April 7, 1942. N. H. NELSON 2,278,794

POLISHING APPARATUS

Filed March 18, 1941

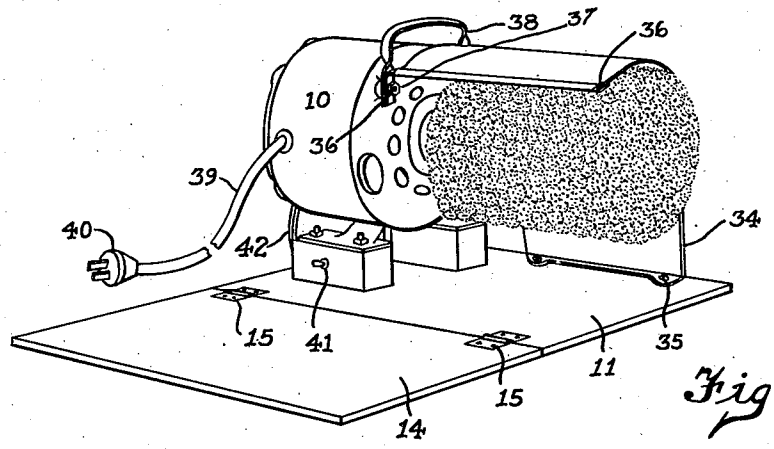


Fig. 1

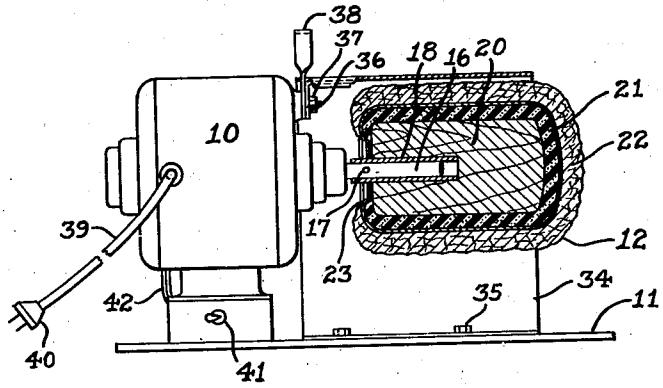


Fig. 3

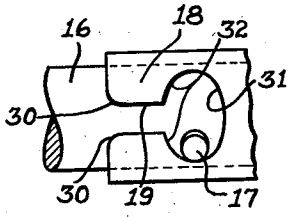


Fig. 5

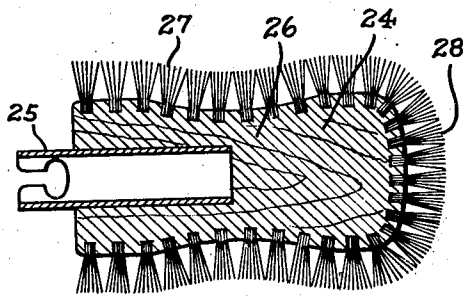


Fig. 4

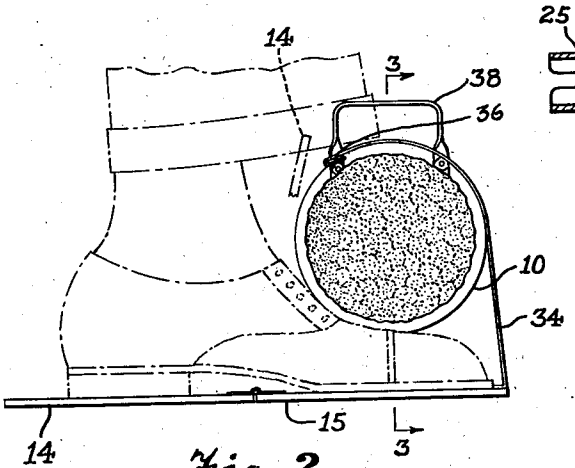


Fig. 2

Inventor

Nels H Nelson

By Marechal & Noé

Attorneys

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POLISHING APPARATUS

Nels H. Nelson, Bellefontaine, Ohio

Application March 18, 1941, Serial No. 383,996

7 Claims. (Cl. 15—36)

This invention relates to shoe polishing apparatus.

One object of the invention is the provision of a shoe polishing apparatus which embodies a motor driven polishing wheel, the apparatus being of very simple, light and cheap construction and adapted to be conveniently carried about by the user.

Another object is the provision of a readily portable apparatus of this character, in which the polishing wheel is adapted to be very conveniently attached to and detached from the projecting shaft of the motor, the attachment between the polishing wheel and the motor shaft being such that the parts can be instantly separated merely by force applied to the polisher and without holding the shaft.

