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CENTER LOCATING PUNCH

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Fig. 1.

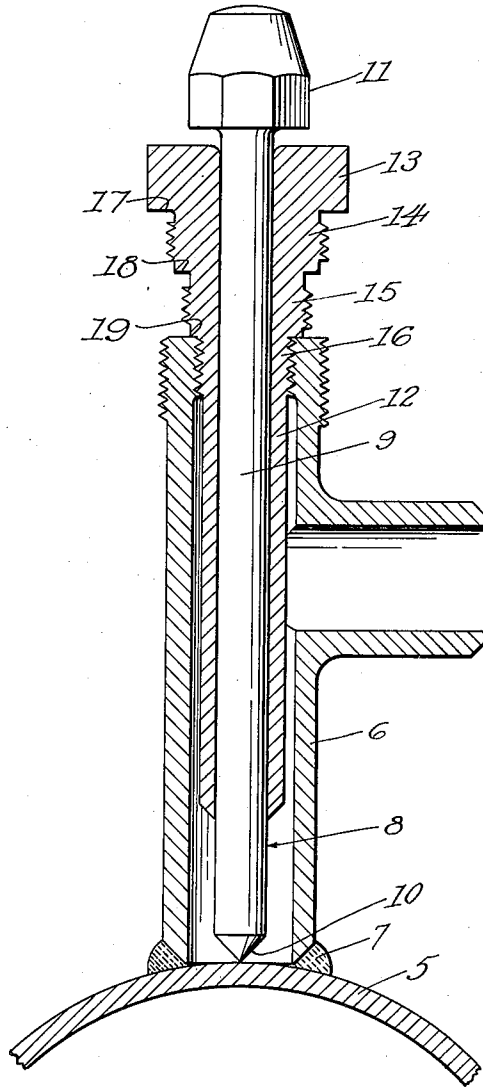
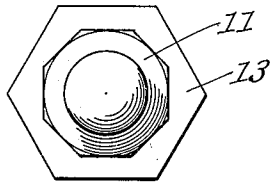


Fig. 2.



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UNITED STATES PATENT OFFICE

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CENTER LOCATING PUNCH

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1 Claim. (Cl. 33—191)

This invention relates to means for forming in a body a centering indentation for a drill which must be introduced to working position through a tubular member or fitting which is secured at one end to the body and is open at the other, the object being to assure that the indentation is exactly on the axis of the fitting. It is customary, for example, to weld a T to a main and then to introduce a drill through the T to drill a communicating opening in the wall of the main. Heretofore, there has been considerable difficulty in starting the drill exactly on the line of the T axis. It is such difficulty which the present invention has as its object to overcome. Preferred means for achieving this object are shown in the accompanying drawing, with reference to which description of the invention will be made.

In the drawing,

Figure 1 is an axial section of a center locating punch in accordance with the invention and of a T to which the punch is operatively applied, a main to which the T is welded being shown in part in transverse section, and

Figure 2 is a top or plan view of the new punch.

Referring to the drawing, reference numeral 5 designates a main to which the cross portion of a T 6 is welded at one end by a fillet 7 with its axis substantially normal to the wall of the main. At its upper, or outer, open end the T is internally and externally thickened and provided with internal and external threads.

Reference numeral 8 designates a punch having an elongated cylindrical stem portion 9 provided at one end with an exactly centered point 10 and at the other with a head 11. Reference numeral 12 designates a sleeve having a bore in which the stem portion 9 of the punch has a free but close sliding fit so as to be accurately guided for axial movement. At one extremity the sleeve has a portion 13 engageable by a turning tool and for this purpose the portion 13 may be hexagonal, as shown. Beneath portion 13 are three externally threaded portions 14, 15 and 16 of stepped-down different diameter, the portion 16 being of a size to be engaged with the internal threads of the T. Portions 14 and 15 are similarly engageable in the threaded portions of appropriately sized T's. The threaded portions 13, 14 and 15, which are, of course, accurately coaxial with the sleeve bore, are respectively surmounted by shoulders 17, 18 and 19 which are normal to the bore axis. The stem 9 of the

punch is somewhat longer than the sleeve bore when, as here shown, the punch includes a head.

In the use of the tool in connection with a T of the size shown, the portion 16 of the sleeve is threaded into the end of the T preferably until shoulder 19 abuts the T end. Normally the threads will accurately center the sleeve bore with respect to the T, but in case of worn threads, the shoulder 19, in engagement with the T end, will supplement this function. With the sleeve thus engaged with the T, it extends a substantial distance toward the main 5. In the present instance, it is shown terminating far enough away from the main so that when the threaded portion 14 is engaged with a T of larger diameter but of the same length as that shown, the inner end of the sleeve will still be clear of the wall of the main. With the sleeve applied as described, the punch may be introduced and struck to form an indentation in the wall of the main. The indentation will be exactly on the axis of the fitting, since the elongated sleeve rigidly positions the punch stem. The punch stem, as shown, is of substantially smaller diameter than the inner diameter of the T passage, so that the sleeve walls can be made of adequate thickness and yet be spaced somewhat from the inner walls of the T below the inter-engaged threaded portions.

It will be understood that the invention is not limited to the precise details described, and that accordingly I do not limit myself in these respects except as in the following claim.

I claim:

Means for forming in a main to be drilled a drill centering depression on the axis of a tubular fitting which has one end secured against said main and is open at the other end, said other end being threaded, said means comprising a center punch whose diameter is substantially less than the inner diameter of the fitting, and a sleeve in which said punch has a close sliding fit, said sleeve having a threaded portion engageable with the threaded end of said fitting to position the sleeve coaxially relative to the latter, said sleeve having a portion which when the sleeve is engaged with the fitting extends into adjacency to the main to provide an extended axial guide for said punch, said sleeve constituting the sole guide means for the punch and the punch being removable with the sleeve from said fitting.

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