June 7, 1932. A. H. ROOS ET AL 1,861,940

UNIVERSAL SANDER AND POLISHER

Filed Dec. 26, 1928

Fig. 1

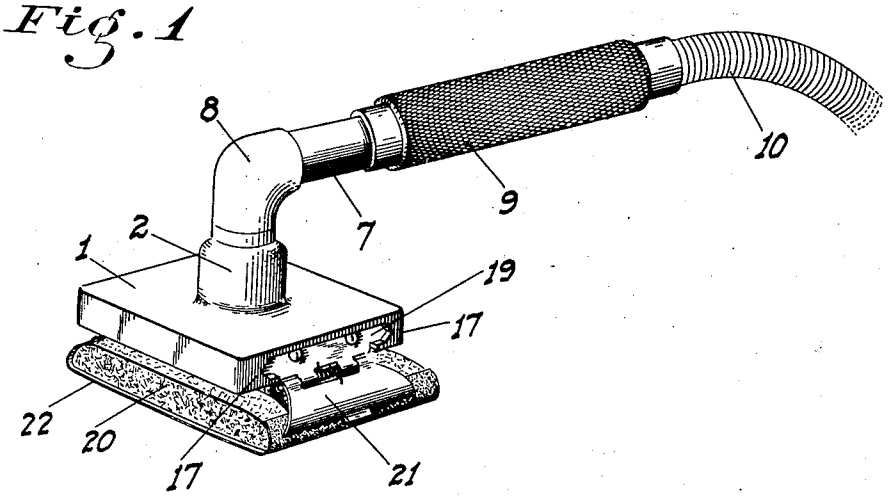


Fig. 2

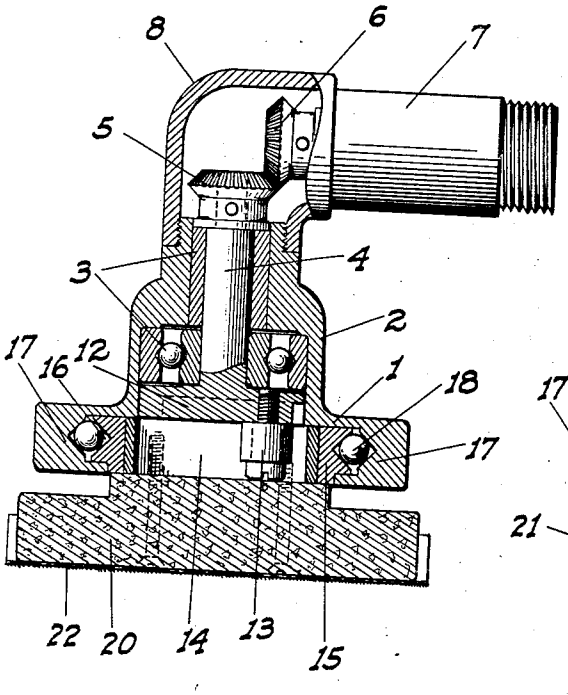
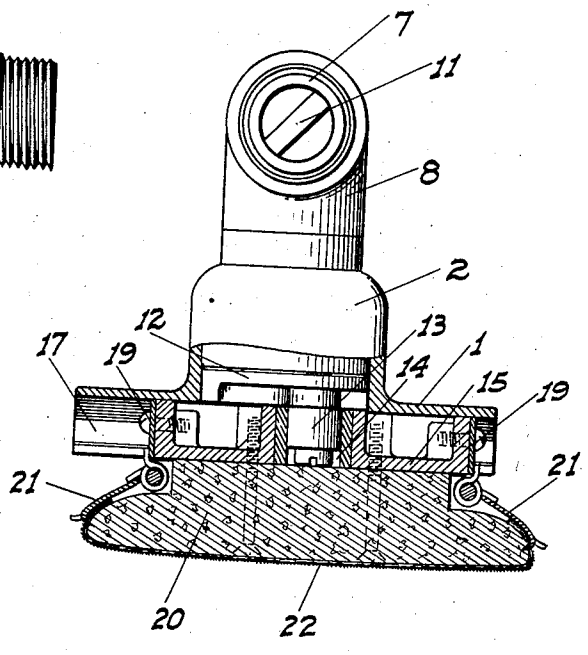


Fig. 3



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UNITED STATES PATENT OFFICE

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UNIVERSAL SANDER AND POLISHER

Application filed December 26, 1928. Serial No. 328,427.

This invention relates to improvements in power operated sanding machines, our principal object being to provide a machine of this character having a reciprocating sanding pad of such form as to enable sanding operations being carried on as effectively in sharp right angled corners as on openly exposed surfaces.

