C. C. HANSEN.

ROCK DRILLING MACHINE.

APPLICATION FILED SEPT. 9, 1910.

1,097,225.

Patented May 19, 1914.

2 SHEETS—SHEET 1.

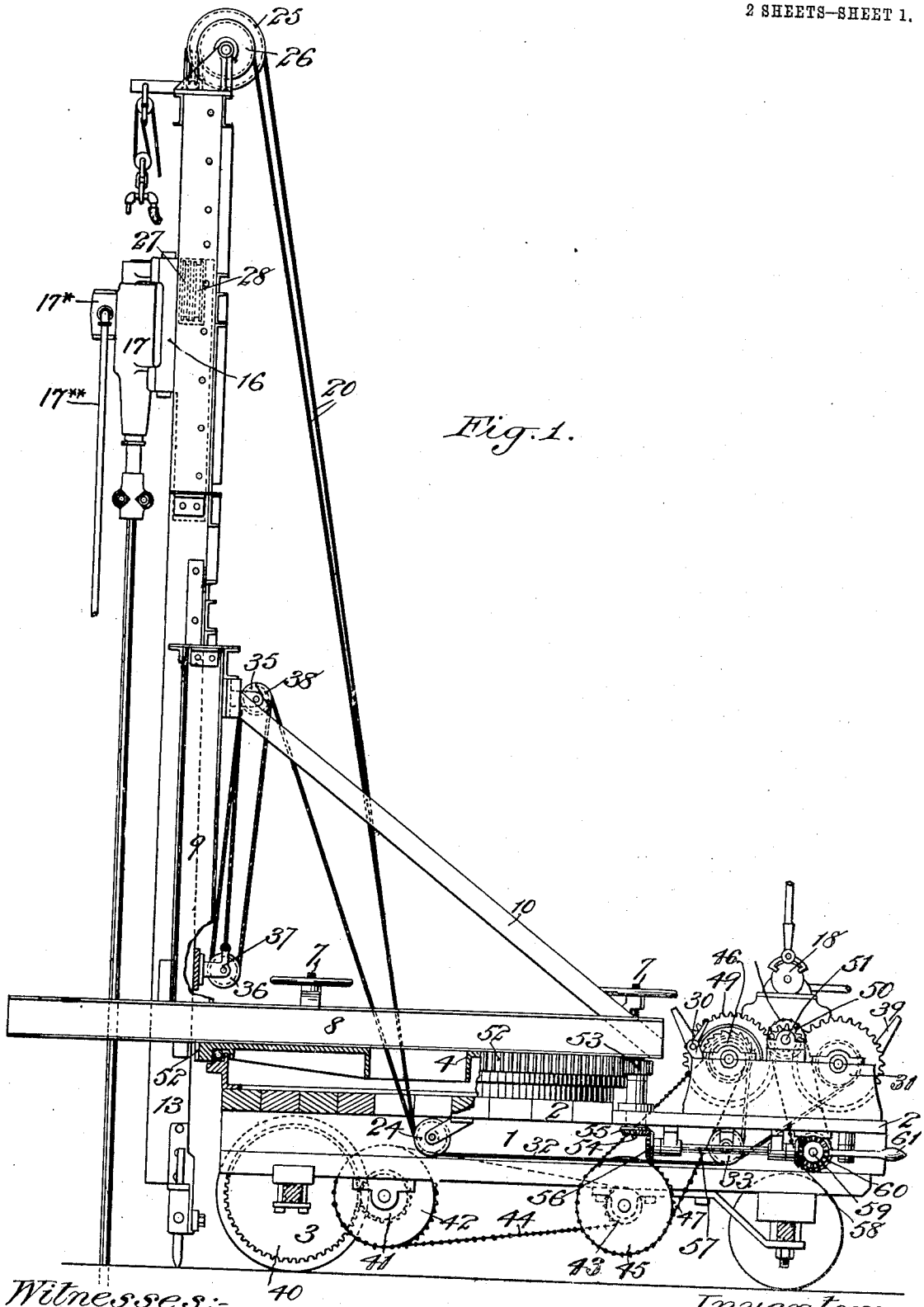


Fig. 1.

