

(No Model.)

C. S. SHEPPARD.  
COAL DRILL.

No. 473,788.

Patented Apr. 26, 1892.

Fig. 1.

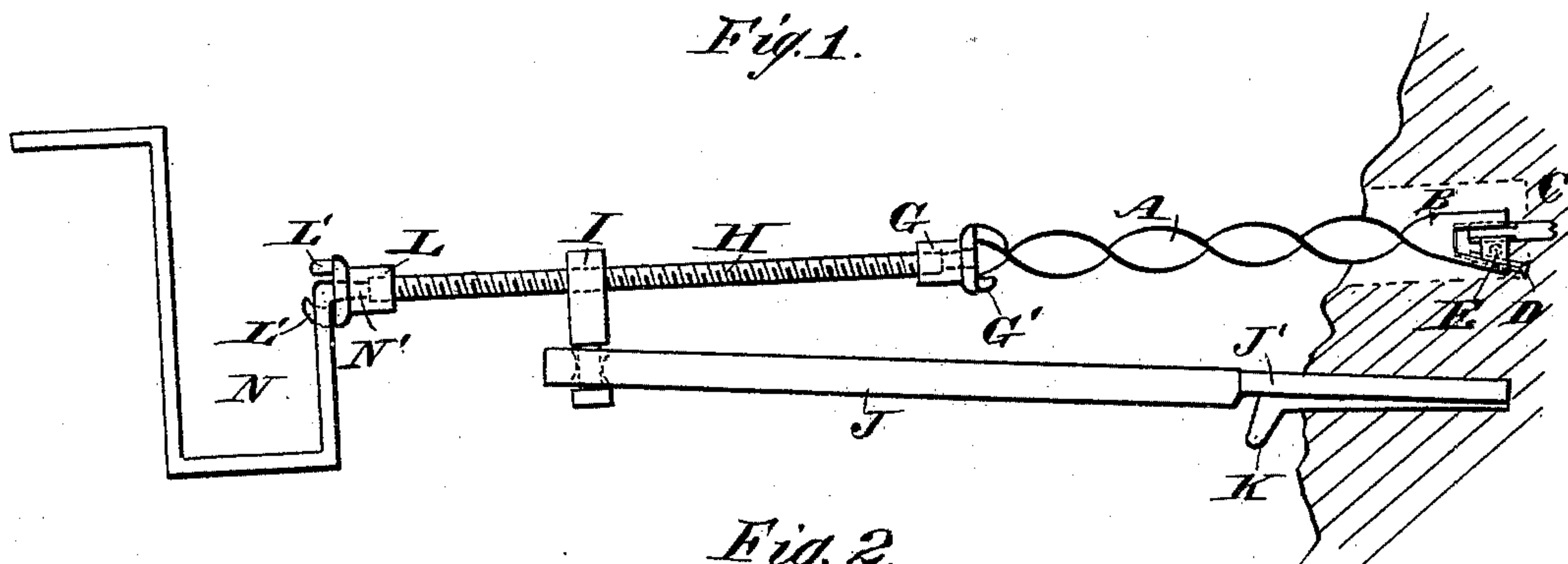


Fig. 2.

