

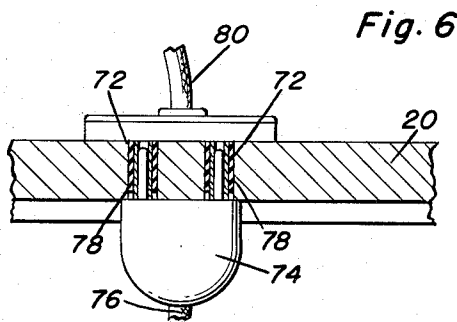
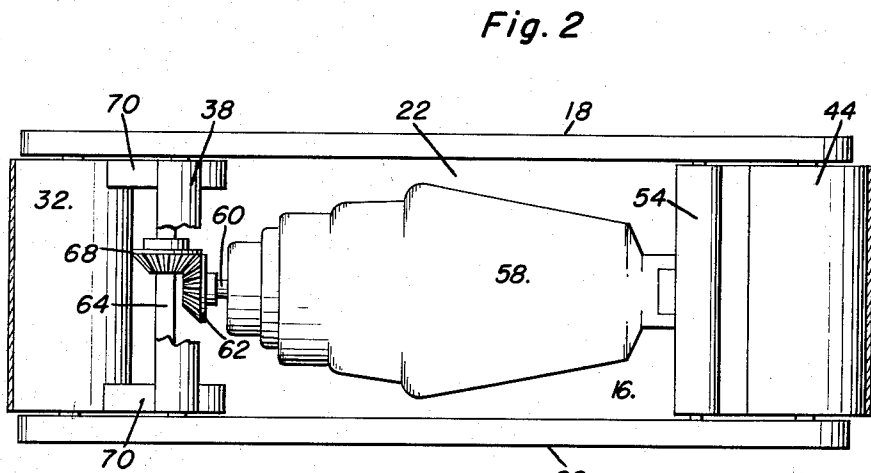
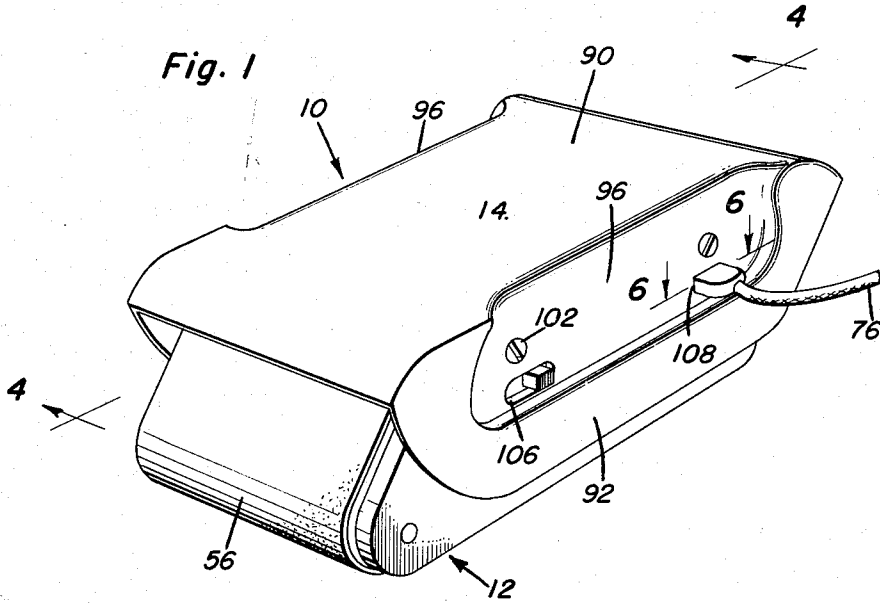
Sept. 27, 1955

W. P. HAMILTON
SANDER

2,718,735

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2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 3

