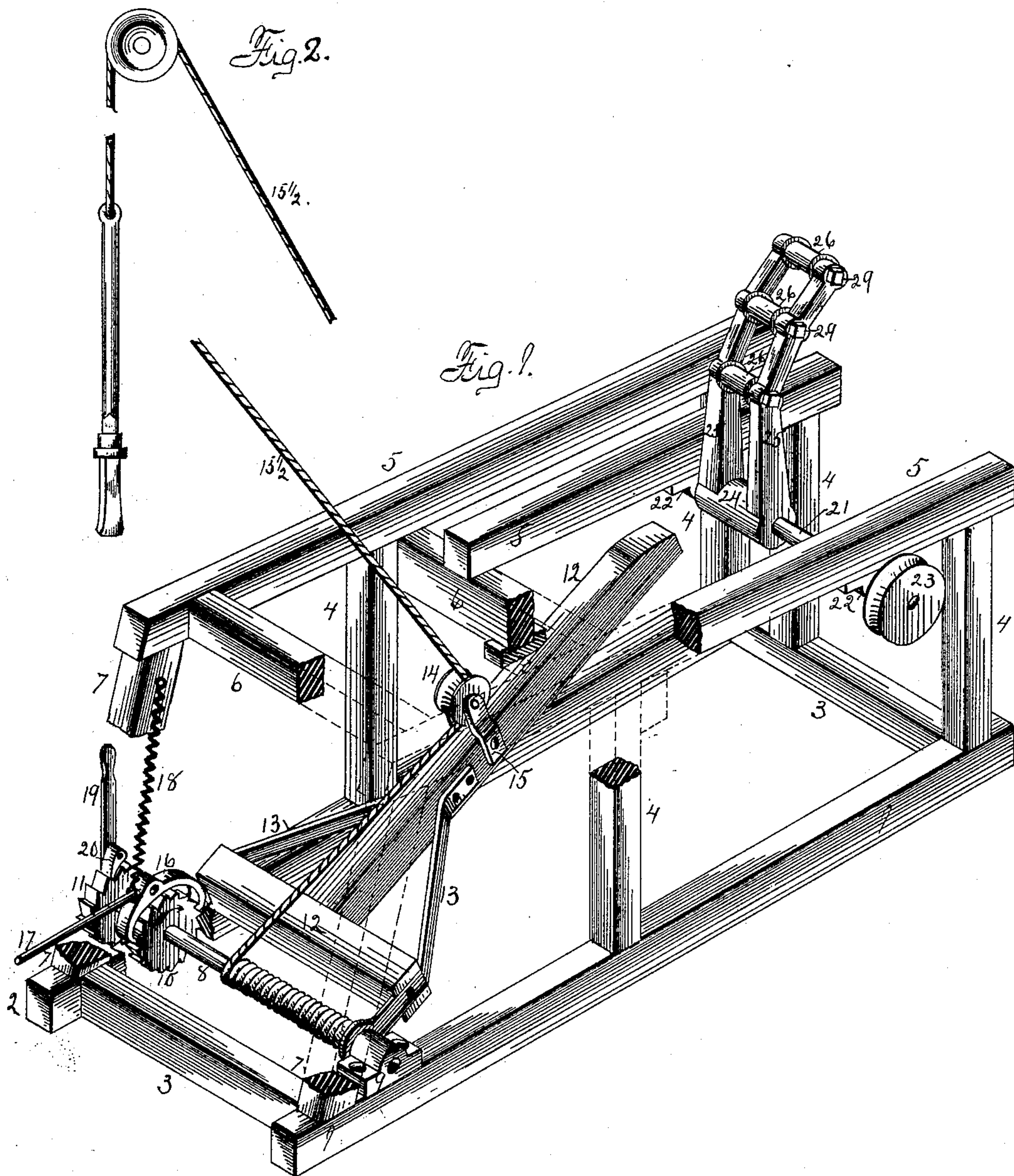


(No Model.)

H. B. UTTER.  
ROCK DRILLING MACHINE.

No. 411,078.

