May 9, 1950 R. S. HANSEN 2,506,922

SCREW HOLDING SCREW DRIVER WITH EXPANDING BIT

Filed Feb. 21, 1947

Fig. 1.

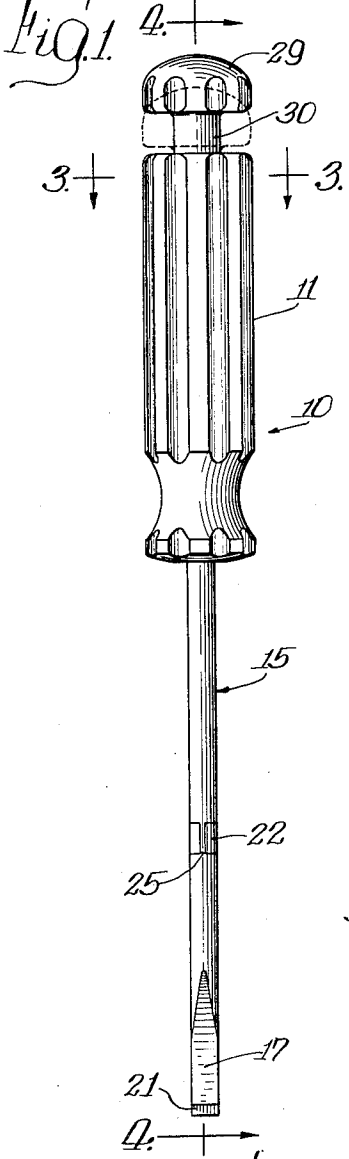



Fig. 2.

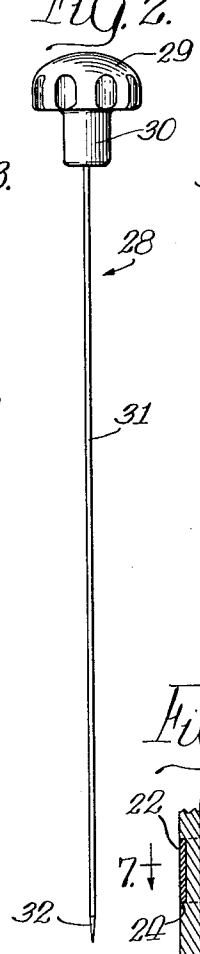



Fig. 4.

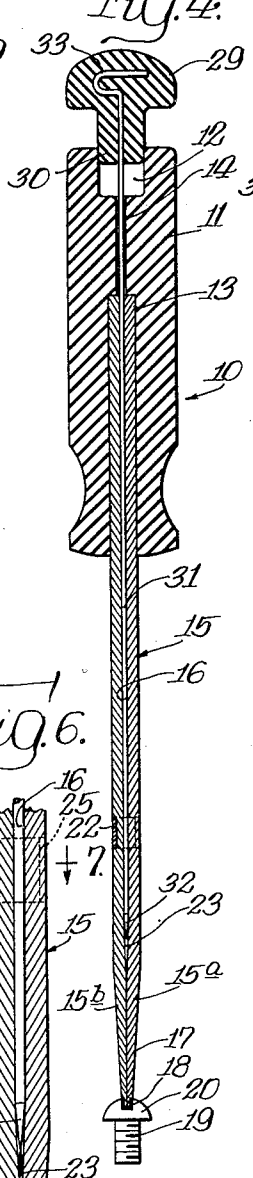



Fig. 5.

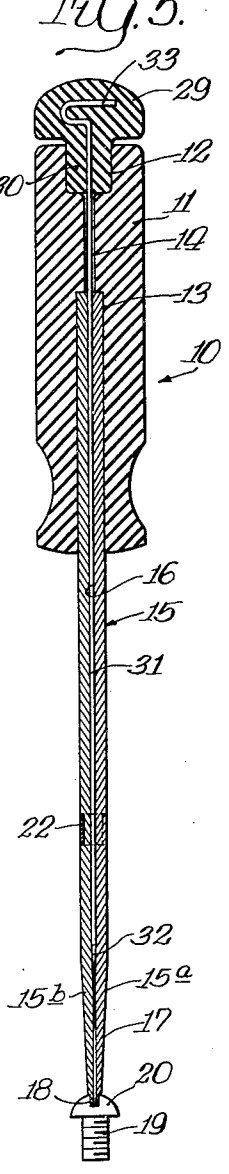



Fig. 6.

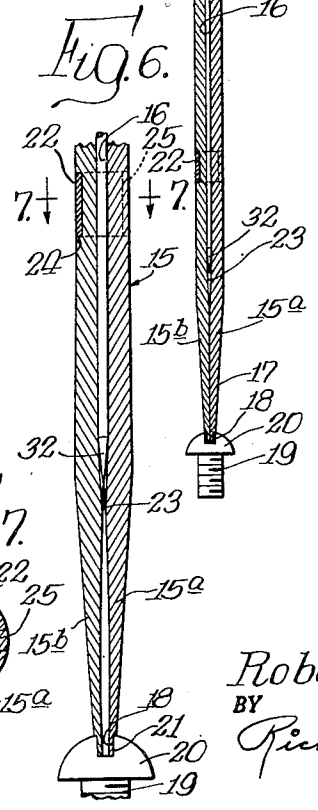



Fig. 3.

