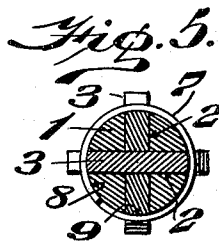
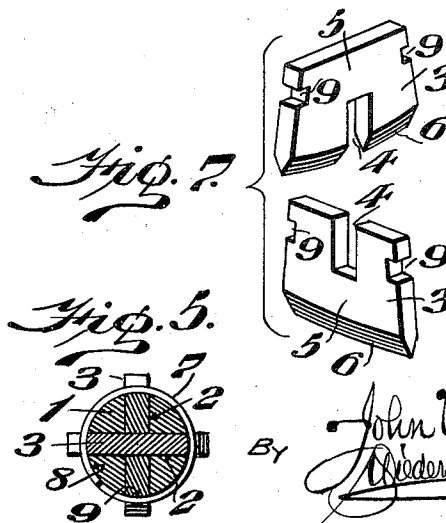
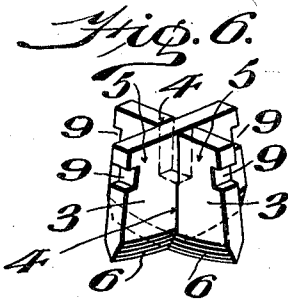
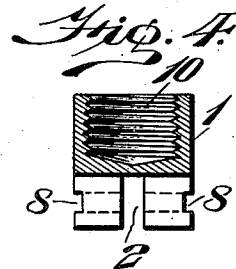
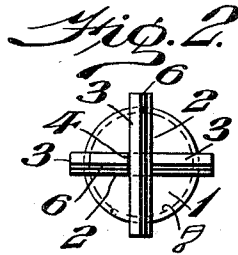
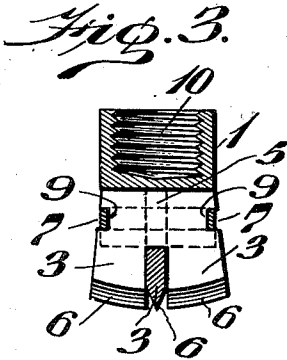
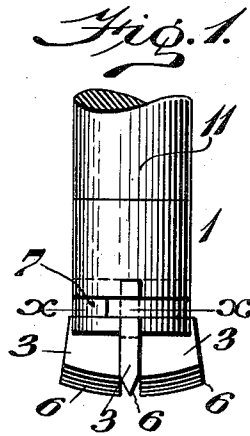


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 DRILL.  
 APPLICATION FILED MAY 18, 1912.

1,062,342.

Patented May 20, 1913.



WITNESSES

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## DRILL.

1,062,342.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed May 18, 1912. Serial No. 698,100.

*To all whom it may concern:*

Be it known that I, JOHN MACCONNELL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Drill, of which the following is a specification.

My invention consists of improvements in drills more particularly for stone, brick, cement and the like, the same embodying a head, bits that may be retained therein crossing each other producing a plurality of cutting edges, said bits being formed of matched plates, so that they may be conveniently fitted to each other and inserted in said head, and means for interlocking the bits on the head as will be hereinafter described.

The invention is satisfactorily illustrated in the accompanying drawing, but the important instrumentalities thereof may be varied, and so it is to be understood that the invention is not limited to the specific arrangement and organization shown and described except as required by the scope of the appended claims.

Figure 1 represents a side elevation of a drill embodying my invention. Fig. 2 represents a bottom plan thereof. Fig. 3 represents a vertical section thereof. Fig. 4 represents a similar section, the bits having been removed therefrom. Fig. 5 represents a transverse section on line  $\alpha-\alpha$  Fig. 1. Fig. 6 represents a perspective view of the bits removed from the head of the device. Fig. 7 represents a perspective view of said bits in separated condition.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—1 designates a drill head the same having in its end the longitudinally extending recesses or grooves 2, 2, which extend therein in diametrically opposite directions.

3, 3, designate boring or drill bits which are adapted to be fitted in said grooves 2 and held tightly therein each being provided with a slot 4 which extends partly therein in the direction of the length of the bit leaving the solid portion 5 at what may be termed the back or shank of the bit so that the slot of one bit receives the solid portion

of the other bit, the bits thus crossing each other and presenting a plurality of cutting edges 6 which extend in diametrically opposite directions to the work to be bored or drilled, as shown in Fig. 1. It will be noticed that the bits are matched so the slots of the bits register when the bits are assembled and as the solid portions 5 of one bit occupies the slot of the other bits, the bits are interlocked with each other as they are also with the head 1 in the grooves 2 thereof. The bits may be readily removed, sharpened and replaced as required. While the bits are held firmly in the head 1 they are prevented from any possible displacement therefrom, by means of the collar 7, the circumferential groove 8 in the head 1, and the grooves 9 in the sides of the shank of the bits, said grooves 9 and 8 registering so that both are occupied by the collar 7, the latter thus embracing simultaneously the bits and head and by the shoulders of the respective grooves, serving to interlock the bits and head 1 and prevent displacement of the former from the latter.

In practice the collar is formed of resilient material and divided in its circumference so that it may be slipped over the head and bits and spring into the grooves 8 and 9, when it is engaged with the walls of the latter, and its locking action on the bits is produced.

It is evident that the collar may be expanded and so removed from the head and bits when the latter may be displaced from the former. The head 1 has a socket 10 for connection of an operating rod 11 or equivalent device.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a drill, a bit having a groove in the side of its shank, a head having a recess longitudinally therein adapted to receive said shank, and a groove circumferentially in its side, said grooves being adapted to register, and a divided resilient collar which is adapted to occupy said grooves and control said bit in locked position in said head.

2. In a drill, a plurality of bits each formed of a plate with a cutting edge, and a slot partly occupying a portion of the

shank of the bit, said bits with their appurtenances being matched, a head having crossed grooves adapted to receive the shanks of the bits, said head having a  
5 groove circumferentially therein, the sides of the shanks of said bits having grooves therein, and a divided resilient collar adapt-

ed to embrace said bits and head in the respective grooves thereof and control the bits locking them in position on the head.  
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