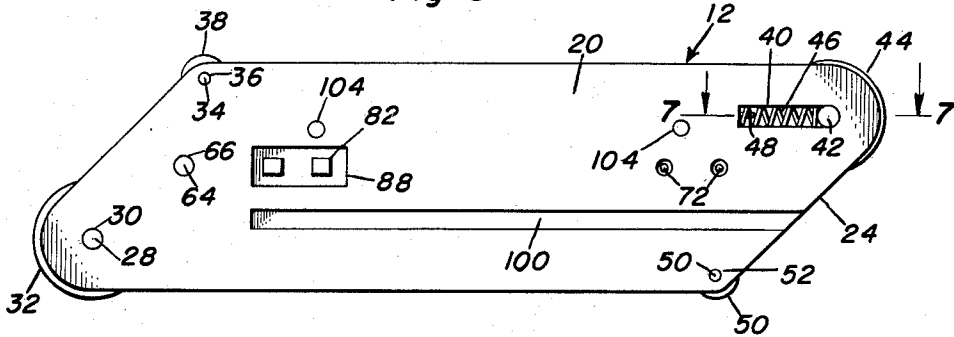


Fig. 4

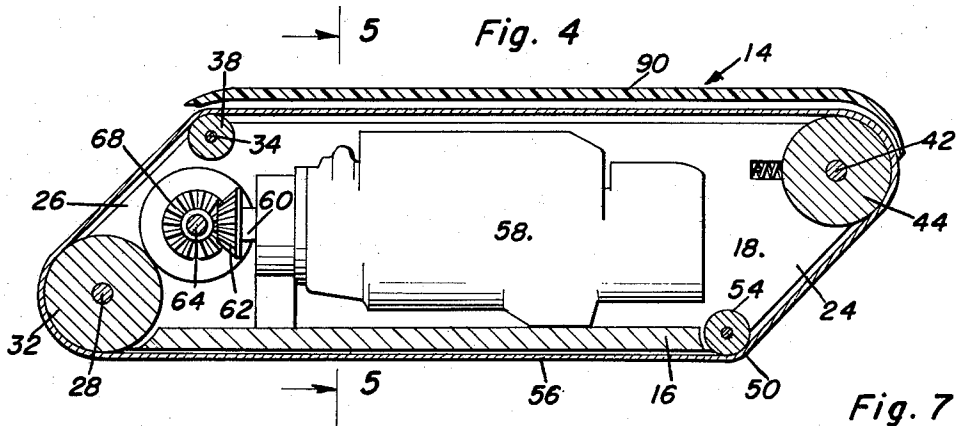
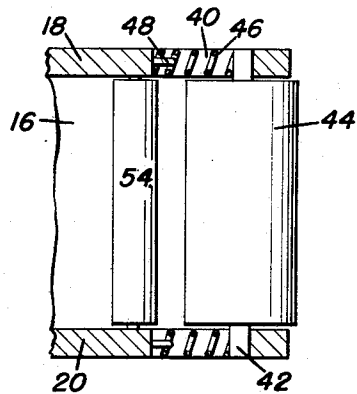
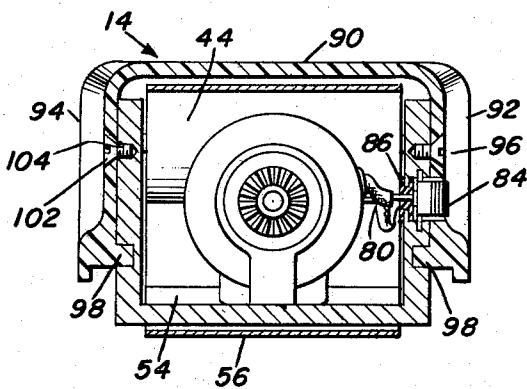


Fig. 7

Fig. 5



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SANDER

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4 Claims. (Cl. 51-170)

The present invention relates to sanders and more particularly relates to a hand sander of the belt driven variety wherein the motor is mounted within the sander frame or housing.

It is an object of the present invention to provide a novel drive means from the motor to the endless belt rollers whereby the bulk of the sander is materially reduced.

It is another object of the present invention to provide a hand sanding machine of the belt driven type which is provided with a novel hand-gripping means which is easily removable from the frame or housing of the sander to provide ready access to the interior of the machine and which further permits the easy application of the sanding belt to the machine.

It is another object of the invention, ancillary to the preceding object, to provide a novel hand-gripping means for the sanding machine which gripping means serves the further function of providing a shield or closure for the open top of the sander frame.

Other advantages of the present invention reside in its simple construction rendering it inexpensive to manufacture, and its compactness by incorporating the power unit within the sander itself whereby the sander is especially adaptable for light finishing work.

These, together with various ancillary features and objects of the invention which will later become apparent as the following description proceeds are attained by this device, a preferred embodiment of which is to be illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a perspective view of the hand sander of the present invention in its entirety.

Figure 2 is a top view of the sander of the present invention with the combination hand-grip and shield removed;

Figure 3 is a side view of the sander of the present invention with the combination shield and hand-grip removed;

Figure 4 is a sectional view of the sander taken substantially along the section line 4-4 of Figure 1;

Figure 5 is a sectional view of the sander taken substantially along the section line 5-5 of Figure 4;

Figure 6 is a sectional view of a portion of the sander showing the power plug-in connection taken substantially along section line 6-6 of Figure 1; and

Figure 7 is a sectional view of the spring loaded roller mounting means taken substantially along section line 7-7 of Figure 3.

