No. 843,144. PATENTED FEB. 5, 1907.

F. E. GLAZE.

# LOCK FOR FEED SCREWS FOR ROCK DRILLING ENGINES.

APPLICATION FILED MAR. 16, 1906.

Fig. 1.

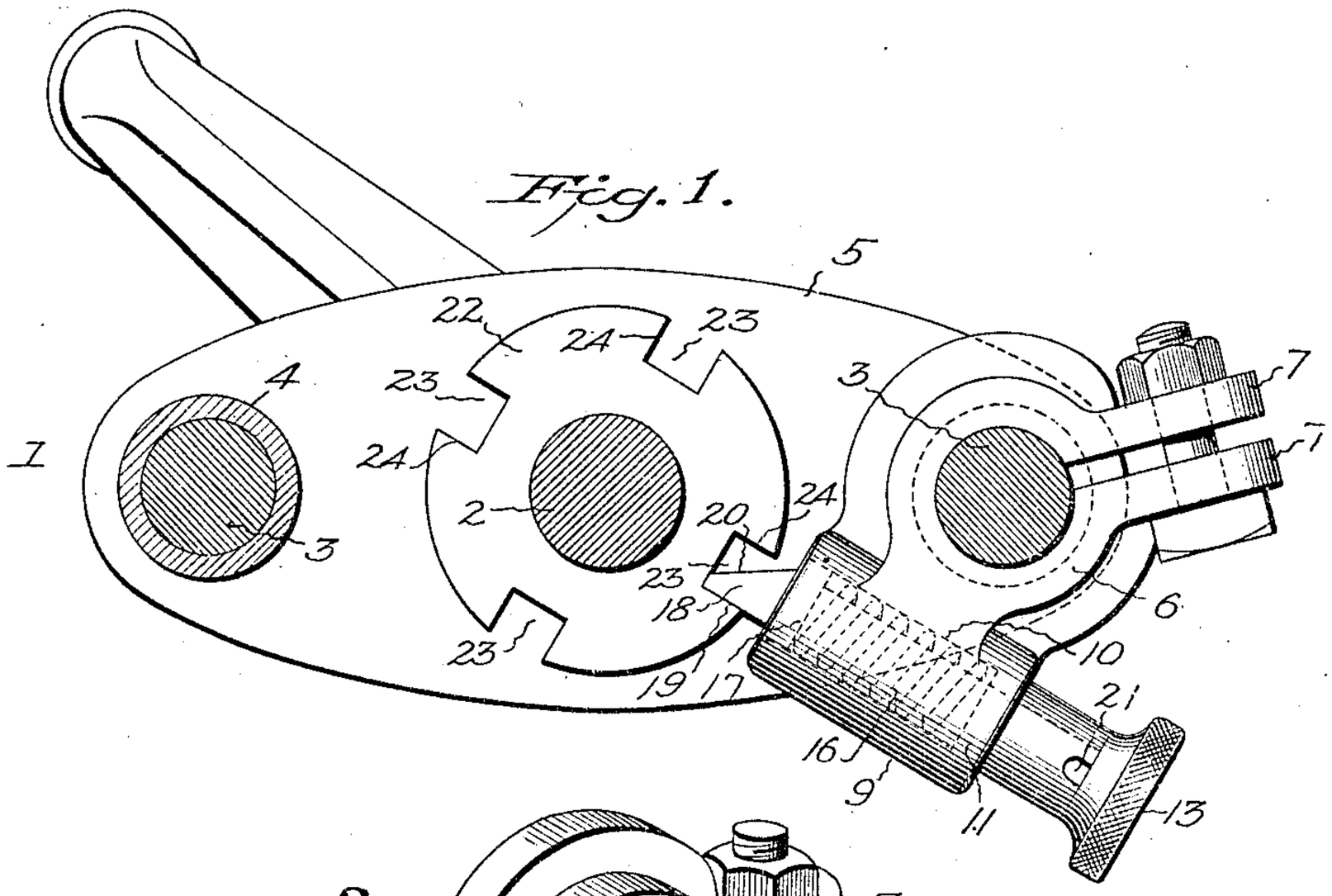



Fig. 2.

