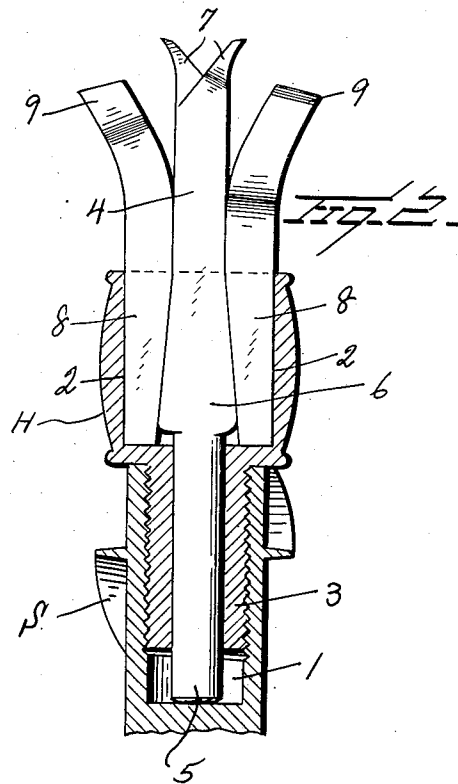
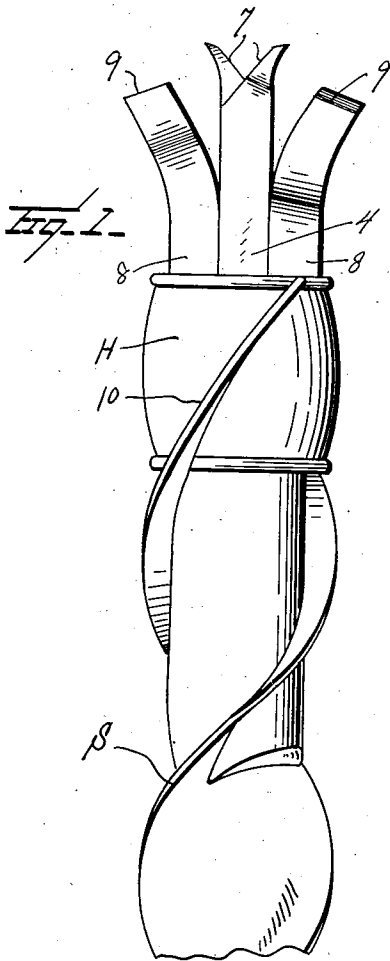


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DRILL.

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DRILL.

1,403,711.

Specification of Letters Patent. Patented Jan. 17, 1922.

Application filed May 14, 1921. Serial No. 469,701.

To all whom it may concern:

Be it known that we, WILLIAM K. SCHAEFER, HENRY G. GREER, and ELZADORE S. McCULLOUGH, citizens of the United States, residing at Fairmont, in the county of Marion and State of West Virginia, have invented certain new and useful Improvements in Drills, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to certain improvements in drills and has relation more particularly to a device of this general character especially designed and adapted for use in connection with coal mining, and it is an object of the invention to provide a novel and improved device of this general character embodying a plurality of bits, together with means whereby said bits may be effectively maintained in assembled relation during a working operation.

The invention consists in the details of construction and in the combination and arrangement of the several parts of our improved drill whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of our invention will hereinafter be definitely claimed.

In order that our invention may be the better understood, we will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a fragmentary view in elevation illustrating a drill constructed in accordance with an embodiment of our invention; and

Figure 2 is a view partly in section and partly in elevation of the device as herein set forth.

As disclosed in the accompanying drawings, S denotes a drill stock of a well known auger or spiral type and which is provided at its outer end with a longitudinally directed socket 1. H denotes a drill head provided in its outer end with an elongated socket 2 and which has extending from its opposite or inner face a sleeve 3 which is threaded or otherwise engaged within the socket 1 of the stock S. The bore of the sleeve 3 communicates with the central portion of the socket 2.

4 denotes a central cutting bit having one end portion continued by a shank 5 which is directed through the bore of the sleeve 3, said shank being of a length in excess of the length of the sleeve so that the outer or free end portion of said shank will extend beyond the outer or free end of the sleeve 3.

