

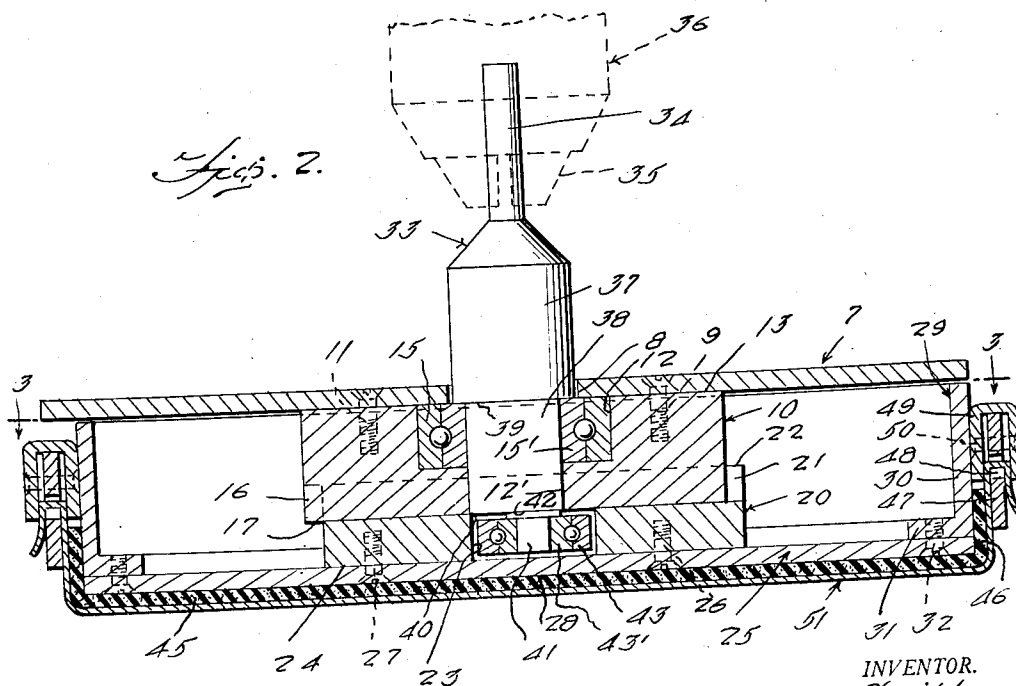
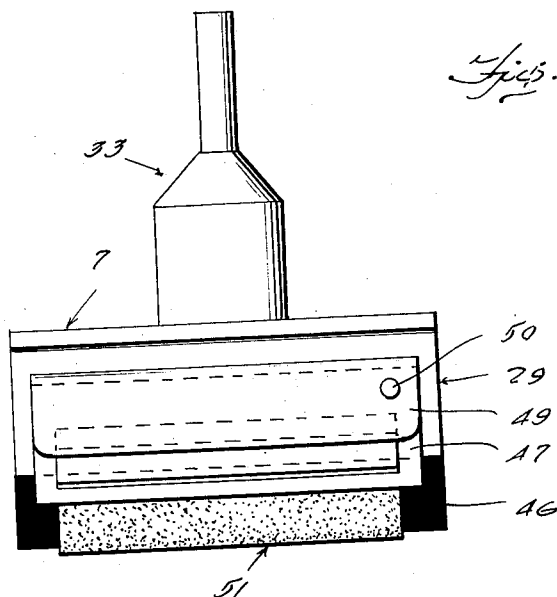
Dec. 27, 1949

W. SMITH
SANDING OR BUFFING DEVICE

2,492,372

Filed May 4, 1948

2 Sheets-Sheet 1



INVENTOR.
Wayne Smith
BY

McMorrow, Rossmore & Davidson
ATTORNEYS

Dec. 27, 1949

W. SMITH

2,492,372

SANDING OR BUFFING DEVICE

Filed May 4, 1948

2 Sheets-Sheet 2

Fig. 3.

