

W. W. & E. G. BITTENBENDER.

MINING BIT.

APPLICATION FILED AUG. 29, 1910.

981,243.

Patented Jan. 10, 1911.

Fig.1.

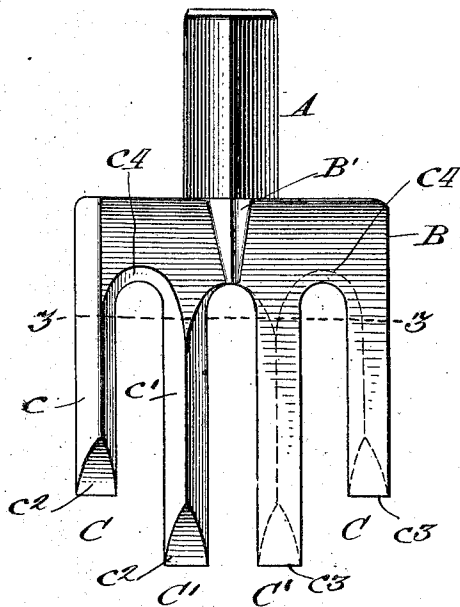


Fig.2.

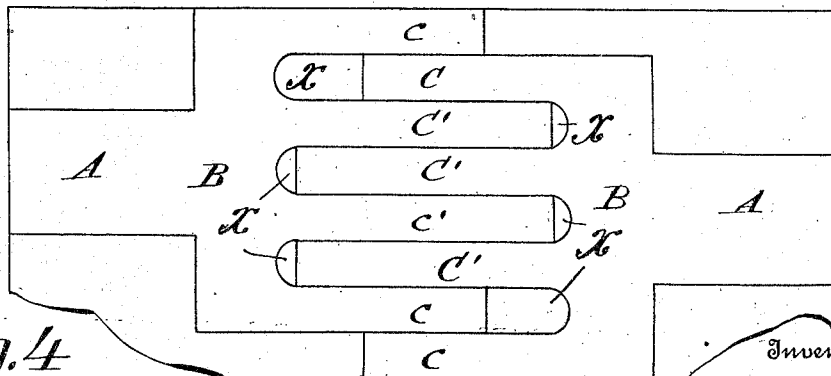
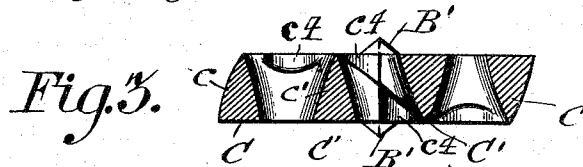
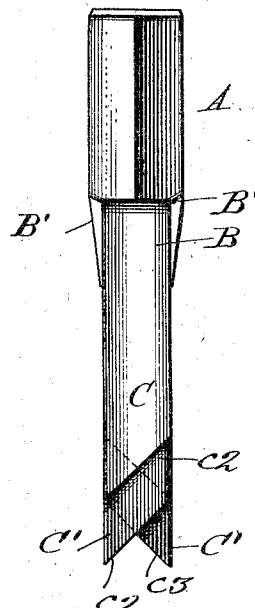


Fig.4

Witnesses

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# UNITED STATES PATENT OFFICE.

WILLIAM W. BITTENBENDER AND ELIAS G. BITTENBENDER, OF NANTICOKE, PENNSYLVANIA.

## MINING-BIT.

981,243.

Specification of Letters Patent.

Patented Jan. 10. 1911.

Application filed August 29, 1910. Serial No. 579,404.

### *To all whom it may concern:*

Be it known that we, WILLIAM W. BITTENBENDER and ELIAS G. BITTENBENDER, both citizens of the United States, residing at Nanticoke, county of Luzerne, State of Pennsylvania, have invented certain new and useful Improvements in Mining-Bits, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention has relation to that class of drills or bits that are employed in mining coal or in quarrying rock and any other analogous pursuits and, among the objects of the invention is the provision of a bit which shall be effective in operation, simple and inexpensive in structure, easily sharpened, strong and serviceable and adapted to be used in connection with a hand or power operated apparatus.

