

UNITED STATES PATENT OFFICE.

HENRY F. HOLTMANN, OF INDIANAPOLIS, INDIANA.

PORTABLE RUBBING-MACHINE.

No. 879,466.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HENRY F. HOLTMANN, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Portable Rubbing-Machines; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to portable machines for rubbing flat surfaces, as for instance, sand papering or polishing the surfaces of furniture or similar articles, the invention having reference more particularly to rubbing machines that are designed to be operated by means of flexible shafts or by small pneumatic motors and to be guided on the work by hand.

The objects of the invention are to provide a portable rubbing machine which may be constructed at the minimum cost, adapted to be kept in working condition at small expense, and to be durable and economical in use.

With the above mentioned and minor objects in view, the invention consists in a rubbing machine of improved construction generally, and particularly with respect to the operating mechanism thereof as hereinafter particularly described and pointed out in the appended claims.

Referring to the drawings, Figure 1 is a side elevation partly broken away of the improved rubbing machine; Fig. 2, an end elevation thereof; Fig. 3, a horizontal sectional view partly broken away on the line A A in Fig. 1; Fig. 4, a transverse sectional view of one of the rubbing heads of the machine; Fig. 5, a transverse sectional view of the head taken near an end part thereof; Fig. 6, an inverted plan view of the frame of the machine partly broken away and mechanism mounted therein; Fig. 7, a fragmentary vertical longitudinal sectional view on the line B B in Fig. 3; Fig. 8, a fragmentary transverse sectional view on the line C C in Fig. 1; and, Fig. 9 a fragmentary transverse sectional view on the line D D in Fig. 1.

Similar reference characters indicate corresponding elements or features throughout the various figures of the drawings.

Practically embodied, the machine comprises a frame *a* of suitable design preferably

of arch shape to the top of which a handle *b* is attached, the frame having end parts *c* and *c'*, there being a horizontal partition *d* within the frame near the top thereof. Guide-bars *e* and *e'* are attached to the under sides of the frame, and a guide bar *f* is attached to the ends *c* and *c'* parallel with the other guide bars.

The machine has two rubbing heads comprising main members *g g'*, guide bars *h h'*, and a guide bar *i*, each formed separately. As shown in Fig. 4, the member *g* and guide bars *h* and *i* are all secured together by means of rivets *j*. The rubbing heads comprise also rubbing blocks *l l'* and suitable polishing material *m m'*, which in some cases may be felt suitably secured to the rubbing blocks, the latter being attached removably to the members *g g'* by means of screws *k* which are arranged near the ends of the rubbing heads so as to be accessible when the ends project beyond the frame of the machine as in Fig. 3. The rubbing heads are mounted on the guide bars *e e'*, *f*, so as to be movable longitudinally. Guards *n* and *n'* are attached to the ends *c* and *c'* of the frame and project outwardly and downwardly at the points reached by the rubbing heads with their maximum travel, the rubbing heads being recessed so that they will not strike the guards, the guards being designed to prevent the rubbing heads from striking against the sides of depressed panel work.

A pivot *o* is secured to the partition *d* and a rock-arm *p* is mounted between its ends on the pivot beneath the partition, connecting rods *q q'* are pivoted to the rubbing heads and also to the rock-arm, and a pitman *p'* is pivoted also to the rock-arm so as to operate between the two connecting rods. The connecting rods are connected to the rubbing heads by means of screw pivots *r* which may be removed after the rubbing blocks are detached from the members *g g'*.

A rotative crank shaft *s* is mounted vertically in the frame preferably extending into the handle *b* and has a bevel gear wheel *t* secured thereto beneath the partition *d*, a crank pin *u* being secured to the wheel, and the pitman *p'* is connected to the crank pin for imparting motion to the rock-arm *p*. A drive shaft *v* is mounted rotatively in the frame above the partition *d* and extends through the end *c'*, the inner end of the shaft having a small bevel wheel *u* secured thereto and meshing with the wheel *t*. A screw plug

x is arranged in the handle b above the upper end of the shaft s so that access may be had to the shaft.

