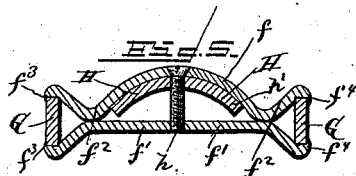
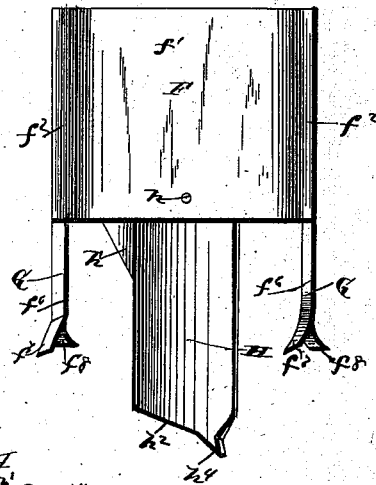
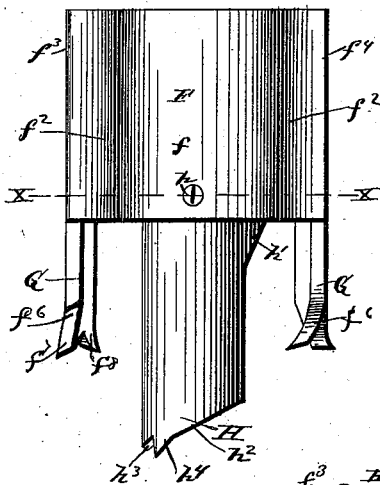
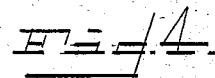
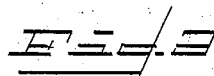
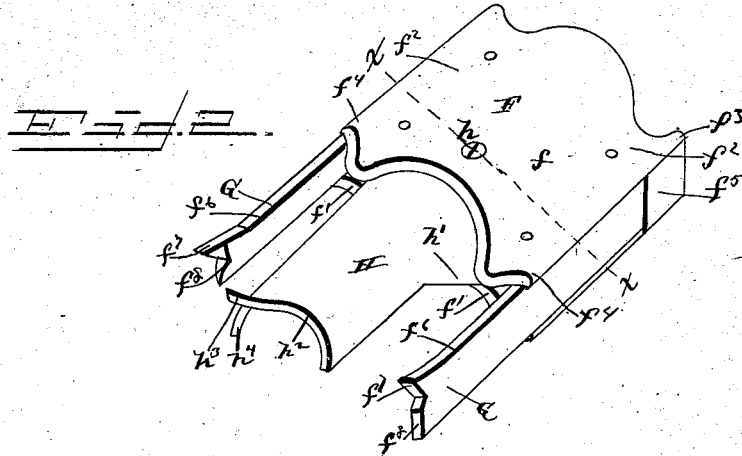
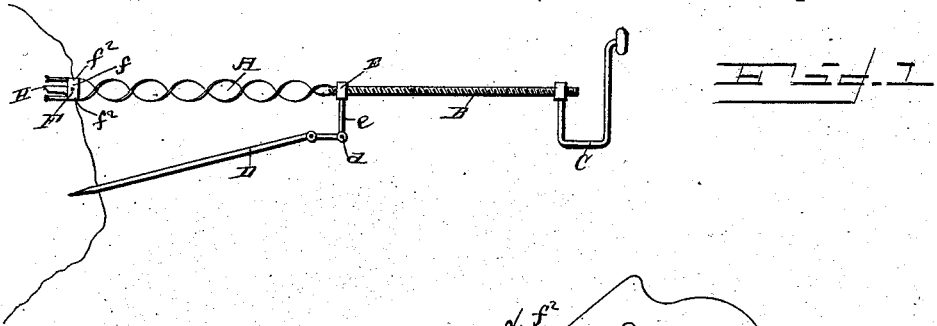


(No Model.)

D. CORGAN.
COAL DRILL BIT.

No. 381,114.

Patented Apr. 17, 1888.



Witnesses.

M. H. Humphrey.

E. J. Siggers.

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By his Attorneys.

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UNITED STATES PATENT OFFICE.

DANIEL CORGAN, OF LUZERNE, PENNSYLVANIA.

COAL-DRILL BIT.

SPECIFICATION forming part of Letters Patent No. 381,114, dated April 17, 1888.

Application filed August 2, 1887. Serial No. 245,961. (No model.)

