

March 4, 1930.

J. G. HUDSPITH

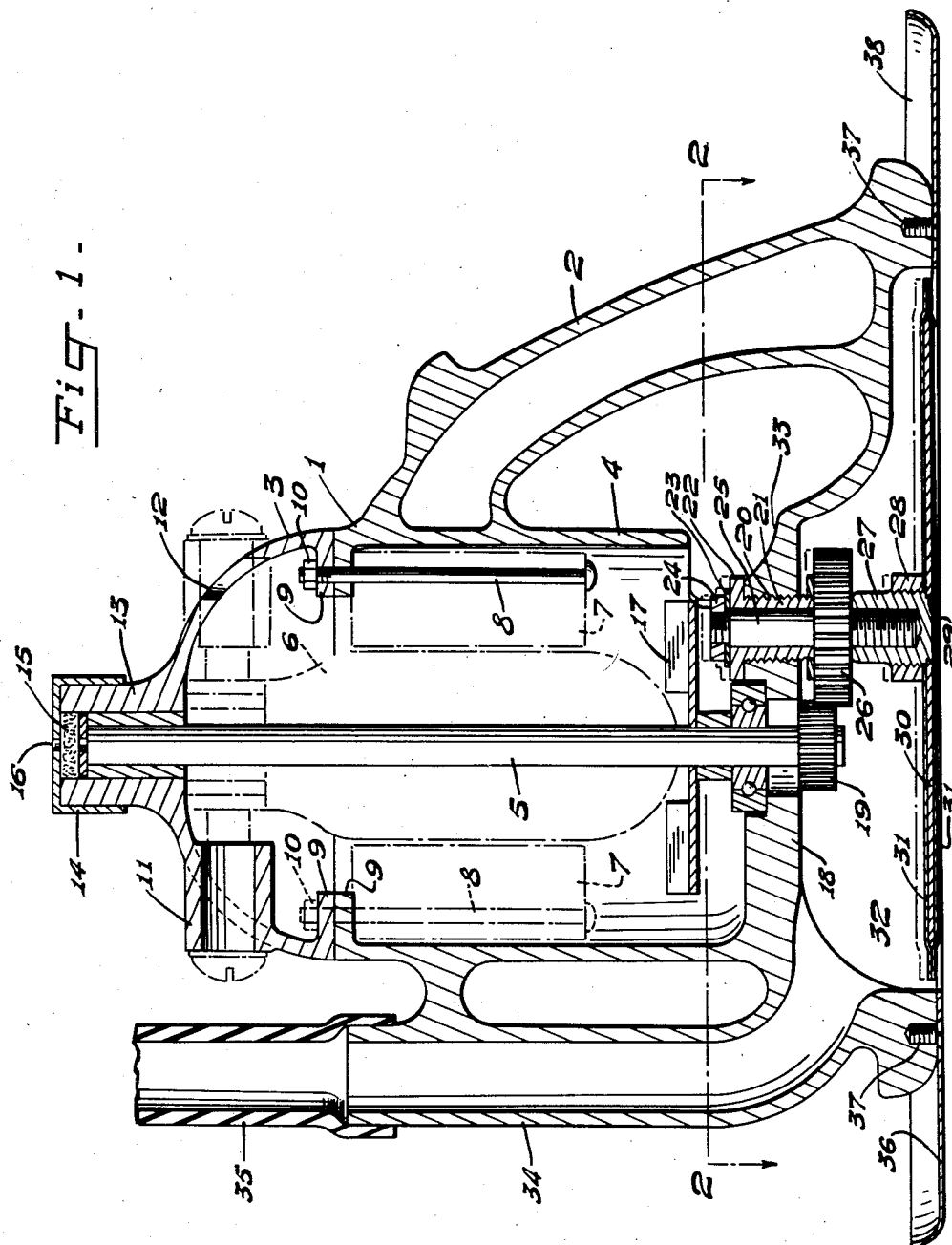
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ABRADING DEVICE

