

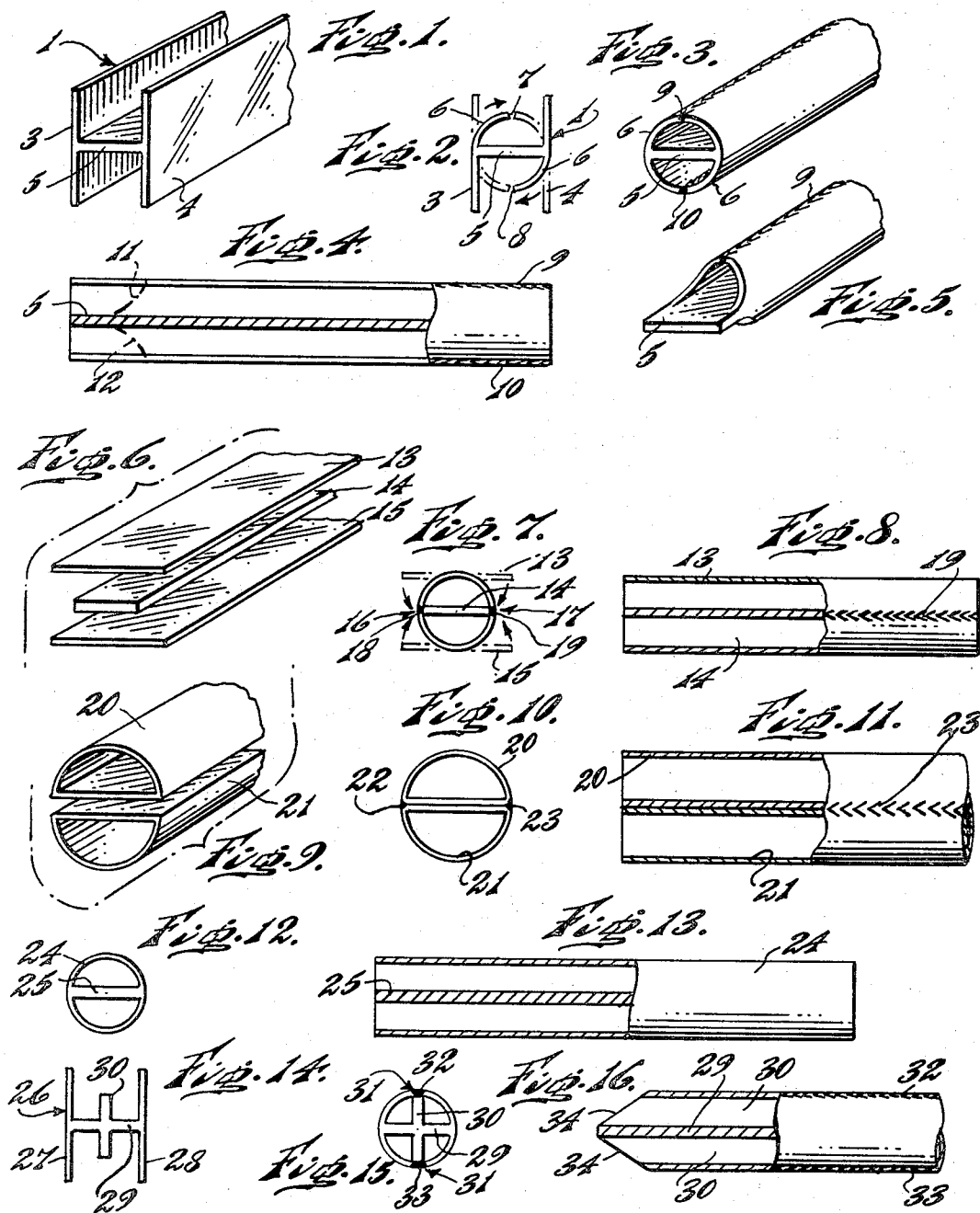
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TORSION TUBE SCREW DRIVER

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TORSION TUBE SCREW DRIVER
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The object of my present invention is to devise a novel construction of screw drivers which will eliminate some of the defects that exist in the conventional construction. Among the obvious defects of present screw drivers for slotted screw heads are: They slip easily out of the groove of the screw head unless a sleeve is provided that slides over the screw head; after a few sharpenings, the screw driver usually has to be discarded; the construction is inherently weak because the radius of gyration is very low for a thin cross section. Thus, the screw driver tip tends to twist or break off.

