(No Model.)

G. D. ANDERSON.

AUTOMATIC FRICTION CLUTCH FOR WORKING DRILLS.

No. 389,997. Patented Sept. 25, 1888.

Fig. 4.

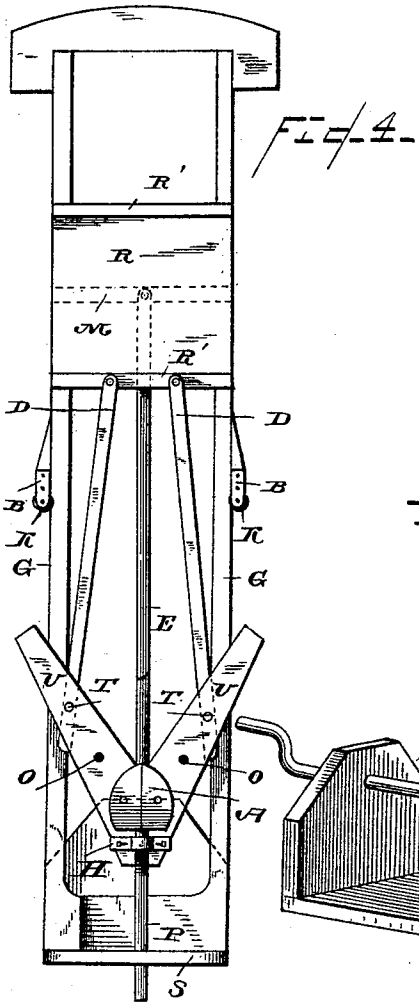


Fig. 1.

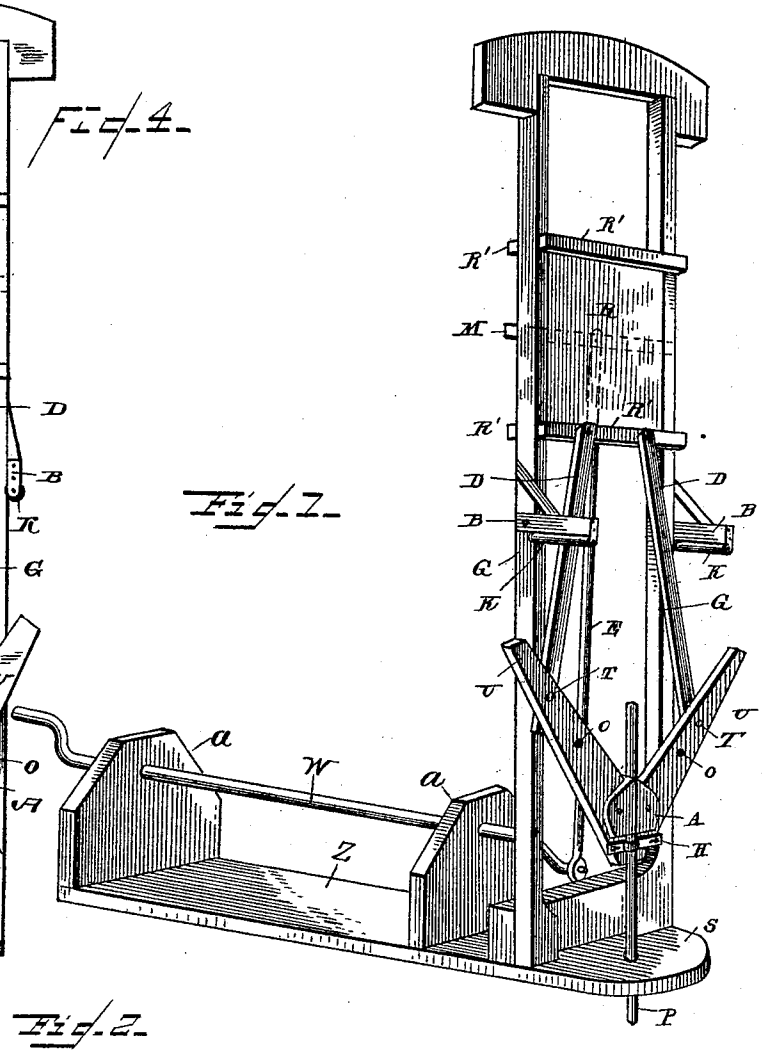


Fig. 2.

