W. CHILDS.

BIT FOR ROCK DRILLS, MOILS, AND PICKS.

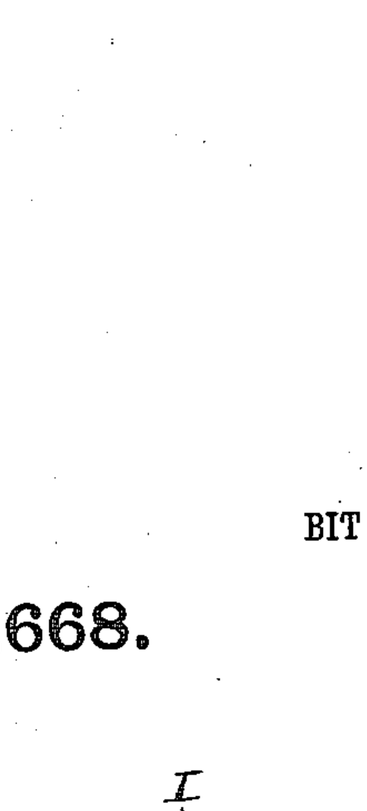
APPLICATION FILED SEPT. 14, 1908.

994,668.

Patented June 6, 1911.

2 SHEETS—SHEET 1.

Fig. 6



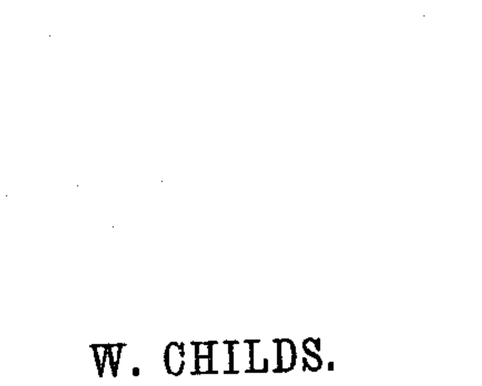


Fig. 1

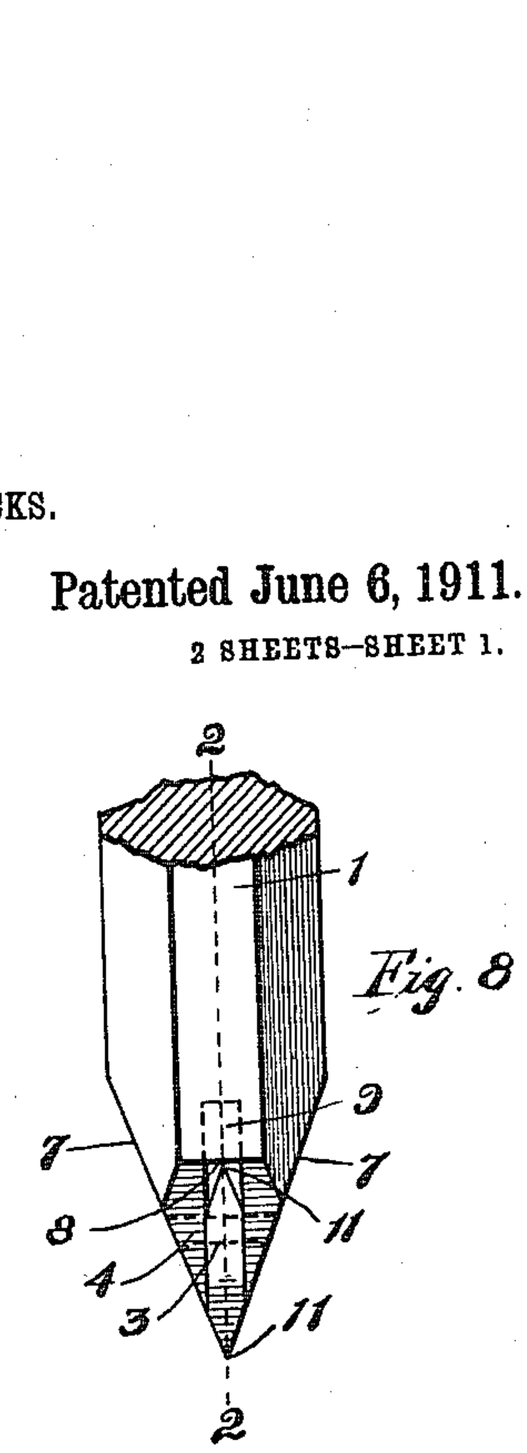


Fig. 8

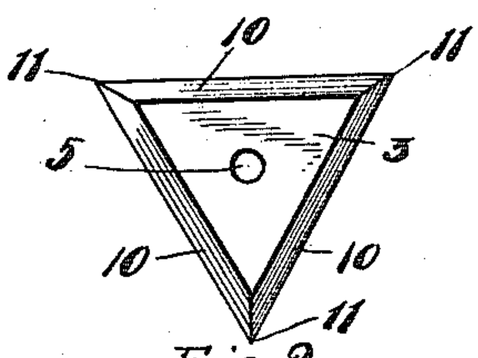
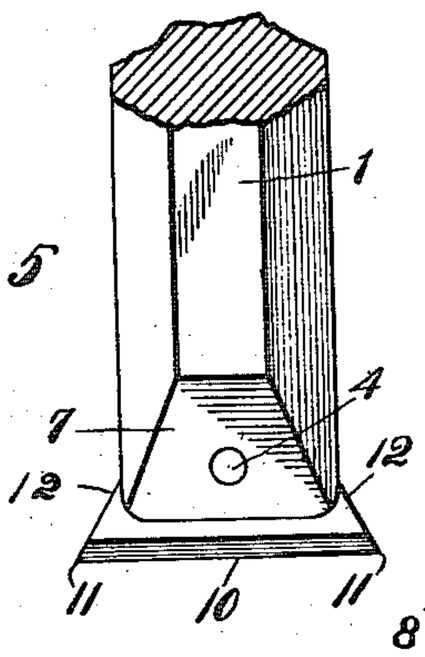


