

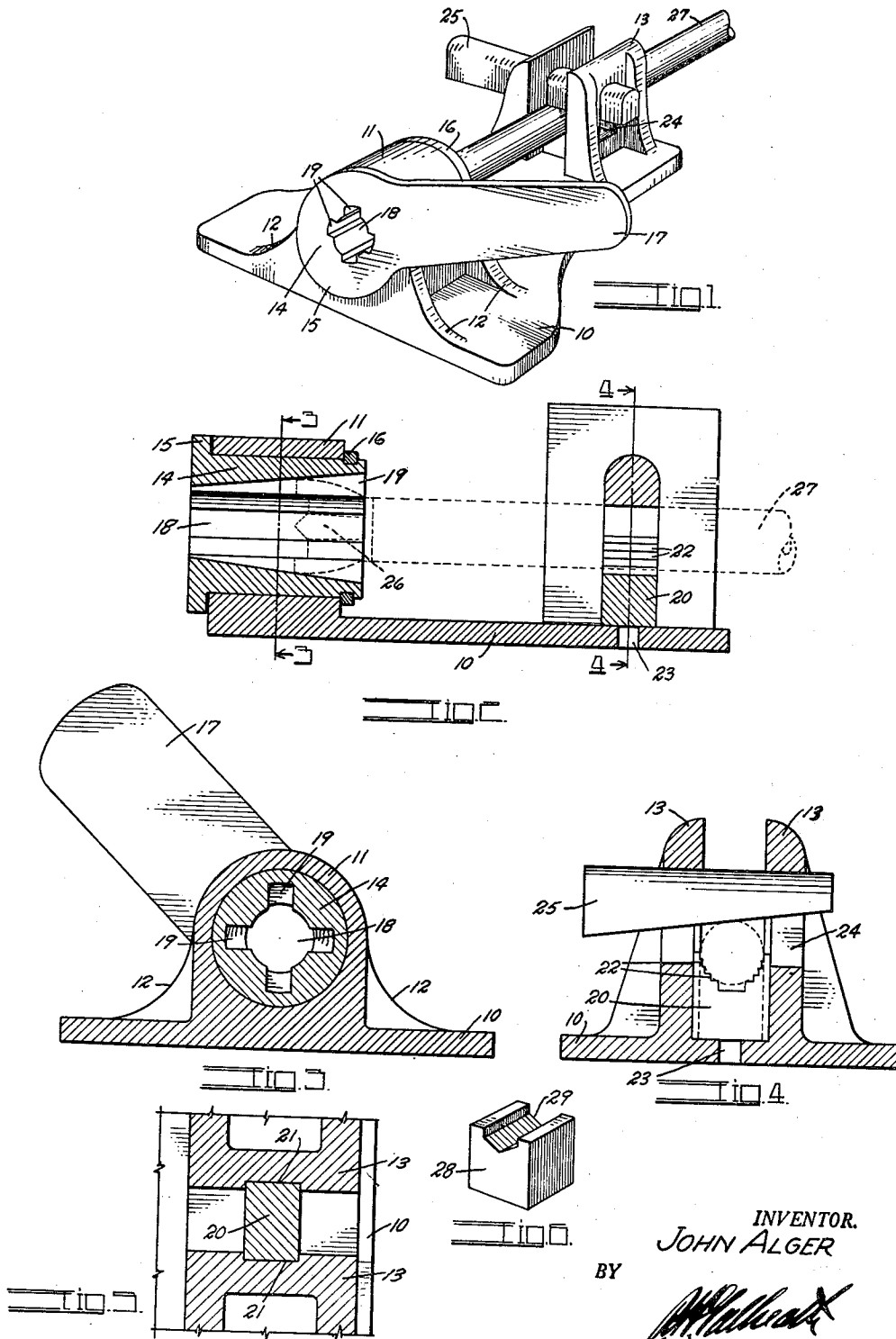
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DRILL STEEL BIT WRENCH

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## DRILL STEEL BIT WRENCH

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1 Claim. (Cl. 81-55)

This invention relates to a device for bits on rock drill steels so that the bits may be readily unscrewed therefrom, and has for its principal object the provision of a simple and highly efficient device which can be used upon any type or size of bit or steel, and which will quickly and easily loosen the bit, regardless of how firmly the latter is engaged, without damage to either the bit or the drill steel.