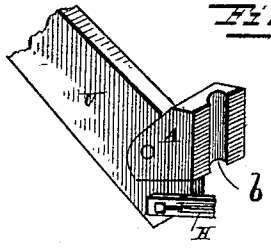
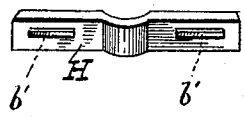


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

GAVEN D. ANDERSON, OF SIGOURNEY, IOWA.

AUTOMATIC FRICTION-CLUTCH FOR WORKING DRILLS.

SPECIFICATION forming part of Letters Patent No. 389,997, dated September 25, 1888.

Application filed March 12, 1887. Serial No. 230,670. (No model.)

To all whom it may concern:

Be it known that I, GAVEN D. ANDERSON, of Sigourney, in the county of Keokuk, State of Iowa, have invented certain new and useful Improvements in Automatic Friction-Clutches for Working Prospect-Drills in Boring for Minerals or Water; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to improvements in clutches and operating mechanism for drills; and it consists in the construction, novel arrangement, and adaptation of devices, as will be hereinafter more fully set forth and claimed.

In the accompanying drawings, Figure 1 is a perspective view of my improved apparatus. Fig. 2 is a view of one of the clutch-jaws with a portion of the lever attached, and Fig. 3 is a perspective view of the slotted adjusting strap. Fig. 4 is a front view.

Referring by letter to the said drawings, Z indicates a horizontal frame, which is provided with standards *a a*, for supporting the operating crank-shaft W. This frame has its forward end extended and provided with a vertical guide-eye for the drill-rod, as shown. Near the forward end of this horizontal frame I mount a vertical guide-frame composed of two parallel posts, G G, which are braced at their upper and lower ends by means of cross-bars, as shown.

R indicates a vertically-reciprocating frame, which I have shown with cross-bars notched at their ends to receive the vertical posts G G, which latter serve as guides for the said reciprocating frame.

The shaft W is shown with a crank-handle on its outer end, by which the same may be turned by hand or other suitable power, and this shaft is also cranked at its opposite end, which is connected with the frame R by means of a pitman, E. It will thus be seen that as power is applied to the shaft W it will be imparted to the frame R by means of the pitman and the said frame moved vertically to operate the drill, as will be presently explained.

A indicates the clutch-jaws, which are provided on their biting or engaging faces with vertical grooves *b*. To these jaws A are secured two converging arms, U, and these arms are each provided with perforations for attachment with arms D D. The object of the perforations in the arms U is to adapt the device to drills of various diameters. It is obvious that when a very large drill is used the connections of the arms D with the arms U must be moved inwardly or in the direction of each other, so that the said arms D will not engage the triggers in their reciprocating movement, the said levers U being moved outwardly by the introduction of the large drill between them. These arms D are pivotally connected at their upper ends with the reciprocating frame R, the said arms being also pivoted to the converging levers or arms U U.

B B indicate triggers, which are secured to the uprights G at opposite points and are parallel to each other. These trigger-arms are braced by means of angular braces, as shown, and may be adjustably secured to the uprights at a suitable point, according to the stroke required for the drill. In the lower sides of these triggers I journal rollers K, which are designed to engage the upper sides of the converging arms when raised.

H indicates a connecting-strap for these levers or arms U. This strap is grooved on its inner side, about midway of its length, to permit the introduction of the drill-rod, and it is slotted longitudinally near opposite ends, as indicated at *b'*. This strap is designed to pivotally connect the converging levers U, near their lower ends, and by means of the slots it will be seen that the jaws may be adapted to engage rods of various sizes.

It will be seen by reference to Fig. 2 of the drawings that clutch-jaws A are so secured to the levers that when the latter are engaged by the rollers K they will disengage themselves from the drill-rod and allow it to drop. This occurs when the drill has been raised to the proper height.

Having described this invention, what I claim is—

The combination, with a vertically-reciprocating frame, of clutch-jaws having converging arms, pivoted arms connecting the converging arms with the reciprocating frame, triggers having friction-rollers to engage the said converging arms, and a slotted strap connecting the clutch-jaws, substantially as specified.

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

GAVEN D. ANDERSON.

Witnesses:

WM. A. BELL,

J. CLUBB.