

W. T. EVANS & B. F. REILLY.
ADJUSTABLE DRILLING BIT.
APPLICATION FILED AUG. 4, 1911.

Patented Apr. 2, 1912.

1,022,129.

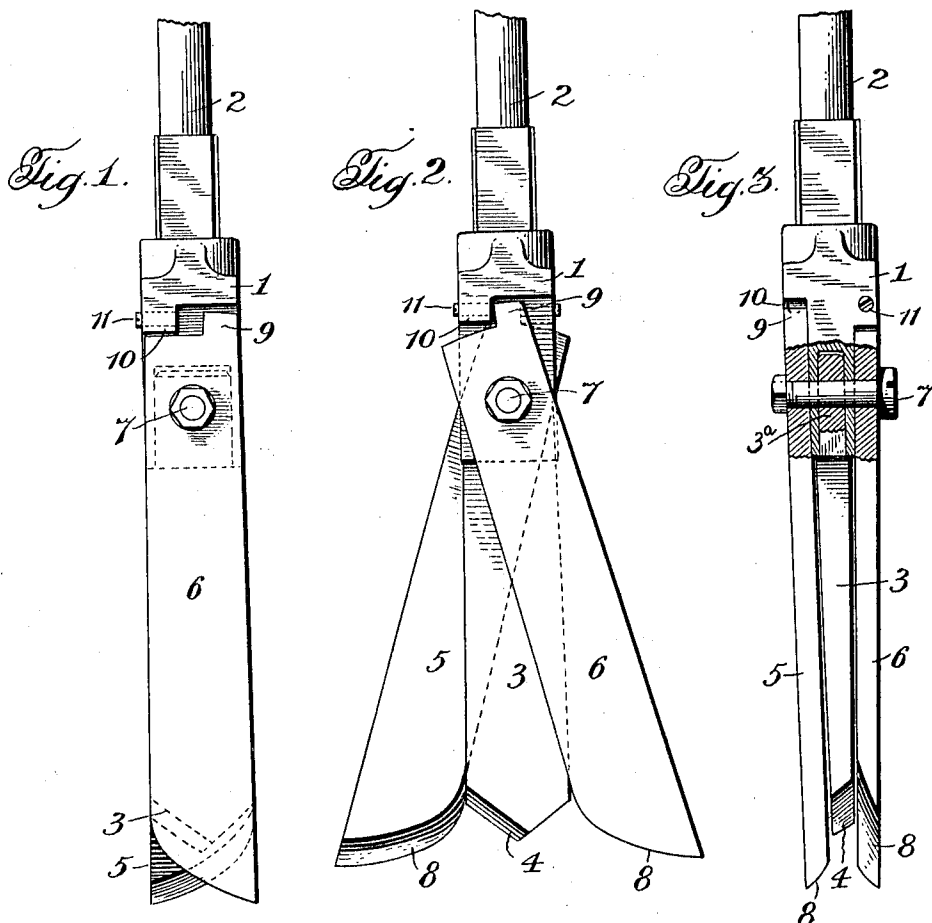


Fig. 4.

Fig. 5.

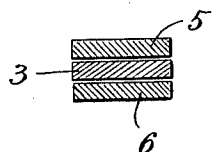
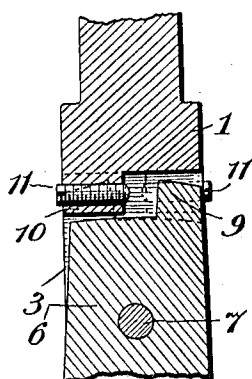
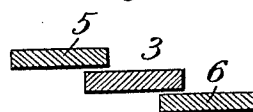


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM T. EVANS AND BERNARD F. REILLY, OF WILKES-BARRE, PENNSYLVANIA.

ADJUSTABLE DRILLING-BIT.

1,022,129.

Specification of Letters Patent.

Patented Apr. 2, 1912.

Application filed August 4, 1911. Serial No. 642,358.

To all whom it may concern:

Be it known that we, WILLIAM T. EVANS and BERNARD F. REILLY, citizens of the United States, and residents of Wilkes-Barre, Luzerne county, State of Pennsylvania, have invented certain new and useful Improvements in Adjustable Drilling-Bits, of which the following is a specification.

