Sept. 22, 1931. P. L. ROBERTSON 1,824,624

SCREW DRIVER

Filed Jan. 10, 1929

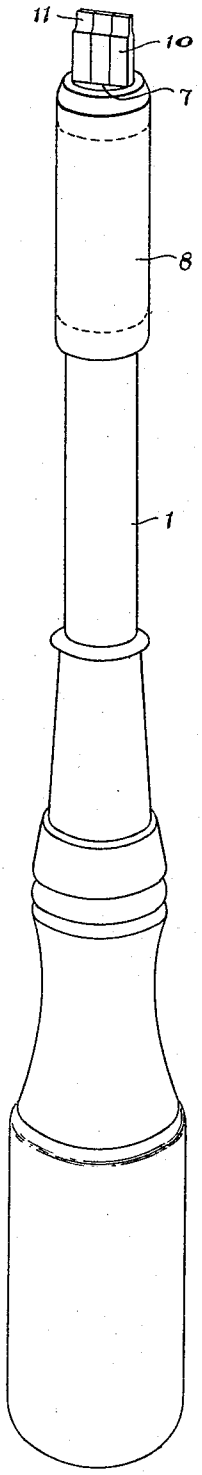


Fig. 1.

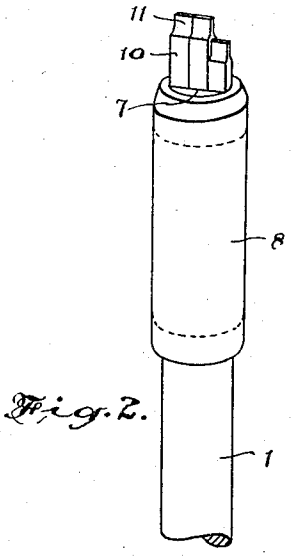


Fig. 2.

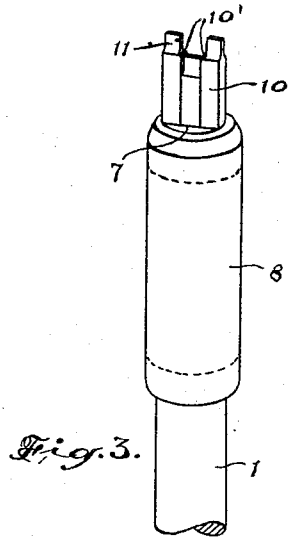


Fig. 3.

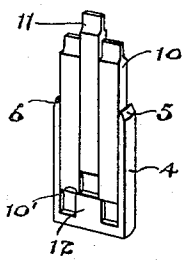


Fig. 4.

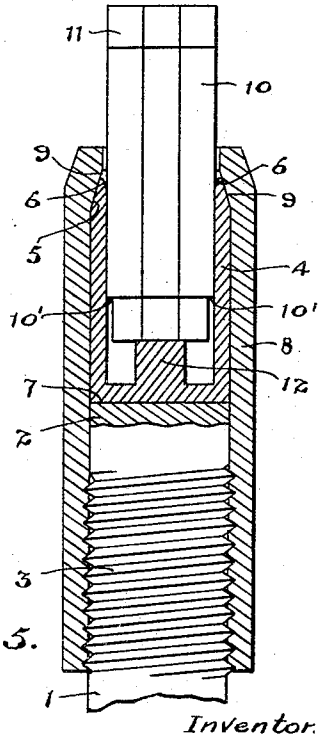


Fig. 5.

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UNITED STATES PATENT OFFICE

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SCREW DRIVER

Application filed January 10, 1929. Serial No. 331,516.

The principal objects of this invention are to provide a screw driver which may be readily adapted for use with various sizes or types of screws and which may be altered very quickly to suit the requirements of the user.

A further object is to improve the construction of the holder of the removable bits to enable their more ready adjustment and rearrangement.

The principal feature of the invention consists in the novel arrangement of a plurality of individual bits to be utilized in various combinations and in the novel construction of the bit holder whereby the bits are readily adjusted or replaced therein.

This invention is an improvement in screw drivers to be used principally in conjunction with my co-pending invention for improvements in tool holders, filed in the United States Patent Office July 2, 1928 under Serial No. 289,954.

In the accompanying drawings, Figure 1 is a perspective view of my improved screw driver showing the multiple bit arrangement for use with large slotted screws.

Figure 2 is a perspective view of the bit end of the screw driver showing the arrangement of the bits with a smaller screw.

Figure 3 is a perspective view of the bit end of the screw driver showing an arrangement of the bits for use with a perforated screw, such as a wheel spoke nipple.

Figure 4 is a perspective detail of the inner bit holder and bits.

Figure 5 is an enlarged longitudinal sectional detail through the bit holder showing the bits in position, as shown in Figure 1.

In the accompanying drawings, the screw driver shank 1 is threaded at its outer end and the portion 2 projecting beyond the thread 3 is slotted longitudinally through the centre to receive the bit holder 4 which is in the form of a U-shaped member preferably formed of hardened steel and having the outer sides 5 of its ends bevelled and the inner sides chamfered at 6.

