

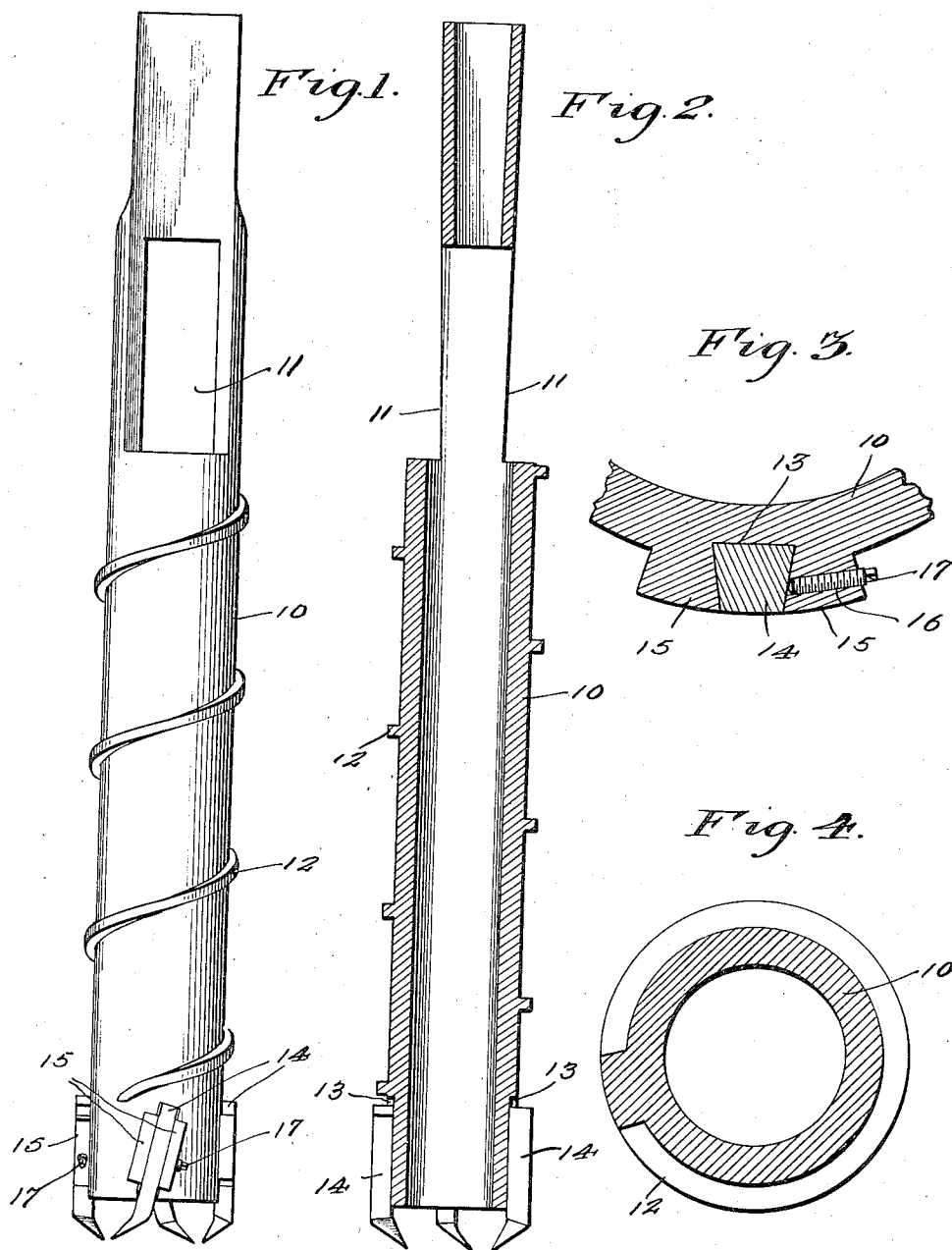
Oct. 21, 1924.

J. R. GAMBLE

1,512,841

COAL DRILL

Filed Nov. 29, 1921



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WITNESSES

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COAL DRILL.

Application filed November 29, 1921. Serial No. 518,623.

To all whom it may concern:

Be it known that I, JOSEPH R. GAMBLE, a citizen of the United States, residing at Belleville, in the county of Saint Clair and State of Illinois, have invented new and useful Improvements in Coal Drills, of which the following is a specification.

