

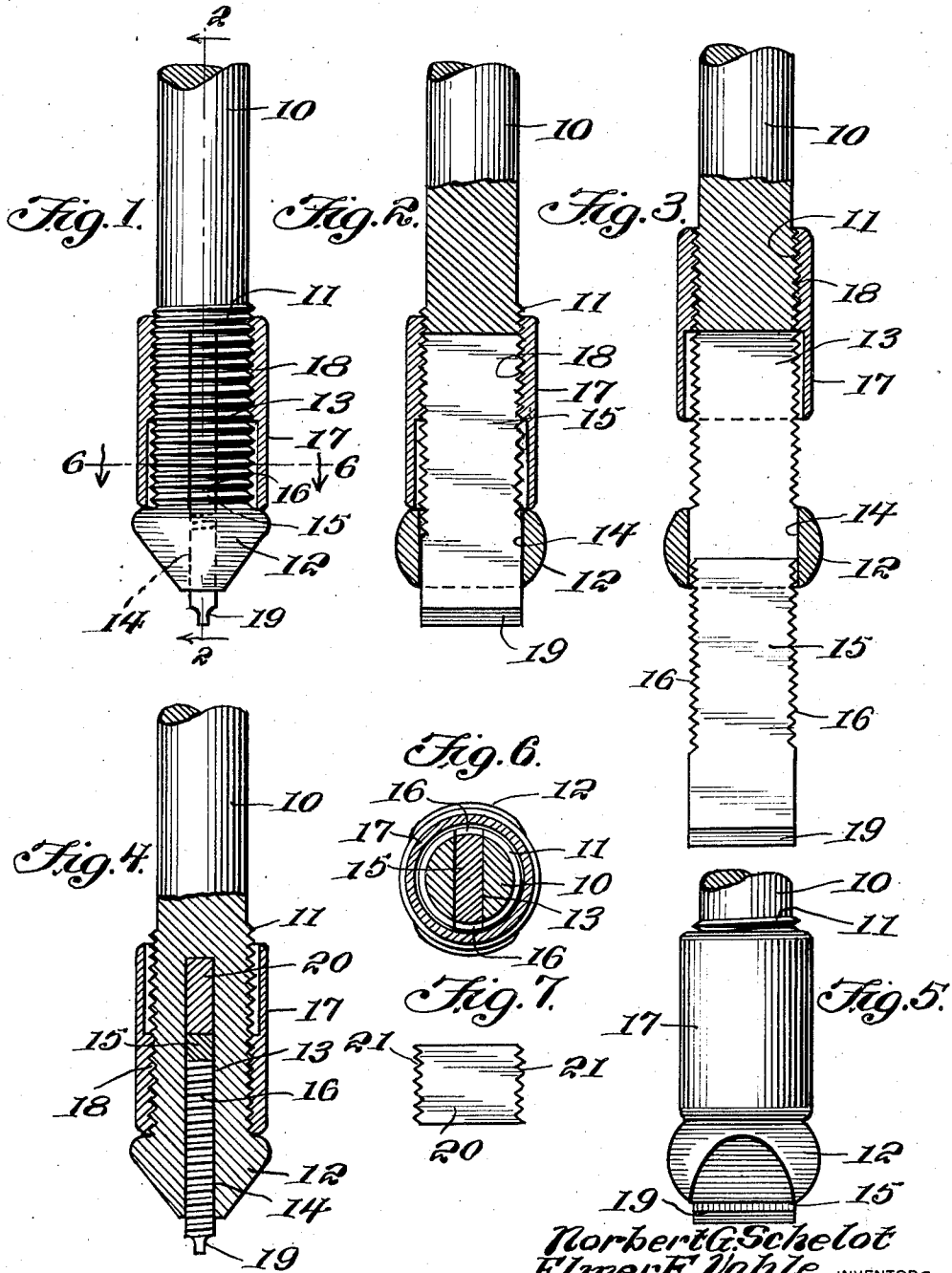
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TOOL

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TOOL

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This invention relates to tools and more particularly to screw-drivers and the like.

One of the principal objects of our invention is to provide a screw-driver or the like equipped with means which will enable the bit or screw operating part to be used up to a very short length.

Another object of our invention is to provide a device of the above described character which is simple in construction, economical in manufacture and durable in use.

Other objects and advantages will be apparent from the following description, appended claims and annexed drawing.

Referring to the drawing wherein like reference characters designate like parts throughout the several views:

Fig. 1 is a front elevation of our invention, the locking collar being illustrated in section.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2, the parts being illustrated in extended position.

Fig. 4 is a view similar to Fig. 1, the sleeve being shown in reversed position and an auxiliary bit element positioned therein.

Fig. 5 is a side elevation of the invention.

Fig. 6 is a sectional view taken on a line 6—6 of Fig. 1. Fig. 7 is a detail side elevation of the auxiliary bit element.

In practicing our invention, we employ an elongated shaft 10, the lower end of which is threaded as at 11 and terminates in a head 12. The threaded portion of the shaft is provided with a transversely extending slot 13 registering with a similar slot 14 formed in the head 12. Positioned within the slots is a bit 15, formed with threads 16 on the side faces thereof and secured within the slots by means of a sleeve 17. The sleeve is provided with interiorly arranged threads 18 extending approximately one-half of the length thereof for engagement with the threads 11 of the shaft and threads 16 of the bit.