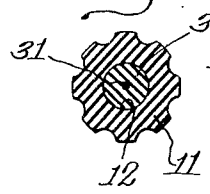



Fig. 7.




INVENTOR.
Robert S. Hansen.
BY
Richard D. Mason
Atty.

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## SCREW HOLDING SCREW DRIVER WITH EXPANDING BIT

Robert S. Hansen, Waukegan, Ill.

Application February 21, 1947, Serial No. 729,935

1 Claim. (Cl. 145—50)

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The present invention relates to a screw driver and more specifically to a screw drive having the capacity of holding the screw prior to its insertion or after its removal from its position in the screw threaded member to which it is to be applied.

Many screw drivers have been manufactured and sold which are capable of holding the screw by having means adapted to holdingly engage the kerf of a screw. However, in all of these prior art arrangements the construction has been complicated, difficult to manufacture, and unsatisfactory in various ways. In addition, the cost of manufacture has been so high that the sale of such screw drivers has been limited, and they have not been compeititve with the conventional screw driver well known to all. It would be desirable to provide an inexpensive, sturdy, easy-to-manufacture screw driver of the type referred to above which includes as a portion of the physical structure thereof a scribing tool which in addition to its secondary function as a part of the screw driver has the primary function of serving as a scribing tool.

Accordingly, it is an object of the present invention to provide a new and improved screw driver of the screw holding type.

It is another object of the present invention to provide a combined screw driver and scribing tool which combination also provides a screw driver of the type capable of holding a screw or bolt of the type having a head provided with a suitable kerf.

Still another object of the present invention is to provide a new and improved screw-holding screw driver which is sturdy in construction, inexpensive to manufacture and fool-proof in operation.

Further objects and advantages of the present invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

For a better understanding of the present invention, reference may be had to the accompanying drawing in which:

Fig. 1 is an elevational view of a screw driver embodying the present invention;

Fig. 2 is an elevational view of the scribing tool which also forms a part of the screw driver of the present invention;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 4;

Fig. 4 is a sectional view taken on line 4—4 of Fig. 1 showing the screw driver in the non-screw-holding position;

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Fig. 5 is a view similar to Fig. 4 showing the screw driver in the screw-holding position;

Fig. 6 is an enlarged view of a portion of Fig. 5; and

Fig. 7 is an enlarged sectional view taken on line 7—7 of Fig. 6.

Referring now to the drawing, there is illustrated a screw driver generally designated at 10 comprising a suitable handle 11 preferably formed of an insulating material such as a thermosetting or a thermoplastic material. As illustrated in Figs. 1 and 3 of the drawing, this handle is suitably shaped in the conventional manner of screw driver handles whereby it may readily be gripped by an operator using the same. Also, as is best shown in Figs. 4 and 5 of the drawing, this handle 11 is provided with a relatively large axially arranged recess, opening or counterbore 12 at the upper part of the handle, whereas at the lower portion of the handle a somewhat smaller axial recess 13 is provided. Interconnecting these two recesses 12 and 13 is a relatively small axial passageway 14. It should be understood that the recesses or passageways 12, 13, and 14 are interconnected and provide a continuous passageway along the axis of the handle 11.

As in prior art arrangements, the handle 11 is preferably fastened to a suitable blade which is provided at one end with a screw-engaging portion. In the drawing, the handle 11 is illustrated as being suitably fastened to a tubular member 15 having a longitudinally or axially extending opening 16 therein. Preferably, tubular member 15 is formed of steel tubing, the upper end of which is inserted in the recess 13 in the handle 11. The opening 16 in tubular member 15 when inserted in the handle 11 is preferably coextensive with the passageways 12 and 14 formed in the handle 11. It will be understood that the handle 11 may be fastened to the member 15 in any suitable, inexpensive manner. If desired, tubular member 15 may be provided with suitable extensions or ears not shown which together with the end of the member 15 are molded into the handle 11 when this handle is initially formed into the shape shown in the drawing. The particular manner of fastening the tubular member 15 to the handle 11 forms no part of the present invention, and any suitable means for accomplishing this purpose may be employed.

For the purpose of providing a screw driver bit, the other end of the blade or tubular member 15 is flattened as indicated at 17 in the drawings so as to define a portion readily adaptable for engaging the kerf of a screw such as the kerf 18 of the screw 19 provided with the head 20 as

clearly disclosed in Figs. 4, 5, and 6 of the drawing. In accordance with the present invention the lower end of the flattened portion 17 of the blade 15 is undercut as indicated at 21 for a distance of the order of the depth of the kerf 18 formed in the screw head 20. In forming the flattened blade portion 17, the opening 16 in the blade 15 is substantially closed as indicated at 23 and is substantially non-existent throughout the extent of the flattened portion 17 as is apparent in Fig. 4 of the drawing.

