Jan. 13, 1925. 1,523,151

R. W. WILSBACH

ABRADING AND POLISHING TOOL

Filed Oct. 14, 1920

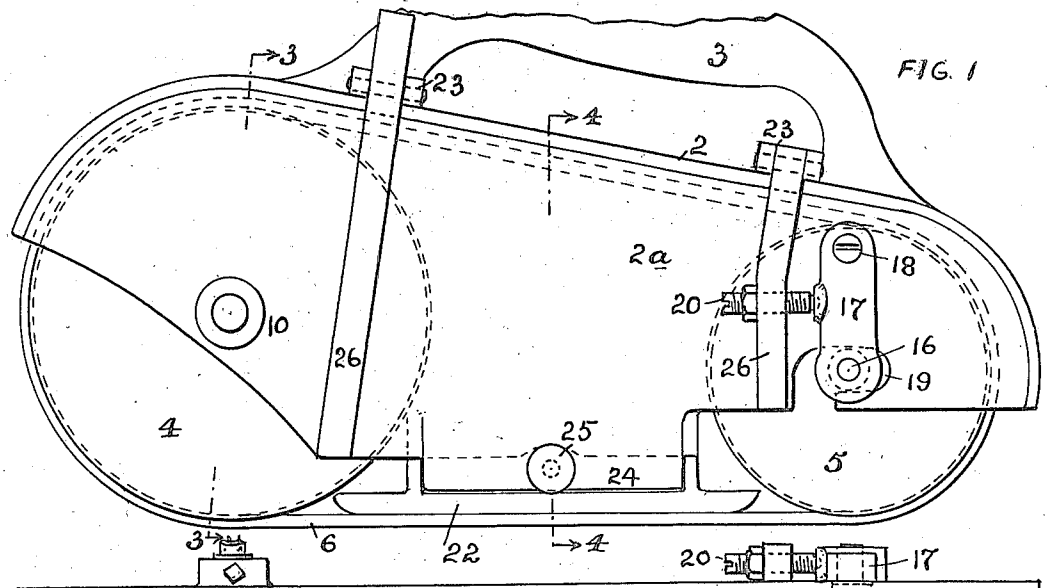


FIG. 1

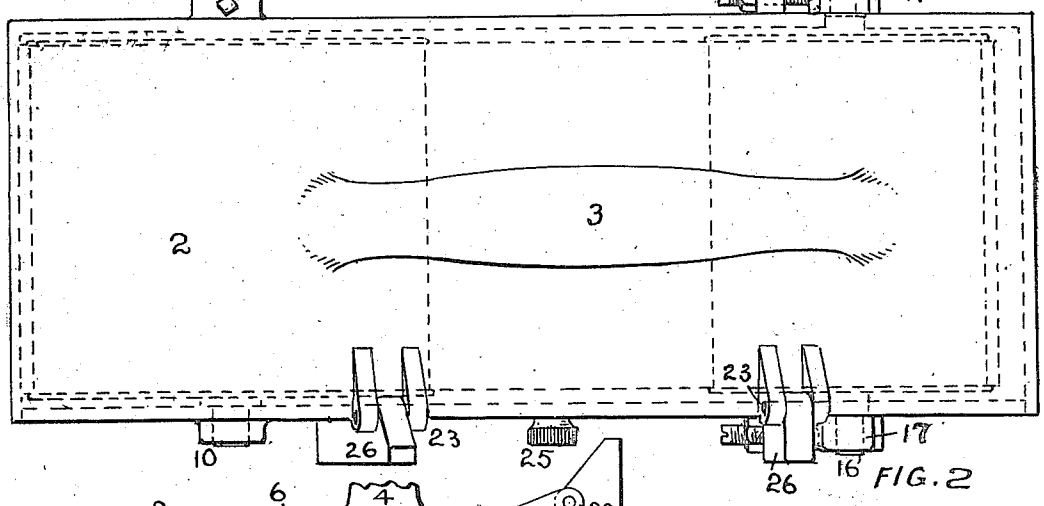


FIG. 2

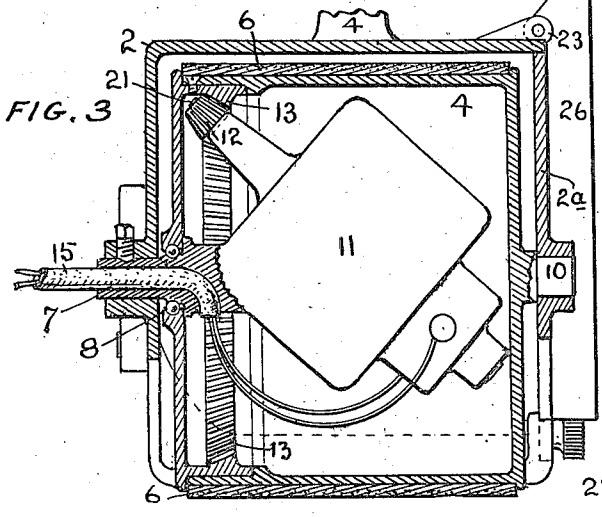


FIG. 3

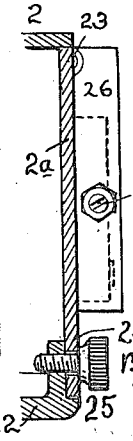


FIG. 4

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UNITED STATES PATENT OFFICE.

ROBERT W. WILSBACH, OF PHILADELPHIA, PENNSYLVANIA.

ABRADING AND POLISHING TOOL.

Application filed October 14, 1920. Serial No. 416,868.

To all whom it may concern:

Be it known that I, ROBERT W. WILSBACH, a citizen of the United States, and resident of Philadelphia, county of Philadelphia and State of Pennsylvania, have invented an Improvement in Abrading and Polishing Tools, of which the following is a specification.

The object of my invention is to provide a suitable hand tool adapted for sand papering or polishing wood and other materials by the employment of an endless abrading or polishing band mechanically driven and adapted to be moved over the article to be smoothed or polished, and wherein a simple and inexpensive construction suitable for the purpose is embodied.

In putting my invention into practice, I provide a hand frame having two rollers spaced apart and journalled in the frame and about which the endless abrading or polishing band is arranged, and in which, furthermore, an electric motor is provided within one of the rollers and mechanically connected thereto for rotating it.

My invention also comprehends details of construction which, together with the features above specified, are more fully described hereinafter and particularly pointed out in the claims.