To all whom it may concern:

Be it known that I, DANIEL CORGAN, a citizen of the United States, residing at Luzerne, in the county of Luzerne and State of Pennsylvania, have invented a new and useful Improvement in Coal-Drill Bits, of which the following is a specification.

My invention relates to an improvement in coal-drill bits for use in blasting; and it consists in the peculiar combination and arrangement of devices, which will be more fully hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, wherein like letters of reference indicate similar parts in the several views, Figure 1 is a side elevation of a drilling apparatus with my improved drill-bit shown in connection therewith. Fig. 2 is a detail perspective view of my improved form of bit. Fig. 3 is a top plan view thereof. Fig. 4 is a bottom plan view; and Fig. 5 is a transverse section on the line *x x*, Fig. 2.

A indicates the auger, B the screw-rod connected thereto, and C the hand-brace for operating the several parts.

D indicates a brace rod or lever, one end of which is embedded in the coal, the other end of said lever being provided with a suitable joint, *d*, which is connected to the depending arm *e* of a screw-block, E, through which the screw-rod B passes.

My improved form of bit, F, is secured to the end of the auger-stem A; and it consists, essentially, of the two plates *f f'*, arranged to form the upper and lower plates of the bit. The plate *f* is constructed in curvilinear form, having an enlarged convexity at its central portion, with edge flutes *f²*. The plate *f'* is straight, and the depressions of the plate *f*, formed by the flutes *f²*, rest thereagainst. The edges of each of the plates *f* and *f'* are flared upwardly, and then slightly bent downward and upward, as at *f³* and *f⁴*, to form guides for the side cutters, G G. The rear ends of the said side cutters, G, are braced against rearward displacement by stop blocks or strips *f⁵*, secured between the edges of the rear portion of the flanged edges of the plates *f* and *f'*. The two plates *f* and *f'* are riveted together and firmly held in engagement.

The side cutters, G, project outwardly from

the front edges of the plates *f* and *f'*, having oppositely-inclined cutting-edges *f⁶*, each of which terminates in the reversely-bent points *f⁷ f⁸*.

In the central cavity formed by the union of the two plates *f f'* the central cutter, H, is mounted and projects out from the said plates between the edge cutters, G, and some distance beyond the same. The cutter H is held in permanent position by a set-screw, *h*, passing through the said plate and the cutter. A wedge-shaped spur, *h'*, is integrally formed with one side thereof, which bears against the front edge of the plates *f f'*, thereby limiting the rearward movement of the cutter and serving to break and crush the coal, as will be hereinafter set forth. The cutting-point of this cutter H consists, essentially, of an incline, *h²*, extending from one side to the other and terminating in two reversely-bent points, *h³ h⁴*.

In the use of my improved bit the central cutter, H, strikes into the coal or other material first and enters the same some distance before the edge cutters, G, come into play. By means of these central and edge cutters concentric holes are formed with a wall of coal between them, the core being formed by the inner hole. As the bit advances into the coal, the spur *h'* will break and crush the wall between the inner and outer holes, and the core will be removed by the action of the auger.

The advantage and utility of this manner of drilling will be readily appreciated by those skilled in the art, and need not be further enlarged upon herein.

It is obvious that steam, hydraulic, or other power may be used with my improved form of drill, and that various materials may be operated upon by the same.

Having thus described my invention, I claim—

1. The combination of the flat plate *f'*, the curved plate *f*, riveted to the upper side thereof, and the cutter H, secured to the under side of the curved plate by a set-screw and provided with the wedge-shaped spur *h'*, resting against the front edges of the plates *f f'*, substantially as set forth.

2. The combination of the plates *f f'*, riveted together and having their side edges

flared outwardly and bent to form guides $f^3 f^4$, the side cutters fitted in said guides, and the central cutter adjustably secured to the plate f , substantially as set forth.

- 5 3. The combination, with the plates f and f' , forming edge guides and a central cavity when united, of the edge cutters, G G, the rear stops for said cutters, the central cutter, H, having the spur h' , and the set-screw for permanently
10 securing said latter cutter, substantially as described.

4. The cutter H, having the cutting-points

$h^3 h^4$, formed at the one side of its front beveled edge, h^2 , and the wedge-shaped crushing-spur h' , in combination with the edge cutters, G G, 15 held by the plate F, as described, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

DANIEL CORGAN.

Witnesses:

P. H. CAMPBELL,
PHILIP O'NEILL.