Referring now more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, the numeral 10 designates the hand sander in its entirety.

The sander 10 comprises generally a housing 12 and a combination hand-grip and shield 14. The housing or frame 12 includes a bottom wall or base 16 of generally rectangular shape and upstanding side walls 18 and 20 in the shape of parallelograms. It is to be noted

that the housing or frame 12 may be of one-piece construction and cast from any convenient metal. It is also to be noted that the housing or frame 12 has an open top 22 and ends 24 and 26 to provide easy access into the interior of the housing.

Shaft 28 is rotatably journaled in apertures 30 in the sides walls 18 and 20 of the housing adjacent the lower corner of the housing at open end 26 and extends transversely of the housing. A driving roller 32 of a relatively large diameter is carried by the shaft 28. At the upper corner of the housing adjacent open end 26, shaft 34 extends transversely of the housing and is rotatably journaled in the apertures 36 in the side walls of the housing. Idler roller 38 of a diameter relatively smaller than that of the driving roller 32 is carried by the shaft 34 and is rotatable therewith.

At the other open end of the housing, the side walls of the housing are longitudinally slotted at 40 and a transverse shaft 42 is rotatably and slidingly seated in the slots and carried by shaft 42 between its ends is tensioning roller 44. Springs 46 are disposed in slots 40 and are guidingly retained therein by pins 48 extending from the inner ends of the slots. The coil springs 46 have their inner ends disposed against the inner end of slots 40 and have their outer ends pressing against shaft 42 to spring load the roller 44 and normally urge the roller 44 away from the housing through the open end 24. At the lower corner of the housing adjacent the open end 24 thereof shaft 50 extends transversely of the housing and is rotatably journaled in apertures 52 in the side walls of the housing. Idler roller 54 is carried by shaft 50 and is of approximately the same diameter as idler roller 38 carried by shaft 34. Entrained around the rollers 32, 38, 44 and 54 is an endless sanding belt 56 which is adapted to be driven in one direction by driving roller 32.

Mounted on the base 16 of the sander 10 is an electric motor 58 which extends axially within the housing. Drive shaft 60 extends from one end of the motor toward the open end 26 of the housing and a bevel gear 62 is fixedly mounted on the end of the drive shaft. Driven shaft 64 extends transversely of the housing and is journaled in apertures 66 of the housing side walls between shafts 34 and 28. Intermediate the ends of the shaft 64 is mounted a bevel gear 68 which meshes with the bevel gear 62 on the drive shaft 60 whereby rotation of the drive shaft will rotate the driven shaft. Adjacent the ends of shaft 64 and fixedly secured thereto are rollers 70 which frictionally contact driving roller 32 to impart rotary movement thereto upon rotation of the drive shaft 60. In this connection, it is noted that rollers 70 may be provided with anti-slip surfaces to prevent slippage between the driving roller 32 and the rollers 70 when the motor 58 is energized to rotate the drive shaft 60.

To provide means for energizing the electric motor 58, the side wall 20 of the housing is provided with plug-in socket 72 in which plug 74 carrying current from a source (not shown) through conductor 76 is seated. Insulating bushings 78 insulate the plug-in connection from the side walls of the housing. Conductor 80 carries the current to the switch terminal 82 on the side wall 20 of the housing and thence to the motor 58. Switch 84 is operatively connected to the switch terminals 82 to open and close the circuit and thereby energize or deenergize the electric motor 58. Insulators 86 protect the side walls of the housing from current flowing through the switch terminals 82 which are disposed in the opening 88 in the side wall 20 of the housing.

With particular reference to Figures 1 and 5 of the drawing, the construction and mounting of the hand-grip and shield 14 will be made clearly apparent. The

3

hand-grip and shield 14 is of general channel-shaped construction and comprises generally a web portion 90 and side flanges 92 and 94 respectively, which side flanges are recessed as at 96 to provide a hand-gripping portion for guiding the sander across a surface to be sanded. Each of the side flanges 92 and 94 of the hand-grip and shield 14 have inturned edge flanges 98, the purpose of which will later become apparent. Further, the ends of the web portion 90 are arcuated or curved for a purpose which will also later become apparent.