Fig. 2

Fig. 5



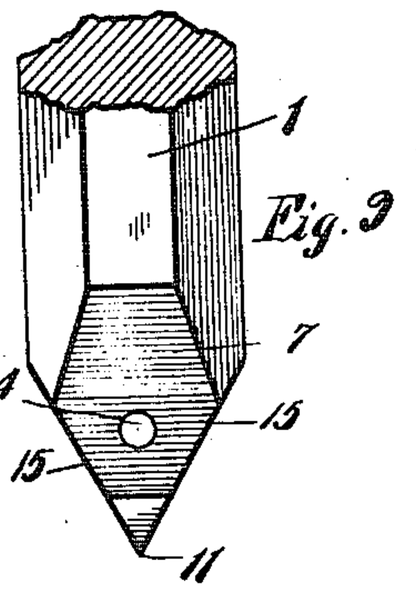


Fig. 9

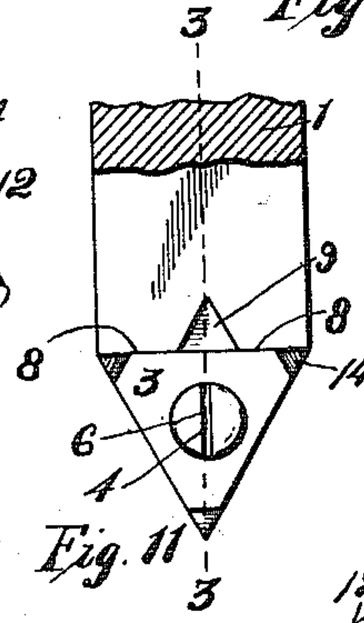


Fig. 11

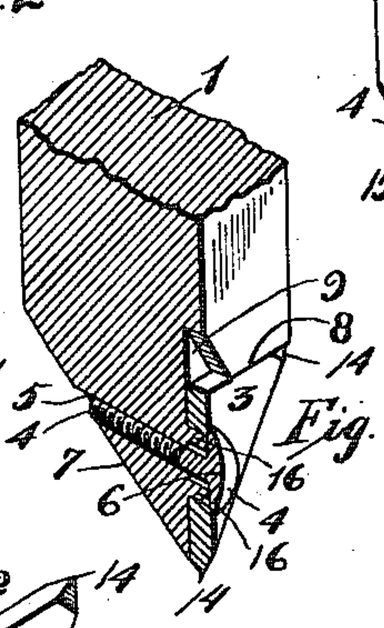


Fig. 12

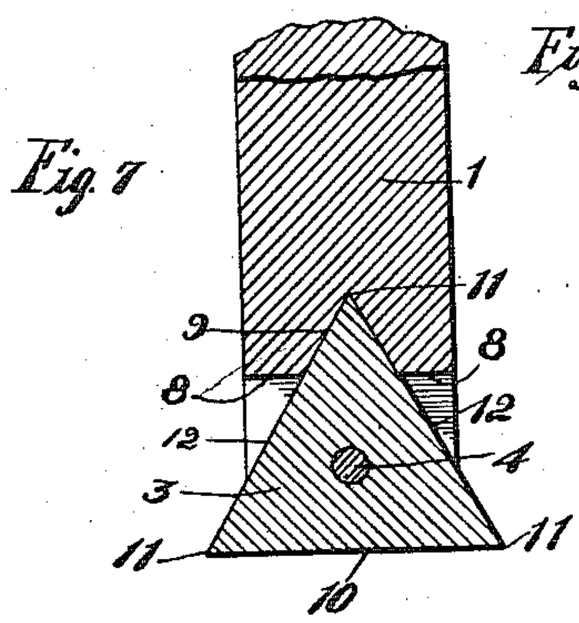


Fig. 7

