T. J. OSBORNE & G. J. BRAGG.

ROCK DRILL.

APPLICATION FILED JAN. 15, 1915.

1,209,614. Patented Dec. 19, 1916.

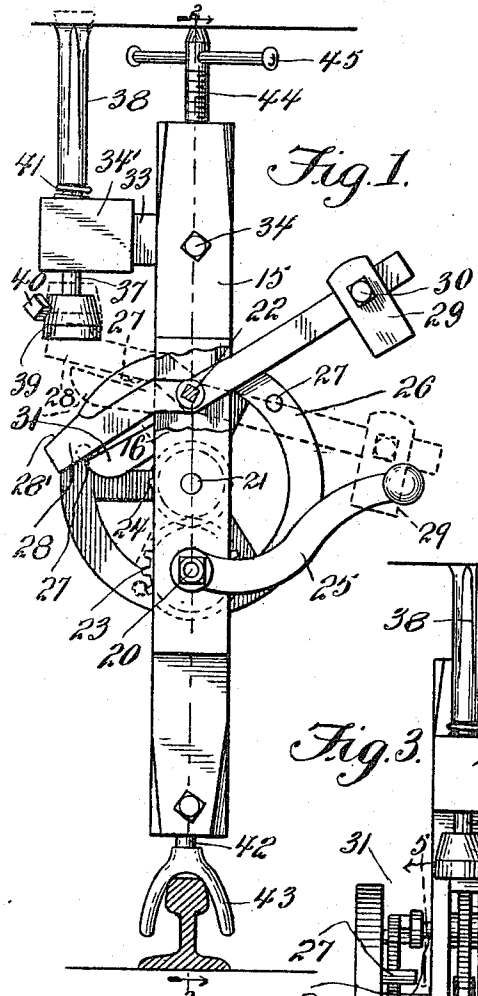


Fig. 1.

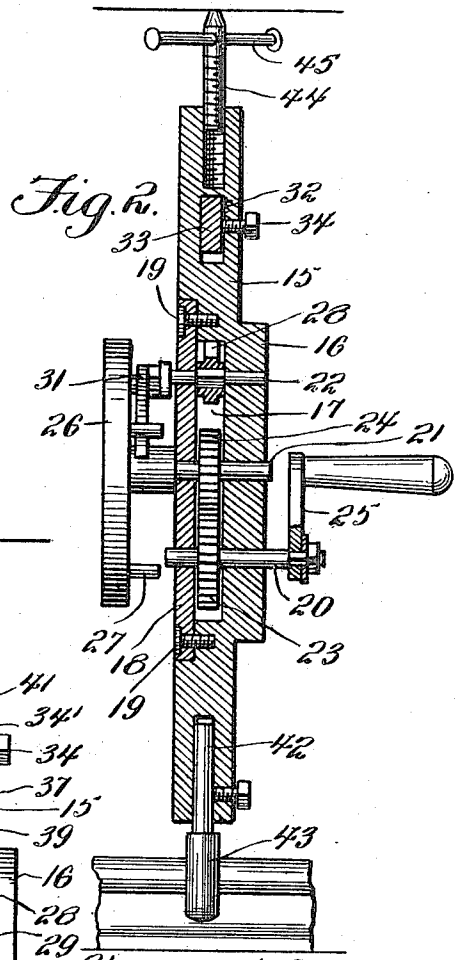


Fig. 2.

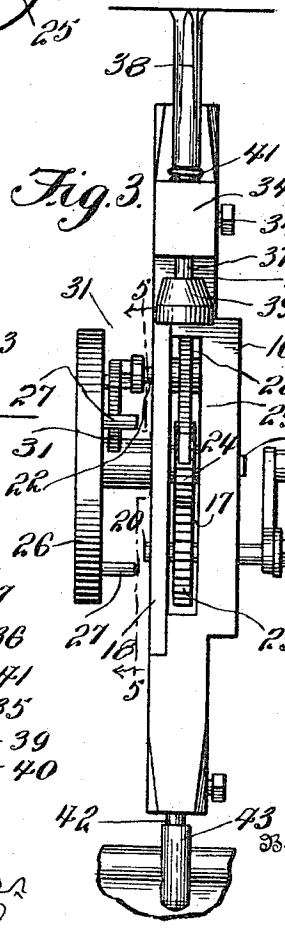


Fig. 3.

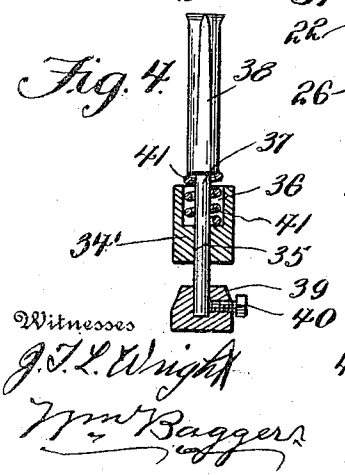


Fig. 4.

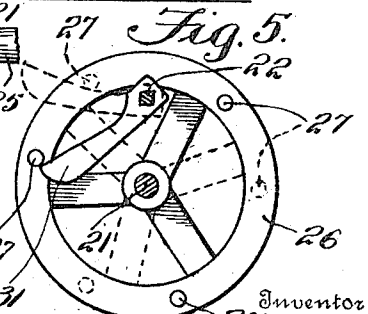


Fig. 5.