The side walls 18 and 20 of the sander housing 12 are provided with longitudinally extending grooves 100 which open at the edges of the side walls adjacent the open end 24 of the housing and which terminates inwardly of the open end 26 of the housing. To mount the hand-grip and shield 14 on the housing, the inturned edge flanges 98 of the hand-grip and shield are slidably seated in the grooves 100 formed in the exterior surfaces of the side walls of the housing and when so seated, the web portion 90 of the hand-grip and shield covers the open top of the housing while the curved end portions of the web overlie a portion of the open ends 24 and 26 of the housing. Screws 102 extend through the side flanges 92 and 94 of the shield 14 and are threadedly received in apertures 104 of the housing side walls to fixedly maintain the hand-grip and shield on the housing. Further, the hand-grip and shield 14 is provided with openings 106 and 108 respectively in the side flange 92 to afford communication with the exterior of the sander of switch 84 and plug-in sockets 72 respectively.

With further reference to the figures of the drawings, the operation of the device is as follows: When it is desired to place a new sanding belt on the machine, the hand-grip and shield 14 is detached from the housing 12 and the new sanding belt is entrained over the rollers of the housing and the hand-grip and shield is once again slid into position along the longitudinal grooves 100 of the side walls of the housing and fastened securely into place by the screws 102; the plug 74 is then inserted in its sockets 72 and the switch 84 actuated to close the circuit. Upon closing the circuit the motor 58 is energized, drive shaft 60 is rotated and driving roller 32 is in turn rotated whereby the sanding belt 56 is driven around the housing of the sander. Further, it is to be noted that removal of the shield 14 gives quick and ready access to the entire interior of the sander housing 12 to permit quick and simple repairs while the driving connection between the drive shaft and the driving roller is of a simple, compact and easily maintained linkage consisting of a minimum number of parts.

From the foregoing description, it is believed that the construction and operation of the sander will be clearly apparent to one skilled in the art and further description is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art after a consideration of the foregoing specification and accompanying drawings, it is not desired to limit the invention to the exact construction shown and described, but all suitable modifications and equivalents may be resorted to falling within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A hand sander comprising an elongated housing including a bottom and upstanding side walls, a motor mounted in said housing and a drive shaft extending from one end of said motor parallel to the longitudinal axis of said housing, shafts journaled at their ends in said side walls and extending transversely of said housing, rollers on said shafts, an endless belt entrained over said rollers, means operatively connecting one of said rollers with said drive shaft and a hand grip removably secured to the side walls of said housing, said connecting means including a driven shaft extending transversely

4

of and drivingly connected to the drive shaft and disposed between the end of said drive shaft and one of the rollers, and a friction disc on said driven shaft engaging said one of said rollers.

2. A hand sander comprising an elongated housing including a base and upstanding side walls and having an open top and ends, a motor mounted in said housing and a drive shaft extending from one end of said motor parallel to the longitudinal axis of said housing, rollers journaled at the ends of said housing and extending transversely thereof, a sanding belt entrained over said rollers, means operatively connecting said drive shaft with one of said rollers, and a shield removably secured to said side walls and covering the top of said housing and constituting a hand-grip for said sander, said connecting means including a driven shaft extending transversely of and drivingly connected to the drive shaft and disposed between the end of said drive shaft and one of the rollers, and a friction disc on said driven shaft engaging said one of said rollers.

3. A hand sander comprising an elongated housing including a base and upstanding side walls and having an open top and ends, a motor mounted in said housing and a drive shaft extending from one end of said motor parallel to the longitudinal axis of said housing, rollers journaled at the ends of said housing and extending transversely thereof, a sanding belt entrained over said rollers, means operatively connecting said drive shaft with one of said rollers, and a shield removably secured to said side walls and covering the top of said housing and constituting a hand-grip for said sander, said shield comprising an elongated channel shaped member including a web portion and depending side flanges having inturned longitudinal edge flanges thereon, said side walls having parallel, longitudinally extending grooves therein extending from one end of the housing, said shield flanges overlying said side walls and said edge flanges slidably seating in said grooves and retaining said shield on said housing, an intermediate portion of each of said shield flanges being recessed to provide a hand gripping surface.

4. A hand sander comprising an elongated housing including a bottom and upstanding side walls, a motor mounted in said housing and a drive shaft extending from one end of said motor parallel to the longitudinal axis of said housing, shafts journaled at their ends in said side walls and extending transversely of said housing, rollers on said shafts, an endless belt entrained over said rollers, means operatively connecting one of said rollers with said drive shaft and a hand grip removably secured to the side walls of said housing, said operatively connecting means comprising a bevel gear mounted on the end of said drive shaft, a driven shaft journaled in said side walls and extending transversely of said housing, a bevel gear on said driven shaft meshing with the drive shaft bevel gear and spaced disks mounted on said driven shaft engaging one of said rollers whereby rotation of the drive shaft will be transmitted to the roller.

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