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STARTER STEEL GUIDE FOR AIR DRILLING TOOLS

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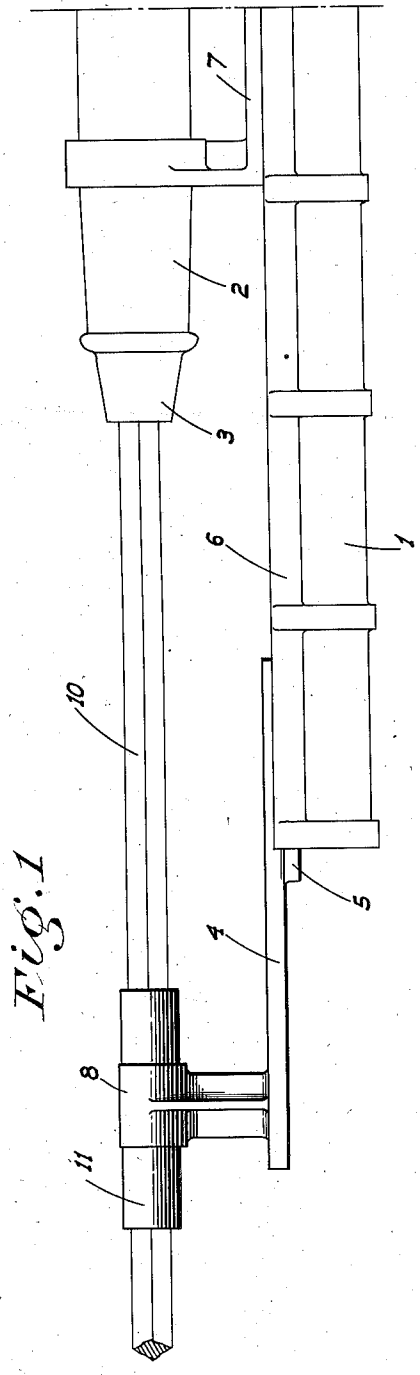


Fig. 1

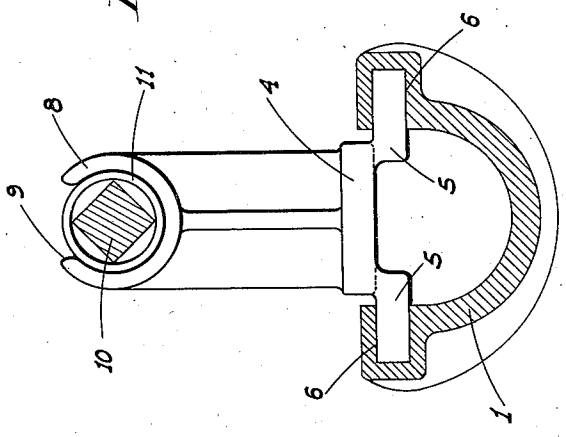


Fig. 2

INVENTORS
J. J. Simpson, D. Simpson
and F. M. Simpson
BY
ATTORNEY

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STARTER-STEEL GUIDE FOR AIR DRILLING TOOLS

Jesse J. Simpson, Frank M. Simpson, and Delbert Simpson, Jackson, Calif.

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3 Claims. (Cl. 255—45)

This invention relates to drilling tools and particularly to those used in mines, such as rock drills, jack hammers and the like and which are called upon to operate in hard rock.

In drilling holes in rock, it is necessary to employ a special tool bar or steel to start the hole, and the chuck of the drilling tool which supports the steel, is usually some distance from the face of the rock. This of course necessitates the use of a long steel now entirely unsupported from the chuck to its outer end.

It is therefore customary for a worker to hold the steel near its end, so as to guide and maintain the same in as close to the proper position against the rock as he can, while the hole is being started. This is hard to accomplish and is apt to slow down the work considerably before a proper start is effected. Also it is hard on the operator since standing close to the face of the rock as he must, he is liable to get rock chips in his eyes unless he wears goggles, which are very apt to become clouded and interfere with good vision. Also the chuck of the tool is subject to excessive wear, on account of the practical impossibility of holding the steel in perfect alinement with the tool.

The principal object of our invention therefore is to eliminate the above objectionable features, by a provision of a guide and supporting member for the starter steel, adapted to be removably mounted on the guide shell of the tool and so arranged that the steel will be properly supported and guided at its head end as well as at the chuck. Also the guide can be easily removed once the hole has been started and it is desired to replace the starter steel by the regular drill rod. Chuck wear is therefore reduced, it is no longer necessary for a worker to stand close to the face of the rock and the time consumed in hole starting operations is greatly reduced.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects we accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a side elevation of our improved starter-steel guide as mounted on a rock drill.

Figure 2 is an end view of the guide as mounted in the guide shell of tool.

Referring now more particularly to the characters of reference on the drawing, 1 denotes the ground-supported channel shaped guide shell of a standard type of rock drill, on which the cylinder 2 of the drill is slidably mounted; the cylinder having a steel engaging chuck at its forward end whose housing is indicated at 3.

Our steel guide attachment comprises a base plate 4 and projecting flanges 5 along the rear portion at the sides. These flanges are adapted to be slidably supported and guided in the same inwardly facing guide grooves 6 ordinarily provided in the opposite sides of the shell 1 and which support the base 7 of the cylinder 2.

Supported from the base 4 adjacent its outer end is a cradle 8, axially alined with the chuck and cut away on the top as at 9 for a width greater than the diameter of the starter-steel 10. If a square steel is used as shown a sleeve 11 fitting over the steel, is removably supported in the cradle. The length of the base plate 4 is such that when it is extended from the shell 1 as far as practicable, the cradle or sleeve engages the starter-steel close to its outer or head end. In operation therefore, spaced bearings, one at the chuck and the other at the sleeve of the cradle, are thus provided for the steel, insuring that the outer end of the latter will lie in a proper position without being manually held.

When the hole is once started the cylinder is retracted sufficiently for the steel to clear the hole and to uncouple the steel from the chuck. The sleeve 11 is then slid along the steel clear of the cradle and the steel is lifted through the top opening 9 of the cradle. The guide device is then disengaged from the shell, as its use with the regular drill steel is not required, since the started hole forms the necessary guide and support for said drill steel.

From the foregoing description it will be readily seen that we have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described our invention, what we claim as new and useful and desire to secure by Letters Patent is:

1. A starter-steel guide attachment for a drilling machine comprising a base plate adapted to be removably mounted on and project forwardly from the guide shell of the machine, a cradle

rigid with and upstanding from the plate in position such that it will axially aline with a starter steel mounted in the machine and being slit along the top to a width sufficient to pass the steel therethrough, and a sleeve adapted to fit about the steel fitted in the cradle and removable from one end thereof.

2. A starter-steel guide attachment for a drilling machine, comprising a base plate adapted to be mounted on and project forwardly from the guide shell of the machine, a sleeve adapted to slidably fit about the steel, and means on the base plate adjacent its forward end for removably and slidably supporting the sleeve and holding the same from movement out of axial alinement with the steel, while allowing of upward movement of the steel from an operating position when the sleeve is slid clear of said means.

3. A starter-steel guide attachment for a drilling machine, comprising a sleeve adapted to removably fit about the steel and a member supported from the shell of the machine ahead of the same, removably and slidably engaging and supporting the sleeve in axial alinement with the steel and allowing of upward movement of the steel from a normal operating position when the sleeve is slid clear of said supporting member.

JESSE J. SIMPSON.
DELBERT SIMPSON.
FRANK M. SIMPSON.