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L. J. DIXON

1,950,101

DRILL BIT

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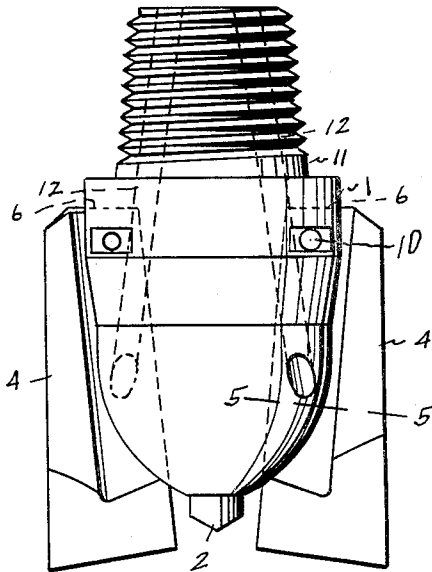


Fig. 1.

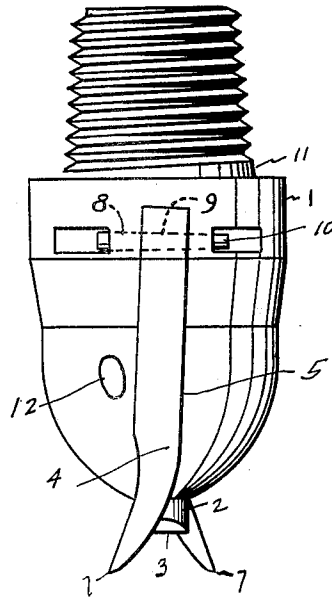


Fig. 2.

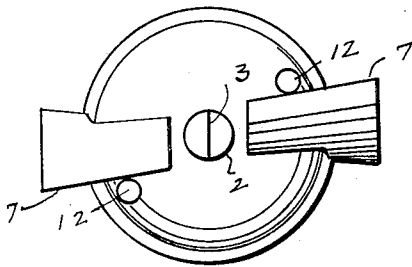


Fig. 3.

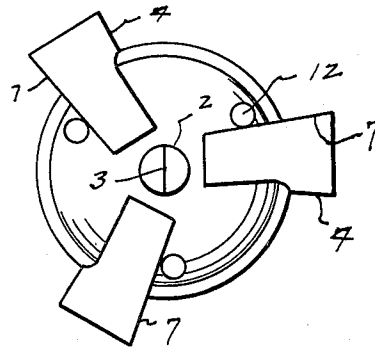


Fig. 4.



Fig. 5.

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DRILL BIT

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1 Claim. (Cl. 255—61)

This invention relates to a drill bit.

An object of the invention is to provide a drill bit of the character described having a novel type of drill head with detachable blades, of novel formation mounted thereon in such manner as to be securely held in position but which may be readily detached when worn and new ones substituted therefor.

Another object of the invention is to provide a drill bit of the character described having a head with a pilot cutter thereon formed to remove the core left between the blades.

A still further feature of the invention is to provide a drill bit having the blades mounted therein in such manner that the thrust imparted to the blades in drilling will be in substantially an endwise direction on the blades.

Another object of the invention is to provide a drill of the character described having the blades so mounted therein that their cutting edges will be offset relative to each other which will conduce to a more steady rotation of the bit and will tend to prevent the wobbling or side movement of the bit which will thus make a straighter bore.

With the above and other objects in view the invention has particular relation to certain novel features of construction, arrangement of parts and use, an example of which is given in this specification and illustrated in the accompanying drawing, wherein:—

Figure 1 shows a side elevation of the tool.

Figure 2 shows an edge view.

Figure 3 shows a bottom end view.

Figure 4 shows a bottom end view of a three blade type of the bit, and

Figure 5 shows a cross sectional view of the blade taken on the line 5—5 of Figure 1.

In the drawing the numeral 1 designates the head which is of a substantially inverted conical form and whose outside surface is convex or oval, as shown. At the lower end or apex of the head, there is a pilot drill 2 formed integrally with the head and which is provided with a transverse cutting edge 3. The drill has a plurality of side cutting blades at 4, 4. Only two of these blades are shown, but it is contemplated that three blades may be used if desired. Said blades may be spaced apart a uniform distance around the head. The head has the vertical dovetailed side slots 5, 5. It will be noted that these side slots have a slight forward inclination or lead and at their upper ends they terminate at the shoulders 6, 6 and the inner sides of these blade slots converge downwardly, as shown. The lower ends of the blades extend a slight distance beneath the head and are forwardly curved and terminate in the cutting edges 7, 7 which are offset relative to each other, that is, the cutting edges lie in planes on opposite sides of the axis

of the head. The upper ends of the blades abut against the corresponding shoulders 6. The blades are thickened out beyond the head as shown so as to give ample stock to increase the wearing ability of the blades.

At the upper end of the head there are the transverse keyways 8, 8 and aligned with these keyways the blades have bearings 9, 9 and fitted through said keyways and bearings are the tapered pins 10, 10 by means of which the blades may be secured in place.

The upper end of the head has a reduced outwardly threaded shank 11 to receive the drill collar by means of which the bit is attached to the drill stem and leading down through this shank and extending on down through the head are the downwardly diverging water courses 12, 12 which terminate in front of the respective blades and through which flushing fluid may be supplied to the bottom of the bore to flush out the cuttings.

The drawing and description disclose what is now considered to be a preferred form of the invention by way of illustration only, while the broad principle of the invention will be defined by the appended claim.

What I claim is:

A drill bit including an approximately cone shaped head whose upper end is cylindrical and whose mid portion tapers downwardly, said head having approximately vertical dovetailed side grooves and whose lower end is convex, a cylindrical pilot drill at the lower end or apex of the head formed integrally with the head and having a transverse cutting edge, side blades whose outer margins are approximately parallel and whose inner margins are formed with dovetailed tenons which fit into said grooves and whose lower ends are forwardly curved and inwardly widened and terminate in straight cutting edges on opposite sides of, and at approximately right angles to, the edge of said pilot drill, the upper end of the head on each side having transverse keyways, said blades having bearings aligned with said keyways, tapered pins fitted through said keyways and bearings which serve to secure the blades in place, said head having downwardly diverging straight passageways leading from the upper end thereof and terminating in front of the respective blades.

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