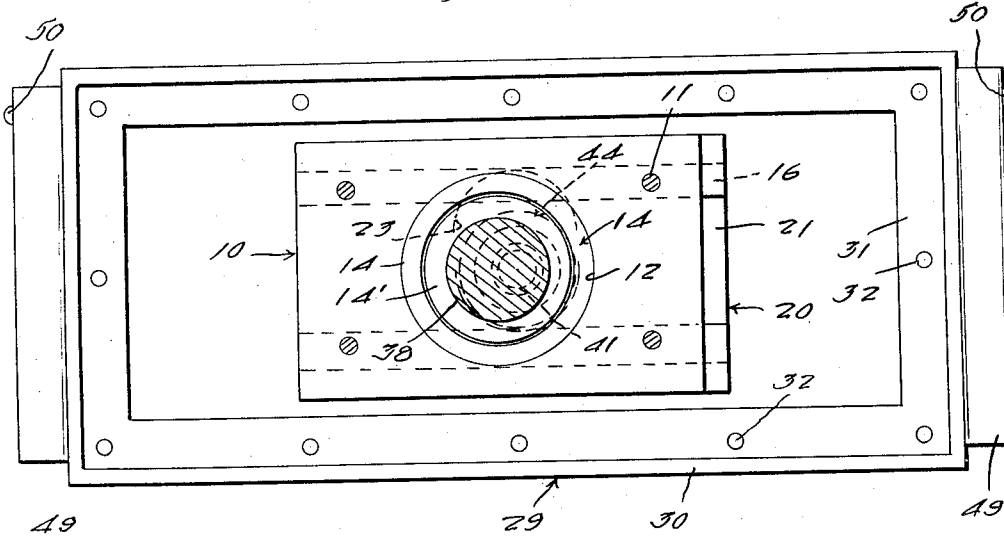


Fig. 5.

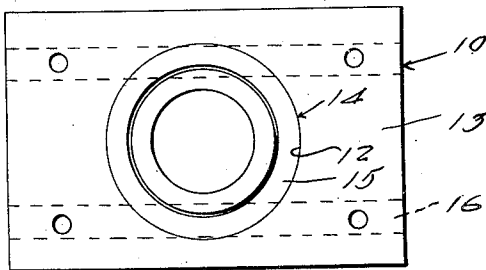


Fig. 6.

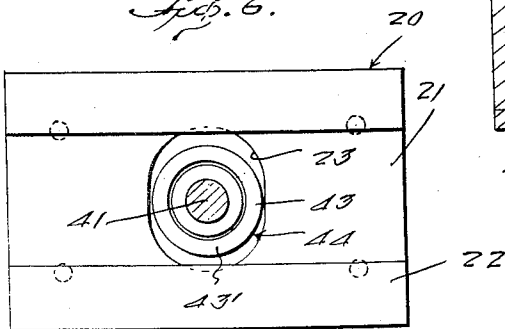
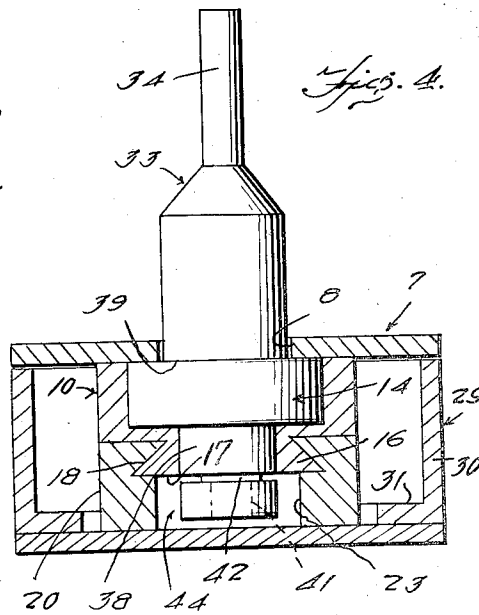


Fig. 4.



INVENTOR.
Wayne Smith
BY

McMurray, Rosman & Davidson
ATTORNEYS

UNITED STATES PATENT OFFICE

2,492,372

SANDING OR BUFFING DEVICE

Wayne Smith, Decatur, Ga.

