May 3, 1938. J. C. HARDY 2,115,812

MANUALLY PORTABLE MOTOR DRIVEN POLISHER

Filed Oct. 7, 1936

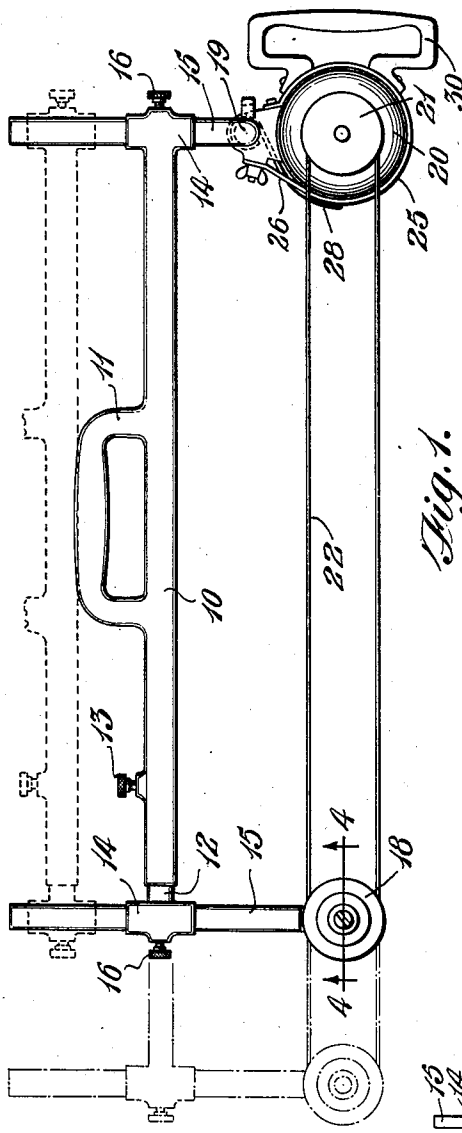


Fig. 1.

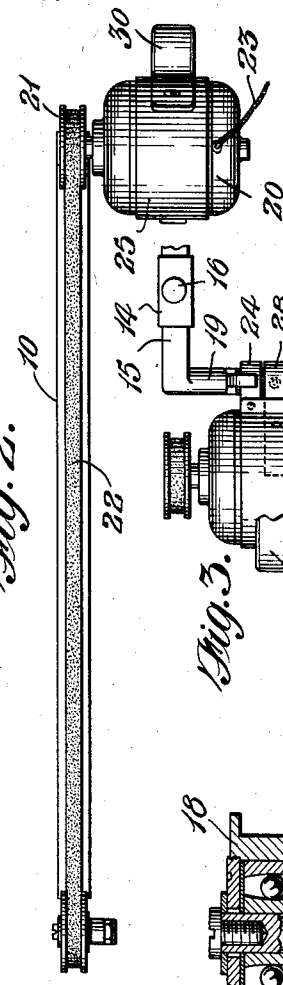


Fig. 2.

Fig. 3.

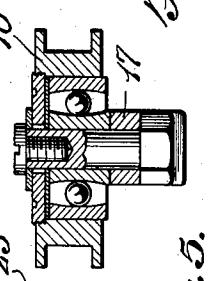


Fig. 4.

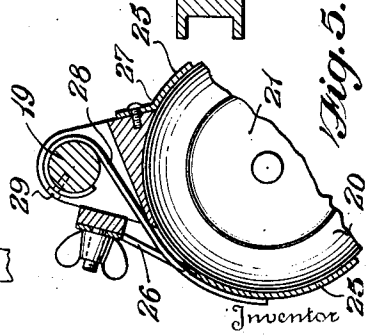


Fig. 5.

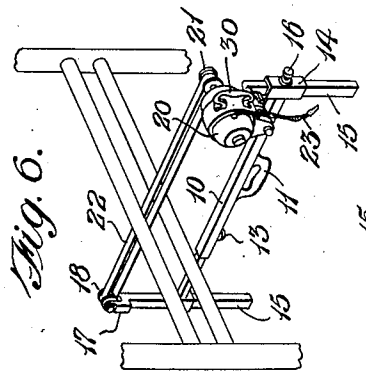


Fig. 6.