This invention relates to drilling devices, particularly to that type adapted for use by coal miners in drilling holes in coal, and has for its object the provision of a novel drill which is so constructed as to drill out a core, the body of the drill being hollow whereby to permit of the passage of the core.

An important object is the provision of a drill of this character in which the bits associated therewith are adjustably mounted whereby they may be caused to extend or protrude beyond the end of the body to a greater or less extent for various purposes, this adjustment also providing means whereby the drill bit may be used continuously even after they have become greatly worn and repeatedly sharpened.

Another object is the provision of a drill of this character in which the body is provided with a spiral rib flute which extends throughout the length thereof and which is provided for the purpose of conducting upwardly, or outwardly with respect to the bottom of the hole, any particles or fragments which are loosened by the drill bit.

An additional object is the provision of a drill of this character which will be extremely simple and inexpensive in manufacture, highly efficient in use, durable in service and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the details of construction to be hereafter fully described and claimed and illustrated in the accompanying drawings in which,

Figure 1 is a side elevation of my device.

Figure 2 is a longitudinal sectional view therethrough.

Figure 3 is a cross-sectional view taken through the means for holding the adjustable bit in position.

Figure 4 is a cross-sectional view taken through the body of the shank.

Referring more particularly to the drawings I have shown my drill as comprising a cylindrical body 10 which is tubular and consequently hollow and which is likewise

of uniform diameter throughout its length. At one side this body is cut-away at opposite sides as indicated at 11 whereby the cut-away portions will establish communication with the bore of the body. This end of the body which is cut-away is also substantially rectangular in cross-section and is adapted for engagement within any suitable chuck or other holding means not illustrated. It is also preferable that the body 10 be provided throughout its length with a spirally arranged rib 12 which is for the purpose of drawing fragments or particles or loose material away from the cutting end of the device to be described.

At its other end, the body 10 is provided with a plurality of recesses or grooves 13 which are inclined with respect to the longitudinal axis of the body and which are designed for the reception of a plurality of cutting blades 14 which are held in position by means of a plurality of bracket members 15 which are preferably formed integrally upon the body 10 but which might be secured thereto if preferred. The bracket members 15 bridge the recesses or grooves 13 and are formed centrally with threaded holes 16 in which are engaged suitable set screws 17 which engage the respective blades 14 and which are for the purpose of holding the blades 14 at the desired adjusted position.

In the use of the device it will be seen that the drill is operated in exactly the same manner as any other drill and that the cutting ends of the blade or bit 14 will effectively operate to cut-away the coal or other material which it is desired to cut, the fragments and broken particles of the coal or other material passing through the bore of the body 10 and being discharged through the cut-away portion left. Owing to the peculiar construction of the bracket members 15 and the holding means for the individual blades or bit it will be quite apparent that the device will cut a hole of ordinary diameter while providing a relatively large core which is cut out in contradistinction to many devices of a similar character which when cutting a core of normal size also cut an abnormally large main hole. It will also be apparent that in the use of the device in case the bits or blades 14 become dull or broken they may be quickly and

easily replaced by others or in case of dullness the blades may be easily removed and sharpened and then replaced in position and reengaged by the set screws 17.

5 From the foregoing description and a study of the drawings it will be readily apparent that I have thus provided a very simply constructed and consequently inexpensive drill which is highly advantageous
10 for use by coal miners and others in drilling through a rock, coal and other similar materials, the construction being such that a core will be provided, this core being readily conducted away from the drilling base or the
15 cutting edges of the individual bit.

While I have shown and described the preferred embodiment of the invention, it is of course to be understood that I reserve the right to make such changes in the form, construction, and arrangement of parts as will

not depart from the spirit of the invention or the scope of the subjoined claim.

Having thus described my invention I claim:

In a coal drill, an elongated tubular body 25 formed near one end with spaced pairs of ribs inclined slightly with respect to the longitudinal axis of the body, the confronting faces of the ribs of each pair being inclined whereby to define a dove-tailed groove, bits 30 dove-tailed in cross section slidably engaged between said pairs of ribs, and means for securing said bits in slidably adjusted position, said bits having cutting points projecting beyond the adjacent end of the body and 35 deflected laterally and inwardly toward the axis of the body, the points being in line with the wall of the bore of the tubular body.

In testimony whereof I affix my signature.

JOSEPH R. GAMBLE.