No. 681,035. Patented Aug. 20, 1901.

T. P. BLAKE.

DRILL.

(Application filed July 20, 1900. Renewed July 2, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1

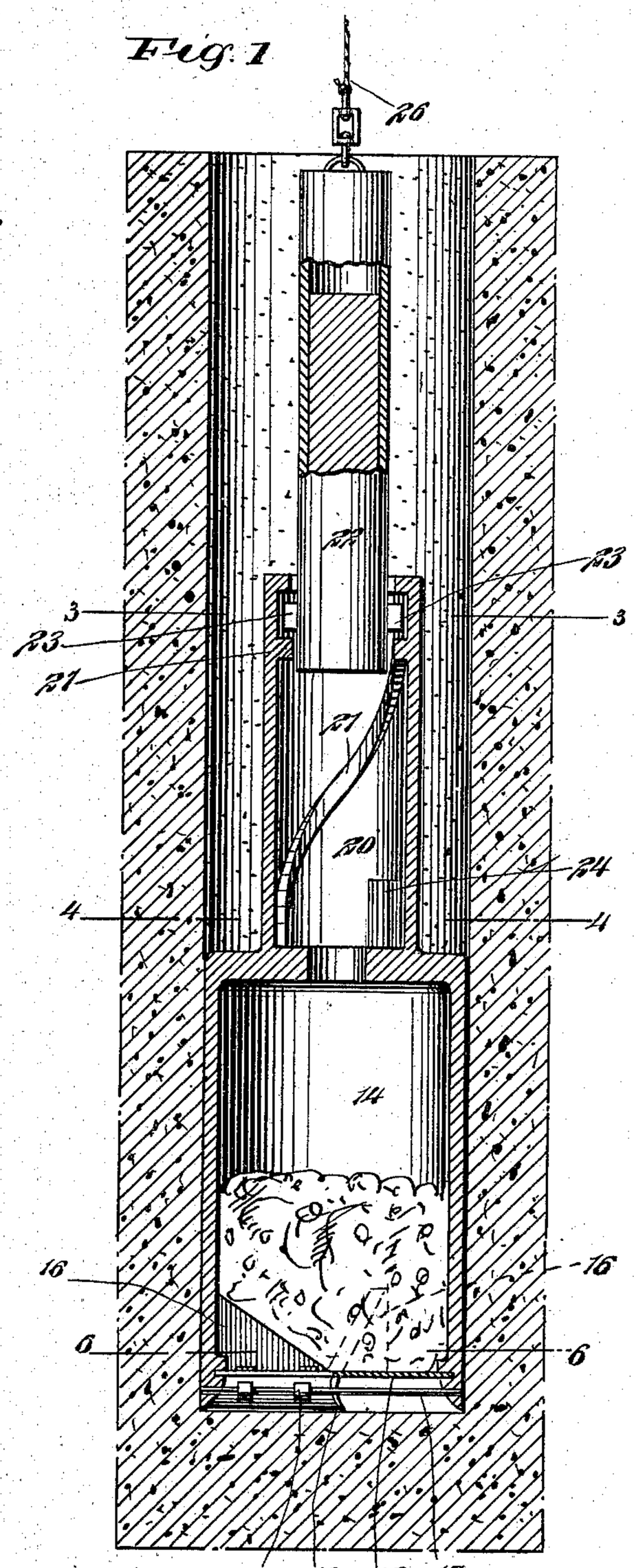


Fig. 3

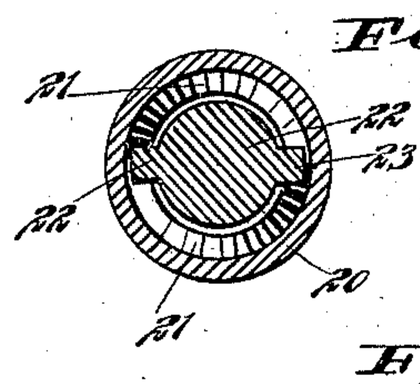


Fig. 4

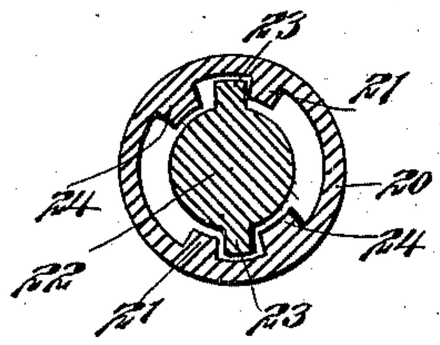


Fig. 2