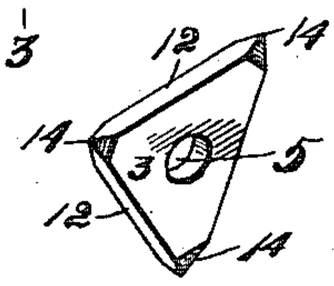


Fig. 3.

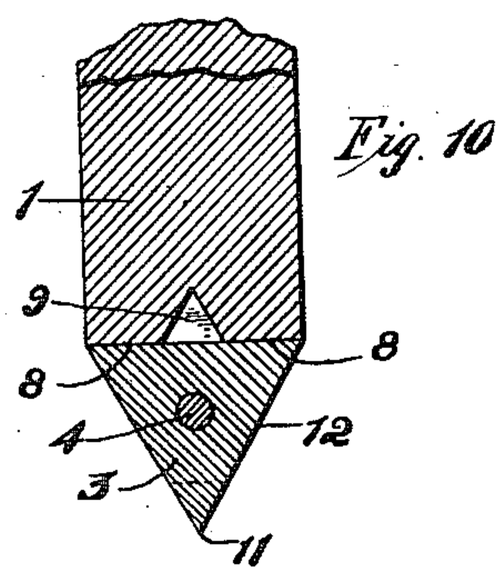


Fig. 10

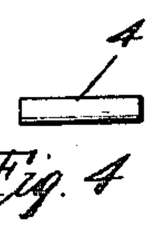


Fig. 4

WITNESSES:

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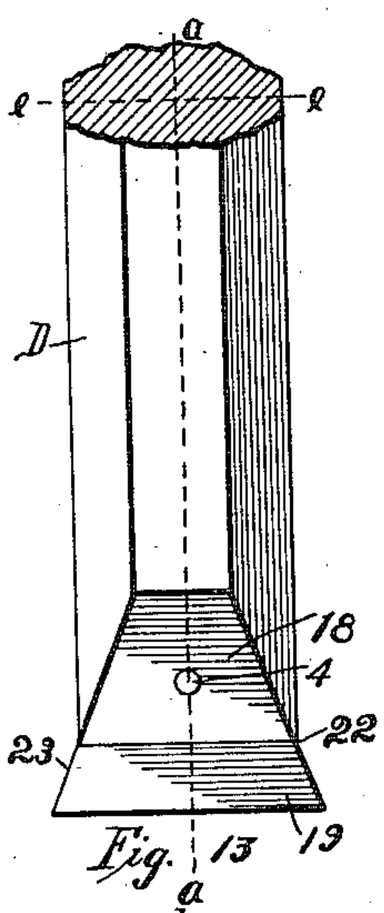

