

Dec. 28, 1965

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3,225,846

HOLDER FOR BORING BITS AND THE LIKE

Filed May 14, 1963

Fig. 2

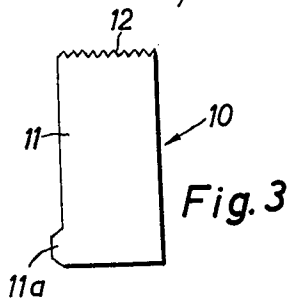
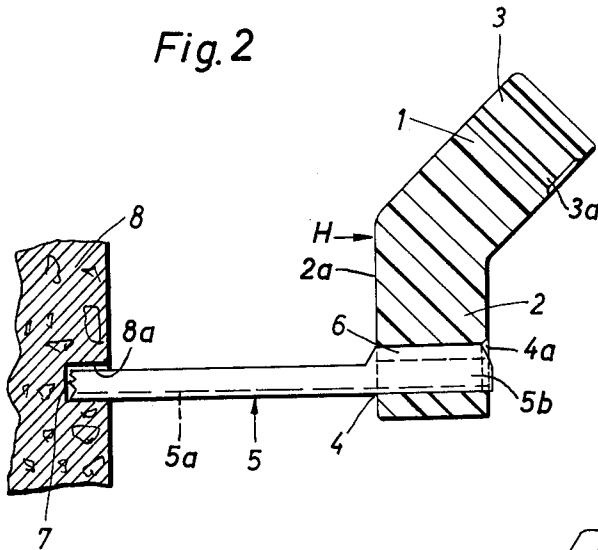


Fig. 1

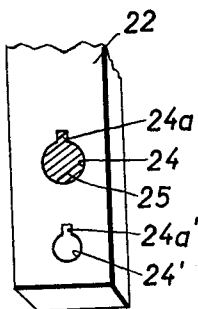
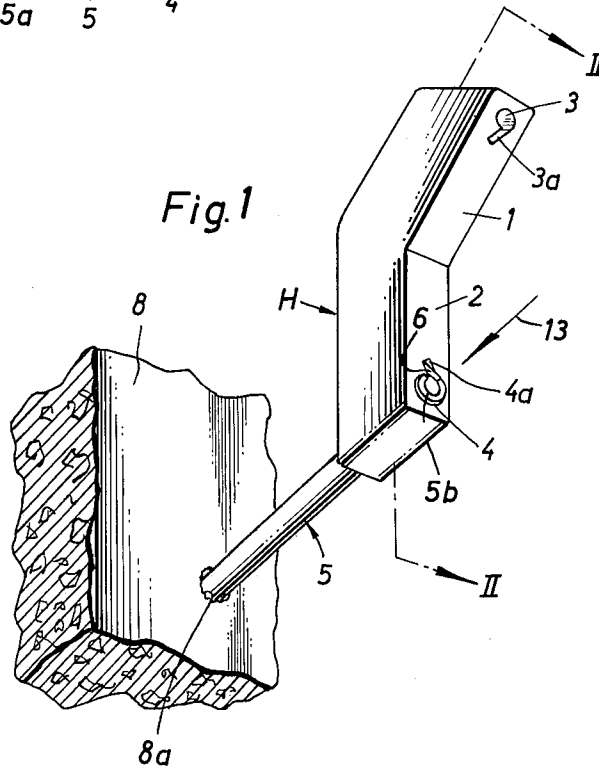


Fig. 4

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3,225,846

HOLDER FOR BORING BITS AND THE LIKE
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Filed May 14, 1963, Ser. No. 280,379

Claims priority, application Germany, May 16, 1962,
 F 36,820

9 Claims. (Cl. 175-403)

The present invention relates to a handle for boring bits and similar tools which may be utilized to form expansion anchor holes in concrete, brick, plaster and other types of brittle construction material. More particularly, the invention relates to a handle which may be used to alternatively support two or more differently dimensioned boring tools.

It is an important object of my invention to provide a very simple, compact, inexpensive and lightweight handle which may be rapidly connected with or disconnected from a boring bit or a similar tool, which is without moving parts, and which may be manipulated by persons having little or no skill.

Another object of the invention is to provide a handle of the just outlined characteristics which may be used in connection with heavy-duty or regular boring bits, which can withstand hammer blows and similar stresses such as are being transmitted thereto when a boring tool is in actual use, and which may be manufactured of readily available materials other than metal.

A further object of the invention is to provide a device which includes a boring bit and a handle of the above outline characteristics.