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Fig. 1-



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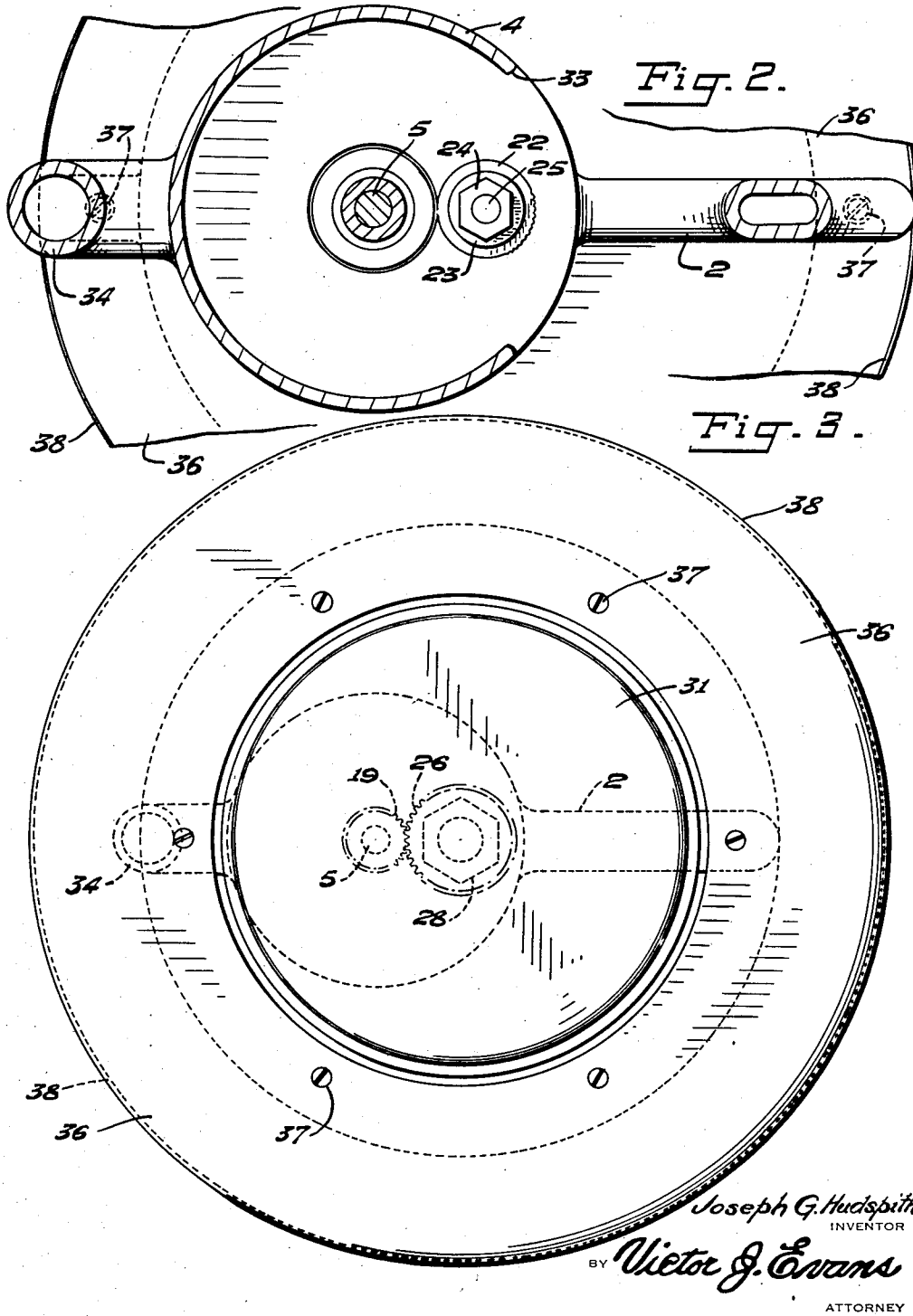