Witnesses:-
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Inventor:
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2 SHEETS—SHEET 2.

Fig. 2.

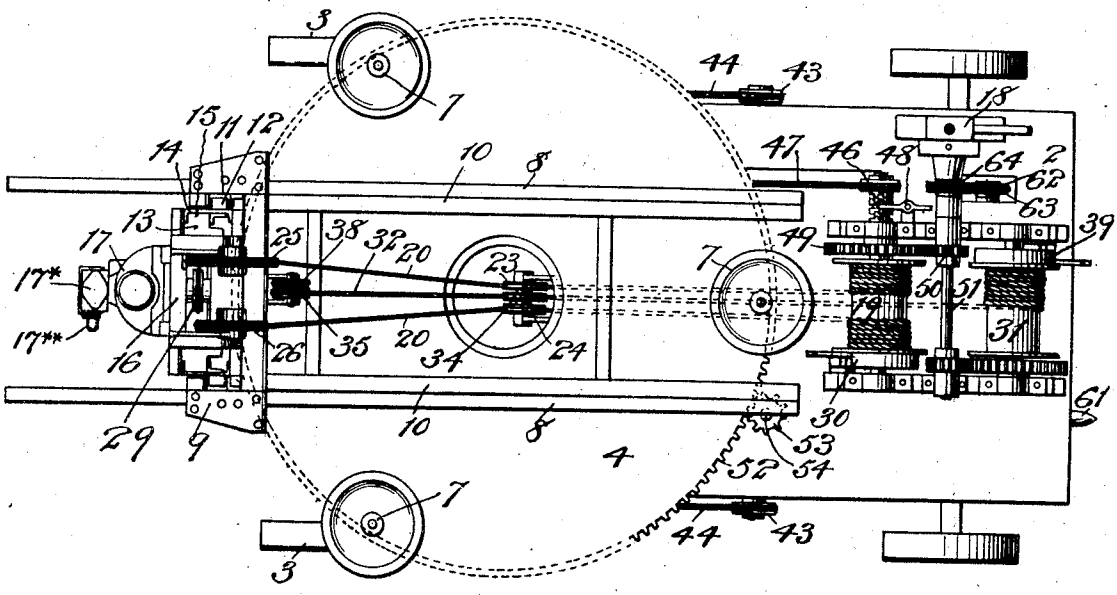
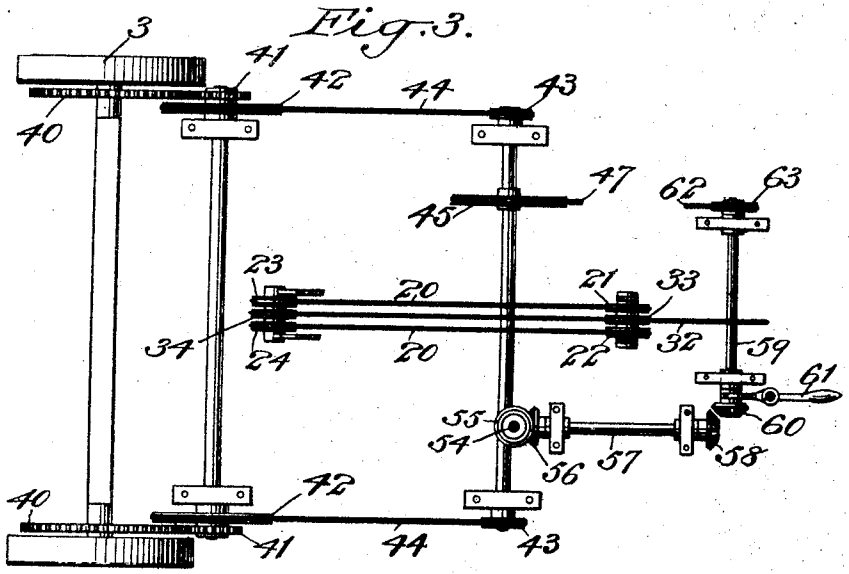


Fig. 3.



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UNITED STATES PATENT OFFICE.