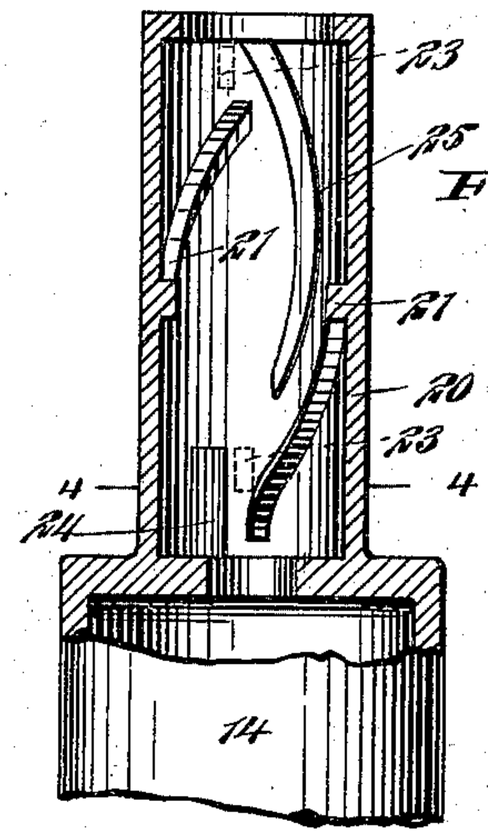
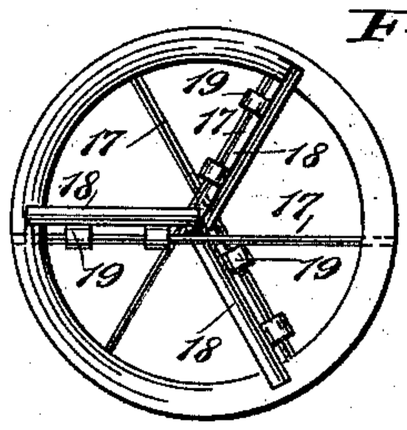


Fig. 5



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T. P. BLAKE.

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(Application filed July 20, 1900. Renewed July 2, 1901.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 6