Fig. 13

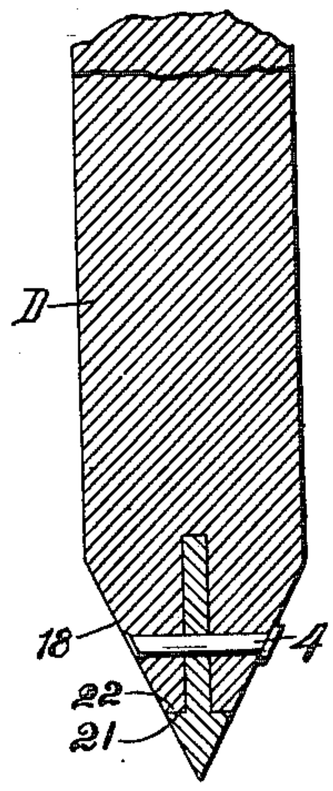

Fig. 14

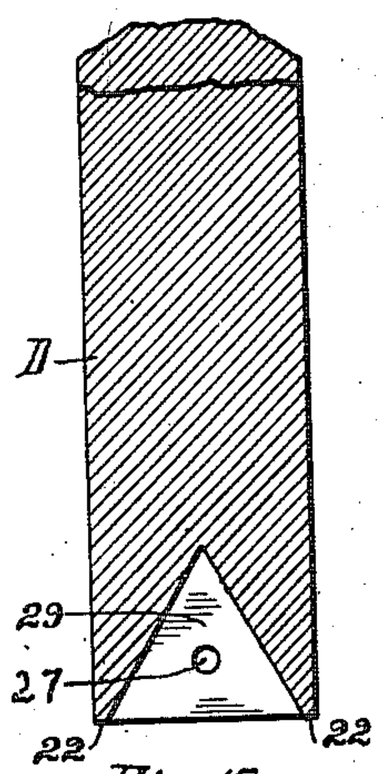

Fig. 15

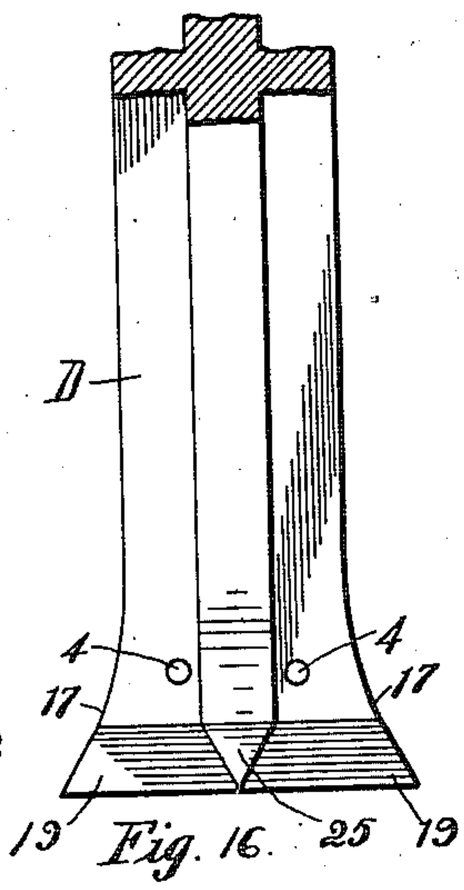

Fig. 16.

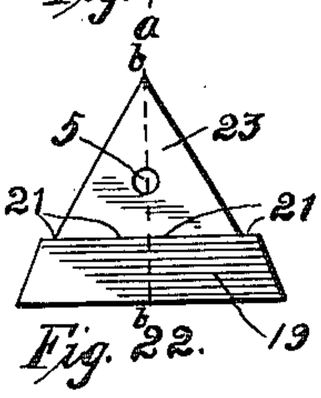

Fig. 22.