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ROCK-DRILLING MACHINE.

1,097,225. Specification of Letters Patent. Patented May 19, 1914.

Application filed September 9, 1910. Serial No. 581,199.

To all whom it may concern:

Be it known that I, CHARLES C. HANSEN, a citizen of the United States, and resident of Easton, in the county of Northampton and State of Pennsylvania, have invented new and useful Improvements in Rock-Drilling Machines, of which the following is a specification.

This invention consists in certain improvements in rock drilling machines and comprises a suitable support, such, for instance, as a wagon, a main frame carried thereby, an auxiliary frame movable along the main frame intended to be lowered into engagement with the ground and a rock drill or other tool movable along the auxiliary frame toward and away from its work.

My invention further comprises a machine of the above character in which a turntable is provided for the main frame, the auxiliary frame and the tool whereby the parts may be swung around into different positions with respect to the support.

The object of my invention is to provide a very simple and effective means for operating the different parts.

In the accompanying drawings, Figure 1 shows the rock drilling machine partially in side elevation and partially in section, Fig. 2 is a top plan view of the same, and Fig. 3 is a horizontal section showing some of the connections between the common engine and the several parts controlled thereby.

A suitable support is provided, which support, in the present instance, comprises a wagon having a frame 1, a platform 2 and traction wheels 3. A turntable 4 is mounted upon a track 5 carried by the wagon platform 2, an annular series of balls 6 being interposed between the turntable and track forming a roller bearing for the turntable. Means are provided for locking the turntable in its different rotary positions, which means comprises, in the present instance, three clamps 7. A main frame uprises from the turntable 4, the base members of which frame are denoted by 8, the upright side members by 9 and the diagonal braces by 10. The side members 9 of this main frame are provided with vertical channels 11 for receiving longitudinally arranged bars 12 on the sides of an auxiliary frame 13 to permit the auxiliary frame to be moved upwardly and downwardly along the said main frame. The side members of this auxiliary frame 13 are provided with channels 14 for the reception of longitudinally arranged ribs 15 on the sides of the drill saddle 16 to permit the drill 17 to be moved upwardly and downwardly along the auxiliary frame. The rock drill 17 is operated in the usual manner by pressure fluid fed to the valve chest 17*, through the feed pipe 17**. In the present instance, the drill is fed by gravity to its work and the auxiliary frame is fed by gravity to its position resting upon the surface of the ground being bored.

Means are provided for lifting the drill and for lifting the auxiliary frame as follows:—A reversing hoisting engine 18 of any suitable type is mounted on the wagon platform 2. The winding drum 19 of this engine serves to wind and unwind a cable 20 leading under pulleys 21, 22, 23, 24, carried by the wagon; from thence upwardly through the center of the turntable 4, around pulleys 25, 26, on the auxiliary frame 13, from thence downwardly around pulleys 27, 28, on the drill saddle 16 and from thence upwardly around a pulley 29 on the said auxiliary frame 13. A combined friction brake and clutch 30 is provided for this winding drum 19. A second winding drum 31 is provided from which a cable 32 passes under pulleys 33, 34, on the wagon platform; thence upwardly through the center of the turntable 4 around a pulley 35 carried by the main frame; thence downwardly around a pulley 36 carried by a bracket 37 on the auxiliary frame 13. This cable then leads upwardly around a second pulley 38 on the main frame and from thence downwardly where it is secured to the bracket 37 of the auxiliary frame. A combined brake and clutch 39 is provided for this winding drum 31. This engine 18 also serves as the driving means for propelling the wagon in either direction as follows:— One pair of traction wheels 3 is connected to the engine by providing gears 40, 41, sprockets 42, 43, chain 44; sprockets 45, 46 and chain 47. A manually operated clutch

48 is provided for connecting the sprocket wheel 46 to and releasing it from the gear 49 driven from the pinion 50 on the engine shaft 51. This engine 18 is also used for swinging the turntable 4 into its different positions as follows:—The turntable is provided around its periphery with teeth 52 which mesh with a pinion 53 carried by an upright shaft 54, which shaft has a bevel gear connection 55, 56, with a longitudinally arranged horizontal shaft 57. This shaft 57 is provided with a bevel gear 58 and a cross shaft 59 is provided with a bevel gear 60 which may be thrown into and out of engagement with the bevel gear 58 by means of a good lever 61. This shaft 59 is provided with a chain and sprocket connection 62, 63, 64, with the engine shaft 51. It will thus be seen that a common means are provided for propelling a wagon, swinging the turntable and controlling the movements of the auxiliary frame and for controlling the movements of the rock drill.

