(No Model.)

G. H. SUMMERS, A. J. KINGS & L. Q. HARDESTY.

DRILL OPERATING DEVICE.

No. 473,201. Patented Apr. 19, 1892.

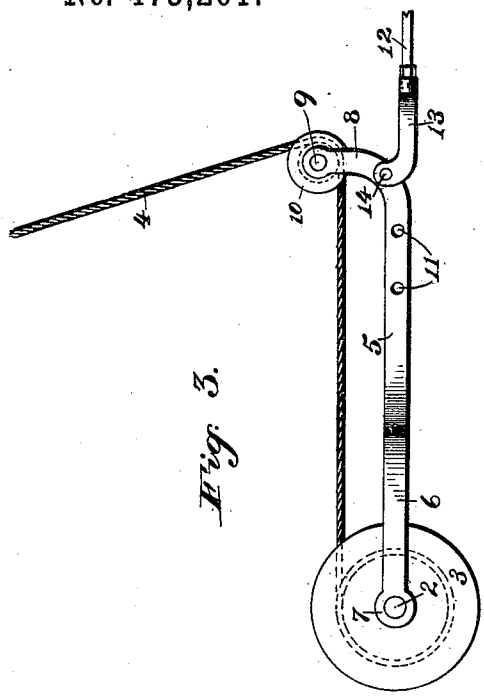

Fig. 3.

Fig. 1.

Fig. 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE H. SUMMERS, ANDREW J. KINGS, AND LORIN Q. HARDESTY, OF MITCHELL, SOUTH DAKOTA.

DRILL-OPERATING DEVICE.

SPECIFICATION forming part of Letters Patent No. 473,201, dated April 19, 1892.

Application filed June 30, 1891. Serial No. 398,049. (No model.)

To all whom it may concern:

Be it known that we, GEORGE H. SUMMERS, ANDREW J. KINGS, and LORIN Q. HARDESTY, citizens of the United States, residing at Mitchell, in the county of Davison and State of South Dakota, have invented a new and useful Drill-Operating Device, of which the following is a specification.

This invention relates to a drill elevating and releasing device for use in connection with well-boring and pile-driving machines, and commonly called "spudders," the objects in view being to provide a cheap and simple mechanism adapted to be operated by the drill mechanism and to elevate and release the drill-rod, so as to perform its function without subjecting either itself or the drill-machine to sudden strains, twists, &c., as caused by the sudden checking or movements of the rod.

Other objects and advantages of the invention will appear in the following description; and the invention consists in certain features of construction hereinafter specified, and particularly pointed out in the claim.

Referring to the drawings, Figure 1 is an elevation of a spudder attachment constructed in accordance with our invention. Fig. 2 is an end elevation. Fig. 3 is a view similar to Fig. 1, the attachment being drawn back and in the act of elevating the drill-rod.

Like numerals of reference indicate like parts in all the figures of the drawings.

In a suitable frame 1, provided with a transverse shaft 2, there is mounted upon the shaft a drum 3, around which the drill-rope 4 is adapted to pass, or the shaft 2 may serve as the drum.

5 designates a lever, the lower end of which is bifurcated, as at 6, which bifurcations are diverged to loosely embrace or straddle the drum 3, and terminate in eyes 7, which loosely receive the shaft 2. The lever 5 is of bell-crank shape, and at its upper end is provided with a lateral branch 8, also bifurcated, and receiving the shaft 9 of a pulley 10, the annular groove of which is quite deep. Immediately above its bifurcation the lever 5 is provided with a series of perforations 11.

12 designates a pitman or other connecting device, such as a rope, &c., which in this instance is bolted securely at one end to a clevis 13, bifurcated and embracing the lever 5, and pivotally connected thereto by a bolt 14, removably passed through the lever and the clevis and adapted to adjustably connect the latter upon the former by being inserted into any one of the adjusting-holes 11. The opposite end of the pitman may be connected to any driving portion of a mining-machine—such as, for instance, an eccentric and other devices.

In operation the rope is wound upon the drum and passes up in rear of the pulley 10 and thence over an overhead pulley 16, located above the well, and down to the drill-rod. The drilling-machine being set in motion through the medium of the pitman 12, at each stroke of the machine draws the lever 5 back to the position shown in Fig. 3, and elevates the drill-rod by the withdrawl of the rope around the pulley 10. The elevation of the drill-rod and the subsequent falling of the same by its own weight draws off a sufficient quantity of rope from the drum, and as the movement of the drilling-machine continues, the lever is thrown back to its first position and subsequently returns, again elevates the drill-rod, permitting it to fall. In this manner the drill-rod is successfully operated, and no jarring whatever is caused by the fall of the drill, and consequently neither the attachment nor the machine is subject to the incessant and severe strain that would otherwise take place if the attachment were not employed.

The device of course may be employed in connection with any kind of drill-rod, either solid or hollow, and if the latter, suitable hydraulic mechanism for removing the cuttings will be employed.

Our invention can be used to advantage on pile-driving machines as well.

Having described our invention, what we claim is—

In an attachment of the class described, the combination, with the support, the transverse shaft, and the drum mounted thereon, of the lever 5, bifurcated at its lower end, as at 6, to

embrace the drum and having shaft-receiving eyes 7 and at its upper end bifurcated, the shaft 9, mounted therein, the pulley 10, mounted upon the shaft, the clevis 13, the bolt 14, and the drill-rope wound upon the drum and passed over the pulley 10, substantially as specified.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

GEORGE H. SUMMERS.
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Witnesses
A. X. REGAN,
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