

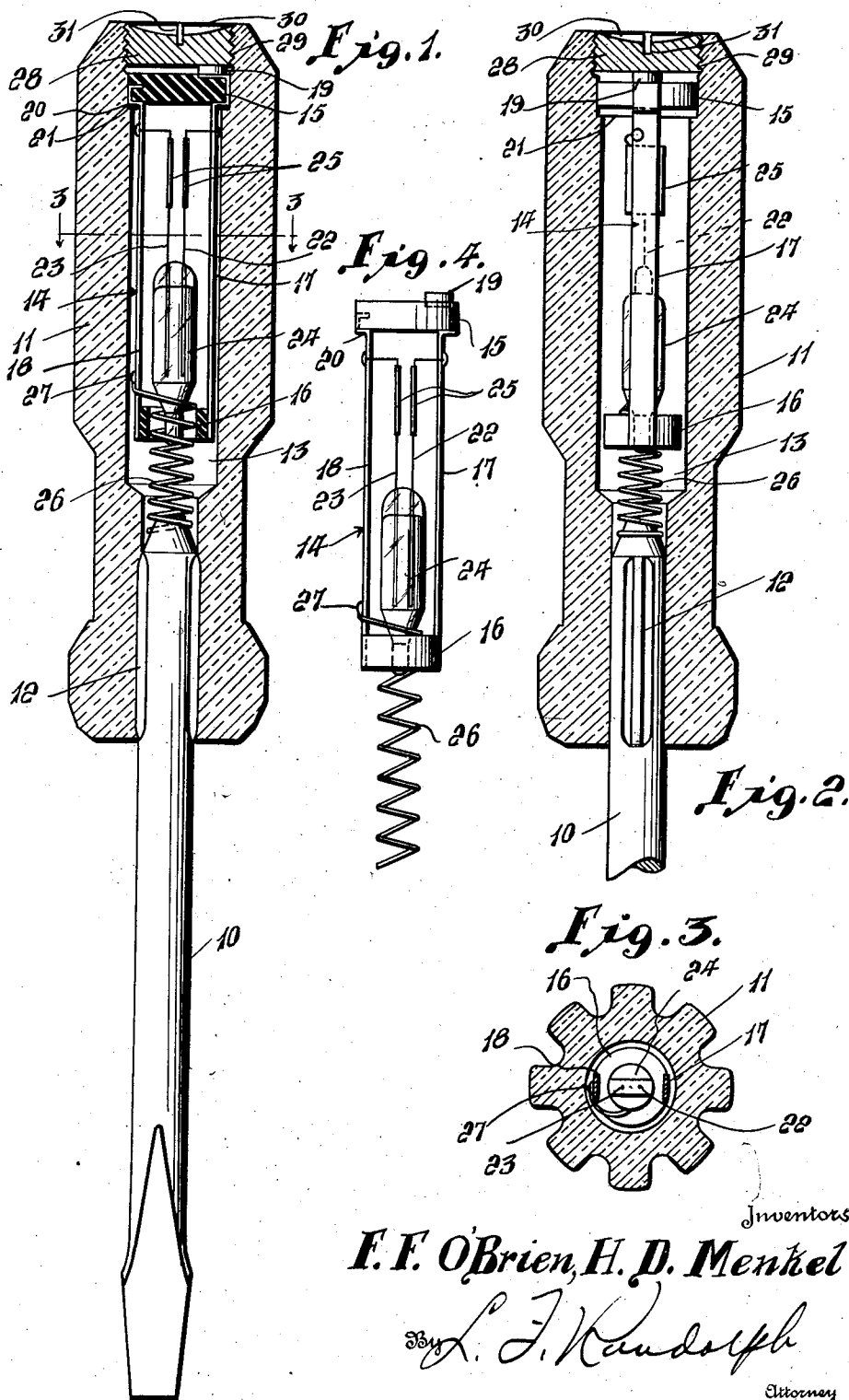
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SCREW DRIVER AND VOLTAGE DETECTOR

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## SCREW DRIVER AND VOLTAGE DETECTOR

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This invention relates to a means for testing the presence of potential or electric current in a cable or metallic conductor and aims to provide a generally improved structure and particularly one which may be combined in a hand tool, for instance a screw driver.