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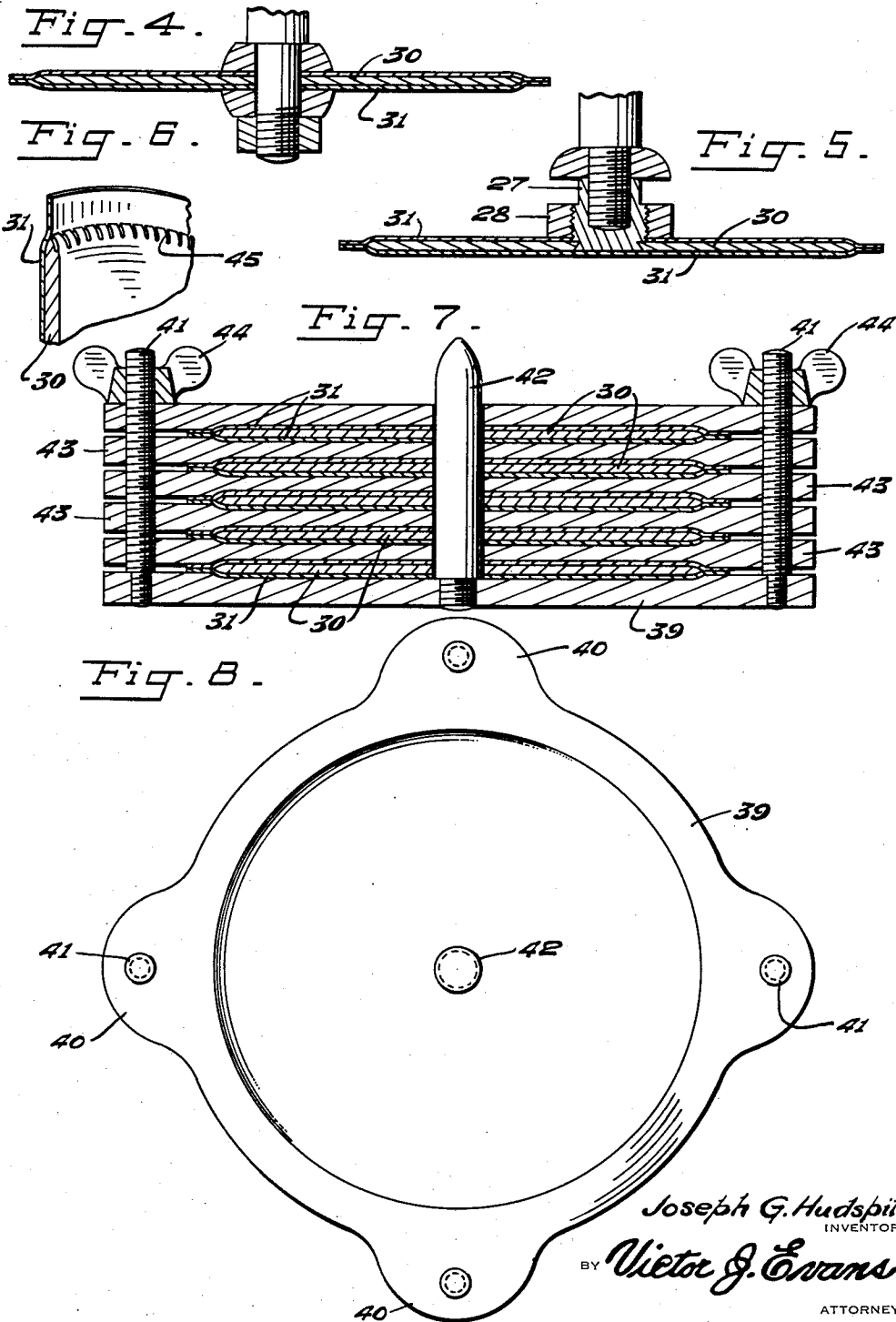
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ABRADING DEVICE