The present invention relates to an improvement in expansible drilling or boring bits intended for enlarging a bore previously formed by another implement.

While the invention is particularly adapted for use with rock or coal drills for forming a pocket at the inner end of a bore to receive a blasting charge, yet bits constructed in accordance therewith may be employed for other purposes.

The object of the invention is to provide a bit of the character referred to, which will be automatically expanded or caused to gradually increase the diameter of the bore in which it operates until such bore has been enlarged to the desired extent.

Further the invention includes means by which the extent to which the bit may be expanded can be easily controlled and varied.

In the accompanying drawings, Figure 1 is an elevation of a drilling and boring bit constructed in accordance with the present invention showing the movable blades in closed position; Fig. 2 is a similar view with the movable blades fully expanded; Fig. 3 is an edge view; Fig. 4 is a sectional view on an enlarged scale showing the adjustable means for controlling the extent to which the movable blades are permitted to move; Figs. 5 and 6 illustrate the operation of the improved bit.

Referring to the drawings, 1 designates the head or stock of a drilling bit shown as connected with a stem or rod 2, which is adapted to be actuated in any suitable manner. To the head 1 is rigidly but detachably secured by any suitable means, a relatively stationary blade 3, shown as of substantially rectangular form and terminating in a pointed end 4. In the embodiment of the invention herein illustrated the blade 3 is provided with a reduced upper end 3^a adapted to fit in a socket in the stock or head 1. To the head 1, on opposite sides of said blade 3, are pivotally connected axial blades 5, 6. As shown said blades and the intermediate blade 3 are connected together

and to the head by a bolt 7, and the swinging or pivotal blades are of substantially the same width as the intermediate blade 3, whereby all of said blades may be brought into alinement, as shown in Fig. 1, so that the implement can be readily inserted in a bore formed by an implement having the diameter of the width of said blades.

The blades 5, 6, are of greater length than the intermediate relatively stationary blade 3, and terminate in curved and beveled cutting edges 8. The form of the cutting edges of said pivotally mounted blades is such that as the bit is operated, the contact of said curved edges with the material or surface against which they act will automatically cause said outer blades to rock about their pivots from the position shown in Fig. 1, to that represented in Fig. 2. The extent of separation of the operative edges of said blades 5, 6, is limited by lugs or stops 9 projecting from the upper end of said blades and co-acting stops 10 formed upon the block or head 1. By means of adjustable pins 11 extending through the stops 10, the extent of opening or swinging movement of the expansible members of the bit may be varied as desired.

The form of the swinging blades and their connection and support on the head 1 is such that they offer no obstruction to the withdrawal of the bit from the bore formed thereby as the outward movement of the stem 2 will cause said blades 5, 6, to rock about their pivot into the position shown in Fig. 1.

By loosening the nut on the bolt 7 and withdrawing said bolt all of the blades can be easily detached from the head or stock 1. The walls of the socket in the head into which the central blade 2 fits effectually prevents any lateral movement of the blade so that it is maintained rigid with the head or stock and actuating stem.

Having described our invention what we claim and desire to secure by Letters-Patent is,

1. The herein described expansible bit comprising a stock or head provided with a relatively stationary central blade terminating in a V-shaped cutting edge; a pair of blades pivotally supported on opposite sides of the central blade and having curved and beveled cutting edges that project beyond the cutting edge of the central blade, whereby when the bit is in operation the

side blades will tend to automatically turn about their pivotal support to carry their cutting ends outward from the central blade, and adjustable stops mounted on the head
5 and adapted to limit such turning movement of the side blades.

2. The herein described expansible bit comprising a head having a relatively stationary blade, a pair of blades pivotally connected to the head on opposite sides of the
10 stationary blade and having curved cutting edges which extend beyond the free end of the stationary blade, the ends of said side blades adjacent the head being recessed,

stops on the head extending into said re- 15
cesses in the ends of the pivotally mounted blades, and pins adjustably supported by said stops and adapted to limit turning movement of the pivotal blades in one di-
rection. 20

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

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents.
Washington, D. C."