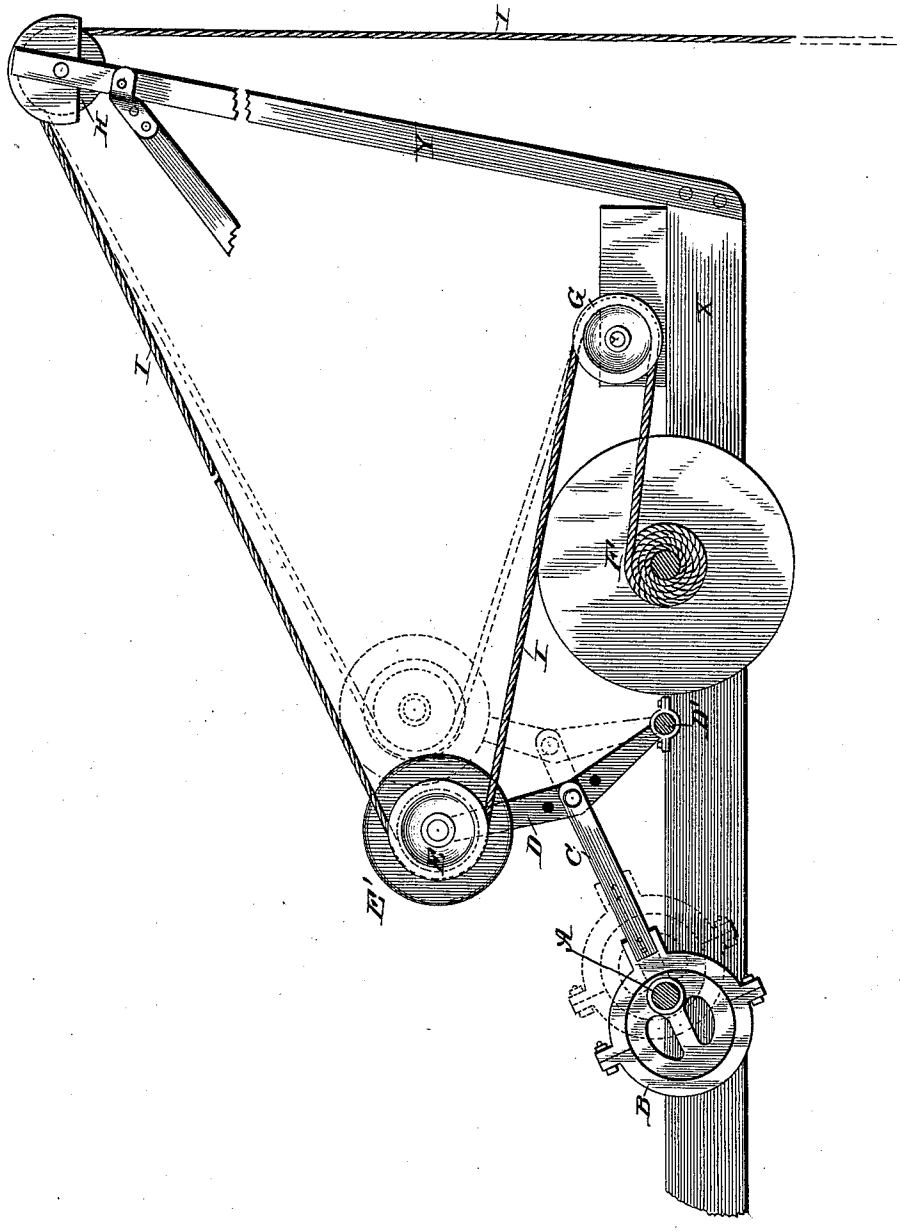
(No Model.)

J. W. MILLER.

DRILL OPERATING DEVICE.

No. 420,692. Patented Feb. 4, 1890.



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UNITED STATES PATENT OFFICE.

JOHN W. MILLER, OF NEWTON FALLS, OHIO.

DRILL-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 420,692, dated February 4, 1890.

Application filed October 22, 1889. Serial No. 327,869. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. MILLER, of Newton Falls, in the county of Trumbull and State of Ohio, have invented a new and useful Improvement in Drill-Operating Devices, of which the following is a specification.

My invention is in the nature of an improved mechanism for operating well-drills with an up-and-down motion; and it consists in the peculiar construction and arrangement of a pulley caught in a bight or loop of the drill-rope, an oscillating lever upon which the pulley is mounted, and an eccentric for working said lever, as will be hereinafter fully described.

The figure is a side elevation of so much of the operating parts of a drilling-machine as is necessary to illustrate my invention.

X represents the main frame of the drilling-machine, which at one end has a derrick Y. Upon the main frame is arranged in suitable bearings a transverse drive-shaft A, which is rotated by an engine by any suitable connections. Upon this shaft is fixed an eccentric and strap B, to which is fastened a bar C. The other end of this bar is jointed to the crooked lever D, which is rigidly connected at its lower end to a rock-shaft D′, journaled in bearings on the main frame.

E is a deeply-grooved sheave-pulley, which is journaled upon an axis at the upper end of the lever D. This pulley is adapted to receive the drill-rope, and has on one side of it a wide flange E′, which serves to guide and steady the rope and prevent it from being dislodged from or whipped out of the groove of the pulley by the cumulative vibrations of the rope.

G is a guide-pulley for the rope, and F is the windlass upon which the rope is wound.

The drill-rope I passes over a pulley H at the top of the derrick and has one end attached to the drill or other tool, and the other end passes around the sheave-pulley E, thence around the guide-pulley G, and thence passes to the windlass F. When the drive-shaft A is rotated, the eccentric B and rod C cause the lever D to oscillate about its rock-shaft and move the pulley E back and forth, as shown by the dotted lines. As this pulley is caught in the bight of the drill-rope, it will be seen that the drill-rope is quickly pulled in and alternately paid out, so as to operate the drill. The purpose of pulley G is to keep the drill-rope always in the proper plane of the pulley E, so that it may not be thrown off the pulley or chafed by an angular position.

Instead of using an eccentric B, a crank may be used as an equivalent device.

Having thus described my invention, what I claim as new is—

1. The combination, with the horizontal frame X, carrying drive-shaft A, windlass F, and guide-pulley G, of the upright lever D, fulcrumed at its lower end upon the horizontal frame between the drive-shaft and the windlass and carrying a grooved pulley at its upper end, with the rope extending from the same to the guide-pulley, and an eccentric and rod B C, connecting the drive-shaft directly to the middle portion of the upright lever, substantially as shown and described.

2. The combination, in a drilling-machine, with the drilling-rope, of a vibrating lever D, having a pulley E at its end provided with a deeply-grooved periphery, and having also on one side of this pulley a wide concentric flange E′, extending beyond the periphery of the pulley to steady the rope and prevent the lateral whipping action of the same when being acted upon by the said pulley, substantially as shown and described.

JOHN W. MILLER.

Witnesses:
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