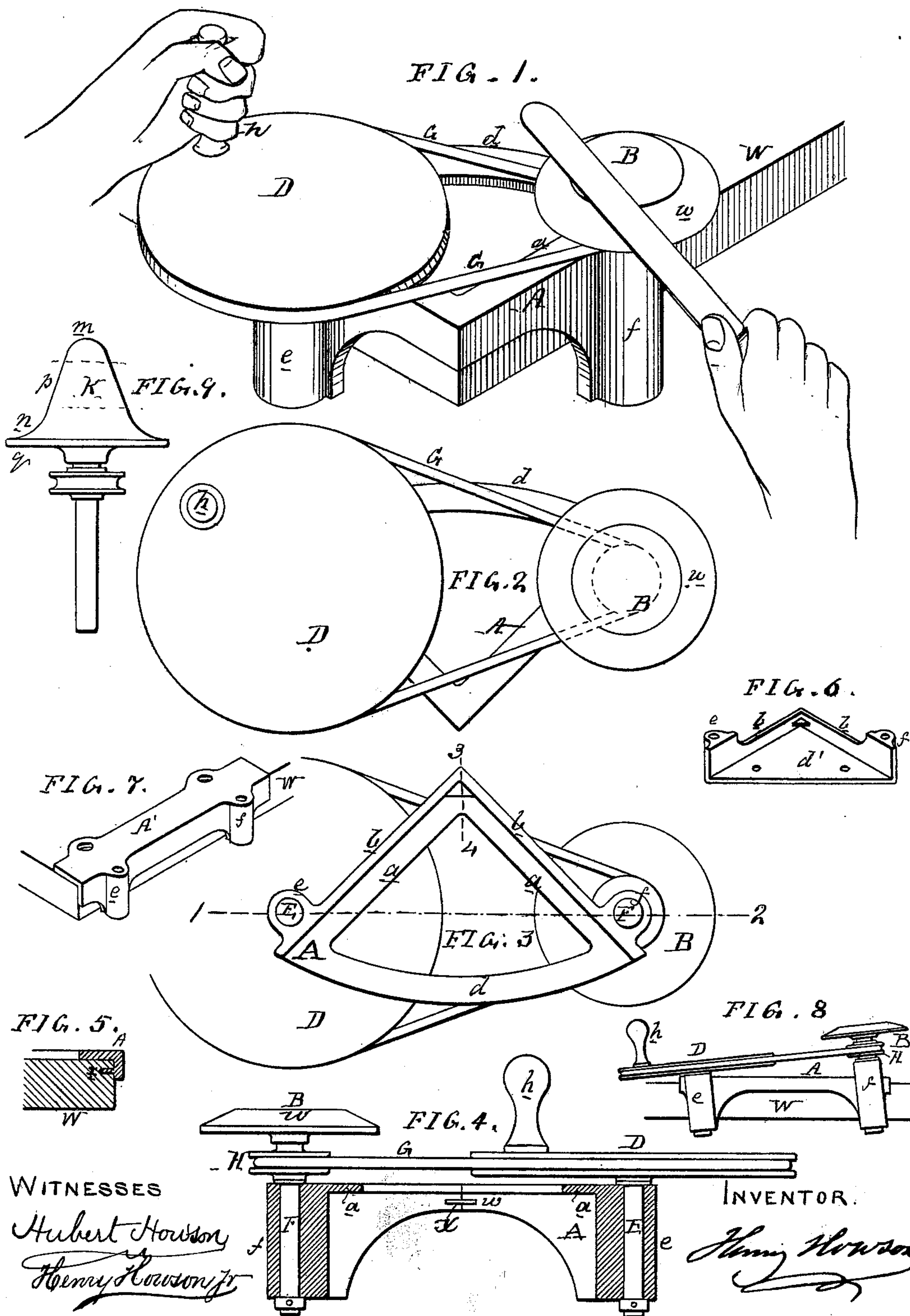


H. HOWSON.
 Portable Grinding and Polishing Machine.
 No. 214,144. Patented April 8, 1879.



UNITED STATES PATENT OFFICE.

HENRY HOWSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
ENTERPRISE MANUFACTURING COMPANY, OF SAME PLACE.

IMPROVEMENT IN PORTABLE GRINDING AND POLISHING MACHINES.

Specification forming part of Letters Patent No. **214,144**, dated April 8, 1879; application filed
February 24, 1879.

To all whom it may concern:

Be it known that I, HENRY HOWSON, of Philadelphia, Pennsylvania, have invented a new and useful Improvement in Portable Grinding and Polishing Machines, of which the following is a specification.

My invention consists of a simple, economical, and effective grinding and polishing machine, fully described hereinafter, the machine being intended mainly for domestic use—for sharpening and polishing knives, for instance, and for cleaning and polishing spoons, forks, and other articles of silver and plated ware—the main object of my invention being to so arrange the driving mechanism and the grinding and polishing wheel, and so shape the latter, that the machine may be conveniently driven by one hand, while the objects to be operated on may be as conveniently presented to the grinding and polishing wheel with the other hand.

In the accompanying drawings, Figure 1 is a perspective of the grinding and polishing machine as it appears when secured to the corner of a table or bench; Fig. 2, a plan view; Fig. 3, an inverted plan view; Fig. 4, a vertical section on the line 1 2; Fig. 5, a vertical section on the line 3 4; Fig. 6, an inverted perspective view of a modified form of frame; Fig. 7, a perspective view of a frame constructed for adaptation to one edge only of a table or bench; Fig. 8, a view showing inclined driving-wheel and grinding-wheel; and Fig. 9, a view of the buffing-wheel.