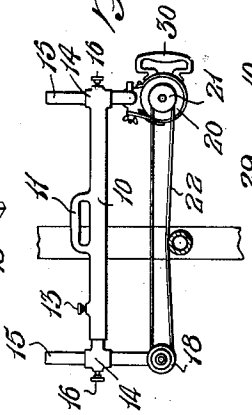


Fig. 7.

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MANUALLY PORTABLE MOTOR DRIVEN POLISHER

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7 Claims. (Cl. 51—170)

The invention relates to grinding and polishing machines and more particularly to a motor driven apparatus which is manually portable and which may be used for grinding and polishing inaccessible portions of furniture and the like such as the rungs of chairs, et cetra, which ordinarily would have to be polished by means of sand paper or would require the removal of such parts where they are to be polished or ground by the ordinary stationary power driven mechanisms.

The invention will be more readily understood by reference to the accompanying drawing in which is set forth an illustrative embodiment of the inventive thought, it being understood that the invention is not limited to the details of construction herein set forth.

In the drawing:

Fig. 1 is a side elevation of the improved machine, its adjustability being indicated by dotted lines.

Fig. 2 is a plan view looking down flat-wise on the rotating emery belt.

Fig. 3 is an end view showing the driving motor.

Fig. 4 is a section on line 4—4, Fig. 1.

Fig. 5 is a detailed section showing the motor mounting.

Figs. 6 and 7 are small diagrammatic views indicating the operation of the tool.

The framework of the apparatus is preferably composed of light metal parts which are adapted to be held in the hands of the operator and serve to support the driving motor and emery belt or other polishing element.

As shown the frame includes a longitudinal hollow member 10 shown as rectangular in cross-section and provided with a handle 11 which may be formed integral therewith or secured thereto in any suitable manner. A second frame member 12 similar to the member 10 but of smaller cross-section is adapted to telescope within the member 10 and the two members may be secured in any desired adjusted position by means of a set screw 13 so that the frame is capable of enlargement or reduction within limits according to the size of the working belt to be employed.

At the ends of the longitudinal frame members 10 and 12 are provided T-shaped hollow heads 14, having openings extending therethrough at right angles to the members 10 and 12. Through these heads adjustable frame members 15 are adapted to pass, these members extending at right angles to the members 10 and 12 and being adjustably secured within the heads by means of set screws 16. This arrangement permits the legs 15 to be completely withdrawn from the heads of the longitudinal members or to be moved to any adjusted position as indicated by the full and dotted lines in Fig. 1.

One of the legs or frame members 15 is provided with an offset portion 17 on which is mounted a loose pulley 18 shown in detail in Fig. 4. The other leg 15 is provided with an out-turned portion 19 extending at right angles to the plane of the framework, said out-turned portion being rounded and reduced at its outer end. On this reduced rounded portion is carried the motor 20 on whose driving shaft is mounted a driving pulley 21. An endless emery belt or the like 22 is carried by the pulleys 18 and 21 and is adapted to be actuated by the motor 20 which is supplied with current from any suitable source through the conductor cord 23.

As shown the motor is mounted on the rounded end of the shaft 19 by means of a pair of ears 24, 24 which may be secured between the ends 26 and 27 of a band 25 which surrounds the motor frame centrally thereof and is secured at its opposite ends to the ears 24, 24. This form of mounting permits the motor 20 and driving pulley 21 to be swung bodily about the shaft 19 as an axis, this arrangement permitting the belt to be applied to the pulleys. For the purpose of holding the belt taut when once applied and while in use, a leaf spring 28 presses against one side of the motor frame, thus tending to swing the motor and driving pulley 21 away from the pulley 18 on the other end of the frame. The spring is shown as attached to the shaft 19 intermediate the ears 24, 24 by means of a pin 29 thus serving the additional function of holding the motor in place upon the shaft 19.

The band 25 may be divided adjacent the end 26 to permit the spring to engage directly against the motor frame. If desired the motor may be provided with a handle 30 which may be held in one hand of the operator while the handle 11 is engaged by the other hand, thus providing for convenient manipulation.

In the operation of the device it will be apparent that the entire apparatus may be readily moved about as conveniently as the ordinary hand tools such as files, saws, etc., but the emery band 22 being motor driven, much more efficient results may be obtained than where hand operations are employed.

With this machine one can grind or polish in very sharp corners making it an ideal machine for metal workers, especially furniture builders and also for wood workers. It is so built that with the aid of different grades of emery belts

it is possible to finish in corners and grind welded or fabricated materials which it is practically impossible to finish with any other apparatus on the market.