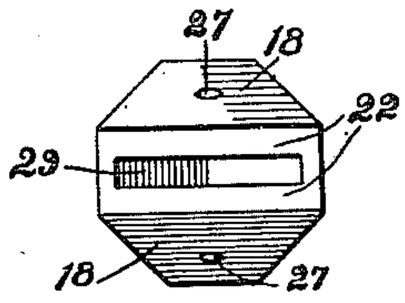

Fig. 26

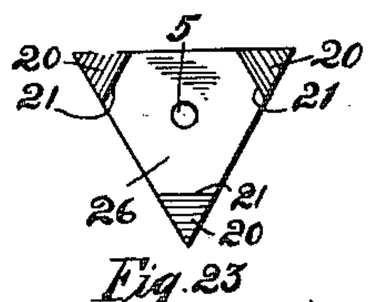

Fig. 23

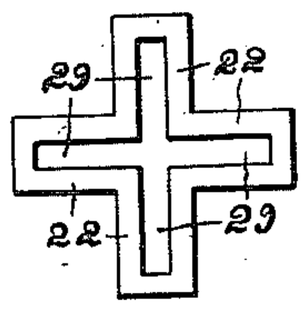

Fig. 27

Fig. 28

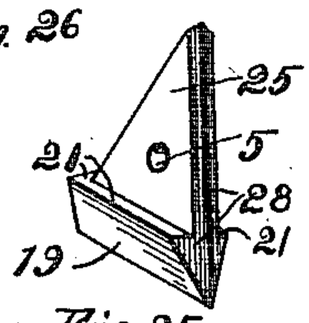

Fig. 25

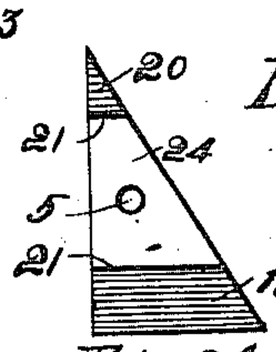

Fig. 24

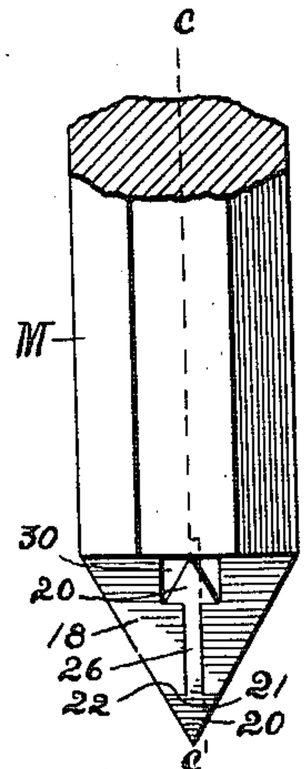

Fig. 17

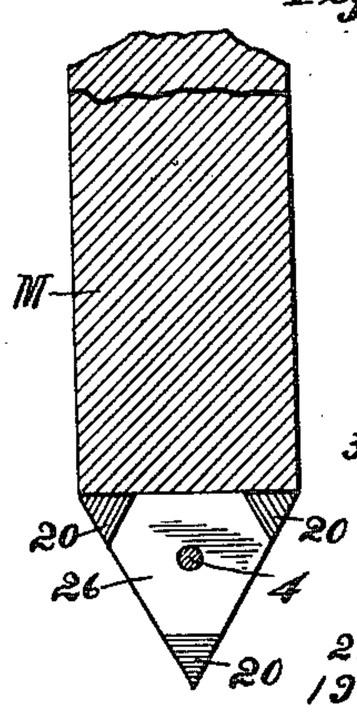

Fig. 18

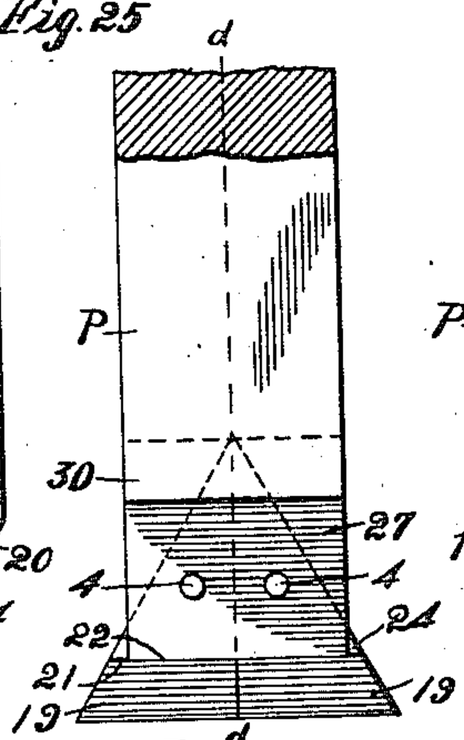

Fig. 19.

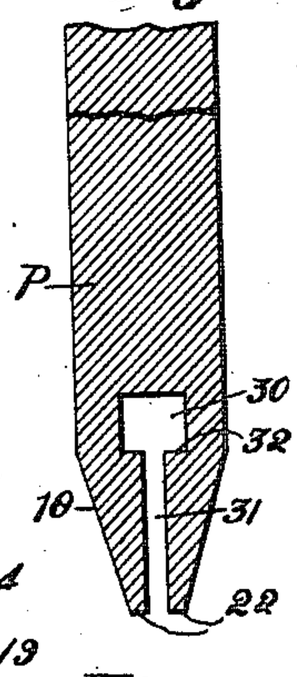

Fig. 20

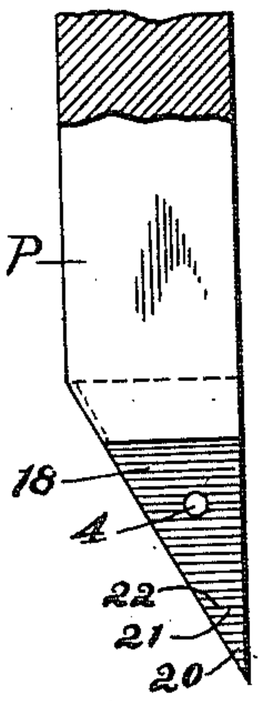

Fig. 21

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UNITED STATES PATENT OFFICE.

