854,464

No. 854,464. PATENTED MAY 21, 1907.

J. CHARLTON.

HYDRAULIC DRILL.

APPLICATION FILED MAY 5, 1905.

Fig. 1.

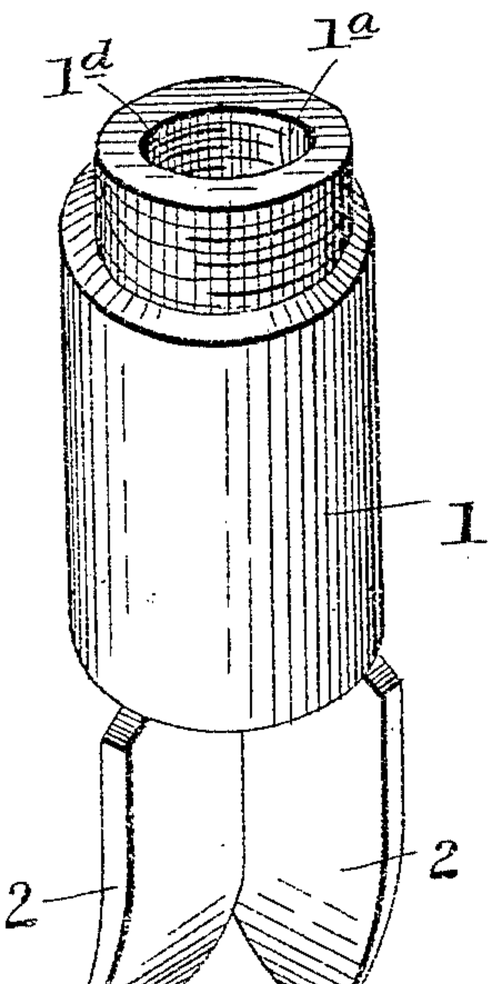


Fig. 6.

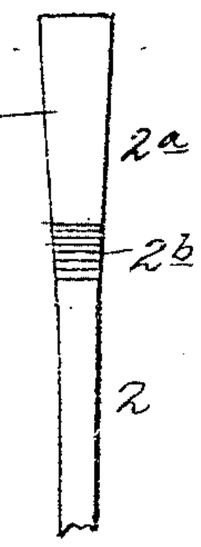


Fig. 2.

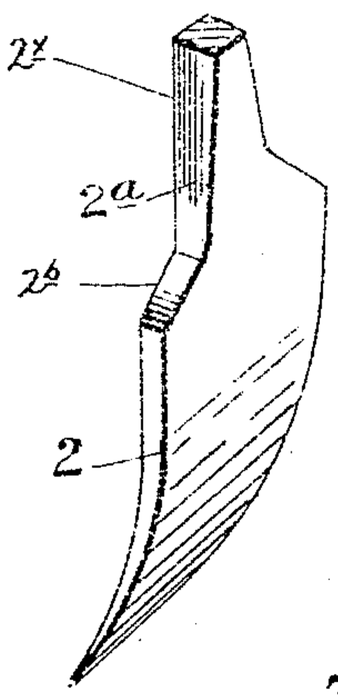


Fig. 3.

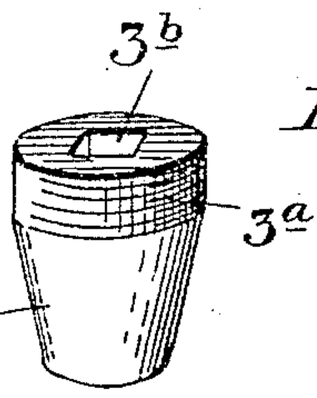


Fig. 4.

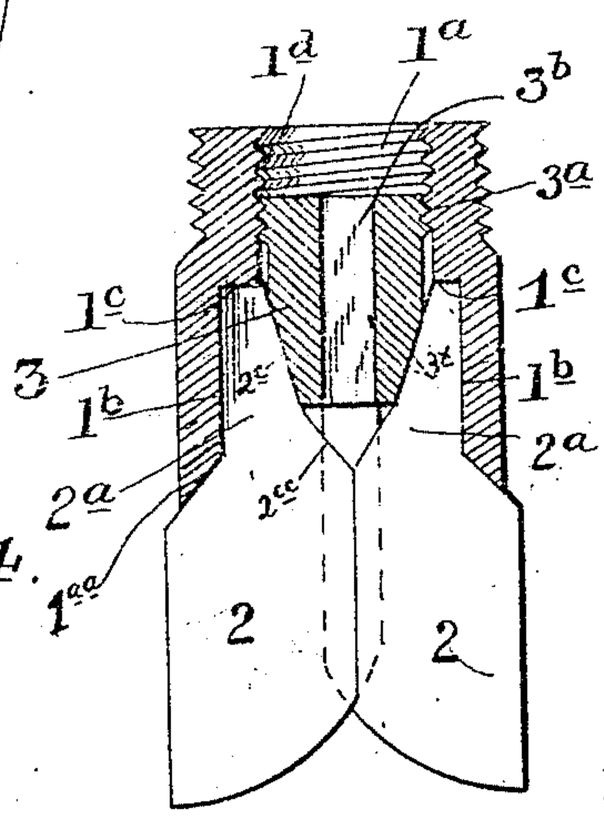
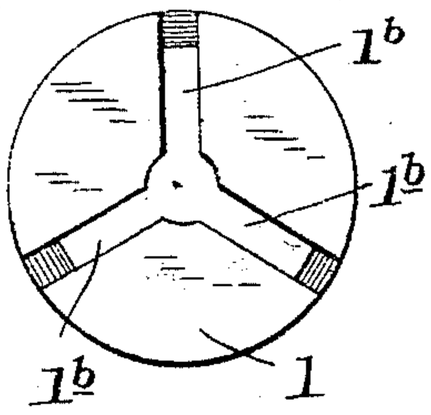