Application May 4, 1948, Serial No. 25,009

4 Claims. (Cl. 51—170)

1

This invention relates to an improved sanding or buffing device of the type adapted to be operated by a hand drill or press drill, and the primary object of the invention is to provide a device of this kind characterized by novel construction providing advantages of simplicity, lower cost, and greater efficiency and durability in operation.

Other important objects and advantageous features of the invention will be apparent from the following description and accompanying drawings, wherein, merely for present purposes of illustration, a specific embodiment of the invention is set forth in detail.

In the drawings:

Figure 1 is an end elevation.

Figure 2 is an enlarged vertical longitudinal section.

Figure 3 is a horizontal section taken on the line 3—3 of Figure 2.

Figure 4 is a transverse vertical section.

Figure 5 is a top plan view of the upper slide block, and,

Figure 6 is a top plan view of the lower slide block.

Referring in detail to the drawings, the illustrated sanding or buffing device comprises a relatively stationary horizontal top plate 7 of elongated rectangular shape, formed centrally with a round hole 8, surrounded by four countersunk holes 9 formed through the plate 7. A conformably rectangular upper slide block 10 is centralized with respect to the hole 8 and is secured to the underside of the top plate 7 by four studs or screws 11 passing through the holes 9 and threaded into the top of the block 10. The upper slide block 10 is substantially shorter and narrower than the plate 7 so as to be spaced on all sides from corresponding edges of the plate 7, but is substantially thicker and heavier than the plate 7.

The upper part of the slide block 10 is formed with a round opening 12 opening through its top surface 13 and larger in diameter than and concentrically disposed with respect to the hole 8 in the plate 7. A ball bearing 14 has its outer race 15 press fitted in the opening 12. The lower part of the block 10 is formed with a longitudinal slide 16 depending below the block bottom 17 and extending along the middle of the block in spaced relation to the sides thereof, the side 18 of the slide 16 being bevelled to incline inwardly, as indicated in Figure 4. A hole 12' axially aligned with but smaller in diameter than the hole 12 is formed through the lower part of the block 10 and opens through its bottom 11.

2

A lower slide block 20 generally similar in size and cross section to the upper slide block 10 has formed longitudinally in its upper part a longitudinal slot 21 opening through its top 22 and shaped to conformably and slidably accommodate the slide 16 on the upper slide block. The lower part of the lower slide block 20 is formed with a transversely elongated oval opening 23 which opens through the bottom 24 of the block 20 and opens at its top into the slot 21, the oval opening 23 being coaxial with the opening 12' in the upper slide block 10.

A rectangular bottom plate 25 of the same width, but somewhat shorter than the top plate 7 is centralized with respect to the lower slide block 20 and is secured to the bottom 24 thereof by four symmetrically arranged screws or studs 26 whose heads are countersunk, as indicated at 27, with respect to the undersurface 28 of the bottom plate 25.

A rectangular frame or enclosure 29 constituted by vertical walls 30 of substantially the height of the assembled upper and lower slide block 10 and 20, is of substantially the same width as but somewhat shorter than the top plate 7 and is of the same dimensions as the bottom plate 25, and has an inwardly projecting flange 31 extending therearound, into which flange countersunk studs or screws 32, passing through the bottom plate 25, are threaded to mount the enclosure 29 on the bottom plate free to vibrate longitudinally with respect to the top plate 7, and protectively enclose the slide mechanism.

The unit composed of the bottom plate 25, enclosure 29, and lower slide block 20 are vibrated endwise with respect to the relatively stationary top plate by the vertical operating shaft 33, whose upper end portion 34 is in the form of a reduced shank or bit to be inserted in the chuck 35 of a hand drill or drill press 36 whereby the shaft 33 is axially rotated.

