

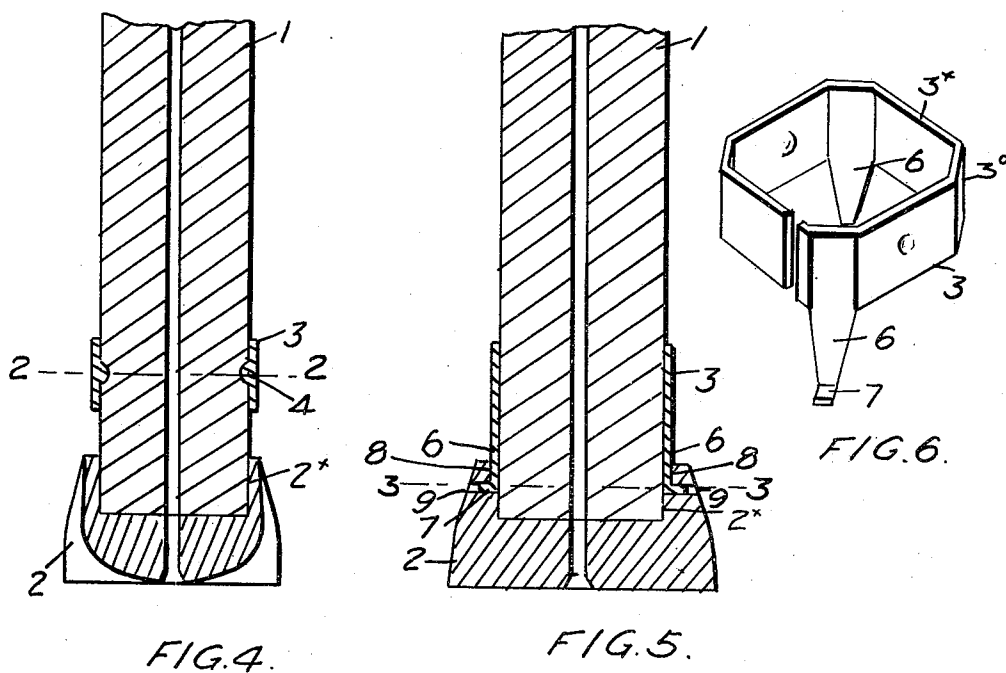
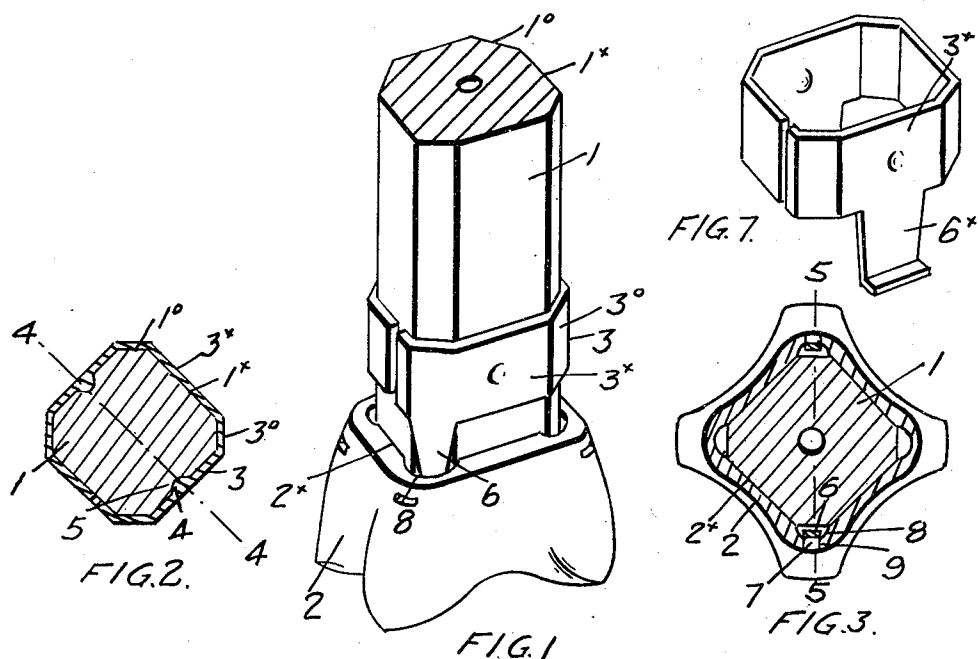
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DRILL