Referring to the drawing:—Fig. 1 is a side elevation of my improved abrading and polishing tool; Fig. 2 is a plan view of the same; Fig. 3 is a transverse sectional view on line 3—3 of Fig. 1; and Fig. 4 is a vertical section on line 4—4 of Fig. 1, showing the hinged side wall and locking means therefor.

2 is a main frame having at its upper part a handle 3 by which it may be moved. Journalled within this frame are two rollers 4 and 5 about which an endless abrading or polishing band 6 is provided. This band may be of sand paper or emery cloth, or where a high polish is required, it may be of leather or other suitable buffing material according to the character of work to be treated. The roller 4 is made hollow and of cylindrical shape and at one end is journalled at 8 by ball bearings upon an inwardly extending bearing 7 secured to one of the side walls of the frame 2, and the other end of the cylinder or roller is journalled at 10 in a bearing on the other side wall of the frame 2, the construction being such that the cylinder or roller extends downward below the frame 2, as clearly indicated in Fig. 1. Within the hollow roller or cylinder 4 is arranged an electric motor 11 which is rigidly secured to the inwardly projecting bearing 7 and preferably so that its shaft 21 is arranged obliquely to the axis of the hollow roller or cylinder, and moreover carries upon its end a bevel pinion 12 which meshes with an internal gear 13 on the inside of the roller or cylinder 4, all as shown in Fig. 3. In this manner, the electric motor may be permitted to run at a high speed with a very much lower speed to the roller or cylinder 4, so that the abrading or polishing band is not required to travel at too high a speed. In place of the simple reduction gear here shown any other form of reduction gear may be employed between the motor and the cylinder, and I, therefore, do not restrict myself to the particular means shown.

