No. 874,554. PATENTED DEC. 24, 1907.

N. E. WOODS.

DRILL SOCKET.

APPLICATION FILED JAN. 11, 1907.

Fig. 1.

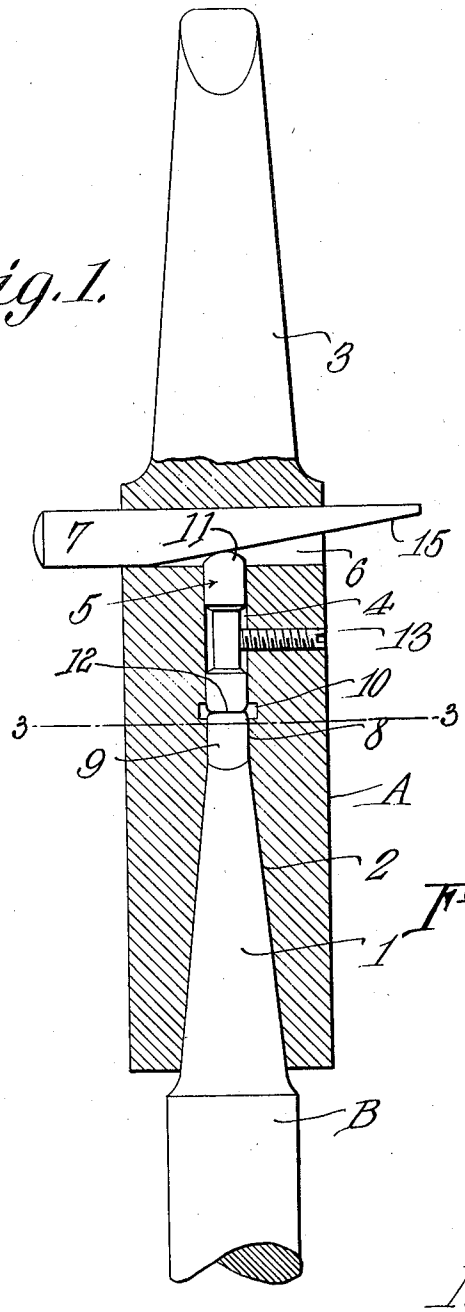


Fig. 2.

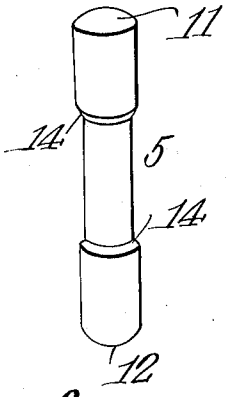
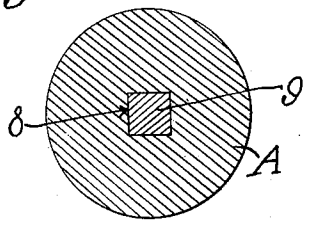


Fig. 3.



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UNITED STATES PATENT OFFICE.

NORMAN E. WOODS, OF RICHMOND, VIRGINIA.

DRILL-SOCKET.

No. 874,554. Specification of Letters Patent. Patented Dec. 24, 1907.

Application filed January 11, 1907. Serial No. 351,884.

To all whom it may concern:

Be it known that I, NORMAN E. WOODS, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented a new and useful Drill-Socket, of which the following is a specification.

This invention relates to grip sockets for drills of that type provided with drifts for facilitating the removal of the drills without danger of battering, or otherwise destroying the tangs of the latter and impairing their hold in the sockets.

The invention has for one of its objects to improve and simplify the construction and operation of devices of this character so as to be comparatively simple and inexpensive to construct, thoroughly reliable and efficient in use, and adapted to drive the drills without injuring the tang thereof.

A further object of the invention is the provision of a drill socket having an extractor pin arranged therein which is adapted to bear against the tang of the drill in the socket and to be actuated by a drift key, the extractor pin being arranged to move in the same direction that the drill is driven.

With these objects in view, and others, as will appear as the nature of the invention is better understood, the same comprises the various novel features of construction and arrangement of parts, which will be more fully described hereinafter, and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a longitudinal section of the grip socket showing the shank portion of the drill therein and the drift key in the position for driving out the drill. Fig. 2 is a perspective view of the extractor pin, drawn on an enlarged scale. Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 1.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

Referring to the drawing, A designates the drill socket and B the drill mounted therein, the drill being provided with a standard Morse taper shank 1 fitted in the correspondingly tapered bore 2 of the socket A. The socket A is provided at its upper end with a tapered shank 3 for fitting in the chuck of a drilling machine. The socket A has a central axially extending cylindrical bore 4 in its body for receiving the extractor pin 5. The said bore 4 is intersected by the transverse passage 6 in the portion of the socket body adjacent the root of the shank 3 and in this passage the drift 7 is adapted to be received so as to engage and actuate the extractor pin 5. Between the bore 4 and the taper bore 2 is the squared hole 8 for receiving the usual tang 9 of the drill B. Intermediate the squared hole 8 and cylindrical bore 4 is a counterbore 10, which is formed by an ordinary expanding cutter.

The extractor pin is a cylindrical body having a rounded upper end 11 and a flattened lower end 12, the latter being adapted to impinge on the end of the tang 9 while the former is engaged by the drift key 7. In order to prevent the extractor pin from dropping out of the socket A, a retaining screw 13 is employed which extends radially into the socket with its inner end extending between the spaced shoulders 14 of the extractor pin. These shoulders are formed by reducing the middle portion of the pin and they are spaced a sufficient distance apart to permit the pin to be moved the necessary distance for driving out the drill. The drift key 7 is made from round stock and is cut away at one side to form the flat face 15 of the wedge. The key is inserted into the drift hole 6 and is held in such a way that the flat face 15 of the web bears against the upper end of the extractor pin, so that as the key is driven in, the extractor pin will be moved longitudinally in a downward direction to force out the drill. The extractor pin is free to move up and down, and when the drill is out of the socket, the pin is in its lowermost position and supported in place by the retaining screw 13. When the drill is placed in the socket, the upper end of the tang 9 strikes on the extractor pin and moves upwardly, so that the upper end of the said pin is projected into the drift opening 6. Such is the normal position of the parts. When the drill is to be taken out, all that is necessary is to insert the drift key and drive the same in far enough to cause the extractor pin to force out the drill.

The object of the counterbore 10 is to permit the extractor pin to communicate motion to the drill tang without the risk of coming into contact with the walls of the squared bore in which the tang is fitted, or, in other

words, is designed to permit a sufficient movement of the extractor pin to displace the drill or the tool without coming into contact with the walls of the squared bore.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily appreciated by those skilled in the art to which the invention appertains and, while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative, and that various changes may be made, when desired, such as are within the scope of the claim.

What is claimed is:—

The combination of a drill socket having a longitudinally extending bore terminating in a transversely extending drift receiving passage, an extractor pin arranged in the bore of the socket and having a reduced central portion forming spaced shoulders, and a removable retainer in the socket which extends at its inner end between the shoulders to limit the movement of the extractor pin and retain the latter in position.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

NORMAN E. WOODS.

Witnesses:
WM. P. REDD,
CHAS. R. SEAL.