WALLACE CHILDS, OF NEOSHO, MISSOURI.

BIT FOR ROCK-DRILLS, MOILS, AND PICKS.

994,668.

Specification of Letters Patent. Patented June 6, 1911.

Application filed September 14, 1908. Serial No. 452,963.

To all whom it may concern:

Be it known that I, WALLACE CHILDS, of the city of Neosho, county of Newton, State of Missouri, have invented certain new and useful Improvements in Bits for Rock-Drills, Moils, and Picks.

The object of my invention is to construct of metal, a bit for rock drills, moils, and picks with bits which are detachable, convenient, interchangeable, reversible, and economical; and so that such bits may be adapted to and used on other like tools, by shaping the shank ends of such like tools for the holding of said bits in the forms herein shown, according to the work required. This object I attain by making a bit triangular with flattened sides; and means to fasten it to the end of a tool of the character above specified. I only show a shank end or section of a rock drill, moil, and pick in various forms and figures as any one versed in the art, science or manufacture to which my invention appertains will understand how to adapt it and make and use it without showing the tools in full of which my invention may be a part, and this specification and the drawings will fully describe and illustrate my invention.

Figure 1, is a perspective view of the triangular bit of a pattern for a pick or a gad, and showing a hole through the bit whereby it may be secured in the end of a pick or gad. Fig. 2, is a plan view of the triangular bit of a pattern for a rock drill or a pick, with three edges and three points all sharpened and adapted for use when secured in the end of either tool. Fig. 3, is a perspective view of the triangular bit of a pattern suitable for a heavy pick, showing the hole in the center large in diameter with the three points sharpened while the edges are left flat. Fig. 4, is a plan view of a headless lock-pin to fit the hole in the bit and to secure the bit in the shank of a tool of the character described. Fig. 5, is a plan front view of section or end of a tool of the character described, suitable for a chisel, showing the triangular bit with one edge sharpened and exposed while the major part of the bit is secured in the end of said tool. Fig. 6, is a plan side view of section of Fig. 5, turned around one quarter, and the bit is seen secured between the jaws of said tool in a transverse slot; and in dotted lines at the bottom of said slot a V shaped socket into which one of the bit points enter. Fig. 7, is a cross-section of Fig. 6, on line 1—1 which shows the triangular bit as it rests in the tool when designed for use as shown in Fig. 5; and the point of the bit resting in the V shaped socket. Fig. 8, is a plan side view of a section of a tool of the character described suitable for a moil; it shows unequal beveled jaws and the bit secured in a transverse slot between them, and in dotted lines the V shaped extension to said slot. Fig. 9, is a plan front view of a section of said tool of Fig. 8, turned around one quarter, only showing the sharpened point of the bit as it is secured therein ready for use. Fig. 10, is a cross-section of Fig. 8, on line 2—2, which shows the bit as it rests in the tool when designed for use as shown in Fig. 9; and it also shows the V shaped extension in the bottom of the transverse slot. Fig. 11, is a plan view of a section of an end of a tool of the character described suitable for a heavy pick, whereto the triangular bit is secured in a recessed and shouldered side of said end onto a stud which is an integral part of said end, by a headed screw bolt lock-pin. Fig. 12, is a cross-section in perspective on dotted lines 3—3 of Fig. 11 which shows a V socket made in the shouldered side, into which the point of the bit fits; also showing a stud on the inside of the shoulder and the hole through said stud threaded; and the headed screw bolt securing the bit to place on said stud. Fig. 13, is a plan front view of a section of a rock drill, showing the cutting edge of the triangular bit secured therein. Fig. 14, is a cross-section of Fig. 13, taken on dotted line *a*—*a* and showing the manner in which the bit is secured in place in the end of the drill D, of said figure. Fig. 15, is a cross-section of Fig. 13 longitudinally starting at line *e*—*e* but omitting the bit and rivet, to show the V shaped socket into which the bit fits. Fig. 16, is a plan side view of a section of a style of rock drill in which four triangular bits are fitted and secured together, only a part of three bits are shown in this view. Fig. 17, is a plan side view of a moil, and showing an edge of the triangular bit designed for it and the shape of the slot in which it is secured, which is same form of slot shown in Fig. 20. Fig. 18, is a cross-section of Fig. 17 on dotted lines *c*—*c* showing the triangular bit with two points in reserve and one point projecting downward. Fig. 19, is a plan