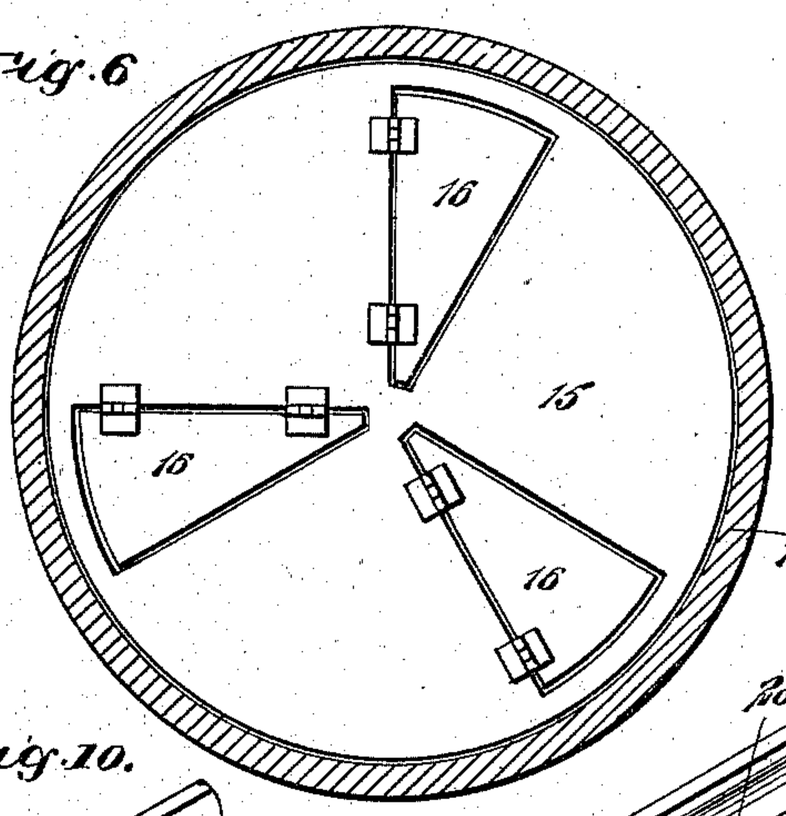


Fig. 7

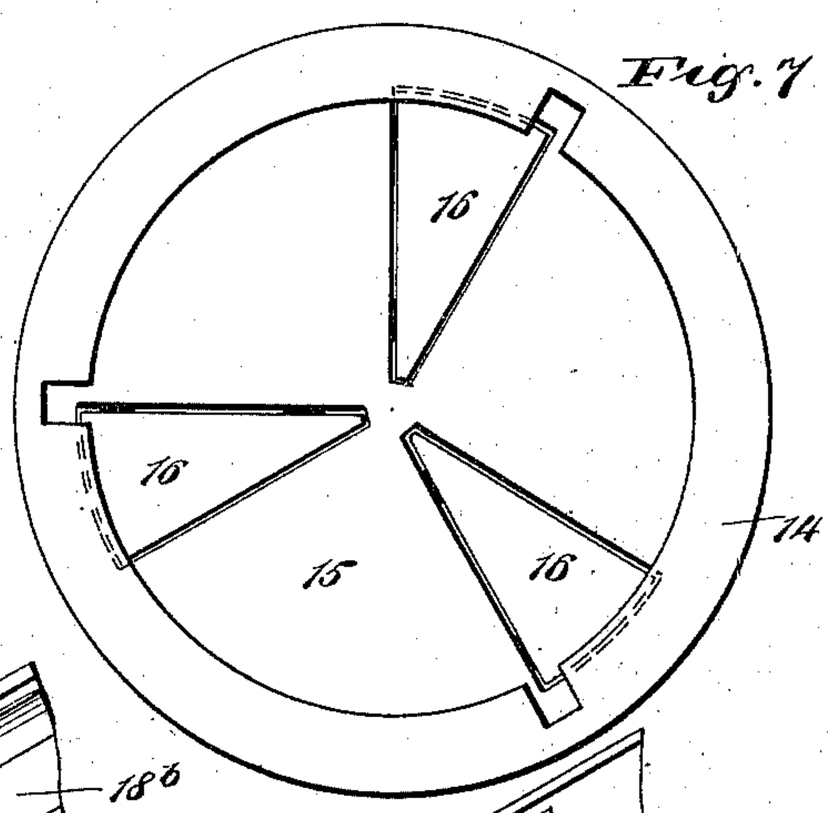


Fig. 10.

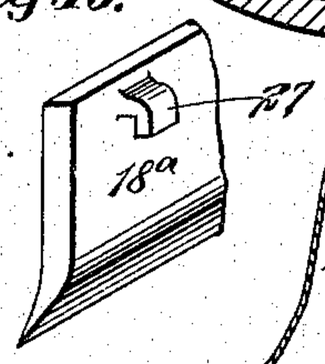


Fig. 9

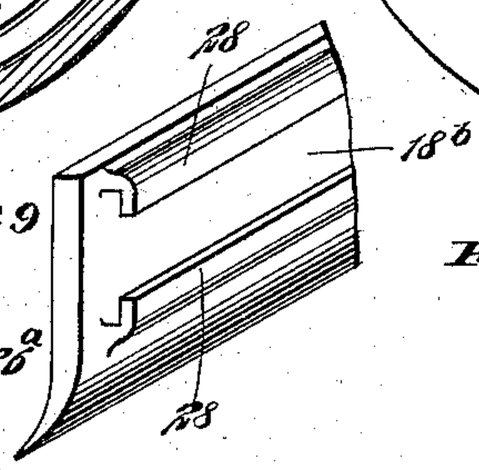


Fig. 8.

