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A. L. BERGSTROM

2,597,771

DRILL BIT

Filed July 17, 1947

FIG. 1

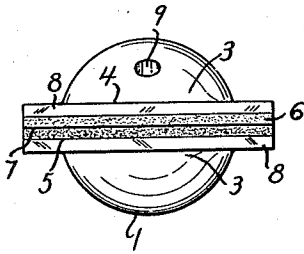


FIG. 2

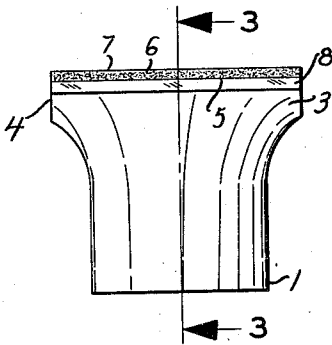


FIG. 3

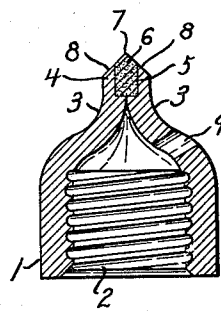
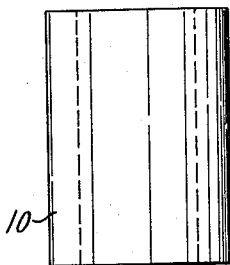


FIG. 4



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UNITED STATES PATENT OFFICE

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DRILL BIT

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1 Claim. (Cl. 255—64)

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This invention relates to drill bits, particularly rotary percussion rock bits of the kind having at one end a threaded socket adapted to receive the threaded end of a drill rod and at the other or working end a hard metal insert constituting the cutting end of the bit. The invention has for its principal objects a strong and durable drill bit of the above type made from a tubular forging slug and to provide a simple and economical process of forging the bit body. The invention consists in the drill bit and in the process hereinafter described and claimed.

In the accompanying drawing, which forms part of this specification and wherein like symbols refer to like parts wherever they occur:

Fig. 1 is an end elevational view of the working end of a forged drill bit embodying my invention,

Fig. 2 is a side elevational view of said drill bit,

Fig. 3 is a central longitudinal sectional view of said drill bit on the line 3—3 in Fig. 2; and

Fig. 4 is a side elevational view of the cylindrical tube slug from which said drill bit is forged.

My drill bit or the like comprises a hollow cylindrical body 1 having an internally threaded axial pocket 2 opening through the back face thereof adapted to receive the threaded end of a drill rod (not shown). The front end portion of the hollow cylindrical bit body 1 inclines inwardly and forwardly, as at 3, from two opposite sides thereof and terminates at the front or working end of said body in a thick diametral rib or straight edge 4.

The diametral ridge or cross rib 4 is of greater length than the diameter of the bit body; and said rib has a central longitudinal groove or channel 5 formed therein along the entire length of the forward edge thereof. A cutter bar insert 6 of Carbide or other hard metal extends from end to end of the groove 5 and is press fitted and brazed or welded therein. The hard metal insert 6 has a forward V-shaped cutting edge 7 extending from the groove 5 in the forward edge of the diametral rib 4 at the forward end of the bit body 1; and the front edge of said rib is beveled, as at 8, in conformity with the beveled cutting edge of said insert.

As shown in the drawing, a forwardly inclined passageway 9 opens outwardly from the pocket 2 of the bit body 1 through one side of the inwardly and forwardly inclined portion 3 thereof so as to permit a flow of air or water or other liquid from the drill rod through said passageway to clear away the chips from the cutting edge of the cutter bar insert.

The body 1 of the above described drill bit is made from a hot or cold forged section or slug 10 of cylindrical tubing of the desired length, diameter and wall thickness. In the forging operation, one end of the tubular forging slug 10

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is pressed inwardly from two opposite sides to form the inwardly and forwardly inclined front end portion 3 of the bit body 1 and said sides are brought together into flatwise contact at the longitudinal axis of said body to close said end of said tube and to form the substantially solid section diametral rib 4, the surplus metal resulting from the punching operation extending the tube at two other opposite sides, thereby making said rib of greater length than the diameter of said body. Conventional machining operations are then employed to form the internal threads in the drill rod receiving pocket 2 of the body 1, the side hole 9, the longitudinal cutter groove 5 in the diametral rib 4 and to finish the back face of the body. The Carbide or other hard metal cutter bar insert 6 is then press fitted and welded or brazed in the groove 5 in the substantially solid section diametral rib 4 at the working end of the bit body 1.

The hereinbefore described drill bit is simple and economical and strong and durable and the entire bit body may be readily produced from a plain cylindrical tube slug by an ordinary hot or cold forging process and the forged bit body may be given its finished shape by conventional machining operations.

What I claim is:

A separable drill bit comprising a relatively short length cylindrical body having one end open and internally threaded to receive a drill rod and the other end closed by two opposite sides of the body being positioned in flatwise contact on a diameter of the body to form a substantially solid section diametral rib of greater length than the body diameter, said rib being grooved from end to end thereof partly within each of the contacting portions of the said two opposite sides of said body, and a hard metal cutter bar insert secured in said groove in seated abutment over the joint between said contacting portions of the two opposite sides.

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