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## UNITED STATES PATENT OFFICE

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## ABRADING DEVICE

Application filed February 6, 1928. Serial No. 252,212.

This invention relates to abrading devices, and its general object is to provide a portable abrading machine that is hand controlled and electrically operated, and is capable of being adjusted for regulating the abrading surface thereof.

A further object of the invention is to provide an abrading machine for wood and metal working, and paint removing and the like that is simple in construction, inexpensive to manufacture and efficient in operation and service.

Another object of the invention is to provide an improved method of applying abrading material to the abrading material carrying disks of the machine referred to, as well as to other disks, disclosed in the present application and in my co-pending application Serial No. 177,444, filed March 22nd 1927.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claim.

In describing my invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a vertical sectional view taken through the abrading machine.

Figure 2 is a sectional view taken approximately on line 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a bottom plan view of the machine, showing parts in dotted lines.

Figure 4 is a sectional view taken through a form of abrading disk to be applied to an arbor or spindle of any power device.

Figure 5 is a similar view taken through the abrading disk applied to the abrading machine as shown in Figures 1 to 3 inclusive.

Figure 6 is a fragmentary sectional view illustrating the grooved periphery of the disk for receiving the abrading material with a portion of the said material thereon.

Figure 7 is a vertical sectional view taken through a device for applying and securing the abrasive material to the disks of the form

as shown in Figure 4, with a plurality of such disks therein.

Figure 8 is a top plan view of the bottom plate of the device as shown in Figure 7, with the center pin and screw bolts applied thereto.

Referring to the drawings in detail, and particularly to Figures 1 to 3 inclusive, the reference numeral 1 broadly indicates the frame for the machine as shown, and formed with the frame is a handle 2 which as shown is hollow. The body of the frame includes a pair of sections indicated respectively by the reference numerals 3 and 4, and passing through the respective sections and centrally arranged therein is a shaft 5 which in reality is the armature shaft of a motor as shown. The motor is of the usual construction and includes an armature 6 carried by the shaft, magnetic field 7 supported for co-operation with the armature through the instrumentality of bolts 8 which pass through flanges 9 formed with the respective sections, and nuts 10 are received by the bolts as shown. The motor also includes brushes which are carried by holders arranged in sleeves 11 formed with the section 3 of the body, and this section 3 is further provided with openings, one of which is indicated by the reference numeral 12 so that access may be had to the nuts 10. The section 3 has rising therefrom and formed therewith a projection 13 which receives a bushing for the upper end of the shaft 5, and disposed between the upper end of the shaft 5 and a cap 14 arranged about the projection is absorbent material 15 for the purpose of receiving oil through an opening 16 formed in the cap 14 for lubricating the shaft as will be apparent. The shaft has secured therewith adjacent its lower end an armature fan 17.

The bottom 18 of the body of the frame has arranged therein an opening communicating at its upper end with an annular recess which accommodates anti-friction members having passed therethrough the lower portion of the shaft 5 as shown, and secured adjacent the lower end of said shaft is a pinion 19. Arranged in close proximity to the recess and opening just referred to is

a threaded opening 20 threadedly receiving an adjustable bushing 21 which has formed on its upper end a flange 22 engageable with the bottom 18 of the body for the purpose of limiting the movement of the adjustable bushing in a downward direction. Arranged through said adjustable bushing and terminating in a reduced threaded upper end for receiving a washer and a nut 23 and 24 respectively is a stub shaft 25 which has secured thereto for engagement with the underside of the adjustable bushing a gear 26 arranged in mesh with the pinion 19. The stub shaft 25 has a threaded lower end which threadedly receives a closed end sleeve nut 27 which has a portion of its outer surface threaded for accommodating a nut 28 as shown, and secured to the sleeve nut 27 through the medium of a substantially dovetail connection 29 is a disk 30 having abrasive material 31 secured thereto. The disk rotates in the lower hollow portion 32 of the frame and is operated by the engagement of the gear 26 with the pinion 19.

The body of the frame is provided with an opening 33 within which is disposed the periphery of the flange 22 of the adjusting bushing 21. The periphery is formed with serrations so that the bushing may be rotated in either direction for adjusting the height of the disk 30 by the finger of the operator passed through the opening 33 as will be apparent.