The side walls or faces of the central cutting bit 4 adjacent the shank 5 are disposed in convergence toward the working or cutting end of the bit 4 whereby the inner portion of the bit 4, or that portion immediately adjacent the shank 5, constitutes a wedge 6. The working end portion of the central cutting bit 4 is formed with a pair of reversely extending cutting teeth 7.

Fitting within the socket 2 of the head H at opposite sides of the central cutting bit 4 are the side bits 8. The portions of the side bits 8 extending within the socket 2 have the side faces opposed to the central cutting bit 4 inclined or beveled complementary to the converging side faces of the wedge portion 6 of the central cutting bit 4. By this arrangement, as the central cutting bit 4 is forced outwardly, the wedge portion 6 thereof coacts with the beveled faces of the side cutting bits 8 to effectually clamp said bits 8 in working or applied position.

The outer or working end portions of the side bits 8 are curved outwardly, as at 9, to space the same from the adjacent portion of the central cutting bit 4.

In practice, the shank 5 of the central cutting bit 4 is first inserted through the bore of the sleeve 3 through the head end of said sleeve and after which the side bits 8 are then applied. The sleeve 3 is then screwed or otherwise inserted within the socket 1 of the stock S and when the outer end of the shank 5 comes into contact with the base of the socket 1 and the sleeve 3 is continued inwardly of said socket, said shank 5 and the central bit 4 will be moved outwardly resulting in the requisite coaction between the wedge portion 6 and the complementary inclined or beveled portions of the side bits 8. By this means, it will be readily understood that the bits 4 and 8 may be applied or removed with convenience and facility.

The head H is provided at its opposite sides with the outstanding ribs or flanges

10 which, when the head H is in applied position, are substantially in continuity with the blade of the spiral or auger.

From the foregoing description it is
5 thought to be obvious that a drill constructed in accordance with our invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will
10 also be obvious that our invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason we do not wish to be understood as limiting ourselves
15 to the precise arrangement and formation of the several parts herein shown in carrying out our invention in practice except as hereinafter claimed.

We claim:

20 1. A device of the character described comprising a hollow head having a tubular extension, a bit arranged centrally within said head and having a shank extending through said tubular extension, the portion
25 of the bit adjacent the shank having its side walls converging toward the working end of the bit, said shank being of a length to extend beyond the outer end of the tubular extension and being freely movable therein,
30 and side bits seating within the head, the walls of the side bits opposed to the converging walls of the central bit being correspondingly beveled, the converging walls of the central bit and the converging faces of
35 the side bits contacting to clamp the side bits in applied position.

2. In combination with a drill stock provided with a socket in an end portion thereof, a hollow head having a tubular extension
40 seating within the socket of the stock, a bit arranged centrally within said head and

having a shank extending through said tubular extension, the portion of the bit adjacent the shank having its side walls converging toward the working end of the bit,
45 said shank being of a length to extend beyond the outer end of the tubular extension and being freely movable therein, and side bits seating within the head, the walls of the side bits opposed to the converging walls
50 of the central bit being correspondingly beveled, the converging walls of the central bit and the converging faces of the side bits contacting to clamp the side bits in applied position.
55

3. In combination with a drill stock provided with a socket in an end portion thereof, a hollow head having a tubular extension seating within the socket of the stock, a bit
60 arranged centrally within said head and having a shank extending through said tubular extension, the portion of the bit adjacent the shank having its side walls converging toward the working end of the bit,
65 said shank being of a length to extend beyond the outer end of the tubular extension and being freely movable therein, the inner end of the shank contacting with the base of the socket and side bits seating within the
70 head, the walls of the side bits opposed to the converging walls of the central bit being correspondingly beveled, the tubular extension of the head threading within the socket of the stock, movement of the extension of the head inwardly of the socket causing
75 the central bit to clamp the side bits in applied position.

In testimony whereof we hereunto affix our signatures.

WILLIAM K. SCHAEFER.

HENRY G. GREER.

ELZADORE S. McCULLOUGH.