A further object of the invention is to construct the implement in such a manner that it may be readily made in a great variety of sizes, from a heavy floor sanding machine to one of a hand supported and relatively small nature. The implement therefore has a wide range of possible usefulness and since it may also be used with equal efficiency for polishing and similar purposes it may be considered an implement adapted for universal service in its line.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects we accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claim.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a perspective view of our improved implement as made in a small hand size.

Fig. 2 is a cross section of the tool.

Fig. 3 is a longitudinal section of the same.

Referring now more particularly to the characters of reference in the drawing, the tool comprises a rectangular supporting frame plate 1 having an upstanding centrally disposed hub 2 providing a support for the bearings 3 of a spindle 4 whose axis is at right angles to the surface of the plate. A bevel gear 5 on the upper end of the spindle meshes with a similar gear 6 mounted in a horizontal tubular housing 7 extending radially from the hub and connected thereto by an elbow portion 8 enclosing the gears. A handle member 9 is mounted on one end of a flexible housing 10 to enclose a flexible drive shaft of common character (not shown), said handle being connected to the outer end of the housing 7, the flexible shaft there making detachable connection in the conventional manner with the adjacent end of the shaft 11 of the gear 8, which shaft is suitably journaled in said housing 7.

The lower end of the spindle carries a small flywheel or disc 12 which is practically countersunk in the hub so that its bottom face is flush with the bottom face of the plate 1. Depending from and secured to this wheel in eccentric relation thereto is a roller 13 which rides closely between the sides of an oblong slot 14 provided in a slide block 15; said fly-wheel being suitably counterbalanced so as to offset the weight of the eccentric roller and thus reduce vibration. The opposite sides of the block or those which extend in a direction at right angles to the longitudinal plane of the slot 14 are V-grooved as shown at 16 and cooperate with similarly grooved guide flanges 17 depending from the sides of the plate 1 and rigid therewith. Ball bearings 18 ride in the cooperating pairs of grooves so as to support the block in fixed relationship to the plate and also allow the same to reciprocate with a minimum of frictional resistance. End plates 19 are secured to the ends of the block and extend across the grooves 16 and snugly fit the grooves of the flanges 17, so as to prevent displacement of the balls and act as scrapers for the latter grooves so as to keep any dust or the like which may settle thereon from coming in contact with the balls. The slide block is of metal but is cored out so as to be made as light as possible to reduce the vibration incident to reciprocation to a minimum.

Secured to and depending from this block is a relatively large pad 20 which is of rectangular shape at the bottom but preferably has a slight convex curvature across its bottom area. Secured to and depending from the opposite ends of the block 15 preferably in connection with the plates 19 are spring pressed clips or jaw members 21 each having a row of teeth along its lower edge to engage the adjacent end of the pad a short distance above its bottom edge. These clips serve to engage a sheet 22 of sandpaper, polish fabric or the like which is stretched across the bot-

tom of the pad and is passed adjacent its ends between the pad and the teeth of the two clips. This pad is preferably made of cork or the like so that while of relatively large size it is still very light and thus reduces vibration incident to reciprocation to a minimum. This material also provides a means for yieldable engagement with the jaw teeth, which aids in preventing possible slipping of the work sheet held against the pad.

In operation the pad is constantly reciprocated at a relatively high speed by the driving mechanism hereinbefore described, while the tool as a whole is guided in its movement and the necessary pressure exerted against the work sheet by the hand of the operator engaged with the handle 9. The length of the frame 1 and its guide flanges are so proportioned to the stroke of the eccentric roller and slide block that the latter never projects from one end or the other of said guide flanges and ball-bearings are thus never exposed.

This device can also be made in miniature sizes to be used for manicuring purposes, such as nail filing and polishing, since the back and forth movement of the working block simulates the natural rubbing movement of the human hand in carrying out such operations. This movement is also advantageous in the larger sizes of the device, since it avoids the rings and other marks commonly made by the rotary machines now used.

From the foregoing description it will be readily seen that we have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claim.

Having thus described my invention what we claim as new and useful and desire to secure by Letters Patent is:

A rubbing implement comprising a supporting plate having depending side flanges grooved along their inner faces, a slide block movable between the flanges and having side grooves matching with the grooves in the flanges, anti-friction bearings in the matching grooves, plates secured to the ends of the slide block and projecting beyond the edges thereof into a running fit in the grooves of the flanges to act as retainers for the bearings therein and as scrapers for the side walls of such grooves, and a rubbing element on the face of the block.

In testimony whereof we affix our signatures.

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