Another object is the provision of a readily portable shoe polishing apparatus embodying a polishing wheel and a motor for driving the wheel, the polishing wheel being supported entirely by the motor and the motor being supported on a thin flat base, the top of which is substantially level with the floor on which the base rests so that the base may be conveniently stood upon and thus held firmly in position by the person using the apparatus.

Another object is the provision of a readily portable shoe polishing apparatus having a motor driven polishing wheel which is carried entirely by the motor, the motor in turn being fixed on a thin flat base which is adapted to be stood upon by the user, the base and the motor being interconnected by a trouser guard which extends up along one side of the polishing wheel and which reaches over the top of the wheel but exposes an end polishing area on the wheel.

Other objects and advantages of the invention will be apparent from the following description, the appended claims and the accompanying drawing, in which:

Fig. 1 is a perspective view of a portable polishing apparatus embodying the present invention;

Fig. 2 is an end elevation of the apparatus;

Fig. 3 is a vertical section on the line 3—3 of Fig. 2;

Fig. 4 is a view, shown in a central longitudinal section, of a polishing wheel in which the polishing area is of bristle formation; and

Fig. 5 is an enlarged detail view showing the detachable connection between the polishing wheel and the motor shaft.

The drawing shows the preferred embodiment of the invention in a readily portable motor driven polishing or cleaning device adapted to polish or clean shoes worn by the person using the apparatus. Referring more particularly to the drawing in which the same reference numerals have been applied to like parts in the several views, the polishing apparatus comprises an electric motor 10 mounted upon a base 11 and operating a polishing or cleaning wheel 12 which is suitably spaced above the top of the base, and which is driven by the motor at a suitable speed of rotation to give a desired polishing or cleaning effect. The motor speed may be of the order of 1800 R. P. M. for a wheel having a diameter of about five inches, although if wheels of a considerably larger diameter than the figure mentioned are used, a smaller motor speed should be chosen.

The base 11 is preferably a comparatively light, thin sheet of material having sufficient rigidity for the purpose although being incapable of withstanding large bending forces to which it could be intentionally subjected. The material used is preferably strong fibre board of about one-eighth inch thickness. The motor 10 is suitably screwed or bolted upon the base at one side thereof, the base extending under the polishing wheel and also extending laterally from both the motor and the polishing wheel to provide a flat surface on which a person using the apparatus can stand. This surface is almost level with the floor on which the base may rest, so that a person's foot can rest conveniently partly on the base and partly on the floor adjacent the base. The portion of the base on which the motor is carried forms a main base member, an extension base portion being provided by a rigid sheet 14 of similar material, hinged to the main base member by hinges 15 which permit the extension member 14 to lie horizontally in continuation of the main base member while the apparatus is in use, but permitting the extension member 14 to be swung to an upstanding position where it lies in a position slightly inclined to the vertical and rests against the side of the motor and the polishing wheel. In this position it extends substantially to the level of the top of the motor so that the entire apparatus can be housed in a comparatively small space, and so that the apparatus can be more conveniently carried about.

The motor housing rotatably supports the rotor in the conventional manner by suitable bearings at the ends of the motor housing, as will be readily understood. Fixed to the rotor and projecting from one end of the motor is a rigid rotor shaft 16, provided with a radially projecting lug

17. The polishing wheel, as shown in Fig. 3, comprises a metal sleeve 18 which fits on the rotor shaft so that it is readily slidable axially of the shaft, the end of the sleeve having an axial slot 19 which is laterally enlarged at its inner terminal end at both sides of the slot to form a space that receives the lug 17 and providing for the detachable connection or release of the wheel with respect to the shaft. Fixed on the sleeve 18 is a wooden spool or block 20 to which is attached a covering layer of soft spongy rubber 21. Stretched over the sponge rubber layer there is a wool or fleece covering 22 forming an annular polishing surface and also providing an end polishing surface at the end of the wheel remote from the motor. At the other end of the wheel the wool or fleece covering is pulled down over the rubber layer and held in position by a ring 23 of cord or wire.

Fig. 4 shows a different form of polishing wheel which may be supplied for use in place of the fleece covered wheel. The wheel 24 shown in Fig. 4 is more particularly adapted for use in cleaning as well as polishing. The wheel 24 comprises a metal sleeve 25 similar in construction to the sleeve 18, and fixed on the sleeve is a wood block or spool 26 which is provided with radially extending bristles 27 forming an annular polishing or cleaning area. At the end of the block 26 there are axially extending bristles 28 forming an end polishing or cleaning area at the end of the wheel remote from the motor.