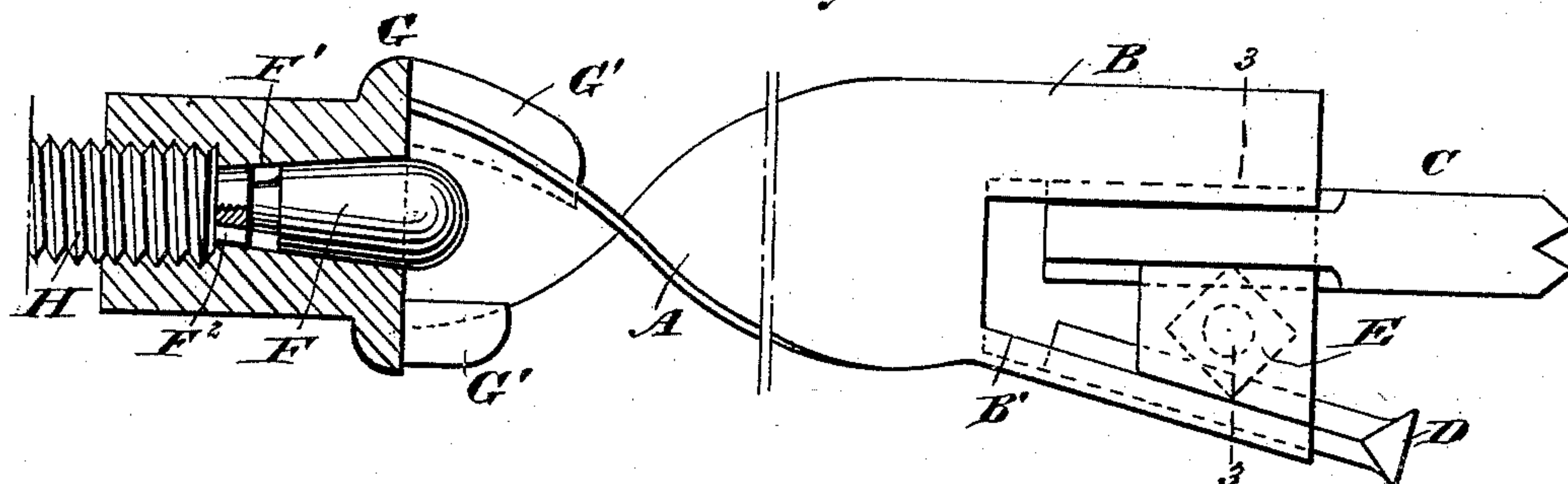


Fig. 4.

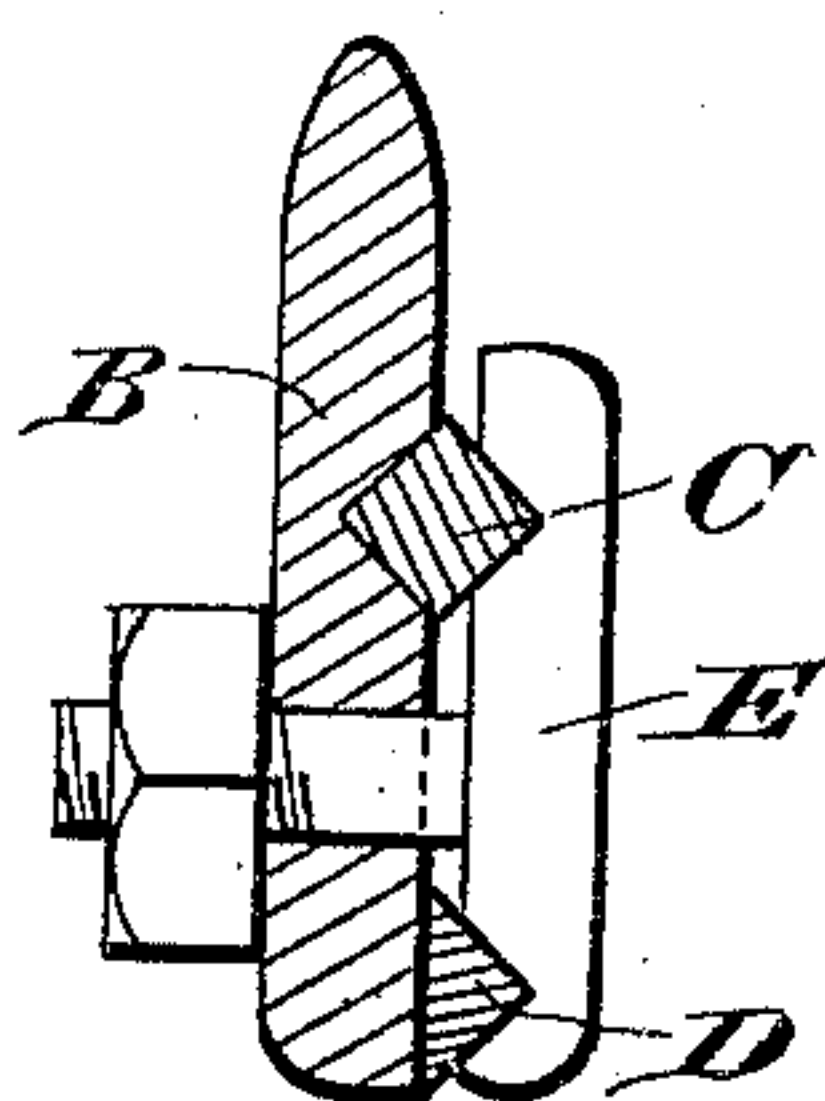


Fig. 3.