Fig. 5.



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UNITED STATES PATENT OFFICE.

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HYDRAULIC DRILL.

No. 854,464. Specification of Letters Patent. Patented May 21, 1907.

Application filed May 5, 1905. Serial No. 259,064.

To all whom it may concern:

Be it known that I, JAMES CHARLTON, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented new and useful Improvements in Hydraulic Drills, of which the following is a specification.

My invention relates to improvements in what may be termed hydrauiic drills.

Objects of the invention are to provide for the ready insertion and locking in place of the bits or cutters, and their equally ready renewal when required; and to carry out these objects in a simple and effective manner.

Said invention consists of certain structural details, including the combination and arrangement of parts substantially as hereinafter fully disclosed and particularly specified.

In the accompanying drawing illustrating the preferred form of my invention—Figure 1 is a perspective view thereof. Fig. 2 is a disassembled perspective view of one of the cutters. Fig. 3 is a like view of the cutter-locking "core" or wedge. Fig. 4 is a vertical section of the tool. Fig. 5 is an inverted view of the bit holder. Fig. 6 is a detailed side elevation of one or the bits, showing its upper flared end.

In the disclosure of my invention, I provide a tubular drill-head 1, having, as adjunctive or arms of a contracted continuation 1^a, of its interior surface, a number of radial slots 1^b, the upper ends of which terminate in downward-facing shoulders 1^c and are also flared upward, the purpose of which will be presently apparent.

A number of bits or cutters 2, effective for their intended purpose, are formed with upward flared extensions 2^a rectangular in cross-section, each having its outer right-lined vertical edge $2^\times$ set inward a suitable distance, with its base 2^b sloping downward and outward and engaging a corresponding surface or bevel 1^{aa} of the drill-head 1. The inner opposite edge 2^c of said upward extension is slightly inclined downward and inward, terminating preferably into a more gradual inclination 2^{cc}, forming an obtuse angle at that point.

A wedge or "core" 3, somewhat conical or tapered downward, with its tapering portion $3^\times$ interposed between, and engaging the upward extensions 2^a of the cutters or bits 2, thus wedging or locking in place the latter previously inserted into the radial upward flared slots 1^b of the drill-head 1, said "core" or wedge 3 being provided with an exterior upper end screw-threaded surface 3^a engaging a corresponding interior screw-threaded surface 1^d of said drill-head, thus locking said "core" or wedge to said drill-head. Said wedge or "core" has opening out through its upper surface a recess or socket 3^b adapted to receive the end of an instrument (not shown) effective for screwing the "core" or wedge into place, in securing the bits or cutters in position.

It is observed that by means of this invention the bits or cutters may be readily inserted and effectively locked in place, and as readily be removed when requiring renewal, as is apparent.

Other advantages of my invention will develop themselves in the practical use thereof.

I claim:

1. A tool of the character described, comprising a tubular drill-head having a radial slot therein with its upper end formed by a downward-facing shoulder, a cutter or bit having its upper end portion tapered or narrowed upward along its edges and flared upward laterally, and let into said slot, and a core having connection with said drill-head and effective for aiding the retention of said bit or cutter in place.

2. A tool of the character described, comprising a tubular drill-head having a radial slot therein with its upper end formed by a downward-facing shoulder, a cutter or bit having its upper end-portion tapered or narrowed upward along its edges and flared upward laterally and let into said slot and a core having screw-threaded connection with said drill-head and tapered downward for engagement with said tapered upper edges of said bits or cutters.

3. A tool of the character described, comprising a tubular drill-head having radial slots therein with their upper ends formed

by downward facing shoulders, cutters or bits having their upper end-portions tapered along their edges and flared laterally and let into said slots, and a core having connection with said drill-head and tapered downward for engagement with said upper end-portions of said bits or cutters.

In testimony whereof I affix my signature, in presence of two subscribing witnesses.

JAMES CHARLTON.

Witnesses:
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O. L. COCHRAN, Jr.