From the foregoing it will be seen that the guide bars for the rubbing heads may be constructed cheaply without requiring expensive machine work to form guide grooves. The guide bar i is somewhat shorter and broader than the guide bar h and does not emerge from the frame when in operation.

In practical use a flexible shaft, or a suitable motor, may be connected to the shaft v whereby to operate the rubbing heads by means of the gearing above described. Suitable abrading or polishing composition may be applied to the surfaces to be treated or to the polishing material $m m'$, and the machine may be guided by hand and moved along the surfaces of the article by means of the handle b . It will be understood that a number of sets of rubbing blocks $l l'$ may be provided for different classes of work, some blocks having sand paper attached thereto, the blocks being all interchangeable so that one machine may serve for various purposes by merely changing the rubbing blocks.

Having thus described the invention, what is claimed as new is—

1. In a rubbing machine, the combination with a frame, and a guard attached to the middle portion of the frame and extending therefrom and having a downward-extending member, of a pair of rubbing heads mounted in the frame and having each a recess in the end thereof opposite to said guard member, said recesses each extending also in the side of each head that is adjacent to the companion head, said heads being movable beyond the frame to or from said member, substantially as shown.

2. In a rubbing machine, the combination with a frame, and a pair of rubbing heads mounted in the frame and movable beyond an end thereof, each head having in an end thereof a recess in the side thereof adjacent to the companion head, of a guard attached to the middle portion of an end of the frame and extending outward therefrom and having a downward extending member opposite to the recesses that are in said pair of rubbing heads, substantially as shown.

3. In a rubbing machine, a hollow frame having a horizontal partition therein, a handle on the frame, a rock-arm pivoted between its ends to the under side of the partition, a vertical rotative shaft mounted in the frame and the handle, a bevel-gear wheel

secured to the shaft beneath the partition, a crank-pin secured to the wheel, a pair of rubbing heads mounted movably in the frame under the partition, a connecting rod pivoted to one end of the rock-arm and also to one of the heads, a connecting rod pivoted to the opposite end of the rock-arm and also to the other one of the heads, a pitman pivoted to the rock-arm between the two connecting rods and also connected to the crank-pin, a horizontal drive shaft mounted in the frame above the partition, and a bevel gear wheel secured to the drive shaft and meshing with the gear wheel aforementioned, substantially as shown.

4. In a rubbing machine, a frame having a horizontal partition therein, a pair of rubbing heads mounted movably in the frame under the partition, a pivot secured to the partition, a rock-arm mounted between its ends on the pivot beneath the partition, a connecting rod pivoted to one end of the rock-arm and also to one of the heads, a connecting rod pivoted to the opposite end of the rock-arm and also to the other one of the heads, a pitman pivoted to the rock-arm between the two connecting rods, a rotative shaft mounted in the frame, and a wheel secured to the shaft beneath the partition and having a crank-pin secured thereto that is connected to the pitman, substantially as shown.

5. In a rubbing machine, a frame having a horizontal partition therein, a pivot secured to the partition near an end of the frame, a rock-arm mounted between its ends on the pivot beneath the partition, a handle on the frame, a rotative shaft mounted in the frame near the opposite end thereof and extending into the handle, a bevel gear wheel secured to the shaft beneath the partition, a crank-pin secured to the wheel, a pitman connected to the crank-pin and also to the rock-arm, a plug screwed into the handle above the rotative shaft, a drive shaft mounted in the frame above the partition, and a bevel gear wheel secured to the drive shaft and meshing with the gear wheel aforementioned, with a pair of rubbing heads mounted in the frame and connected with the rock-shaft, substantially as shown.

In testimony whereof, I affix my signature in presence of two witnesses.

HENRY F. HOLTMANN.

Witnesses:

WM. H. PAYNE,
E. T. SILVIUS.