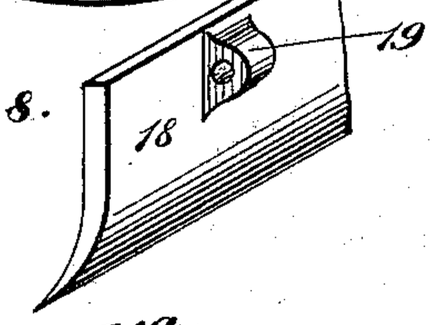
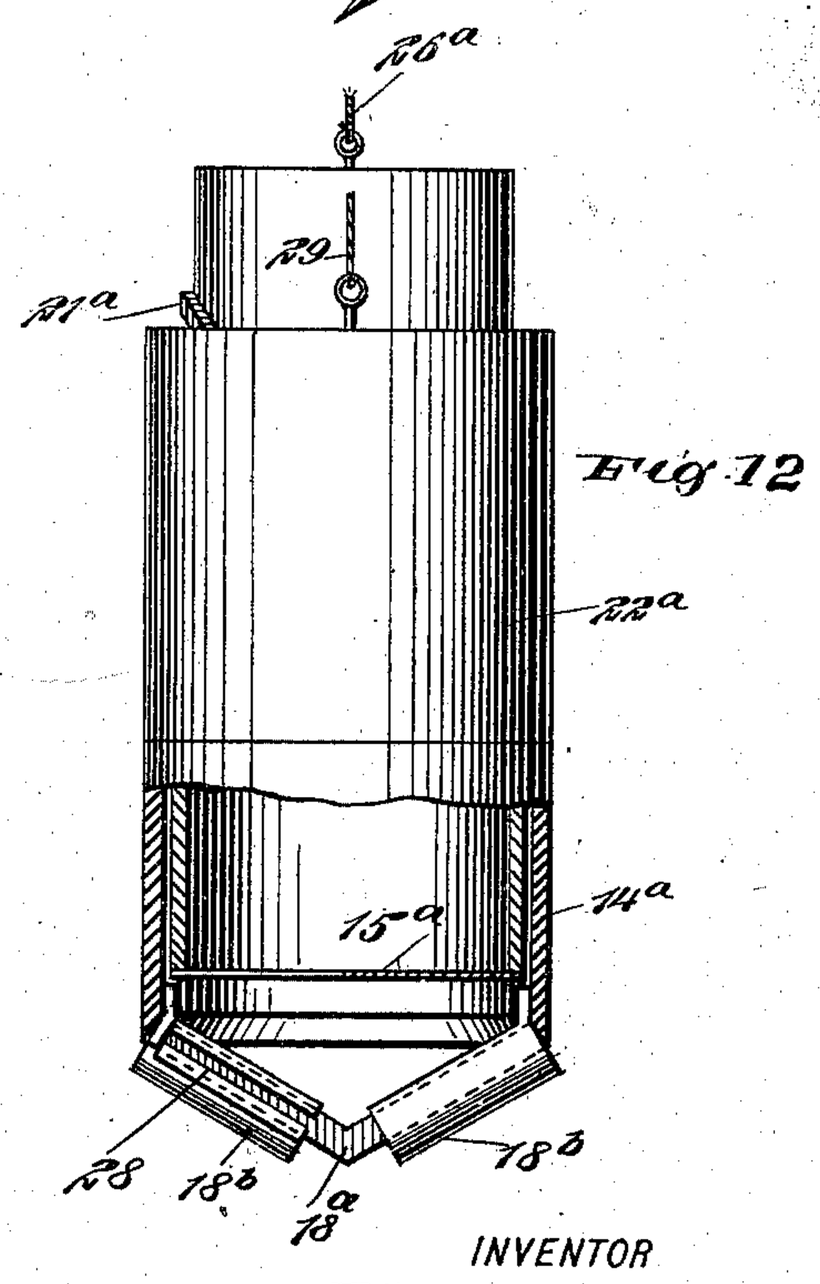


Fig. 11

Fig. 12



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ATTORNEYS

UNITED STATES PATENT OFFICE.

THEDE PIERCE BLAKE, OF LAMAR, NEBRASKA.

DRILL.

SPECIFICATION forming part of Letters Patent No. 681,035, dated August 20, 1901.

Application filed July 20, 1900. Renewed July 2, 1901. Serial No. 66,899. (No model.)