The slot 19 in the sleeve 18 is only very slightly larger than the diameter of the lug 17 on the rotor shaft, and the sleeve is cut away at the outer end of the slot to provide curved portions 30 forming a slot enlargement at its outer end into which the lug 17 may be readily entered. At the inner end of the slot there is an opening 31 which is considerably wider and somewhat longer in an axial direction than the diameter of the lug 17, and extending laterally or annularly from the slot in both directions, the opening 31 providing curved surfaces 32 of concave form, terminating at the slot. The curvature of these surfaces 32 near the slot is very much larger than the curvature of the lug 17, and the curved surfaces 32 terminate abruptly at the slot, the construction thus being such that no spring devices are required to hold the wheel in its assembled position on the shaft during operation although the wheel may be instantly connected to or detached from the shaft without requiring the shaft to be held against rotation, and merely by a push or pull applied to the wheel. In applying the wheel the sleeve is merely pushed onto the shaft until the end of the sleeve strikes against the lug 17 and then the wheel is rotated a part of a revolution until the lug enters the slot 19 and is received in the enlarged space 31. Then when the motor is started the lug 17 will ride against the lateral end of this enlarged space and will not become separated. The motor may be started and stopped without causing the lug to ride out of the slot, since the concave surfaces 32 cause the lug to move past the inner end of the slot in case of relative turning movement of the wheel on the shaft during operation. However, when the motor is stopped, the wheel may be grasped and pulled in the direction away from the motor, preferably while slightly rocking it on the shaft, and can be instantly freed from the shaft without holding the latter against rotation.

At the back of the wheel is a trouser guard 34, preferably of sheet metal, and of a suitable length to extend up at one side of the wheel between the motor and the point near the outer end of the wheel to expose the end polishing area of wool or bristles according to which wheel is employed on the shaft. At its lower end, the trouser guard 34 is firmly secured, by means of bolts or screws 35, to the base member 11 at points outwardly of the end of the motor, while the upper end of the trouser guard is rigidly connected to the motor. This connection to the motor housing preferably comprises a metal strap 36 extending along the top of the trouser guard and bent downwardly along the lateral face of the motor housing, to which it is attached by means of a bolt 37. The trouser guard reaches over the top of the wheel some little distance above the wheel so that the trouser cuffs will be protected by the guard from contact with the rotating wheel. The trouser guard forms a rigidifying connection between the comparatively light flat base 11 and the motor housing and enables the sheet used in the construction of the base member to be comparatively light and thin although affording an adequate support for the purpose intended.

Extending upwardly from the top of the motor is a handle 38 one end of which is bolted to the motor housing preferably by the same bolt 37 which secures the end of the strap 36 in place, a similar bolt being used for the attachment of the other end of the handle. The handle is arranged above the center of gravity of the apparatus and provides a convenient means by which the apparatus can be readily picked up and carried about from place to place by one hand of the user. The entire apparatus is a self-contained unit of light and simple construction, adapted to be connected to any suitable electrical outlet by means of a connection lead 39 having a suitable connection plug 40.

Starting and stopping of the motor may be readily accomplished by the user, without stooping, by means of a foot operated switch 41 on the motor, preferably a toggle switch operated by a lever arm that may be swung laterally to close or open the motor circuit. A connection lead 42 electrically connects the switch to the motor and to the connection lead 39. The switch 41 is adapted to be readily operated by the user merely by moving the toe of his shoe against the switch lever arm to swing the arm from one side to the other.

In using the apparatus, the base 11 is placed on the floor at any desired location and the bristle wheel applied to the rotor shaft. With the connection lead plugged into a supply source, the motor is energized by operating switch 41, and the wheel revolves. The person desiring his shoes to be cleaned or shined stands on the base and applies one foot against the side and lower portions of the revolving wheel, moving his shoe about so as to apply different portions of the shoe to the wheel. Since he is standing on the base 11, the motor will be firmly supported despite forces applied to the rotating wheel by the shoe. When both of the shoes the person is wearing have been cleaned, the motor may be stopped and the rotating brush removed and replaced by the polishing or buffing wheel with the fleece surface, and the motor started and the shoes buffed or shined. Since the fleece surface of this wheel is applied to a soft spongy layer of rubber, the contour of the polishing surface will adapt itself to the shape of the portion of the shoe pressed against it. After completing the polishing operation, the motor switch is

moved to off position by the shoe of the user, and the plug 40 is removed from the socket. The extension sheet 14 of the base is then moved upwardly on its hinge connection to extend up alongside of the motor and the wheel, and the person can then conveniently pick up the apparatus, using the handle 38, and move it to an out of the way position.