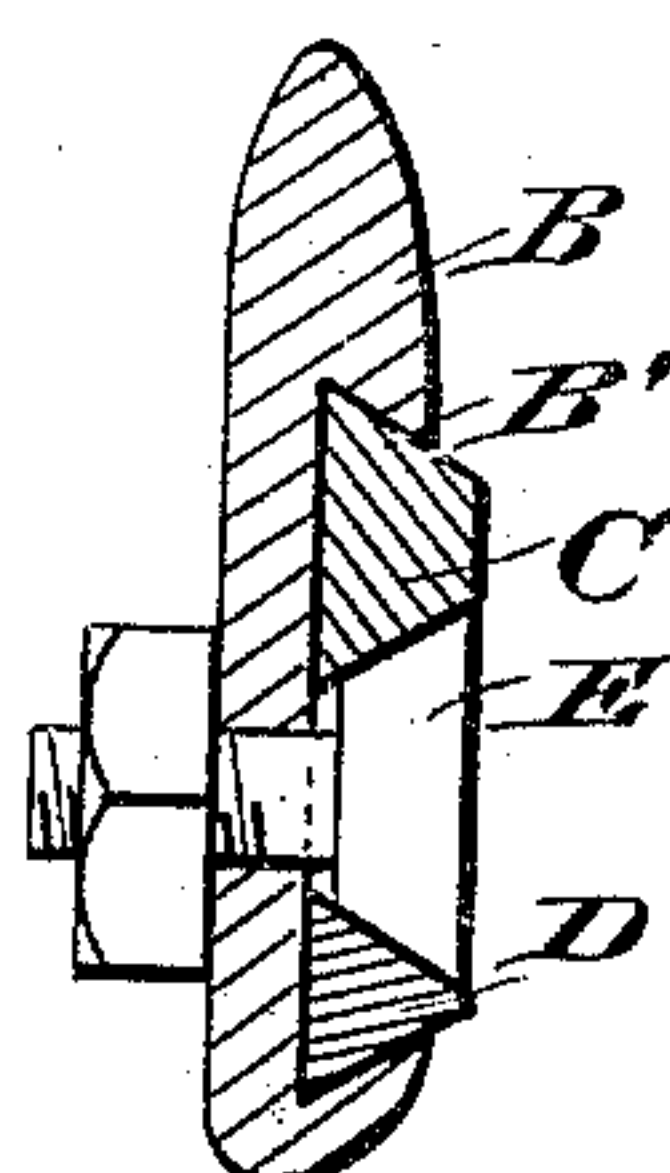


Fig. 5.



Fig. 6.



Fig. 7.

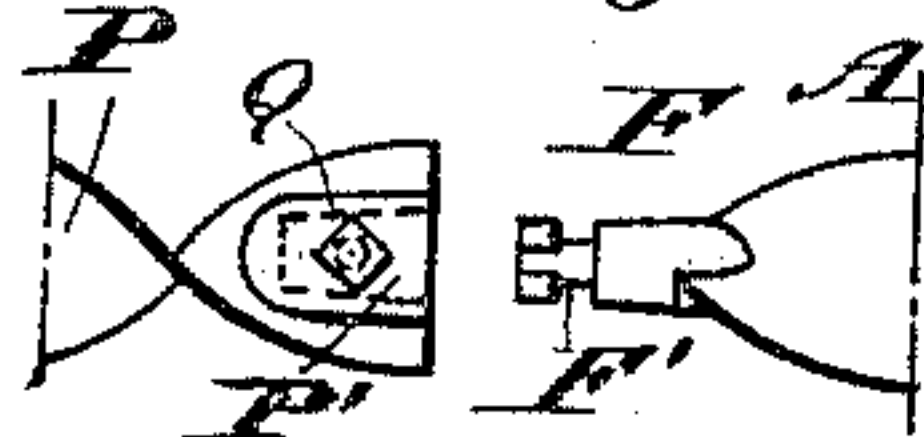
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Fig. 8.





# UNITED STATES PATENT OFFICE.

CHARLES S. SHEPPARD, OF PITSTON, PENNSYLVANIA.

## COAL-DRILL.

SPECIFICATION forming part of Letters Patent No. 473,788, dated April 26, 1892.