Different sizes of belts may be used due to the telescopic adjustment of the members 10 and 12. Also due to the adjustability of the frame members 15 in the heads 14 it is possible to reach very inaccessible places. As indicated in Fig. 6, the apparatus may be employed for grinding or polishing between two closely spaced chair rungs. In such cases it is desirable that the longitudinal frames 10 and 12 be separated further from the belt 22 than is customary in ordinary operation. This separation is indicated in the dotted lines in Fig. 1. When it is not necessary to work between closely spaced members the frames 10 and 12 may be moved closer to the belt as indicated in full lines in Fig. 1 and the diagrammatic view in Fig. 7.

While the handles 11 and 30 may conveniently be employed the frame may be grasped by the hands of the operator without the use of special handles if desired, the ends of the bars 15 being suitable for this purpose and also the motor frame, the use of this improved device resulting in a great saving of labor and should revolutionize the art of finishing fabricated materials.

The invention has been described in detail for the purpose of illustration but it will be understood that variations and modifications may be resorted to without departing from the spirit of the invention. For example any type of rotating belt or band may be substituted for the emery cloth 22.

It will be understood that within the scope of the appended claims the framework including the longitudinal members 10 and 12 and the members, 15, 15 at right angles thereto may be considered as comprising a handle for the tool as well as the framework for supporting the motor and the driving belt.

I claim:—

1. A portable grinding and polishing machine comprising a manually portable framework, including a pair of parallel frame members connected by a longitudinal member, a loose pulley carried by one of the parallel members, a motor and a driven pulley carried by the other member and an endless polishing belt mounted between the two pulleys and substantially parallel with the longitudinal member, the motor and driving member being pivotally mounted on the frame member, and a leaf spring pressing against the motor frame and tending to press the motor and driven pulley away from the loose pulley, whereby the belt is held taut.

2. A manually portable grinding and polishing machine including a pair of parallel frame members, a longitudinally adjustable member connecting the parallel members, a motor, a driven pulley and a loose pulley carried by the parallel frame members each pulley with its axis at right angles to its respective frame member, and an endless polishing belt carried by the pulleys, the parallel frame members being adjustable in the direction of their length and readily assembled and disassembled so as to be usable in restricted locations otherwise accessible only with hand tools.

3. A manually portable grinding and polishing machine including a telescoping longitudinal frame member having T-shaped heads at its ends, a pair of parallel frame members fitted into the T-shaped heads, the telescoping and parallel members being relatively adjustable, a motor and driven pulley carried by one parallel member, a loose pulley carried by the other parallel member the axis of each pulley being at right angles to its respective frame member and an endless polishing or abrading belt carried by the pulleys.

4. A manually portable grinding and polishing machine comprising a longitudinal frame member and a pair of parallel end frame members extending at right angles to the longitudinal member, all three members being in the same plane, means for slidably and adjustably connecting the end members to the longitudinal member, and a pair of pulleys carried by the end members having their axes at right angles to the said end members and fixed with reference thereto, an endless polishing belt carried by said pulleys and means for driving one of the pulleys.

5. A manually portable grinding and polishing machine comprising a pair of parallel frame members and a connecting frame member constructed to permit slidable adjustment of said parallel members in the direction of their length, a pair of pulleys, one pulley being carried by each of said parallel frame members with its axis at right angles to said member and fixed with reference thereto, an endless grinding and polishing belt carried by said pulleys, and motor means for actuating one of the pulleys.

6. A manually portable grinding and polishing machine including a telescopically adjustable longitudinal frame member having T-shaped heads at its ends, each head having a transverse passage therethrough, a pair of parallel frame members adjustably fitting into the T-shaped heads, and lying in the same plane as the longitudinal member, a motor and a driven pulley carried by one parallel member, a loose pulley carried by the other parallel member, and an endless polishing or abrading belt carried by the pulleys.

7. A manually portable grinding and polishing machine including a telescoping longitudinal frame member having T-shaped heads at its ends, a pair of parallel frame members fitted into the T-shaped heads, a motor and driven pulley carried by one parallel member, a loose pulley carried by the other parallel member and an endless polishing or abrading belt carried by the pulleys, the telescoping and parallel members being relatively adjustable at right angles to the axes of the pulleys.

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