The holder 4 fits snugly into the slot 7 and a chuck sleeve 8 internally threaded at its inner end to engage the thread 3 holds the bit holder securely in place.

The sleeve 8 is formed with an inwardly bevelled surface 9 at is outward end to engage the bevelled surfaces 5 of the bit holder to squeeze them inwardly to bind the bits in position when placed therein side by side.

The bits 10 are formed of square bars of tool steel each having one end reduced to form the narrow screw driver extremity 11. These are suitably tapered so that they will fit a comparatively small screw but will be strong enough to enter the deeper slots of a larger screw and to effectively turn it.

The opposite ends of the bits may be square for use with socket type screws.

The bits are placed together in the holder 4 with the slot engaging ends arranged in alignment and with the three bits thus placed as shown in Figure 1, and 5 the screw driver will engage successfully with a heavy slotted screw.

It will be noted that the outer bits 10 as shown in Figures 1 and 5 are arranged with their outer slot-engaging ends in alignment and that the extreme inner ends thereof engage the top of the stud 12 to support the bits in their extended aligned position. These outer bits are each provided with a notch or offset 10′ at the inner end so that when it is desired to lower either of said side bits, the latter are removed and turned half a turn so that the offset end formed by the notch 10′ will pass the stud which is slightly wider than any of the bits, thus retreating further into the chuck or holder leaving the remaining bit or bits supported in extended working position. In this way, by manipulating the outer bits, the effective width of the slot-engaging or working end of the screw driver may be varied in accordance with requirements from the maximum three blade width to the medium and minimum two and one blade widths respectively.

When the tool is to be used with tubular spoke screws the offset ends may be arranged in the outward position to provide a slightly wider space in the centre, as shown in Figure 3.

It will be noted that as the ends 6 of the

holder 4 are chamfered, the placing and removing of the bits in the holder will be rendered very simple.

I have shown the invention applied to a hand operated screw driver but it will be understood the chuck end can be provided with a drill holder handle or the handle of a brace.

What I claim as my invention is:

1. A screw driver, comprising the combination with a chuck having a transverse slot in the end adapted to hold a plurality of bits, of a plurality of rectangular parallel-sided screw driver bits adapted to be placed side by side in said slot and having transverse slot-engaging ends, the outer bits having stepped portions, means carried by said chuck co-operating with the stepped portions of said bits to effect their relative positioning in the slot to be used either singly or collectively in accordance with their position in said slot, and means for clamping said bits within said slot.

2. In a screw driver, the combination with a transversely slotted chuck, of a plurality of screw driver bits each formed of a length of square steel having a tapered end extending from side to side thereof, said bits being adapted to be arranged side by side in the chuck slot, the outer bits having notched inner ends, means adapted to cooperate with the notched inner ends of said bits to support the same in extended or retracted position in the slot with their outer tapered ends in or out of operative alignment, and means for clamping said tools in their adjusted positions in the slot.

3. In a screw driver, the combination with a transversely slotted chuck, of a bit holder arranged in the chuck slot having means at its inner end to cooperate with the inner ends of the bits, a plurality of screw driver bits nested side by side in the chuck slot having outer reduced screw engaging ends, the outer bits having their inner ends notched to co-operate with said bit holder means whereby said bits may be supported in an extended or retracted position in the chuck slot in accordance with their position in the holder, and means for clamping said bit holder on said bits to hold the latter rigidly together in their positioned relation.

4. In a screw driver, the combination with a transversely slotted chuck, of a plurality of screw driver bits each formed of a length of square steel having a tapered end extending from side to side thereof, said bits being adapted to be arranged side by side in the chuck slot, the outer bits having notched inner ends, a U-shaped holder member fitting in the chuck slot and embracing said bits therein, said U-shaped holder having a raised portion adapted to co-operate with the notched inner ends of said outer bits to support the latter in their extended or retracted position with their outer tapered end in or out of alignment with the intermediate bit or bits in accordance with the position of said notched bits in the holder, and means for clamping said tools in their adjusted positions in the slot.

5. A screw driver as claimed in claim 4 in which said bits are formed with square shoulders on their inward ends and said U-shaped holder is chamfered at its outward end to facilitate placing of the bits therein, the bits fitting snugly between the walls of the holder whereby the natural resiliency of the latter will retain the bits against accidental displacement.

6. A screw driver, comprising the combination with a transversely slotted chuck, of a plurality of parallel sided bits adapted to fit into said slot, the outer of said bits having notches forming offset inner ends, a U-shaped metal bit holder adapted to fit into said slot and having a squared stud arranged centrally of the bottom thereof, said stud being slightly wider than either of said bits and adapted to support said bits in an extended position, the offset ends of the outer bits being adapted to fit between the stud and the side walls of the holder leaving the inner bit projecting and adapted to be placed in said holder with said inner notched ends engaging said stud to support the outer ends of said outer bits in co-operative alignment with the inner bit, and means for clamping said holder and bits rigidly together.

PETER L. ROBERTSON.