The modern bits have inserts of exceedingly hard, brittle alloys, such as carbide. In endeavoring to remove a stuck bit from its steel by means of hammering, these hard carbide inserts are chipped, broken, and damaged. Another object of this invention is to provide means for loosening the bit which will not contact the hardened bit inserts, and which cannot damage them in any way.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

Fig. 1 is a perspective view of the improved drill steel bit wrench;

Fig. 2 is a longitudinal section therethrough;

Figs. 3 and 4 are cross-sections, taken on the lines 3-3 and 4-4, respectively, Fig. 2;

Fig. 5 is a horizontal fragmentary section, taken on the line 5-5, Fig. 2; and

Fig. 6 is a detail, perspective view of an alternate form of gripping insert used in the improved wrench.

The improved drill bit wrench is designed to rest upon the ground or other suitable flat supporting surface, and is built upon a flat base plate 10 which is preferably, but not necessarily, cast from steel, malleable iron, or other impact-resisting metal. The base plate 10 is somewhat T-shaped in plan, having a relatively wide forward extremity and a relatively narrow rear extremity.

A hollow cylindrical sleeve 11 is cast or otherwise formed on the base plate 10 adjacent the wide forward extremity thereof. The sleeve 11 is preferably braced from the base plate 10 by means of suitable brace webs 12. The opposite narrow extremity of the plate 10 carries upstanding guide cheeks 13 spaced parallel to the axis of the hollow sleeve 11.

A tubular socket member 14 is rotatably mounted in the sleeve 11. The socket member 14 is formed with an annular external flange 15 which bears against the outer face of the sleeve 11 and is held in place in the sleeve by means of a resilient snap ring 16 fitting into a circumferential groove in the socket member 14. The peripheral flange 15 is extended sidewardly to form an integral handle 17 by means of which the socket member 14 may be rotated.

The socket member 14 is provided with a central round opening of uniform diameter throughout the entire length of the sleeve. Four tapered grooves 19 are formed in the sides of the round opening 18. The grooves 18 have their greatest depth at the extremity of the socket member 14 which faces the guide cheeks 13, and their least depth adjacent the flange 15.

A hardened steel anvil block 20 is fitted into vertical channels 21 formed in the cheeks 13. The upper face

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of the block 20 is indented by forming two series of sharp-edged steps 22 therein.

Each of the cheeks 13 is provided with a vertically elongated wedge opening 24 through which a tapered wedge 25 may be inserted. The upper extremities of the wedge openings 24 are rounded, and the upper surface of the wedge 25 is similarly rounded to fit smoothly therein.

In use, the drill bit, indicated in broken line at 26, is inserted in the socket member 14, and the drill steel, indicated at 27, is placed between the cheeks 13 so as to rest upon the anvil block 20. The wedge 25 is then forced into position across the steel, as indicated in Fig. 4.

The handle 17 is now struck by means of a hammer or other driving implement in a clockwise direction to loosen the bit 26 from the steel 27 while the latter is gripped against the sharp-edged steps 22 by means of the wedge 25. The wedge 25 is inserted from the proper side so that any rotation of the drill steel will only serve to force the wedge further into the wedge openings 24 so as to exert a tighter grip on the drill steel.

The anvil block 20 can be forced upwardly in its channels 21 by inserting a driving tool through an opening 23 formed in the base plate 10, and can then be removed sidewardly through one of the wedge openings 24. It can be replaced by a second block, which will be herein designated as a hexagonal block 28, as shown in Fig. 6, having a semi-hexagonal channel formed in its top, as indicated at 29. The block is designed to receive and hold hexagonal drill steels, while the block 20 is designed for gripping round drill steels.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied, within the scope of the appended claim, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:

A drill steel bit wrench for loosening a threaded bit from a drill steel comprising: a horizontal base plate; a cylindrical sleeve mounted on the upper surface of said plate with its axis horizontal; a tubular socket member rotatably mounted in said sleeve and projecting forwardly and rearwardly therefrom; a handle formed on the forwardly projecting extremity of said socket member and extending radially therefrom; retaining means on the rearwardly projecting extremity of said socket member resisting forward movement thereof; an axially positioned cylindrical opening extending throughout the length of said socket member; four equally-spaced, longitudinally extending grooves formed in the cylindrical wall of said opening the bottoms of said grooves being inclined so that the depth of said grooves decreases as the forward extremity of said socket member is approached so as to wedgedly grip a drill steel bit as the latter is forced forwardly in said grooves; and stationary means on said base plate in alignment with and opposite the rearward extremity of said socket member for gripping a drill steel extending from said drill bit.

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