In operation, after the engine has been manipulated to bring the wagon to the desired point for carrying out the drilling operation, the engine is disconnected from the traction wheels and is connected to the turntable for swinging the turntable to the desired position. The clamps 7 may then lock the turntable in position. The engine may then be connected to the auxiliary frame hoisting drum and the clutch and brake operated to permit the auxiliary frame to drop down into position upon the ground in proximity to the hole to be bored. The engine may then be connected to the drill hoisting drum and the clutch and brake operated to feed the drill downwardly to its work.

When desired, the drill may be raised through the medium of the engine 18. The auxiliary frame may also be raised by the operation of the engine and the turntable swung to a different position for boring another hole or the wagon may be moved to another position for starting a new drilling operation.

While I have shown and described a rock drill as movable along the auxiliary frame, it is to be understood that any tool may be used without departing from the scope of my invention. It is also evident that various changes might be resorted to in the construction, form and arrangement of the several parts without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the structure herein set forth, but

What I claim is:—

1. A wagon, a turn-table thereon, a main frame uprising from the turn-table, an auxiliary frame movable along the main frame, a rock drill movable along the auxiliary frame, an engine mounted on the wagon, means for bringing the engine into driving connection with the wagon for propelling it and with the turn-table for swinging it, and means for operating the rock drill.

2. A wagon, a main frame carried thereby, an auxiliary frame movable along the main frame, a rock drill movable along the auxiliary frame, an engine mounted on the wagon, means for bringing the engine into driving connection with the wagon for propelling it and with the auxiliary frame for controlling its movements along the main frame, and means for operating the rock drill.

3. A wagon, a main frame carried thereby, an auxiliary frame movable along the main frame, a rock drill movable along the auxiliary frame, an engine mounted on the wagon, means for bringing the engine into driving connection with the wagon for propelling it and with the rock drill for controlling its movements along the auxiliary frame and means for operating the rock drill.

4. A wagon, a turn-table thereon, a main frame uprising from the turn-table, an auxiliary frame movable along the main frame, a rock drill movable along the auxiliary frame, an engine mounted on the wagon, means for bringing the engine into driving connection with the wagon for propelling it, with the turn-table for swinging it, and with the auxiliary frame for controlling its movements along the main frame, and means for operating the rock drill.

5. A wagon, a turn-table thereon, a main frame uprising therefrom, an auxiliary frame movable along the main frame, a rock drill movable along the auxiliary frame, an engine mounted on the wagon, means for bringing the engine into driving connection with the wagon for propelling it, with the turn-table for swinging it and with the rock drill for controlling its movements along the auxiliary frame, and means for operating the rock drill.

6. A wagon, a main frame carried thereby, an auxiliary frame movable along the main frame, a rock drill movable along the auxiliary frame, an engine mounted on the wagon, means for bringing the engine into driving connection with the wagon for propelling it, with the auxiliary frame for controlling its movements along the main frame and with the rock drill for controlling its movements along the auxiliary frame, and means for operating the rock drill.

7. A wagon, a turn-table thereon, a main frame uprising from the turn-table, an auxiliary frame movable along the main frame, a rock drill movable along the auxiliary frame, an engine mounted on the wagon, means for bringing the engine into driving connection with the wagon for propelling it, with the turn-table for swinging it, with

the auxiliary frame for controlling its movements along the main frame and with the rock drill for controlling its movements along the auxiliary frame, and means for operating the rock drill.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this first day of September 1910.

CHARLES C. HANSEN.

Witnesses:
F. GEORGE BARRY,
C. S. SUNDGREN.