To all whom it may concern:

Be it known that I, THEDE PIERCE BLAKE, a citizen of the United States, and a resident of Lamar, in the county of Chase and State of Nebraska, have invented a new and Improved Drill, of which the following is a full, clear, and exact description.

This invention relates to a drill or auger for earth and rock which comprises a body portion bearing bits or other boring-tools set at an inclination and arranged to cut the earth or rock, a plunger working with the body portion and being given a rotary movement by an arrangement of threads on the two parts, so that when the plunger reaches the end of its movement and engages the body of the drill its momentum will partly turn the drill and cause the bits or tools to work.

This specification is the disclosure of one form of the invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional view of the invention, showing it at work in a shaft. Fig. 2 is a sectional view of the upper part of the body, showing the threads and the switch thereon. Fig. 3 is a sectional view on the line 3 3 of Fig. 1. Fig. 4 is a sectional view on the line 4 4 of Fig. 1; and Fig. 5 is a bottom plan view of the body of the drill, showing the bits.

The body 14 of the drill is cylindrical and hollow to form a bucket in which the earth and broken rock are received during the operation of drilling. The body is provided with a bottom 15, having openings therein commanded by hinged doors 16, which open inward, so that the dirt may enter the body 14 and may be held therein. Fastened to the body below the bottom 15 are small shafts or rods 17, which are located out of plane with each other, so that they may pass entirely across the body, and on these rods 17 are mounted the bits 18, which may be of any desired form and which are carried on the rods through the medium of ears 19, fastened to or formed integral with the bits and mounted on the rods. As the body 14 is turned the bits 18 engage the earth or rock, and being set at an inclination thereto they tend to bore into the earth and force the loose dirt and rocky fragments up through the openings in the bottom 15 and into the body 14.

Rigidly carried on the top of the body is a sleeve 20, which is formed with two threads 21 on the interior thereof, adapted to be engaged by lugs 23 on a plunger 22, which is heavily weighted and slides vertically in the sleeve 20. The lower part of the sleeve 20 at the interior thereof is provided with two short ribs 24, which are located, respectively, adjacent to the lower ends of the threads 21, with spaces between these two elements, so that the lugs 23 when they reach the bottom of the sleeve 22 may enter between the ribs and threads, as shown in Fig. 4 and as indicated by dotted lines in Fig. 2. Therefore as the plunger 22 drops it is given a turning movement by the threads 21, and then it enters between the ribs 24 and the bases of the threads and becomes firmly engaged with the sleeve 20, so that the momentum of the rotating plunger is transmitted to the body of the drill, and the partial rotation of this element is thereby effected. When the plunger 21 is moved upward to recover its position, its lugs 23 pass against switch-ribs 25, (see Fig. 2,) which slightly turn the plunger and cause the lugs 23 to assume the position indicated by the dotted lines at the upper part of Fig. 2, so that when the plunger is again dropped the lugs 23 fall upon the respective threads 21 and the above-described operation is repeated. The plunger 22 is suspended by a rope, cord, or other suitable device 26, and this rope passes up through the shaft and may be operated by any suitable mechanism.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A drill, comprising a hollow body forming a bucket, a bit or bits at the lower end thereof, a sleeve carried rigidly on top of the body and formed with an internal thread at the base of which is a lug spaced therefrom, the sleeve also having an interior switch-rib, and a plunger working vertically in the sleeve and provided with a lug adapted to ride on the thread within the sleeve and to engage the rib or lug at the base thereof, the switch-

rib serving to turn the plunger on its upward movement to recover its engagement with the thread.

2. A drill having a hollow body forming a bucket, a sleeve rigidly carried on top thereof, the sleeve having a spiral thread therein, and also having a rib at the lower end of the thread, the rib being spaced from the thread and the sleeve still further having a switch-rib in its interior, and a plunger provided with a lug adapted to bear on the thread in the sleeve as the plunger moves downward, said lug engaging the rib at the base of the thread to impart a turning movement to the body, the switch-rib serving to turn the plunger as it moves upward to reëngage the lug with the thread, and a bit or bits at the lower end of the body, for the purpose specified.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THEDE PIERCE BLAKE.

Witnesses:
HARRY WILSON,
WINFIELD BAILEY.