In Figs. 1, 2, 3, and 4, A represents the base or frame of the machine; B, the grinding or polishing wheel; and D, the driving-pulley.

I prefer to make the base in the manner shown in the above figures for attachment to the corner of a table, W, and in order that there may be sufficient length of bearings for the two shafts without arranging the driving-pulley and grinding-wheel at an inconvenient altitude above the upper surface of the table, as will appear hereinafter.

The frame is a light casting, consisting of flanged bars *a a*, arranged at right angles to each other, and connected together by a cross-bar, *d*, the bars resting on the table and the flanges against the two edges of the same, and

the entire frame, with the vertical bearing *e* for the driving-shaft E and the vertical bearing *f* for the spindle F of the grinding or polishing wheel, being cast in one piece, and the bearings overhanging the table, so that they can be extended downward below the surface of the same.

Instead of making the frame open at the top, it may be made with a web, *d'*, as shown in the inverted perspective view, Fig. 6, which will be readily understood without explanation.

The frame may be secured to the table by clamps or screws; but I prefer, as one medium for securing the frame, a thin fin or projection, *x*, attached to or cast on the frame at the corner where the two flanges *b b* meet, as shown in Figs. 3 and 4, so that when the frame is fitted to the table the fin will penetrate an incision made in edge of the same at the extreme corner, as shown in Fig. 5.

An endless band, G, is adapted to a groove in the driving-pulley D, secured to the shaft E, and to a groove in a pulley, H, on the spindle F of the grinding-disk B.

A prominent object of my invention has been to arrange the handle *h* of the driving-pulley and the grinding-wheel B both in relation to each other and at such a limited height above the table that the handle shall be in a convenient position to be grasped by one hand of the operator, while the other hand holds the object to be applied to the grinding-wheel, which object in Fig. 1 is an ordinary table-knife.

In order to carry this arrangement properly into effect, it is essential that the grinding-wheel should be beveled at the edge *w*, so that the knife may be conveniently applied to it, in the manner shown in Fig. 1. The top of the wheel, moreover, should present a flat and exposed grinding-surface, having above it no projections or other obstructions to prevent the placing of the blade of the knife across it, for it is frequently advisable to apply a blade to the extended flat upper surface in finishing the grinding and polishing of the said blade.

In some cases it may be more convenient to attach the frame to the table at one edge only, in which case I make the frame as shown in

Fig. 7. This will be readily understood without explanation, the bearings for the shaft and spindle in this case also overhanging the edge of the table.

Whenever a corner of a table or bench is available, however, I prefer to make the frame in the manner shown in Figs. 1, 2, 3, and 4, as it can be more firmly and steadily held to its place, owing to its bearing against two edges of the said table or bench.

It is not essential that the driving-pulley and grinding-wheel should revolve in horizontal planes. They may, for instance, be secured to slightly-inclined shafts adapted to inclined bearings, as shown in Fig. 8. Indeed, this plan may be the most convenient for the operator, but in all cases the edge of the grinding-wheel should be beveled, for the reason given above.

An emery or corundum wheel may be used for grinding purposes, and this should be made detachable from the spindle to make way for the polishing or buffing wheel K, Fig. 9; or the latter may be permanently attached to a spindle, which may be introduced into bearing *f* after the spindle of the grinding-wheel has been withdrawn therefrom.

The buffing-wheel K may be made of wood clothed with wash-leather, felt, or other suitable material, and is made of the shape shown, so as to afford facilities for cleaning and polishing knives, spoons, and forks. The concave side of the bowl of a spoon may, for instance, be applied to the rounded top *m* of the wheel, the convex portion to the curved portion *n* and the handle of a spoon or fork, or the blade of a knife to the portion *p* of the wheel, the flange *q* being narrow enough to be admitted between the prongs of a fork.

Bristles may be fixed to the wheel at different points, so as to cleanse and polish chased portions of forks, spoons, or other plated or silver ware.

Instead of using a band for driving the spindle F a pinion may be secured to or formed on the said spindle, and a driving-wheel with teeth gearing into those of the pinion may be substituted for the driving-pulley D.

I claim as my invention—

1. A grinding or polishing machine in which the spindle E, carrying the horizontal or inclined grinding or polishing wheel D, having a beveled edge and a flat exposed and unobstructed grinding-surface at the top, is combined with a stand or frame of which the bearing for the spindle forms a part, and with mechanism for driving the said spindle, all substantially as set forth.

2. The combination, in a grinding or polishing machine, of the driving-shaft E, and its horizontal or inclined driving pulley or wheel, the spindle F, and its horizontal or inclined grinding or polishing wheel having a beveled edge with a frame or stand of which the bearing *e* for the shaft E and the bearing *f* for the spindle F form parts, all substantially as described.

3. The combination of the driving-shaft and its pulley or wheel D and the spindle F, carrying grinding or polishing wheel, with a frame adapted to a table or bench and having bearings *e* and *f* for the said shaft and spindle, which bearings are arranged to overhang the said table or bench and to extend below the base of the frame, all substantially as specified.

4. The within-described frame, having bearings *e* and *f* for the driving shaft and spindle, and flanges *b b*, arranged at right angles to each other, so as to bear against two edges of the table at one corner of the same, as described.

5. The combination of the frame and its flanges *b b*, arranged at right angles to each other, with the pin *x* at the corner where the said flanges meet, as set forth.

6. The within-described buffing or polishing wheel K, having a rounded top, *m*, straight portion *p*, curved portion *n*, and flange *q*, the several parts being arranged in respect to each other, all as set forth.

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

HENRY HOWSON.

Witnesses:

HENRY HOWSON, Jr.,
HARRY SMITH.