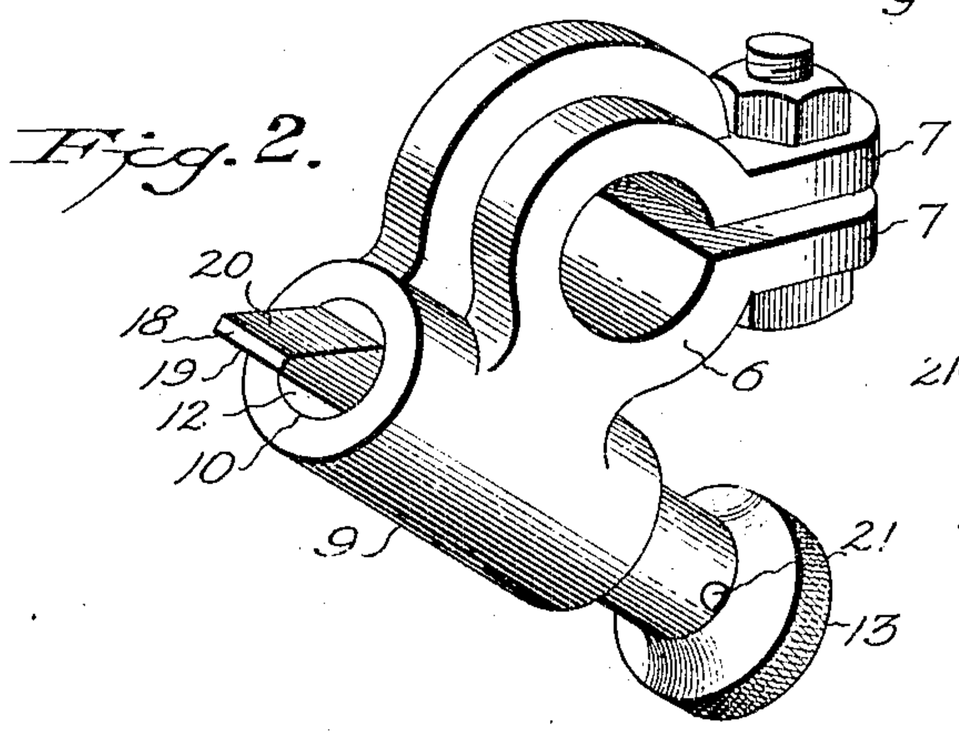
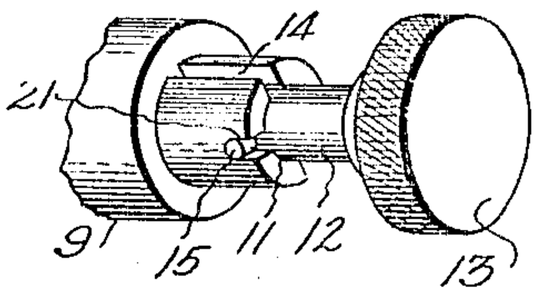



Fig. 3.

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# UNITED STATES PATENT OFFICE.

FREDERICK E. GLAZE, OF VICTOR, COLORADO.

## LOCK FOR FEED-SCREWS FOR ROCK-DRILLING ENGINES.

No. 843,144. Specification of Letters Patent. Patented Feb. 5, 1907.

Application filed March 16, 1906. Serial No. 306,403.

*To all whom it may concern:*

Be it known that I, FREDERICK E. GLAZE, a citizen of the United States of America, residing at Victor, county of Teller, and State of Colorado, have invented a new and useful Lock for Feed-Screws for Rock-Drilling Engines, of which the following is a specification.

My invention relates to improvements in devices for locking the feed-screws of rock-drilling engines against accidental movement due to the pull or weight thereon of the drill-cylinder; and the object of my invention is to provide a simple and effective lock for locking the feed-screws of rock-drilling engines against accidental movement when they are not in operation drilling rock, and my device is especially adapted for use in drilling either up or down holes, but especially up holes. When drilling these holes, if the feed-screws are not locked against rotative movement the weight of the drill-cylinder and piston-plunger will cause the feed-screw to rotate, and the cylinder will run down in its guideways to the end of its feeding movement and will necessitate being fed back to the point desired. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view through a rock-drilling machine showing a lock which is detachably connected to one of the side rods, so as to be applicable to machines not having an integral housing. Fig. 2 is a perspective view of the detachable lock, and Fig. 3 is a fragmental perspective view showing the latch withdrawn and held out of engagement with the notched shoulder of the screw.

Similar numerals of reference refer to similar parts throughout the several views.

Referring to the drawings, the numeral 1 designates the fragment of the rear end of a rock-drilling engine, showing the feed-screw 2, its supports, which comprise the side rods 3 and their tubes 4, and the cross-yoke 5. The lock is made independent of the drilling-engine and is attached to it.