Patented Sept. 17, 1889.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

HORACE B. UTTER, OF ROCKFORD, ILLINOIS.

## ROCK-DRILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 411,078, dated September 17, 1889.

Application filed January 28, 1889. Serial No. 297,860. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE B. UTTER, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Well-Drilling Machines, of which the following is a specification.

The object of this invention is to construct an escapement mechanism by means of which the workings of the drill after being lowered may be regulated.

In the accompanying drawings, Figure 1 is an isometrical representation of a portion of a drilling-machine with parts broken away to more clearly show my improvements. Fig. 2 shows a drill with a section of rope.

The frame of the drilling-machine is substantially the same as the frame heretofore in use, consisting of the bottom sills 1 and 2, connected by cross-sills 3, vertical posts 4, supporting the top frame composed of the lengthwise beams 5 and cross-beams 6. Inclined posts 7 also serve as supports for the top frame.

A horizontal shaft 8 is supported in bearings 9 upon the lower sills 1 and 2 of the frame. On each side of the bearings, mounted upon sills 2, are two ratchet-wheels 10 and 11, connected with the shaft 8, and moving therewith.

A treadle 12 has a pivotal connection with the shaft 8 by means of the brace-arms 13. About midway of the length of the treadle is secured a sheave 14 by the supports 15 on each side of the sheave.

A rope or chain 15½ is secured at one end to the shaft 8, and is wound thereon. Its free end passes under the sheave 14, and connects with the drill in the usual manner.

A pallet 16 has a pivotal connection with the main frame. The ends of the pallet engage the teeth of the ratchet-toothed wheel 10. A lever 17 is connected with the pallet, by means of which the wheel 10 can be operated.

A spring 18 is connected at one end with the lever 17, and its other end with the main frame. The action of this spring is to hold one end of the pallet in engagement with the teeth of the wheel 10, thereby preventing the

unwinding of the rope or chain from the shaft 8.

By an up and down movement of the lever 17, carrying the pallet 16 with it, the ends of the pallet will alternately engage the teeth of the wheel 10, causing it to move step by step in the direction indicated by the arrow, and consequently paying out the rope or chain to lower the drill as may be required.

A lever 19 has a pivotal connection around the shaft 8. This lever carries a pawl 20, which engages the teeth of wheel 11. By means of this lever and the pawl engaging the teeth of the wheel 11 the drill may be raised by winding the rope or chain upon the shaft 8, and the pallet 16 will act as a dog, preventing the unwinding of the rope.

The object of the escapement in connection with the take-up device is to properly adjust the drill to its best working depth after the drill has been lowered.

A shaft 21 is supported to revolve in bearings 22.

A pulley 23 is secured to the shaft outside of the main frame. Motion is imparted to this pulley by a belt or other means connecting it with a prime mover.

The cam used for operating the treadle is mounted on the shaft 21, and revolves therewith, and consists of a hub 24, parallel arms 25, radiating from the hub, and rollers 26, held in place between the parallel arms by bolts 29.

I claim as my invention—

1. In a drilling-machine, the combination, with a drilling attachment, of a lowering device to said attachment, consisting of a ratchet-wheel, a pallet, an operating-handle attached to the pallet, and a spring connected with the pallet, the tension of the spring tending to hold the operating-handle raised and the advanced tooth of the pallet in engagement with the ratchet-wheel, substantially as set forth.

2. In a drilling-machine, the combination, with the main frame, of a rope-shaft journaled therein, two ratchet-wheels keyed to the rope-shaft, a ratchet-lever for engaging one of said ratchet-wheels to wind the rope about the shaft, a pallet engaging the other

ratchet-wheel for letting out rope, and provided with an operating-handle, an operating-lever pivoted about said shaft, a sheave engaged with said lever, a rope wound about  
5 the rope-shaft, passed around the sheave, and provided with a drilling-tool, a main drive-shaft journaled in the opposite end of said

main frame, and a cam upon said shaft for depressing the said operating-lever, substantially as set forth.

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