Formed with the frame and disposed in communication with the lower hollow portion 32 thereof is a tubular member 34 which has secured to its upper end in any appropriate manner, a flexible pipe 35 for the purpose of conveying dust and the like from the machine. The flexible pipe of course is disposed in communication with a suction device not shown. The machine may be operated without using the flexible pipe and in this event the dust will be passed outwardly from below the frame and a guard 36 of circular formation as best shown in Figure 3 of the drawings. The guard 36 is secured to the bottom of the frame through the medium of screws 37, and has its outer edge curved upwardly upon itself as at 38.

The motor is of course adapted to be arranged in connection with a suitable source of electrical energy and when in operation, it will be obvious that the disk is rotated thereby through the medium of the shaft 5, stub shaft 25, sleeve nut 27, gear 26 and pinion 19 and in the event it is desired to run the disk idle, it may be adjusted by the flange of the adjustable bushing which of course will slide the gear 26 upon the pinion 19.

In Figure 7 I have illustrated a novel device for securing the abrasive material to the disks of the machine as shown in Figure 5, as well as disks as shown in Figure 4, and this device includes a base plate 39 which is

provided with diametrically oppositely disposed ears 40 having threaded openings arranged therein for receiving the reduced threaded ends of headless threaded bolts 41. The base plate is also provided with a centrally disposed threaded opening to accommodate the reduced threaded end of a center pin 42, and arranged in the upper surface of said plate is a recess of annular formation to accommodate one of the disk plates which has applied thereto the abrasive material for the purpose of securing the latter to the disk. Cooperating with the base plate 39 and with each other is a plurality of recessed plates 43 of a construction similar to the plate 39, and the recesses of these plates receive the disks as shown in a manner whereby pressure is applied to the edge of the abrasive material for securing the edges together and to the periphery of the disks. The top plate of the device also cooperates with the remaining plates and is provided with a recess for that purpose. The top plate as well as the plates 43 are each provided with a centrally disposed opening for receiving the center pin and ears are also formed with these last mentioned plates for receiving the headless threaded bolts 41, and the plates are clamped together as shown in Figure 7 by wing nuts 44.

Only the overlapped edges of the abrasive material is provided with adhesive, and before the abrasive material is applied to the disks, it is sponged with water, with the result, when the disks with the abrasive material arranged thereon is disposed between the plates of the device and clamped therein as shown, when the abrasive material dries, the edges thereof will be secured together while the remaining portion will be stretched during the contraction thereof while drying.

Cooperating with the adhesive material are grooves 45 formed in the peripheral edge of the disks in the manner as best shown in Figure 6, and it will be apparent that the adhesive material will have a tendency to set itself in these grooves during the drying process, therefore the material will be thoroughly secured to the disks.

When it is desired to apply the adhesive material to the disks as shown in Figure 5, the center pin 42 is removed and the hub portion or sleeve nut 27 is disposed in the opening of the top plate, but of course the opening will be of a size larger than that shown in Figure 7, so as to accommodate the hub portion.

The disks of the form as shown in Figure 7 are adapted to be applied to an arbor of any power device as suggested in Figure 4 and in a manner as shown in this figure.

It is thought from the foregoing description that the advantages and novel features of my invention will be readily apparent.

I desire it to be understood that I may make

changes in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

5 What I claim is:

10 An abrading machine of the character described comprising a frame, a hollow body included in said frame, a shaft passing through said body and terminating below the  
15 bottom thereof, electrical means arranged in said body for rotating said shaft, a pinion carried by and fixed upon the lower end of said shaft, a bushing threadedly mounted within said bottom and vertically adjustable  
20 therein, a stub shaft journaled within the bore of the bushing and disposed in parallelism with the first mentioned shaft, a flange for the upper end of the bushing engageable with the bottom for limiting downward movement  
25 of the stub shaft within said bottom, a gear secured to said stub shaft and meshing with the pinion, a sleeve nut carried upon the lowermost depending end of the stub shaft and including a closed end socket portion there-  
30 for, an abrasive faced disk horizontally disposed within said bottom, a dove-tail connection established between said disk and closed end sleeve nut, and a centrally apertured guard carried by the frame adjacent the bottom to facilitate projection and rotation of the disk therein.

In testimony whereof I affix my signature.

JOSEPH G. HUDSPITH.

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