While the form of apparatus herein described constitutes a preferred embodiment of the invention, it is to be understood that the invention is not limited to this precise form of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. A readily portable shoe polishing apparatus adapted to be conveniently carried about by one hand of the user, comprising a thin flat base the top of which is substantially level with a floor on which the base may rest so that a person's foot can rest conveniently partly on the base and partly on the floor adjacent the base, an electric motor mounted upon said base at one side thereof and having a rigid motor shaft projecting horizontally from and supported entirely by the motor housing, said base extending under the projecting end of the shaft and adapted to be stood upon by the user, a polisher detachably connected to the projecting end of the shaft and adapted for instant removal from and attachment to said shaft, the bottom of the polisher and the top of the base having such vertical spacing as to receive the instep portion of a shoe therebetween, and a connection lead extending from the motor.

2. A readily portable shoe polishing apparatus adapted to be conveniently carried about by one hand of the user, comprising a thin flat base of fibre board, an electric motor mounted upon said base at one side thereof and having a rigid motor shaft projecting horizontally from and supported entirely by the motor housing, said base extending under the projecting end of the shaft and adapted to be stood upon by the user, a polisher detachably connected to the projecting end of the shaft and adapted for instant removal from and attachment to said shaft merely by force applied axially to the polisher, a carrying handle at the top of the motor substantially above the center of gravity of the polishing apparatus, and means for energizing the motor.

3. A readily portable shoe polishing apparatus adapted to be conveniently carried about by the user, comprising a thin flat base, an electric motor mounted upon said base at one side thereof and having a rigid motor shaft projecting horizontally from and supported entirely by the motor housing, said base extending under the projecting end of the shaft and adapted to be stood upon by the user, a polisher detachably connected to the projecting end of the shaft and adapted for instant release and attachment with respect to the shaft merely by force applied to the polisher, and a trouser guard extending upwardly along one side of the polisher, reaching over the top of the polisher, and having a rigid connection to the motor housing at a location above the base and a rigid connection to the base at a location beyond the end of the motor.

4. A readily portable shoe polishing apparatus adapted to be conveniently carried about by the user, comprising a thin flat base member, an electric motor mounted on the top of said base member at one side thereof and having a rigid motor shaft projecting horizontally from and supported entirely by the motor housing, said base member extending under the projecting end of the shaft, a sheet of material hinged to the base member and forming a continuation level with the base member and also operable to an upstanding position at one side of the motor, said base member and sheet being adapted to be stood upon by a person when using the apparatus, and a polisher detachably connected to the projecting end of the shaft.

5. A readily portable shoe polishing apparatus adapted to be conveniently carried about by the user, comprising a thin flat base, an electric motor mounted upon said base at one side thereof and having a rigid motor shaft projecting horizontally from and supported entirely by the motor housing, said base extending under the projecting end of the shaft and adapted to be stood upon by a person using the apparatus, a polishing wheel having an annular polishing area and an end polishing area, said polishing wheel having a detachable connection to the projecting end of the shaft with its end polishing area remote from the motor, and a trouser guard fixed to said base and extending up along one side of the polishing wheel and reaching over the top of the polishing wheel but exposing the end polishing area and one side of the wheel.

6. A readily portable shoe polishing apparatus adapted to be conveniently carried about by the user, comprising a thin flat base, an electric motor mounted upon said base at one side thereof and having a rigid motor shaft projecting horizontally from and supported entirely by the motor housing, said base extending under the projecting end of the shaft and adapted to be stood upon by a person using the apparatus, a polishing wheel having an annular polishing area and an end polishing area and having such spacing from the top of the base as to accommodate the instep portion of the shoe therebetween, said polishing wheel having a detachable connection to the projecting end of the shaft with its end polishing area remote from the motor, a foot operated switch for starting and stopping the motor, and a trouser guard fixed to said base and extending up along one side of the polishing wheel and reaching over the top of the polishing wheel but exposing the end polishing area and one side of the wheel.

7. A readily portable shoe polishing apparatus adapted to be conveniently carried about by the user, comprising a thin flat base, an electric motor mounted upon said base at one side thereof and having a rigid motor shaft projecting horizontally from and supported entirely by the motor housing, said base extending under the projecting end of the shaft and adapted to be stood upon by a person using the apparatus, a lug fixed on said shaft, and a polisher on the projecting end of the shaft having an axial sleeve provided with an axially extending blind slot laterally enlarged in its inner terminal end at both sides of the slot to form concave lug engaging surfaces terminating at the slot and providing for the instant attachment and disconnection of the polisher with respect to the shaft merely by force applied axially to the polisher.

NELS H. NELSON.

CERTIFICATE OF CORRECTION.

Patent No. 2,278,794. April 7, 1942.

NELS H. NELSON.

It is hereby certified that error appears in the above numbered patent requiring correction as follows: In the heading to the printed specification, line 4, for the serial number "283,996" read --383,996--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 26th day of May, A. D. 1942.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)