In order to provide screw holding means the lower end of the blade 15 is bifurcated along the axis of the blade so as to define two portions 15*a* and 15*b*. A suitable steel or similar ring 22 is provided at the upper end of the bifurcation so as to prevent movement of the protions of the blade above the ring 22 and so as to define a sort of a pivot for the portions 15*a* and 15*b*. Preferably, the ring 22 is disposed in an annular recess 24 defined in the blade 15 so that the blade 15 is smooth and substantially continuous along the outer surface thereof. The ring 22 may completely encircle the blade 15 or, if desired, the annular recess 24, as shown in Fig. 7 of the drawing, may be discontinuous as indicated at 25. The important criterion is for the external surface of the blade 15 to be relatively smooth as is apparent from Figs. 4, 5, and 6 of the drawing.

In accordance with the present invention the screw driver 10 includes a suitable scriber or scribing tool 28 best shown in Fig. 2 of the drawing. This scribing tool 28 comprises a suitable insulated handle 29 including an integral skirt or shank portion 30 and a steel blade portion 31 of slender configuration terminating in a conical end or point 32. The upper end of the blade 31 is preferably provided with a suitable portion 33 adapted to be molded within the handle 29 at the time the handle 29 is formed whereby the blade 31 is rigidly fastened to the handle 29. It will be understood that the handles 11 and 29 are preferably formed of the same kind of insulating material. The scribing tool 28, which may have as its primary function its use as a scriber, is also adapted to be combined with the screw driver 10 of the present invention, it being insertable within the longitudinal passageway comprising the recess 12, the passageway 14 and the passageway 16, all arranged so as to define one continuous passageway. When inserted in this manner, the shank 30 of the handle 29 is adapted to fit within the somewhat enlarged recess 12 in the handle 11 and is normally in the position shown in Fig. 4 and in solid lines in Fig. 1 of the drawing. In this position the point 32 extends approximately to the end of the passageway 16 which has been closed as indicated at 23 while forming the blade or flattened portion 17. When the undercut portion 21 of the screw driver 10 is inserted within the kerf of a screw 19, the operator may move the scribing tool 28 from the position shown in solid lines in Fig. 1 to the position shown in dotted lines or, in other words, from the position shown in Fig. 4 to the position shown in Fig. 5 of the drawings whereby the point 32 of the scribing tool 28 causes the bifurcated portions 15*a* and 15*b* to spread apart as shown in Figs. 5 and 6 of the drawing with the consequent result that the bifurcations are spread against the walls of the kerf 18 of the screw 19 so as firmly to hold the screw on the end of the screw driver 10. It will be apparent that the operator may depress the scribing tool 28 to the position shown in Fig. 5 of the drawings merely by applying his thumb to the insulating handle 29.



In view of the detailed description included above, the operation of the screw driver of the present invention will be apparent to those skilled in the art, and no further description thereof will be included. It will be understood, however, that the present invention provides a screw driver including a screw driver portion and a separate scribing tool which may be used for any scribing operation desired. When the screw driver is to be employed to hold the screw, then the scribing tool is inserted within an axial passageway extending through the screw driver to cause the bifurcations 15*a* and 15*b* to perform the holding operation. The screw driver 10 without the scribing tool 28 is capable of being employed as a conventional screw driver. It will furthermore be apparent that with the shank 30 of the handle 29 disposed within the recess 12 a suitable insulating screw driver is provided whereby the operator will not obtain an electrical shock through manipulation of the screw driver. In addition, it will be apparent that a sturdy, inexpensive construction is provided which will give very satisfactory service for a long period of time.

It will be apparent to those skilled in the art that the present invention is not limited to the particular construction shown and that changes and modifications may be made without departing from the spirit and scope of the present invention, and it is aimed in the appended claim to cover all such changes and modifications.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

A screw driver comprising a handle formed of electrical insulating material having an axially disposed passageway therein, means defining a counterbore of a predetermined depth at one end of said handle, said counterbore effectively comprising an enlargement of said passageway, a tubular shank including an axially disposed passageway therein, one end of said shank being fastened to the other end of said handle so that said passageways are coaxial, means defining a flattened bifurcated blade portion at the other end of said shank readily to engage the kerf of a screw, and an expanding tool having a handle including an integral shank portion, said handle and integral shank portion being formed of electrical insulating material, said expanding tool being insertible into said coaxially arranged passageways to spread said bifurcations into holding engagement with the kerf of a screw with said integral shank portion disposed in said counterbore, said integral shank portion being of such length as to close the open end of said counterbore in all normal positions of said expanding tool within said passageways whereby contact with parts of said expanding tool other than said insulating handle thereof is prevented.

ROBERT S. HANSEN.


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