With the above objects in view, one feature of my invention resides in the provision of a handle which preferably consists of one piece of blow-resistant synthetic plastic material (e.g., nylon) and which is arranged to alternatively support two or more boring bits or similar tools of the type having an elongated tubular or solid rod shaped end portion and a projection extending radially or tangentially of such end portion. The handle comprises two or more elongated sections each of which may serve as a handgrip member and each of which is formed with at least one transversely extending bore and with a slot which communicates with the respective bore. The diameters or the transverse dimensions of the bores are different so that each thereof may receive the end portion of a differently dimensioned tool. The projections of the tools then extend into the respective slots to prevent rotation of such tools with respect to the handle. The arrangement is preferably such that the end portion of a tool must be driven into and is then wedged into the respective section to prevent accidental axial displacements of the tool.

The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The improved handle itself, however, both as to its construction and the method of using the same, together with additional features and advantages thereof, will be best understood from the following detailed description of certain specific embodiments with reference to the accompanying drawings, in which:

FIG. 1 is perspective view of a handle which embodies my invention and which supports a tubular boring bit while the latter forms an expansion anchor hole in a concrete wall or a similar piece of masonry;

FIG. 2 is a longitudinal central section as seen in the direction of arrows from the line II-II of FIG. 1;

FIG. 3 is a smaller-scale plan view of a blank which may be transformed into a boring bit of the type shown in FIGS. 1 and 2; and

FIG. 4 is a fragmentary and elevational view of a

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modified handle and shows a prong-like section which is formed with two bores each adapted to receive the end portion of a differently dimensioned solid rod shaped bit.

Referring now in greater detail to FIGS. 1 and 2, the handle or holder H of my invention assumes the form of a flat substantially V-shaped body of strong blow-resistant synthetic plastic material which comprises two mutually inclined coplanar sections or prongs 1, 2. For example, the handle may be made of nylon which is a material capable of resisting blows by a hammer or a similar tool.

The free end portions of the prongs 1 and 2 are respectively formed with transversely extending bores 3 and 4 whose axes are parallel with the general plane of the handle and which are inclined with reference to each other so that the imaginary extensions of their axes make the same angle as the prongs. In the illustrated embodiment, the bores 3 and 4 are through bores but it is equally possible to form the prongs with blind bores as long as the axial length of the bores is sufficient to insure satisfactory retention of the bit. The prongs 1 and 2 are further provided with elongated slots 3a, 4a which communicate with and which are substantially tangential to the respective bores. The diameters of the bores 3 and 4 are different so that each thereof may accommodate the rear end portion of a differently dimensioned bit. FIGS. 1 and 2 show an elongated tubular boring bit 5 which is formed with a narrow longitudinally extending slit 5a and whose cutting portion 7 at its front end is formed with annularly arranged teeth adapted to penetrate into the exposed surface of a masonry structure 8 to form therein a hole 8a for reception of an expansion anchor or the like. That portion 5b of the bit 5 which is adjacent to its rear end is provided with an elongated substantially tangential flat projection or lug 6 serving as a means to hold the bit against rotation with respect to the holder H and to simultaneously prevent undesirable axial movements of the bit. The end portion 5b is fitted into the bore 4 and the projection 6 is received in the slot 4a. As shown in FIG. 2, the length of the projection 6 may equal or even exceed the length of the bore 4.

The bit 5 may be formed in the following way: A rectangular blank 10 (see FIG. 3) is stamped out of a sheet of tool steel by leaving a lug 11a along one edge portion 11 of the blank. The blank is thereupon rolled into a tube to form the body of the bit whereby the lug constitutes the projection 6. A second edge portion 12 of the blank is formed with teeth so that the material which is adjacent to this second edge portion 12 constitutes the cutting portion 7 of the finished bit.

Referring again to FIGS. 1 and 2, the masonry construction 8 is a wall consisting of brick, concrete, plaster or another comparatively brittle material which cannot directly retain a screw, a threaded bolt or a similar fastening device. When the handle H is to be put to actual use, the operator inserts the trailing end portion 5b of the bit 5 into the bore 4 in such a way that the projection 6 extends into the slot 4a. As a rule, the width of the slot 4a is somewhat less than the thickness of the projection 6 so that the latter must be forced into the slot 4a and is wedged in the prong 2 to prevent undesirable axial movements of the bit. For example, the width of the slots 3a, 4a may diminish in a direction from the one toward the other axial end of the respective bore.

Once the bit 5 is properly wedged in the position of FIG. 1 or 2, the operator grasps the prong 1 with one hand and, by holding a hammer or a similar driving tool, strikes against the prong 2 (arrow 13) to form the expansion anchor hole 8a.