The bit, which is illustrated as formed with a screw engaging section 19 of a screw-driver assembly, is preferably constructed of high quality tool steel and is adapted to be resurfaced from time to time in order to properly engage the head of a screw.

Heretofore, the resurfacing of screw-driver bits has resulted in the shortening of the bits due to the grinding and in many instances the shortening of said bits is undesirable where the type of work requires a screw-driver having a relatively long shaft. Furthermore, the entire shaft of the

screw-driver must be constructed of high quality tool steel in order that each resurfacing operation will provide the shaft with a proper work engaging end. Also, in the types of screw-drivers commonly in use, the end of the bit is widened only an appreciable distance from the bottom thereof which results, after frequent resurfacing, in a bit having a narrow work engaging end.

Our invention provides a bit of uniform width throughout its length and means whereby the same may be used or resurfaced to very short lengths and permits of the bit being adjustable relative to the shaft to compensate for the resurfacing, thereby, providing a screw-driver or the like having substantially the same length at all times. Our invention permits of the shaft of the screw-driver to be constructed of less expensive material, thereby effecting an economy in the manufacture of the same.

When the bit 15 has, after frequent resurfacing operations, become of a shorter length it may be positioned downwardly within the slot and an auxiliary bit member 20 interposed between the top thereof and the opposite wall of the slot 13, as clearly illustrated in Fig. 4.

The auxiliary bit member 20 is provided on the narrow faces thereof with threads 21 for engagement with the threads 18 formed in the sleeve 17.

In the position illustrated in Figures 1, 2, 5 and 6, the bit is substantially of its original length and the sleeve 17 is threaded on the shaft 10 with the non-threaded end engaging the head 12. In this position, the threads engage only an upper section of the threaded portion of the bit, consequently, only a minimum number of rotations of the sleeve relative to the shaft are required to release the bit in order that it may be positioned a sufficient distance below the head to be resurfaced and likewise a minimum number of rotations of the sleeve are required to lock the same in fixed position relative to the shaft.

In the position shown in Fig. 3 the bit has been released from the sleeve and lowered within the slot 14. In this position the sleeve is rotated upwardly and out of engagement with the threads of the shaft to enable it to be reversed and threaded thereon with the threaded end adapted to abut the head 12. Disengagement of the sleeve from the shaft enables the auxiliary bit member to be inserted within the slot 13 and the bit 15 repositioned therein by the sleeve threaded thereabout, as clearly illustrated in Fig. 4.

It will be readily comprehensible that the auxiliary bit member serves to reinforce the assembly and permits of adjustment of the bit 15 for

resurfacing without appreciable weakening of the tool. Obviously, as the bit 15 is gradually used up larger or other auxiliary members may be continued to be inserted, thereby, extending the life of the bit over a greater period than heretofore attainable.

While we have shown and described our invention as applicable to screw-drivers and the like, it is to be distinctly understood that the same may be adapted to many other forms of tools, such as lathe chucks, drilling bits and both manually and power operated devices.

Furthermore, many changes and modifications of parts and arrangement thereof may be resorted to without departing from the spirit of the invention or scope of the appended claims.

Having described our invention, what we claim is:

1. A tool structure comprising a shaft integrally fashioned with a headed end forming a circumjacent shoulder and a threaded section extending above said shoulder, said headed end and section fashioned with a slot transversing said section above said shoulder and extending axially through said headed end whereby said slot is provided with open sides in said threaded section and with closed sides in said headed end, a tool member seated within said slot and having a pair of oppositely disposed threaded faces registering with the threaded face of said threaded section adjacent said slot and enclosed within said headed end whereby the other faces of said tool member engage the sides of said slot for bracing the tool member therein, and a threaded sleeve connecting said threaded section and said threaded faces together and engaging said shoulder whereby to lock said tool rigidly within said slot.

2. A tool structure comprising a shaft integrally fashioned with a headed end forming a circumjacent shoulder and a threaded section extending above said shoulder, said headed end and section fashioned with a slot transversing said section above said shoulder and extending axially through said headed end whereby said slot is

provided with open sides in said threaded section and with closed sides in said headed end, a tool member seated within said slot and having a pair of oppositely disposed threaded faces registering with the threaded face of said threaded section adjacent said slot and enclosed within said headed end whereby the other faces of said tool member engage the sides of said slot for bracing the tool member therein, and a sleeve threaded over said threaded section and engaging said threaded faces and shoulder for securing said tool member locked within said slot and protecting said threaded faces of said tool member extending above said shoulder.

3. A tool structure comprising a shaft integrally fashioned with a headed end forming a circumjacent shoulder and a threaded section extending above said shoulder, said headed end and section fashioned with a slot transversing said section above said shoulder and extending axially through said headed end whereby said slot is provided with open sides in said threaded section and with closed sides in said headed end, a tool member seated within said slot and having a pair of oppositely disposed threaded faces registering with the threaded face of said threaded section adjacent said slot and enclosed within said headed end whereby the other faces of said tool member engage the sides of said slot for bracing the tool member therein, a threaded sleeve connecting said threaded section and said threaded faces together and engaging said shoulder whereby to lock said tool rigidly within said slot, and an auxiliary member inserted within said slot in abutting engagement with said tool member whereby to reenforce said structure when said tool member is locked in adjusted position, said sleeve embracing said threaded section for protecting said threaded faces of said tool member above said shoulder and maintaining said auxiliary member within said slot when said tool member is locked therein.

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