The shaft 33 comprises the axial cylindrical intermediate portion 37 of maximum diameter turning in the top plate hole 8, and the lower reduced diameter axial cylindrical portion 38. The portions 37 and 38 together define a shoulder 39 arranged to rest upon the top of the inner race 15' of the bearing 14, said inner race 15' being press fitted on the portion 38. The portion 38 extending downwardly below the bearing 14 through the hole 12', with the lower end 40 of the portion 38 substantially flush with the bottom 17 of the upper slide block 10, as shown in Figures 2 and 4.

The lower end 40 of the lower shaft portion 38

3

has thereon a depending cylindrical pin 41 which is eccentrically disposed and has on its upper end a shoulder 42 which rests upon the top of the inner race 43' of a ball bearing 44 located in the oval opening 23 in the lower slide block 20, the pin 41 being press fitted in the inner race 43'. The outer race 43 of the bearing 44 is arranged to rollably engage the walls of the oval opening 23, as the operating shaft 33 is turned by the drill 36, whereby the unit composed of the lower slide block 20, enclosure 29 and bottom plate 25 is vibrated endwise with respect to the top plate 7.

At the opposite ends of the device the lower corners defined by the enclosure 29 and bottom plate 25 are protectively cushioned by L-shaped cross section rubber pads having portions 45 underlying the bottom plate and vertical portions 46 along the outside of the enclosure. These pads are secured in place by any suitable means which may comprise or be supplemented by the abrading or polishing sheet retaining means, comprising transversely elongated strips 47, formed with longitudinal slots 48, and inserted upwardly into inverted channels 49 secured to the end walls of the enclosure 29 and secured in place therein by pins or the like 50 traversing the strips 47 and the channels 49. As shown in Figure 2, a flexible abrading or polishing sheet 51, sufficiently longer than the bottom plate 25 to afford free ends extending beyond the ends of the bottom plate, has these free ends brought up around the pad portions 45 and 46 and between the vertical pad portion 46 and the inner sides of the strips 47 and passed outwardly through the slots 48 before the strips are inserted in the channels 49, whereby when the strips 47 are so inserted and secured, the pads will be held in place and the free ends of the abrading or polishing sheet 51 will be clamped in the channels 49. The presence of the lower pad portions 45 at the underside 28 of the bottom plate 25 acts to space the abrading or polishing sheet 51 from the plate 25 in stretched condition, so that the sheet 51 will desirably engage the surface to be sanded or polished when the device is applied thereto and operated.

What is claimed is:

1. A sanding or polishing device comprising a relatively stationary upper section and a movable lower section, said upper section comprising a relatively flat cover plate, an upper slide block secured to depend from the underside of said cover plate and spaced from the edges of said cover plate, a vertical operating shaft journaled in said upper slide block and rising freely through an opening formed in said cover plate, said shaft having an eccentric pin depending below the underside of said upper slide block, said lower section comprising a lower slide block positioned beneath said upper slide block, and a bottom plate secured to the underside of said lower slide block, and extending beyond the edges of said lower slide block, said bottom plate being of substantially the same shape and width as said cover plate and having side walls on its side edges rising into closely spaced relation to the underside of said cover plate at the side edges thereof so as to form an enclosure, said bottom plate having end walls substantially continuous with its side walls, a sanding or polishing sheet extending along the underside of said bottom plate and upwardly along said end walls, securing means on said end walls holding the ends of said sheet in place, means supportably and slidably connecting said lower slide block to the underside of said upper slide block of endwise reciprocation

4

relative thereto, and journal means on said lower slide block journalling said eccentric pin whereby said lower section is reciprocated end-wise relative to said upper section when said operating shaft is rotated.