The more specific objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawing illustrating an operative embodiment.

In said drawing:—

Figure 1 is a longitudinal sectional view illustrating our improvements as embodied in a screw driver;

Figure 2 is a longitudinal sectional view through the screw driver taken at a right angle to Figure 1;

Figure 3 is a horizontal sectional view taken on the plane of line 3—3 of Figure 1, and

Figure 4 is a detail elevation of the electrical parts.

Referring specifically to the drawing wherein like reference characters designate like or similar parts, the invention is embodied in a hand tool, preferably a screw driver of which 10 is the usual metallic shank or blade and 11 is a handle to which it is rigidly attached as at 12. Said handle may be made of any suitable material, that is of insulation, transparent or of any suitable color, and of a synthetic nature, the base of which may be a cellulose nitrate composition.

Said handle 11 has a bore or recess 13 leading inwardly from its free end. In said bore or recess, an electrical assembly generally designated 14, and specifically shown in Figure 4, is housed. Such assembly consists of a disk of insulation 15 and a ring of insulation at 16. A pair of longitudinal conductors 17 and 18 are fastened at their terminals to said disk 15 and ring 16 and conductor 17 leads to a contact 19, of metal, on the upper surface of said disk 15. The conductors 17 and 18 extend inwardly or have shoulders as at 20 which are adapted to rest on a shoulder 21 adjacent the outer end of the recess 13. Conductors 22 and 23 are connected to the conductors 17 and 18, respectively, and to the terminals of a gas filled electric bulb 24, suspending the latter centrally of the ring 16. Usually the bulb 24 is a neon bulb but it may be any equivalent. In each conductor 22 and 23, a condenser 25 is connected. A coil spring 26 of a conducting metal, extends through the bore of the ring 16 and has one terminal at 27 secured to the conductor 18. Said spring 26 serves to

cushion the bulb 24 in the event of movement of the latter, since the lower end of the bulb extends partly into the spring. Said spring at its inner end contacts with the shank 10.

Said bore or recess 13 is preferably closed at the outer end by a plug 28, of conducting metal, which is screw threaded in place at 29 and at its undersurface contacts the element 19. The outer surface of the plug 28 is preferably concaved as at 30 so that the palm of the hand will not touch the same in operating the tool as a screw driver. A kerf 31 is preferably provided in the outer surface of said plug for engagement by a screw driver or the like in applying or removing the same.

It will be realized that the plug 28 is adapted to be touched by a finger of the operator when the shank 10 is in engagement with a cable or the like being tested. The said neon lamp 24, condensers 25, shank 10 and plug 28 are connected in series. Thus when the shank 10 is in engagement with a cable or the like and a finger engages the plug 28 and an electric current is present, the neon lamp or bulb 24 will concentrate emissions of light.

Various changes may be resorted to provided they fall within the spirit and scope of the invention.

We claim as our invention:—

1. A device of the class described having a body of insulation, a metallic element extending therefrom for engagement with the device being tested, said body having a bore, a metallic plug in the bore, conductors within the bore, one of said conductors leading to the plug, the other conductor leading to the element, conductor members extending one from each of the said conductors, a gas filled lamp to which the conductor members lead, condenser means associated with the conductor members, a disk of insulation to which the conductors are connected at one end, a ring of insulation to which the conductors are connected at the opposite end, a spring extending through said ring from one of the conductors to said element, and said lamp extending partly into the spring.

2. A device of the class described having a body of insulation, a metallic element extending therefrom for engagement with the device being tested, said body having a bore, a metallic plug in the bore, conductors within the bore, one of said conductors leading to the plug, the other conductor leading to the element, conductor members extending one from each of the said conductors, a gas filled lamp to which the con-

ductor members lead, condenser means associated with the conductor members, a disk of insulation to which the conductors are connected at one end, a ring of insulation to which the conductors are connected at the opposite end, a spring extending through said ring from one of the conductors to said element, said lamp ex-

tending partly into the spring, the bore having a shoulder, the conductors having shoulders adjacent the disk engaging the first mentioned shoulder, and a contact on the disk engaging one of the conductors and said plug.

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