The position of the handle H is reversed when the operator decides to use a second bit whose trailing end portion is received in the bore 3. Of course, the operator will ex-

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pel the bit 5 from its bore 4 before he decides to connect the prong 1 with a smaller-diameter bit so that the bit 5 cannot interfere with the next boring operation. As a rule, the trailing portion of a bit is driven into the respective bore with the help of a hammer and its projection is finally clamped or wedged in the respective slot while the cutting portion penetrates into the material of the masonry structure 8. Alternatively, and referring again to FIGS. 1 and 2, the surface 2a of the prong 2 may be placed onto a rigid support (not shown) so that the ends of the bore 4 remain exposed. The operator then introduces the cutting portion 7 into the right-hand end of the bore 4 (reference being had to FIG. 2) and uses a hammer to drive the projection 6 into the slot 4a.

If desired, at least one prong of the handle H may be formed with two or more bores, particularly if the prongs are comparatively long. This is shown in FIG. 4 which illustrates a prong 22 with a larger-diameter bore 24 and a smaller-diameter bore 24'. These bores respectively communicate with radially extending slots 24a, 24a' and are parallel to each other. Such handle may serve as a holder for three or more differently dimensioned bits. Furthermore, the handle may comprise three or more prongs and, instead of being inclined with reference to each other, the prongs 1, 2 may form a pair of aligned sections one of which constitutes the handgrip member and the other of which constitutes the tool supporting member of the handle.

The handle of my invention is equally practical for use as a means for alternatively supporting two or more heavy-duty bits which consist of solid steel rod stock. If such heavy duty bits are provided with radial projections (see the solid bit 25 which is shown in section in FIG. 4) the slots (24a, 24a') in the corresponding prongs extend radially of the respective bores (24, 24'). Finally, it is equally within the purview of my invention to omit the projection 6 and to form the prongs 1 and 2 with ribs or projections which extend into the respective bores so as to be received in the slit 5a of the respective boring bit. This modification will be readily comprehended by men skilled in this art without necessitating additional illustrations.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic and specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claim.

What is claimed as new and desired to be secured by Letters Patent is:

1. A handle for boring bits and similar tools of the type having an elongated end portion and a projection extending laterally of such end portion, said handle consisting of a single piece of blow-resistant synthetic plastic material and comprising a pair of mutually inclined elongated coplanar prongs each having a transversely extending through bore and an elongated slot parallel to and communicating with the respective bore, said bores having different diameters so that each thereof may accommodate the end portion of a differently dimensioned tool whereby the projection of the tool extends into the respective slot to prevent rotation of the tool with respect to the handle.

2. A handle for boring bits and similar tools of the

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type having an elongated end portion and a projection extending laterally of such end portion, said handle consisting of a single piece of blow-resistant synthetic plastic material and comprising a pair of mutually inclined elongated coplanar prongs each having a transversely extending through bore and an elongated slot parallel to and communicating with the respective bore, said bores having mutually inclined axes disposed in the common plane of said prongs and having different diameters so that each thereof may accommodate the end portion of a differently dimensioned tool whereby the projection of the tool extends into the respective slot to prevent rotation of the tool with respect to the handle.

3. A handle as set forth in claim 2 wherein each of said bores is located in close proximity to that end of the respective prong which is spaced from the other prong.

4. A device of the character described comprising a handle consisting of one piece of blow-resistant synthetic plastic material and having a plurality of mutually inclined elongated coplanar sections each of which may serve as a handgrip member, at least one of said sections having a portion provided with a bore; and a boring bit having an end portion received in said bore, one of said portions having a slot and the other of said portions comprising a projection extending into said slot so that the bit is held against rotation with respect to the handle.

5. A device as set forth in claim 4, wherein the width of said slot is such that the projection is wedged therein to hold the bit against accidental axial displacement.

6. A device as set forth in claim 4, wherein each of said sections has a portion which is provided with a bore and wherein the diameters of said bores are different so that each thereof may receive the end portion of a differently dimensioned tool.

7. A device as set forth in claim 4, wherein said bit is of tubular shape and has an axially parallel slit.

8. A device as set forth in claim 4, wherein said bit is a solid rod.

9. A handle for boring bits and similar tools of the type having an elongated end portion and a flat projection extending tangentially of such end portion, said handle consisting of a single piece of blow-resistant synthetic plastic material and comprising a pair of mutually inclined elongated coplanar prongs each having at least one transversely extending through bore and an elongated slot extending tangentially of and communicating with the respective bore, said bores having different diameters so that each thereof may accommodate the end portion of a differently dimensioned tool whereby the projection of the tool extends into the respective slot to prevent rotation of the tool with respect to the handle, said bores and said slots being dimensioned in such a way that the end portions and the projections of the respective tools are wedged therein to prevent accidental axial displacement of the tool.

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