Dec. 13, 1949 B. F. RANDRUP 2,491,133

STARTING WRENCH

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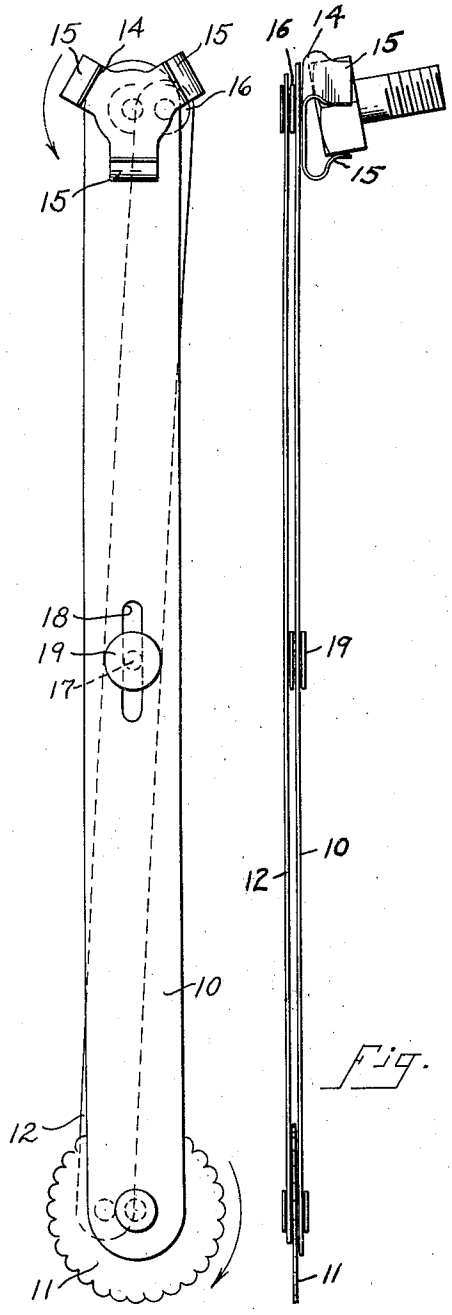


Fig. 1.

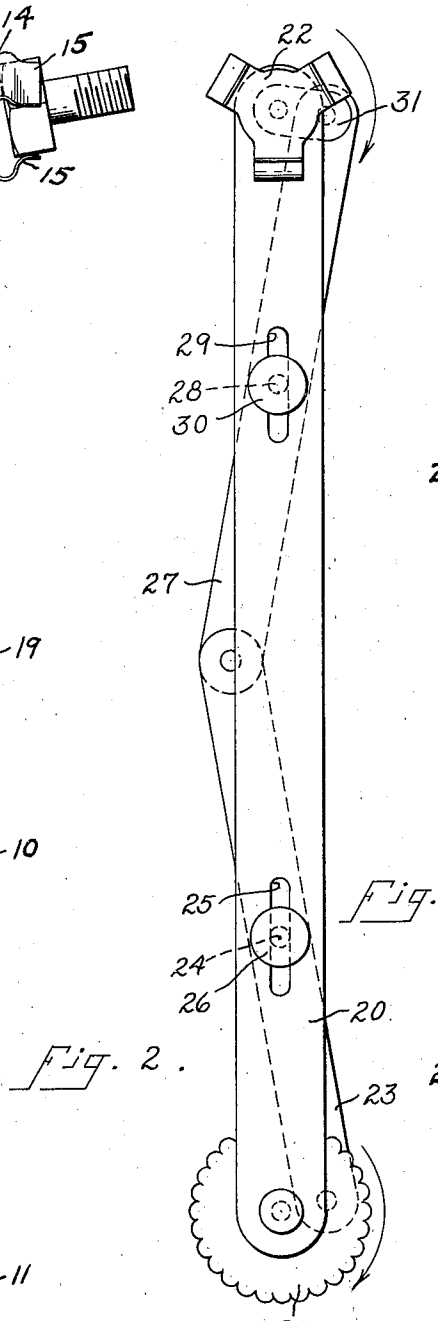


Fig. 2.

Fig. 3.

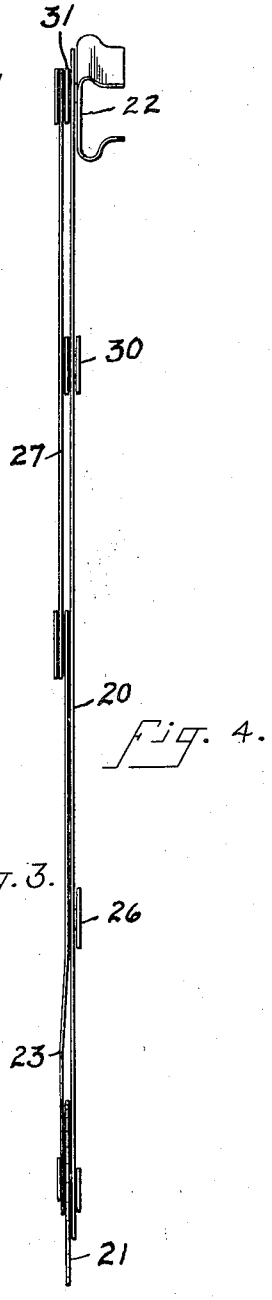


Fig. 4.