Other and further objects of the invention will appear in the following description of the invention and the novel features thereof will be pointed out in the appended claims.

Referring to the drawings—Figure 1 is a side elevation of a bit constructed in accordance with our invention; Fig. 2 is an edge view; Fig. 3 is a cross section on line 3—3 of Fig. 1; and Fig. 4 is a diagrammatic plan illustrating the manner of producing blanks of the bit from suitable material in sheet form.

Like numerals of reference refer to like parts in the several figures of the drawing.

A represents the tang or shank of the bit which is, as shown, polygonal in cross section, thereby adapting it to be grasped and operatively held by the chuck of any drilling machine or by the well known bit-brace employed by miners when operating bits by hand power.

B represents the blade portion of the bit from which project the drilling points C, C', C' and C''. The blade portion B has upon either side thereof a strengthening rib B' which merges into the shank A at diametrically opposite corners thereof, the shank being, as hereinafter described, swaged to a greater thickness than the blade portion B of the bit. The drilling points of the bit are tapered in pairs with the tapers of each pair arranged reversely to those of the other pair. As shown in Fig. 1, the pair at the left is tapered toward the observer, as shown

at  $c$  and  $c'$ , while the opposite pair is tapered in the opposite direction as shown by dotted lines in said figure. The reverse tapering is also clearly shown in Fig. 3. In like manner, the extreme ends of the drilling points are tapered in opposite directions as shown at  $c^2$ ,  $c^2$ , Fig. 1, in one direction, and in the other direction by dotted lines in said figure, at  $c^3$ ,  $c^3$ .

By the construction above described, we provide a bit which can be employed either in a drilling machine or which may be operated by hand power and which is inexpensive and obtainable by the individual miner at slight cost and which, by reason of the extension of the central drilling points beyond those of the outer points of the bit, renders the operation of the drilling less laborious, the cutting edges, produced by the beveled ends  $c^2$ ,  $c^3$ , in opposite directions, first enter the coal, and act to center the bit as a whole, so that when the shorter points contact with the coal, the longer points not only act as cutters but as guides to secure the proper alinement of the work being done. When the full depth of the drilling points are within the coal or other material, the ends of the slots between the drilling points, which ends are beveled as shown at  $c^4$ , corresponding to the beveling of the drilling points, begin to act upon the central, cylindrical and outer annular cores, which have been formed by the operation of the drilling points up to this time and gradually and at the same rate of cutting that is done by the points themselves cut away and remove said cores, the material removed passing readily over the blade portion of the bit.

While we do not limit ourselves to any particular method of manufacturing our bit, it is observed that the formation thereof adapts it readily to be manufactured from sheet steel with slight waste. Steel of the proper thickness to form the drilling points of the bit, and in sheet form, may be employed and blanks cut therefrom in interlaced relation to each other, whereby small portions X Fig. 4 would constitute the only waste material in the blade of the bit. In this method of manufacture, the portion of the blank which is to form the tang or shank A of the bit, is cut wider than the completed tang and is subsequently pressed or swaged by dies to form the polygonal tang of greater thickness than the blade portion of the bit.

Having described our invention and set forth its merits, what we claim and desire to secure by Letters Patent is—

5 1. A bit comprising a shank, a blade portion and drilling points arranged in pairs parallel with each other and beveled in opposite directions the bevels of the central pair being oppositely disposed and merging at a point midway of their adjacent cutting  
10 edges the central pair being longer than the adjacent outer drilling points.

2. A bit comprising a shank, a blade portion and a series of parallel drill points projected therefrom in a common plane the cen-

tral pair being arranged each one at one side 15 of the center of the blade portion, beveled in opposite directions, the bevel of one merging into the bevel of the other midway between their adjacent cutting edges the latter being curved to the said point of mergence. 20

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM W. BITTENBENDER.  
ELIAS G. BITTENBENDER.

Witnesses:

R. W. BEIDLEMAN,  
GEO. G. BRADER.