In the case of Phillips head screw drivers, at least one major defect exists:

Resharpener must be done very precisely. This is difficult for the average mechanic and requires a special grinding wheel.

My present construction eliminates all these defects as can easily be seen from the accompanying drawings.

Normally, these screw drivers, to be known as torsion tube screw drivers, would be produced by welding, but there is no reason why the rib, or ribs, cannot be formed as an integral part of the torsion tube or vice versa.

Although the intention is to use the tube as shown terminating in a screw driver handle, there is no reason why they cannot be used as tips attached to a solid rod or plain tube, if desired. In all events, the advantages are self evident, and are as follows: Strong construction; easy to resharpen; long lasting; do not easily slip out of groove; always flat, not wedge shaped, working surfaces, and maximum safety.

Another object of this invention is to devise a novel screw driver, wherein a torsion tube has within it and secured to it, a longitudinally extending member, the forward end of which forms the bit of a screw driver receivable in the kerf of a screw.

In the conventional type of screw driver, when the bit becomes bent or worn out of shape, the screw driver is often disposed of.

According to the present disclosure, the forward end of the longitudinal member and the forward end of the torsion tube are ground to provide a new bit and this operation can be repeated numerous times as the bit is connected with and is carried by the torsion tube.

For the purpose of illustrating the invention, I have shown in the accompanying drawings preferred embodiments of it which I have found in practice to give satisfactory and reliable results. It is, however, to be understood that the various instrumentalities of which the invention consists can be variously arranged and organized, and the invention is not limited, except by the scope of the appended claims, to the exact arrangement and organization of these instrumentalities as herein set forth.

FIGURE 1 is a perspective view of a portion of a billet, rolled or drawn, from which one form of the torsion tube screw driver is formed.

FIGURE 2 is an end elevation showing the manner in which the sides of the billet are deflected to form a tube.

FIGURE 3 is a perspective view of the finished torsion tube, with the bit centrally disposed and integral with the tube.

FIGURE 4 is a side elevation of FIGURE 3, partly in section, and showing in phantom lines a curve on which the tube could be ground to expose the bit portion.

FIGURE 5 is a perspective view of the same torsion

tube screw driver with the tube ground to expose the bit.

FIGURE 6 is a perspective view of the component parts of a modified form of the invention prior to forming and assembling, in which the bit portion and top and bottom halves of the tube are formed from separate strips.

FIGURE 7 is an end elevation of FIGURE 6 showing the manner in which the top and bottom strips are curved to form the torsion tube and with the bit portion centrally disposed between the two halves and welded thereto.

FIGURE 8 is a side elevation of FIGURE 7 and partly in section.

FIGURE 9 is a perspective view of a portion of a modified form of the invention, wherein the torsion tube and bit portion are formed from two preformed tube halves.

FIGURE 10 is an end elevation of FIGURE 9 showing the two tube halves held in assembled condition by welds.

FIGURE 11 is a side elevation, partly in section, of FIGURE 10.

FIGURE 12 is an end elevation of another modified form of the invention wherein the torsion tube and bit are formed from one piece.

FIGURE 13 is a side elevation, partly in section, of FIGURE 12.

FIGURE 14 is an end elevation of a billet of another modified form of the invention, similar to FIGURE 1, except that an additional cross bar is provided to form a bit to adapt it for use in a Phillips type of screw.