The inward projecting bearing 7 which supports the motor 11 from the side wall of the frame 2 is made tubular at 14 and through this is extended the electric cable 15 containing the positive and negative conductors for furnishing electricity to the electric motor. Any suitable rheostat or switch in connection with the cable may be employed for controlling the run of the motor, as is well known in operating electric motors.

To enable the endless band 6 to be kept taut and to compensate for any difference in the lengths of the bands employed, the roller 5 may be adjusted longitudinally upon the frame 2 and a suitable means for accomplishing this purpose consists of arranging the journals 16 of the roller in a slot 19 in the side walls of the frame 2 and having said journals supported in hinged bearings 17 which are pivoted at 18 to the side walls of the main frame 2, and adjusting these pivoted bearings by means of adjusting screws 20 carried by the main frame, which construction will be understood by reference to Fig. 1. To insure the abrading band being pressed over a sufficient area upon the article being treated, a smooth pressure plate 22 is provided between the lower portions of the two rollers 4 and 5 and carried by the main frame, so that when the main

frame and rollers are pressed downward, this pressure plate 22 forces the intermediate portion of the band positively upon the surface being abraded or polished.

To enable the endless bands to be readily removed and replaced about the rollers 4 and 5, I make the side wall 2^a of a separate piece from the rest of the main frame 2 and hinge it thereto along its upper edge at 23 and the lower end of this hinged side wall 2^a engages the pressure plate 22 at 24 so as to support it when downward pressure is applied. When the side wall is in the position indicated in the drawing, it is held in that position by means of a clamping screw 25. By removing the clamping screw 25, the side wall 2^a may be swung upward and thereupon the endless band may be withdrawn and replaced. The side wall is then turned down into position receiving the journals 10 and 16 in their bearings and thereafter the clamping screw 25 is inserted to put the apparatus in operative condition for use.

The hinged side wall of the main frame is also provided with two vertical foot pieces 26 which extend somewhat beyond the bearings and other parts of the said side wall and act as feet to support the tool when turned over on its side. This will enable the tool to be positioned while still running so that it does not perform any abrading or polishing work. It gives to the operator capacity of putting the tool in or out of action without having to control the rheostat or switch for temporary interruptions of the abrading or polishing operations. While I prefer to place these feet 26 on the side of the main frame and preferably upon the hinged side wall thereof, it is manifest that they may be arranged at the end of the main frame or in either place about it so long as they extend upward to support the tool when turned on its side or end and with the abrading or polishing band resting clear of the surface of the article being treated.

It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as desirable, and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that I do not restrict myself to the details, as the same are susceptible of modification in various particulars without departing from the spirit or scope of the invention.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In an abrading and polishing tool, the combination of a main frame having a handle portion, rollers journalled in the main frame at a distance apart, an endless band arranged about the two rollers and exposed below the rollers and main frame for operating upon the article, an electric motor rigidly supported within one of the rollers and mechanically connected therewith to rotate it, a flexible conductor capable of supplying electricity to the motor, and means for putting the endless band under tension, and wherein further, the electric motor is arranged with its shaft obliquely to the axis of the roller, and the connecting means between the motor shaft and roller consists of a pinion on the motor shaft and an internal gear on the roller.

2. In an abrading and polishing tool, the combination of a main frame having a hinged side wall, two rollers journaled on the main frame at one end and upon the hinged side wall at the other end, an endless band about the rollers for operating upon the article, said hinged side wall when turned outwardly and upwardly permitting the removal and insertion of the endless band and said side wall being provided with means for locking it in position for supporting the rollers, motor means for driving one of the rollers, and a metal pressure plate carried by the main frame intermediate of the lower portions of the two rollers and supported by the hinged side wall, the locking means for the side wall comprising detachable devices between the side wall and pressure plate.

3. A hand tool for abrading or polishing surfaces, comprising a main frame having a handle, rollers carried thereby, an endless abrading or polishing band arranged about the rollers, electric motor means for rotating the rollers and giving motion to the band, electric wires supported at one side of the main frame for supplying current to the electric motor, and supporting portions on the main frame at the side thereof opposite to the electric wires adapted to support the tool when turned out of operative position and with the axes of its rollers in vertical positions.

In testimony of which invention, I hereunto set my hand.

ROBERT W. WILSBACH.