view of a section or end of a pick with two triangular bits secured therein in a slot same as in the moil, the edges of the bits only are exposed, but the dotted lines indicate their outlines. Fig. 20, is a cross-section of Fig. 19, with the bits omitted, showing the form of slot suited to a pick when this style of triangular bit is desired to be used therein. Fig. 21, is a plan side view of a pick end with the point of the triangular bit of a style as shown in Fig. 24 projecting therefrom. Fig. 22, is a plan view of a triangular bit with but one cutting edge and it tapering back and ending in a shoulder or offset. Fig. 23, is a plan view of a triangular bit with the three points sharpened and each point tapering back and ending in a shoulder or off-set. Fig. 24, is a plan view of a triangular bit with one point and one edge sharpened and both tapering back end ending in a shoulder or off-set. Fig. 25, is a perspective view of a triangular bit with one edge beveled and one cutting edge sharpened and tapering back and ending in a shoulder or off-set. Fig. 26, is a plan view of end of Fig. 13, showing the V socket adapted to receive the triangular bit shown in Fig. 22. Fig. 27, is a plan view of end of Fig. 16, showing two V sockets crossing each other, adapted to receive four triangular bits with their beveled edges meeting in the center of said crossed V sockets. Fig. 28, is a plan view of one style of a rivet or lock-pin having a head, to fasten the bits in their different ends. Figs. 17, 19, 21, 6, 8, 11, 1, 2, 3, 23 and 24 are modified forms of my invention.

Referring to the drawings, (Sheet 1),—the bit 3 is made of metal preferably hardened steel, triangular in form with flat sides so that it presents for use when desired, a cutting bit edge, a moil point, or a pick point all embraced in the one bit, or various styles of bits can be designed or modified so as to be used and adapted exclusively to a rock drill, moil, or pick. The bit 3, has a lock-pin hole preferably transversely through it; the edges or points of said bit may be beveled or sharpened, and the lock-pin hole through it larger or smaller as desired, depending upon the special use to which it is to be put. The lock-pin may be an ordinary headless rivet or it may be headed; or it may be a threaded bolt, see Figs. 4, 11 and 12. The shanks or sectional ends as shown, have a transverse slot in one end giving two jaws 7, 7, see Figs. 6 and 7, or have a shouldered off-set in one side, and but one jaw 7, see Fig. 12. The shanks or sectional ends as shown, are also provided with a V shaped socket 9, at bottom of slot 2, or shoulder 8, to receive the point of the bit when a broad cutting edge of the bit 3, is to be used, and to steady it.

To use my invention it is only necessary to provide the shank end of a rock drill, moil, or pick, with a slot 2, V shaped socket 9, jaws 7, and holes through said jaws at 5, a triangular bit 3, with flat sides and a hole 5, therein, with the points or edges thereof sharpened so as to be adapted for any tool of the character specified, then insert the bit 3, in the slot 2, between the jaws 7, 7, so the holes at 5, will line, then pass the lock-pin 4, through said holes at 5, and rivet it or have the lock pin fit tightly without riveting. To remove the bit 3, drive out the lock-pin 4, and the bit can be taken out; and given a ½ turn and present a new cutting edge, or point, then re-insert the lock-point or rivet.

In some shanks it may be desirable to omit one of the jaws 7, and this would then form a shouldered off-set in lieu of slot 2, see Figs. 11 and 12, in which case the remaining jaw 7, has cast or forged thereon a stud 16; and the hole 5, of the bit 3, of a diameter to fit it and the hole 5, through the shouldered jaw 7, threaded; the bit 3, is slipped on to this stud 16, a screw bolt with slotted head at 6, is then screwed into the stud 16, and jaw 7, until the rim of the head of said bolt 4, rests tightly against the bit 3, and holds it firmly to place. The bit may be removed by unscrewing and taking out this bolt.

