

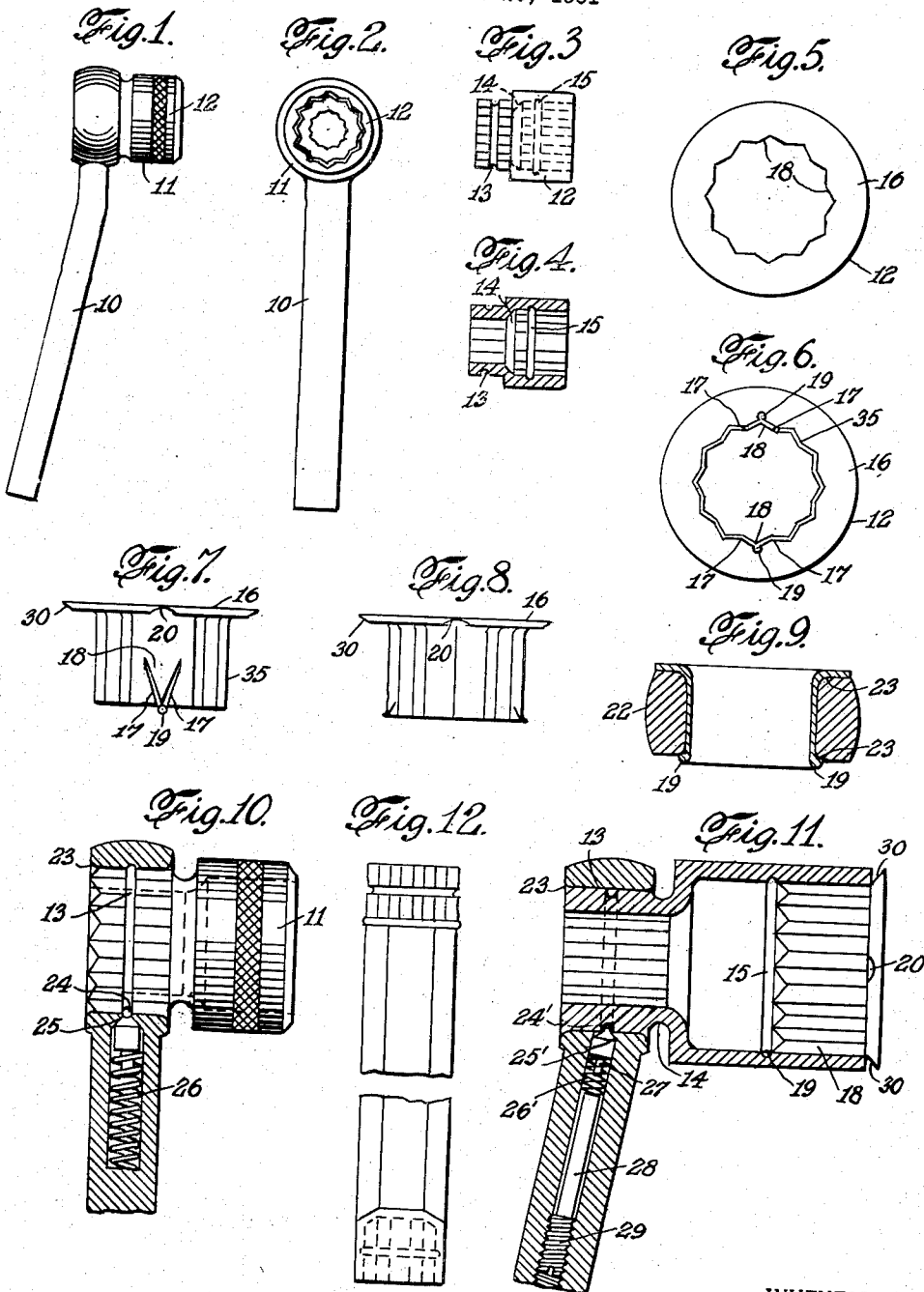
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SOCKET REDUCING MEANS FOR BOX-TYPE WRENCHES

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SOCKET REDUCING MEANS FOR BOX-TYPE
WRENCHES

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This invention relates to new and useful improvements in socket reducing means for a box-type wrench, and it has specifically for its object in this connection to provide adaptors for socket and box wrenches, as by this device the same amount of work may be accomplished as by the heavy socket wrenches, so that by the use of the device set forth herein a mechanic may be relieved of a heavy tool box.

The said adaptors can be made of tool steel, or plastic, which latter will eliminate any danger when contact is made with electricity, magnetic instruments, live wire switch boards, wires and power panels.

The socket wrench can be used in three ways, as it is formed with a twelve point driver head, and a twelve point inside the latter, and twelve point at the bottom thereof.

The said wrench drives from the outside with a standard size box wrench, instead of the present square or hex center drives, used on the present standard socket and box wrenches.

The three way socket device can be used with twelve point adaptors as well as twelve point box wrenches.

The said adaptors may, of course, be used with any twelve point box or socket wrench made of either steel or plastic, or other suitable metals.

The adaptors can be made from the smallest to the largest size; and as they are compact, comparatively light of weight and convenient to carry, they would be practical for the home, shop and tradesmen.