FIGURE 15 is an end elevation of FIGURE 14 in its formed condition.

FIGURE 16 is a side elevation, partly in section, of FIGURE 15, with the torsion tube and cross bars shown ground for use in a Phillips type of screw head.

Referring to the drawings:

Referring first to FIGURES 1 to 5, the torsion tube screw driver is formed from a billet 1, in the form of an I beam, having sides 3 and 4 which will form the tube portion and a centrally disposed web or bit portion 5, preferably of greater thickness in cross section than the side walls. The sides 3 and 4 are curved as at 6, until opposite sides abut as at 7 and 8 to form a tube, said tube is then welded along said abutting edges as at 9 and 10 to form a unitary structure, as best seen in FIGURE 3. The finished tube may then be ground along lines 11 and 12, as best seen in FIGURE 4, to expose the bit portion 5, as seen in FIGURE 5, particularly if the screw driver is to be used for countersunk head screws.

In some cases it is preferable to have the bit portion formed from a dissimilar material to that of the tube walls. The embodiment seen in FIGURES 6 to 8 may be of this type of construction and consists of an upper strip 13 which forms one half of the tube, a bit portion 14 and a lower strip 15 which forms the other half of the tube. The upper and lower strips 13 and 15 are curved to abut each other at 16 and 17, with the bit portion centrally disposed between them, as best seen in FIGURE 7, the resulting abutting edges and bit portion being welded together as at 18 and 19.

In some cases it may be desirable to form the torsion tube and bit from preformed tube halves, as seen in FIGURES 9 to 11, and consist of an upper tube half 20, and a lower tube half 21, which are welded together at 22 and 23.

In the form shown in FIGURES 12 and 13, the torsion tube and bit are formed from an integral piece of material by extrusion or any other desired manner and consists of a torsion tube 24, having a centrally disposed bit portion 25. Whereas this may be the most desirable construction, it presents perhaps the most difficulties from a manufacturing point of view and may therefore not be the most practical construction.

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The form shown in FIGURES 14 to 16, consists of a billet 26, having side walls 27 and 28, a transverse centrally disposed bit 29, integral with said side walls, and a vertically and centrally disposed bit portion 30 integral with said transversely disposed bit 29. The side walls are curved until they abut each other as at 31, and the abutting portions, together with the free ends of the vertically disposed bit 30, are welded as at 32 and 33 to form a unitary structure, as best seen in FIGURES 15 and 16, said side walls and bits being ground as shown in FIGURE 16 to form tapered sides 34 adapted to be received in a Phillips type of screw head.

It is to be understood that the torsion tube can have its rear end portion connected with any desired or conventional type of handle or the rear end of the torsion tube may be received in the chuck of a mechanical or power driven turning device, such as for example, an electric or other type of drill.

It should be obvious that it is impossible to show all the construction varieties that will produce the concept of a torsion tube screw driver. I have only indicated a few practical forms to illustrate the main idea.

I have referred to certain of the parts to be connected by welds, but it is to be understood that such parts may be bonded together in any desired manner, which serves the purpose of a satisfactory bond.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

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1. A screw driver comprising a tubular shank having a diametrical partition joined to the shank and extending the full length thereof, said partition being rectangular in cross-section, one end of said tubular shank having arcuate recesses formed on opposite sides of said partition, said recesses extending the full width of said partition whereby the forward end of said partition is exposed so as to define a bit.

2. The screw driver of claim 1, wherein said tubular shank and said partition are integral.

3. The screw driver of claim 1, wherein the tubular shank is defined by a pair of half tube segments, each tube segment having a diametrical portion extending thereacross and being joined in back to back relationship to form said partition.

References Cited

UNITED STATES PATENTS

624,875	5/1899	Sawyer et al.	145—50.1
961,184	6/1910	Walker	76—101
1,852,159	4/1932	Hanks	81—3.8 X

FOREIGN PATENTS

455,288	2/1950	Italy.
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