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DRILL

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My invention relates to improvements in drills, and the object of the invention is to devise a connector between the steel shank and bit which will be simple and cheap to manufacture avoiding threading and other expensive operations, and by which the drill shank and bit may be quickly connected and disconnected whenever desired, and it consists essentially of the arrangement and construction of parts as hereinafter more particularly explained.

Fig. 1 is a perspective view of a portion of a drill shank and bit and showing my connector applied thereto.

Fig. 2 is a plan sectional view through the shank and body of the connector on line 2—2 Fig. 4.

Fig. 3 is a plan sectional view through the shank bit and engaging portions of the connector on line 3—3 Fig. 5.

Fig. 4 is a vertical sectional view taken on line 4—4 Fig. 2.

Fig. 5 is a vertical sectional view taken on line 5—5 Fig. 3.

Fig. 6 is a perspective detail of the connector.

Fig. 7 is a perspective detail of an alternative form of connector.

In the drawing like characters of reference indicate corresponding parts in each figure.

1 indicates the lower end portion of a shank which is octagonal in section provided with alternately wide and narrow faces 1* and 1°. 2 is a bit provided with a recess 2* in its outer face into which the lower end of the shank 1 is adapted to fit.

3 is the body of the connector which is in the form of a band bent into a split octagonal ring fitting the shank having faces 3* and 3° corresponding in width to the faces 1* and 1° of the shank. Two opposite faces 3* of the body 3 are provided with inwardly projecting projections 4 fitting into recesses 5 formed in opposite faces of the shank 1°. Two diagonally opposite faces 3° are extend-

ed downwardly to form tapering fingers 6 having out-turned ends 7.

In applying my connector the split body 3 is sprung inwardly so as to permit the out-turned portion 7 to pass downwardly into two diagonally opposite recessed corners 8 of the main recess 2* so that when the body 3 is released the projection 7 will enter orifices 9 formed in the base of the recesses 8. The shank 1 is then passed longitudinally through the connector body 3 to enter the main recess 2* and in so doing the projections 4 are sprung into the recesses 5 and the lower end of the shank is brought into engagement with the base of the recess 2* and against the inner face of the finger 6 thereby locking the projection 7 in the orifices 9.

During the boring operation the pressure of the drill shank within the recess 2* upon the bit 2 drives the bit downward. When the boring operation is completed the drill shank is withdrawn, the connector 3 and its parts engaging the shank and bit serving to lift the bit out of the bore with the drill shank.

When the bit and shank are withdrawn all it is necessary to do is to pull the bit and connector from the shank when the connector itself may be easily sprung out of engagement with the bit and a new bit applied.

In cases where it is desired to use large bits it is preferable to form the engaging fingers 6* corresponding to the fingers 6 of Fig. 6 on the side or wide faces 3* of the connector body 3, recesses and orifices corresponding to the recesses 8 and orifices 9 being formed in the bit in the side faces 2* instead of in the diagonal corners as shown in Figs. 1 and 3.

From this description it will be seen that I have devised a very simple device by which a drill shank and bit may be readily coupled together by means which are inexpensive to manufacture and by which the bit may be readily engaged and disengaged when it is desired to interchange the bits according to

the work against which they are to operate.

What I claim as my invention is:

The combination with a drill shank having the opposite face thereof recessed, a split
5 spring member surrounding the shank and having projections fitting into the recesses, a bit having a main recess having engaging recesses in the walls of the main recess, fingers
10 extending from the spring member having outturned ends adapted to fit into the engaging recesses of the bit to be locked therein by the entrance of the shank into such main
recess.

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