I will describe my improved lock as I construct it for application to drilling-engines already in use.

The body of my lock consists of a circular-shaped hub 6, having an axial aperture formed to fit one of the side rods of the drill, and an extending portion 7 is split to form a clamping-sleeve, through the ends of which a bolt is passed to clamp it to the side rod. I place this hub on the side rod close to the yoke, and in order to do this I remove one of the tubes 4 and cut enough off of its end to make room for the hub. The hub is then held on the rod between the end of the tube and the yoke and is clamped to the rod by its split portion. The hub of the lock is provided with a lug 9, which projects from the lower surface from its split clamp portion. I form a chamber 10 in this lug, which extends into its farthest end from its split clamping portion. This chamber extends to near the opposite end of the lug, where a square-bottom shoulder is formed, and through this shoulder and the opposite end of the lug, which is reduced in size, a smaller aperture 11 is formed, in which a pawl-stem 12 fits slidably. This pawl-stem extends beyond the lug, and a finger-disk 13 is secured to it. The reduced end of this lug 9 is provided with a slot 14 wide enough to receive loosely a pin 15, which is placed through the stem and normally stands against the bottom of the slot, it being held there by the resilient tension of a spring 16, which is placed in the chamber of the lug and is held there by a shoulder 17, formed on the outer end of the stem at the end of the lug. The stem extends beyond this shoulder, and its terminal end is formed into a pawl 18, the face 19 of which is straight, and its other side 20 slopes at an angle backward. In the end of the lug adjacent to the finger-disk I place a notch 21, arranging it at right angles to the slot 14, which is a seat for the pin 15 when it is pulled back and it is desired to lock the pin in a retracted position, as will be explained more fully hereinafter. The feed-screw is always provided with a collar 22, which forms an abutting shoulder against the yoke 5, through which the end of the feed-screw passes to the crank. The lock is positioned on one of the rods opposite this collar, and in the peripheral surface of the collar I cut at equal distances apart a plurality of notches 23, which are adapted to receive the pawl, which is held normally in them by the resilient pressure of its spring 16.

The operation of this form of my improved feed-screw lock is as follows: When the pawl is in the notches of the collar, as shown in Fig. 3, the feed-screw and the drill-cylinder are locked against accidental retraction, and the feed-screw is free to be rotated to feed the drill-cylinder forward. When it is desired to turn the feed-screw to move the drill-

cylinder backward, the operator takes hold of the finger-disk and draws the pawl-stem backward until the pin 15 has moved out of the slot 14 to the end of the lug, when he turns the pawl-stem around and drops the pin into the notch 21. The pawl is then locked out of engagement with the ratchet-disk. In case it is desired to lock the feed-screw, so that it can be fed backward and not be fed forward, the pawl-stem is turned completely around, so that its face 19 engages the side 24 of the notches, which locks the feed-screw, so that it can be fed backward by the crank, but not forward. The pawl is shaped so that the notches of the collar of the feed-screw will rotate easily with it in mesh with them in the opposite direction from its face.

My invention is simple, durable, and in practical use has proven to be a valuable attachment for rock-drilling engines.

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

1. In a lock for feed-screws, for rock-drilling engines, the combination with the yoke and the side rods, of the feed-screw having a collar abutting against said yoke, with a plurality of square notches, a split hub arranged to be removably secured to one of said side rods, a lug in said hub, a pawl-stem extending loosely through said hub and rotatably mounted therein, a spring surrounding said pawl-stem in said chamber, and arranged to hold it in one direction of its movement in engagement with said notches in said collar, a recess in the end of said lug, a pin extending through said stem and seated in said recess, a finger-disk on the end of said stem, a notch in the end of said lug in which to seat said pin when it is withdrawn from said recess, and its pawl end is reversed relative to said notches, as specified.

2. In a lock for feed-screws of rock-drills, the combination with the yoke, the side rods and tubes and the feed-screw, having a yoke-abutting collar, said collar being provided with ratchet-notches, of the split clamping-hub removably clamped to one of said rods, the pawl-stem support, the pawl-stem rotatably mounted in said support, the pawl on one end of said pawl-stem, the finger-disk on its opposite end, the spring surrounding said pawl-stem within said support, the pin and recess for defining the position of said pawl relative to said notches, and the notch for locking said pawl out of engagement with the notches of said feed-screw's collar, as specified.

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

FREDERICK E. GLAZE.

Witnesses:
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