Witnesses

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UNITED STATES PATENT OFFICE.

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ROCK-DRILL.

1,209,614. Specification of Letters Patent. Patented Dec. 19, 1916.

Application filed January 15, 1915. Serial No. 2,433.

To all whom it may concern:

Be it known that we, THOMAS J. OSBORNE and GRANVILLE J. BRAGG, citizens of the United States, residing at Premier, in the county of McDowell and State of West Virginia, have invented new and useful Improvements in Rock-Drills, of which the following is a specification.

This invention relates to rock drills of that class in which a frame supports a manually operated trip hammer, said frame supporting also a tool holder, and said frame being provided with means for securing it in position for operation.

The present invention has for its object to produce a device of the class referred to possessing superior advantages in point of simplicity, durability and general efficiency.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claim.

In the accompanying drawing has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claim may be resorted to when desired.

In the drawing,—Figure 1 is a side elevation of a device constructed in accordance with the invention. Fig. 2 is a vertical sectional view taken on the line 2—2 in Fig. 1. Fig. 3 is a front view. Fig. 4 is a sectional detail view taken on the line 4—4 in Fig. 1 through the tool and tool holder. Fig. 5 is a sectional detail view taken on the line 5—5 in Fig. 3.

Corresponding parts in the several figures are denoted by like characters of reference.

The frame 15 is provided with an offset 16 producing a recess 17 for which a cover plate 18 is provided, said cover plate being fastened upon the frame by means of screws 19. The frame and the cover plate together afford bearings for three shafts 20, 21 and 22. The lowermost shaft 20 carries a spur wheel 23 meshing with a pinion 24 on the shaft 21. The shaft 20 is also provided with a crank 25 whereby it may be manually rotated, thus transmitting motion to the shaft 21. The latter carries a wheel 26 which constitutes a fly wheel, said wheel being also provided with pins or tappets 27, equidistantly spaced and extending in the direction of the frame. The shaft 22 carries a trip hammer consisting of an arm or lever 28 having at the end of one of its arms a striking face 28′, the other arm of said lever being equipped with a weight 29, which latter is adjustably mounted on the said arm by a set screw 30. It will be seen that the lower wheel 23, the pinion 24 and the lever 28 are mounted within the recess 17, while the combined fly wheel and tappet wheel 26 is mounted adjacent to the outer face of the cover member 18. Similarly mounted on the shaft 22 adjacent to the outer face of the cover member 18 and in the path of the tappets 27 is an arm or cam lever 31 which, when engaged by the tappets, will cause the shaft 22 to rock in its bearings, thus lifting the weight 29 of the hammer, which latter when thus actuated by one of the tappets will strike a blow.

The frame 15 is provided near its upper end with a slot 32 wherein an arm 33 is secured by a set screw 34, said arm carrying the tool holder which consists of a block 34′ having an aperture 35, the upper end of which is enlarged to form a socket 36. Guided through the aperture 25 and socket 36 is the shank 37 of a drill 38, said shank being provided at its lower end with a cap 39 to receive the impact of the blows of the hammer, said cap being secured by a set screw 40. Coiled about the shank of the tool within the socket 36 is a spring 41 that exerts an upward tension against the tool 38, thus serving to maintain the tool normally in elevated position, and holding it to its work.

Fitted in the lower end of the frame is a shank 42 having a terminal crotch 43; threaded into the upper end of the frame is a screw 44 through which extends a transverse operating lever or handle 45. By rotating the screw 44, the point thereof may be driven into the roof, while the crotch 43 engages one of the track rails in the drift or tunnel where the device is to be used, the frame being thus easily and quickly mounted in position for operation.

The device, it will be understood, is particularly intended for the purpose of drilling holes in the roofs of the drifts and tunnels of mines for the purpose of securing

supports for trolley wires. It is with this end in view that the particular construction herein shown and described is provided.

It will be seen by rotating the shaft 20 by means of the crank 25 rotary motion will be transmitted to the shaft 21 carrying the combined fly wheel and tappet wheel whereby the trip hammer will be operated to strike blows in quick succession on the cap at the lower end of the shank of the tool. By each blow of the hammer the tool will be forced upward, and the spring 41, which is initially compressed or placed under tension, will gradually expand and serve to hold the tool in engagement with the work. The arm 33 carrying the tool is capable of lateral adjustment with respect to the frame, thus enabling the tool to be moved for the purpose of forming two openings close together or an elongated slot, if desired, without shifting the position of the main frame, the striking face of the hammer as well as the impact receiving face of the cap 39 being of sufficient area to permit such adjustment to be made.

The construction of the improved device is simple and inexpensive, and by the use thereof the difficulty usually experienced in drilling holes in the roofs of drifts and tunnels will be in a large measure overcome.

Having thus described the invention, what is claimed as new, is:—

In a device of the class described, a supporting frame, a laterally extending arm adjustably connected therewith, said arm having a head provided with a vertical aperture enlarged at its upper end to form a socket, a drilling tool gravitationally seated in the socket and having a shank extending through the aperture, a spring seated in the socket surrounding the shank and exerting upward tension on the tool, and means carried by the frame for striking intermittent blows whereby the tool will be forced upward, the shank of the tool being provided with a detachable cap to receive the impact of the blows at various adjustments of the laterally extending arm.

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

THOMAS J. OSBORNE.
GRANVILLE J. BRAGG.

Witnesses:
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H. L. BUTLER.

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