With the above and other objects in view, this invention consists of the novel features of construction, combination and arrangement of parts, hereinafter fully described, claimed and illustrated in the accompanying drawings, forming part of this application, and in which similar characters of reference indicate corresponding parts in all views, and in which:

Figure 1 is a side elevational view of a combined twelve point box wrench, with a socket wrench head, and an adaptor mounted therein.

Figure 2 is a front elevational view of the device shown in Figure 1.

Figure 3 is a socket wrench head having a reduced portion formed with an outside groove therein, and having two inside grooves in said head, as shown especially in Figure 4.

Figure 4 is a transverse sectional view of Figure 3.

Figure 5 is a top plan view of an adaptor.

Figure 6 is a bottom view of Figure 5.

Figure 7 is a side elevation of the adaptor.

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Figure 8 shows a slightly modified form of an adaptor, having a recess at the top thereof.

Figure 9 is an elevational view of the head of a box wrench, showing the beads of an adaptor overlapping the edge of the latter.

Figure 10 is a view partly in section, and partly in elevation, showing a modification in a box wrench for securing a socket wrench head to the latter.

Figure 11 is a transverse sectional view of a combined box wrench, socket wrench head and adaptor, detachably arranged, and showing a further modification in the construction of the box wrench.

Figure 12 shows, as a modification, an extension driver.

Referring more particularly to the drawings, the numeral 10 indicates a box wrench, 11 a socket wrench driving head, and 12 an adaptor.

The socket wrench driving head is formed with an outside annular groove 13, and it has two inside annular grooves 14 and 15, respectively; these latter grooves are so positioned as to engage an adaptor 12, whether the latter is inserted from the top or bottom of the socket head, in the manner hereinafter described, and as may be seen especially in the enlarged view Figure 11, where the said adaptor is inserted in the top of the socket wrench head.

The adaptor 12 is a twelve point annular member, having a flange 16 at its top, and it is in two opposite sides of its wall, or skirt, 35, formed with two slits 17, 17, while the portion 18 of the wall, between each pair of slits, is formed with a bead 19, at the end, or bottom, thereof, suitable for engaging one of the respective grooves 14 or 15 in the socket wrench head, according to whether the adaptor is inserted from the top or bottom of the latter.

The said adaptor may have a slightly reduced portion 20 in its flange, so that said adaptor, when of a rather heavy dimension and used in a box wrench, may easily be pushed out, or removed.

The flange 16 of the adaptor may also be formed with a slanting edge portion 30 to facilitate the removal of said adaptor, when used, as formerly indicated.

The box wrench has its annular head 22, above and below, formed with a bevelled surface 23, so that the bead 19 of an adaptor, when such is used therein, may overlap said bevelled surface somewhat and secure the adaptor in place in the head of the box wrench.

The box wrench is upon its inner surface 55 formed with a small opening, or orifice, 24

adapted to seat a ball 25, which is actuated by a spring 26; said ball will engage the outside annular groove 13 of the socket head, when the latter is inserted in a box wrench.

A further modification of a box wrench is shown as having an opening 24' therein adapted to seat a ball member 25', which terminates at one end in a shank 27; a spring 26' mounted upon said shank actuates the ball into engagement with the groove in the outside surface of the socket head, when this is inserted in a box wrench; a pin 28 formed in one piece with a screw nut 29 abuts the spring 26' keeping the latter under pressure.

The nut 29 is screwed into the end of the handle of the box wrench, which is hollow; and by unscrewing said nut the ball member 25' together with the actuating mechanism may easily be removed, when repairing is necessary.

It is obvious that changes may be made in the form, construction and arrangement of the several parts, as shown, within the scope of the appended claims, without departing from the spirit of the invention, and I do not, therefore, wish to limit myself to the exact construction shown and described herein.

What I claim as new, and desire to secure by Letters Patent of the United States, is:

1. A box wrench, a socket wrench head formed with a reduced portion and being mounted in said box wrench, said head having a groove in the outer surface of said reduced portion, the box wrench being formed with a handle having a tubular opening therein terminating at one end in a small orifice abutting the annular opening in the head of said box wrench, a ball terminating at one end in a shank, and actuating the ball into engagement with said groove through said orifice, a spring arranged in said tubular open-

ing, a pin integral with a screw nut and abutting said spring, said screw nut being inserted through the outer end of the handle of the box wrench, whereby to keep said spring under tension.

2. A box wrench, a socket wrench head formed with a reduced portion terminating at one end in a twelve point driving head and at the center reduced to a twelve point socket, said socket wrench head being mounted in said box wrench, said head having a groove in the outer surface of said reduced portion, the box wrench being formed with a handle having a tubular opening therein and terminating at one end in a small orifice abutting the annular opening in the head of said box wrench, a spring arranged in said tubular opening, a ball terminating at one end in a shank, and actuating the ball into engagement with said groove through said orifice, a pin integral with a screw nut and abutting said spring, said screw nut being inserted through the outer end of the handle of the box wrench, whereby to keep the spring under tension.

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