Now referring to Sheet 2, of the drawings: the Figs. 13 and 16, show sectional shank end parts of my rock drills and D represents the shanks thereof; Figs. 26, and 27, show respectively the V socket ends of Figs. 13 and 16, the triangular bit 23, is slipped into the said socket until its shoulder at 21, comes against shoulder 22, of the drill shank D, when the hole 5, in the bit will line with the holes 27, of the tapering sides 18, and the rivet 4, passed through which fastens the bit in place, as shown in said Fig. 13.

In Fig. 16, four triangular bits 25, are inserted in the V sockets, with their beveled edges 28, fitting back to back, and said bits pushed into the shank D, until their shoulders 21, come against the shoulders 22, and the holes 5, of said bits line with corresponding holes through the ribs of the shank D, then the rivets one for each bit, are put in place and headed thus securing the bits firmly to place therein as shown in said Fig. 16. To remove the bits it is only necessary to unhead and drive out the rivets thus freeing the bits.

In Fig. 17, is a vertical slot having a square or enlarged portion at its bottom, and the triangular bit 26, designed to slip into the slot 31, from the side of the end of the shank part of the moil M, so two of the points will, when in place, have the edges of their shoulders 21, resting in the enlarged part of said slot 31, at 30, on the shoulders 32, thereat; and hole 5, be in line with the

corresponding holes in the jaws 18, of said slot 31, so that the rivet 4, may be adjusted to place in said holes; the moil is then ready for use.

In Fig. 19, is shown a plan view section of one style of shank end for a pick, having a slot 31, with an enlarged part or hole 30, extending from side to side through said shank and two bits of the style 24, secured therein; the bits are slipped into the slot from either side and the shoulders 21, rest on the shoulders 32, while the rivets 4, hold the bits to place; a V socket 29, same as shown in Fig. 15, could be used here with a style of triangular bit as shown in Fig. 22, if preferred in lieu of slot 31, 30.

In Fig. 21, is shown a plan side view section of one style of end or shank for a pick, having a slot 31, with an enlarged part square hole 30, extending from front to back through said shank, or the said slot 31, 30, may extend part way from front to back or vice versa, but not entirely through the shank, so that a single bit 24, could be slipped into place in said slot only from the front, or from the back as the case may be. This would bind the jaws 18, together either front or back and stiffen the shank thereat, but not interfere with adjusting said bit.

All the parts herein described are cast, forged, or made in any suitable and convenient way preferably forged of hardened steel. The parts may be of any size or style desired and convenient for manufacture and use. The drawings show the parts duly proportioned, but of course they can be changed if deemed necessary. The lock-pin and rivet holes in the shanks and in the bits, are preferably drilled but may be punched. The lock-pin or rivet, may be of any convenient style or as shown in Figs. 12, 4, and 28.

What I claim as new and desire to secure by Letters Patent is:—

1. A bit of the character specified, being a triangular plate having shoulders formed thereon and cutting points at the apexes of the triangle, in combination with the shank end of a tool of the character specified, said shank end having an opening therein, and said bit adapted to be secured in said opening.

2. A bit of the character specified, being a triangular plate having shoulders formed thereon and a cutting edge between two apexes of the triangle, in combination with the shank end of a tool of the character specified, said shank end having an opening therein, and said bit adapted to be secured in said opening.

3. A bit of the character specified, being a triangular plate having cutting points at the apexes of the triangle and shoulders formed on the sides of said plate, in combination with the shank end of a tool of the character specified having an opening therein with shoulders formed thereat, and means to secure said bit in said shank end opening and against said shoulders.

4. A bit of the character specified, being a triangular plate having shoulders formed thereon, and two of its apexes cutting points and its other apex a shank adapted to be secured in an opening formed in the shank end of a tool of the character specified, substantially as and for the purpose specified.

5. A bit of the character specified, being a triangular plate having shoulders formed thereon and cutting points at the apexes of the triangle, in combination with a tool of the character specified, having a shank end said end having an opening therein, and means to secure said bit in said opening.

6. A bit of the character specified, being a triangular plate having a cutting edge, and shoulders formed on both sides of said plate, in combination with a tool of the character specified having a shank end and an opening therein, shoulders formed on said shank end at said opening, and said bit adapted to be detachably secured in said opening, with its shoulders against the shoulders of said shank end substantially as and for the purpose set forth.

7. A bit of the character specified, being a triangular plate having shoulders formed thereon and one of its apexes a cutting point and the other two of its apexes a shank adapted to be secured in an opening formed in the shank end of a tool of the character specified substantially as and for the purpose specified.

WALLACE CHILDS.

Witnesses:
M. E. O'Bryan,
D. K. Weir.