2. A sanding or polishing device comprising a relatively stationary upper section and a movable lower section, said upper section comprising a relatively flat cover plate, an upper slide block secured to depend from the underside of said cover plate and spaced from the edges of said cover plate, a vertical operating shaft journaled in said upper slide block and rising freely through an opening formed in said cover plate, said shaft having an eccentric pin depending below the underside of said upper slide block, said lower section comprising a lower slide block positioned beneath said upper slide block, and a bottom plate secured to the underside of said lower slide block, and extending beyond the edges of said lower slide block, said bottom plate being of substantially the same shape and width as said cover plate and having side walls on its side edges rising into closely spaced relation to the underside of said cover plate at the side edges thereof so as to form an enclosure, said bottom plate having end walls substantially continuous with its side walls, a sanding or polishing sheet extending along the underside of said bottom plate and upwardly along said end walls, securing means on said end walls holding the ends of said sheet in place, means supportably and slidably connecting said lower slide block to the underside of said upper slide block for endwise reciprocation relative thereto, and journal means on said lower slide block journalling said eccentric pin whereby said lower section is reciprocated end-wise relative to said upper section when said operating shaft is rotated, the ends of said cover plate being sufficiently extended beyond the ends of said bottom plate to serve as cover for the enclosure defined by the walls of the bottom plate while said lower section is reciprocated relative to said upper section.

3. A sanding or polishing device comprising a relatively stationary upper section and a movable lower section, said upper section comprising a relatively flat cover plate, an upper slide block secured to depend from the underside of said cover plate and spaced from the edges of said cover plate, a vertical operating shaft journaled in said upper slide block and rising freely through an opening formed in said cover plate, said shaft having an eccentric pin depending below the underside of said upper slide block, said lower section comprising a lower slide block positioned beneath said upper slide block, and a bottom plate secured to the underside of said lower slide block, and extending beyond the edges of said lower slide block, said bottom plate being of substantially the same shape and width as said cover plate and having side walls on its side edges rising into closely spaced relation to the underside of said cover plate at the side edges thereof so as to form an enclosure, said bottom plate having end walls substantially continuous with its side walls, a sanding or polishing sheet extending along the underside of said bottom plate and upwardly along said end walls, securing means on said end walls holding the ends of said sheet in place, means supportably and slidably connecting said lower slide block to the underside of said upper slide block of endwise reciprocation relative thereto, and journal means on said lower slide block journalling said eccentric pin whereby said

5

lower section is reciprocated endwise relative to said upper section when said operating shaft is rotated, means journalling said operating shaft in said upper slide block comprising an annular bearing assembly conformably seated in a depression formed in the upper side of said upper slide block through which said shaft supportably and rotatably extends, and a portion on said cover plate overlying said bearing assembly and retaining the same in place.

4. A sanding or polishing device comprising a relatively stationary upper section and a movable lower section, said upper section comprising a relatively flat cover plate, an upper slide block secured to depend from the underside of said cover plate and spaced from the edges of said cover plate, a vertical operating shaft journaled in said upper slide block and rising freely through an opening formed in said cover plate, said shaft having an eccentric pin depending below the underside of said upper slide block, said lower section comprising a lower slide block positioned beneath said upper slide block, and a bottom plate secured to the underside of said lower slide block, and extending beyond the edges of said lower slide block, said bottom plate being of substantially the same shape and width as said cover plate and having side walls on its side edges rising into closely spaced relation to the underside of said cover plate at the side edges thereof so as to form an enclosure, said bottom plate having end walls substantially continuous with its side walls, a sanding or polishing sheet ex-

6

tending along the underside of said bottom plate and upwardly along said end walls, securing means on said end walls holding the ends of said sheet in place, means supportably and slidably connecting said lower slide block to the underside of said upper slide block of endwise reciprocation relative thereto, and journal means on said lower slide block journalling said eccentric pin whereby said lower section is reciprocated endwise relative to said upper section when said operating shaft is rotated, said journal means comprising a relatively large diameter ball bearing assembly rotatably carried by said eccentric pin, and an oblong slot formed in the upper side of said lower slide block presenting sidewalls against which said ball bearing assembly rolls as said operating shaft is turned.

WAYNE SMITH.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,738,062	Dodds et al.	Dec. 3, 1929
1,840,108	Kincaid	Jan. 5, 1932
1,861,940	Ross et al.	June 7, 1932
2,370,864	Krieger	Mar. 6, 1945

FOREIGN PATENTS

Number	Country	Date
442,018	Germany	Mar. 17, 1927