Application filed November 12, 1891. Serial No. 411,676. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES S. SHEPPARD, of Pittston, in the county of Luzerne and State of Pennsylvania, have invented a new and Improved Coal-Drill, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved coal-drill which is simple and durable in construction, very effective in operation, and arranged to easily and conveniently cut a large opening in the coal without requiring much power.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement as applied. Fig. 2 is an enlarged side elevation of the same with parts in section. Fig. 3 is a transverse section of the auger-head on the line 3 3 of Fig. 2. Fig. 4 is a similar view of a modified form of the same. Fig. 5 is a transverse section of the standard. Fig. 6 is a similar view of the same with the key in place, fastening the standard; and Fig. 7 is a side elevation of an ordinary brace for drilling the hole to secure the standard in position. Fig. 8 is a side elevation of the auger and extension-tool.

The improved drill is provided with an auger A, carrying on its cutting end B a center C and a cutter D, both held removably in the said cutting end B, as is plainly shown in the drawings, the means being preferably a bolt E, which with its head engages the shanks of the center C and the cutter D. As illustrated in Fig. 3, the shanks of the center C and the cutter D engage a dovetail groove B', formed in the end B on one side thereof, the head of the bolt E passing between the two shanks, so as to hold the same in position in the dovetail groove. The cutter D is preferably made triangular in shape, with its outer edge flattened to cut into the coal. This triangular shape of the cutter D permits of adjusting the same in the end B in case the cutting-edge is worn out and requires to be renewed, so that the cutting-edge of the cutter

stands in proper position relative to the center. As shown in Fig. 4, the shank of the center C is made square, two adjacent sides being fitted into a recess in one side of the end B. The base of the triangular cutter D rests on the flat side of the end B, and the head of the bolt E is formed with triangular recesses engaging the outer sides of the shanks of the center C and the cutter D. When the bolt E is screwed upon the end B, the center and cutter are securely held in place. As previously mentioned, the center C and the cutter D can be adjusted longitudinally, so as to compensate for wear and renewals, at the same time permitting of using the tools until they are completely used up. The other end of the auger A is formed with a shank F, preferably made in the shape of a conical pin, engaging a correspondingly-shaped recess in the socket G, screwed on the end of the screw-rod H, mounted to turn in the nut I, supported on the standard J. The front face of the socket G is provided with horns or lugs G', engaging the blade of the auger A, so that when the socket G is revolved the auger is turned with it, as one of the said horns G' engages the blade of the auger. The standard J is formed with a reduced round end J', having its under side flattened, as is plainly illustrated in Fig. 5, this under side being engaged by a key K. In order to fasten the standard J in the coal, an aperture is first drilled by an ordinary brace, (illustrated in Fig. 7,) and then the reduced rounded end J' is inserted in this aperture and the key K driven on the flattened surface of the reduced end J', so as to securely fasten the standard in place. The outer end of the screw-rod H is provided with a socket L, similar in construction to the socket G, and receiving the conical end N' of a crank-arm N, engaging the horns L' of the said socket, so as to turn the latter, and consequently the screw-rod H, when the crank-arm is set in motion. It will be seen that when the auger A is revolved the center C cuts in line with the center of the auger, while the cutter D, extending at an angle to the center line of the auger, cuts a large opening, having the center C as a center. By providing the rod H with sockets G and L, as above described, the auger A can be readily adjusted in the respective sockets. In a like



manner the crank-arm N can be readily attached to or detached from the socket L.

In order to use the auger with an extension-tool P, (shown in Fig. 8,) the auger A is formed  
5 on its shank F with an annular recess F' and with a longitudinal recess F<sup>2</sup> extending from the annular recess to the end, as shown in Figs. 2 and 8. The shank F is adapted to engage a socket P' of the extension-auger P,  
10 adapted to connect with the socket G similar to the auger A, as above described. A set-screw Q in the socket P' serves to lock the shank F in place on the extension-tool.

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

1. In a coal-drill, the combination, with an auger, of a center adjustable longitudinally on the end of the auger; a cutter held adjust-  
20 ably on the end of the auger and standing at an angle to the said center, and a wedge and a bolt

held in the said auger and engaging with its head the shanks of the center and the cutter, so that both are loosened simultaneously by unscrewing the nut of the bolt, substantially  
25 as shown and described.

2. In a coal-drill, the combination, with an auger formed at one end with a dovetailed groove having its sides diverging outwardly, of a center cutter engaging with its shank one  
30 side of the said groove, a cutter standing at an angle thereto and engaging with its shank the other side of the said groove, and a bolt held in the said auger end and having its head wedge-shaped and engaging the adjacent in-  
35 ner sides of the shanks of the said center and cutter, substantially as shown and described.

CHARLES S. SHEPPARD.

Witnesses:

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E. D. KYTE.