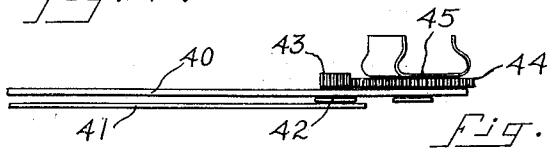


Fig. 5.

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STARTING WRENCH

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1 Claim. (Cl. 81—57)

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My present invention comprises a starting wrench having particular utility for starting bolts into holes in relatively inaccessible localities such as beneath the drain pans of certain models of automobiles.

The principal object of my present invention is to provide a starting wrench which is rugged in construction, which is made of relatively inexpensive and easily formed parts, and which provides a high degree of adaptability to various situations.

The objects and advantages of my present invention will be more readily understood by reference to the following specification taken in connection with the accompanying drawing, wherein like numerals refer to like parts throughout, while the features of novelty will be more distinctly set forth in the appended claim.

In the drawings

Fig. 1 is a plan view of a preferred form of the invention;

Fig. 2 is a side view of the form illustrated in Fig. 1;

Fig. 3 is a plan view of a modified form of the invention;

Fig. 4 is a side view of the form illustrated in Fig. 3; and

Fig. 5 is a side view of a portion of another modified form of the invention.

Referring to Figs. 1 and 2, the invention comprises a wide, thin blade 10 beneath one end of which is rotatably mounted a crank disc 11 having portions extending beyond the edges of the blade and preferably having an irregular periphery so that it may be rotated between greasy fingers. A second thin, rigid blade 12 is pivotally connected to the lower surface of the crank disc 11 at a point offset from the center of rotation thereof and on the opposite side of the disc from the first blade 10. A socket 14 is rotatably mounted upon the upper surface of the opposite end of blade 10, the socket preferably comprising a plurality of spaced, resilient fingers 15 adapted to grip the head of a bolt as illustrated in Fig. 2, the fingers being re-entrantly formed at their outer ends so as to permit engagement of various sizes of bolt heads and to permit the bolt to assume various angular positions with respect to the plane of the blades. The socket 14 is rotatably connected to a thin crank 16 mounted beneath the end of blade 10 and having its free end connected to the underlying end of blade 12. The intermediate portions of the blades 10 and 12 are connected together by a slidable connection permitting longitudinal movement of one

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with respect to the other, such connection preferably comprising a pin 17 extending upward from blade 12 through a longitudinal slot 18 in blade 10 and having a large head 19 overlying blade 10. Rotation of disc 11 in a clockwise direction by the fingers of one hand while the blade 10 is gripped between the fingers of the opposite hand causes counterclockwise rotation of socket 14, and vice versa. Blade 10 is preferably wider than blade 12 and the crank throw of blade 12 is preferably such that a portion of blade 10 adjacent disc 11 may be firmly gripped to maintain the tool in operating position.

In Figs. 3 and 4 the same principles are employed in a tool wherein the second rigid blade is connected to the socket through the intermediary of a third rigid blade operating to cause the socket to rotate in the same direction as the crank disc. In this form a first blade 20 has a crank disc 21 rotatably mounted at one end thereof and a socket 22, similar to that previously described, mounted on the opposite surface at the other end thereof. A second blade 23 is connected to the disc 21 at an offset and is provided with a pin 24 at an intermediate point extending through a longitudinal slot 25 in blade 20 and having an enlarged head 26. The free end of blade 23 is connected to a third blade 27 having an intermediate point connected to blade 20 by a pin 28 extending through a longitudinal slot 29 and having a large head 30. The free end of blade 27 is connected to a crank 31 fastened to the socket 22. As seen in side elevation in Fig. 4 the blade 23 is preferably bent between pin 24 and the disc 21 so as to provide for frictionless clearance of the disc 21.

In Fig. 5 a modification is disclosed wherein a first blade 40, to which a crank disc (not shown) is rotatably attached as in the other modifications, supports a second blade 41 which may be similar to blade 12 of the first modification or blade 27 of the second modfication. The blade 41 is pivotally attached to a crank 42 from which a shaft extends through blade 40 and is fastened to a pinion 43. Pinion 43 meshes with a gear 44 fixed to a socket 45 similar to those previously described. The use of such reduction gearing may be desirable to provide greater starting torque than would be provided by the other modifications.

It is to be appreciated that the blades may be thicker in proportion to their width, or wider than those disclosed, and that a thicker crank disc may be employed, particularly if one of the blades is offset as is the blade 23. Various other

modifications in detail and arrangement will readily occur to those skilled in the art. All such modifications as come within the true spirit and scope of the appended claim are considered to be a part of my invention.

I claim:

A wrench comprising a first blade, a crank disc rotatably connected at its center to one end of said blade and lying in a plane parallel to the plane thereof, said crank disc having portions extending beyond the edges of said blade to permit digital rotation thereof, a socket rotatably mounted at the opposite end of said blade and upon the opposite surface thereof from said crank disc, a crank operatively connected to said socket and lying beneath said blade in a plane parallel to the plane thereof, and means operatively connecting said crank disc to said crank whereby rotation of said crank disc produces rotation of said socket comprising a second blade lying in a plane parallel to the plane of said first blade and closely adjacent thereto, said second blade having one end pivotally attached to said crank disc at a point offset from the center of rotation thereof on the opposite side thereof from said

first blade and its other end pivotally attached to said crank, and means slidably connecting intermediate points of said blades comprising a pin fixed to one blade and a longitudinal slot in the other blade through which said pin extends.

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