

No. 729,043.

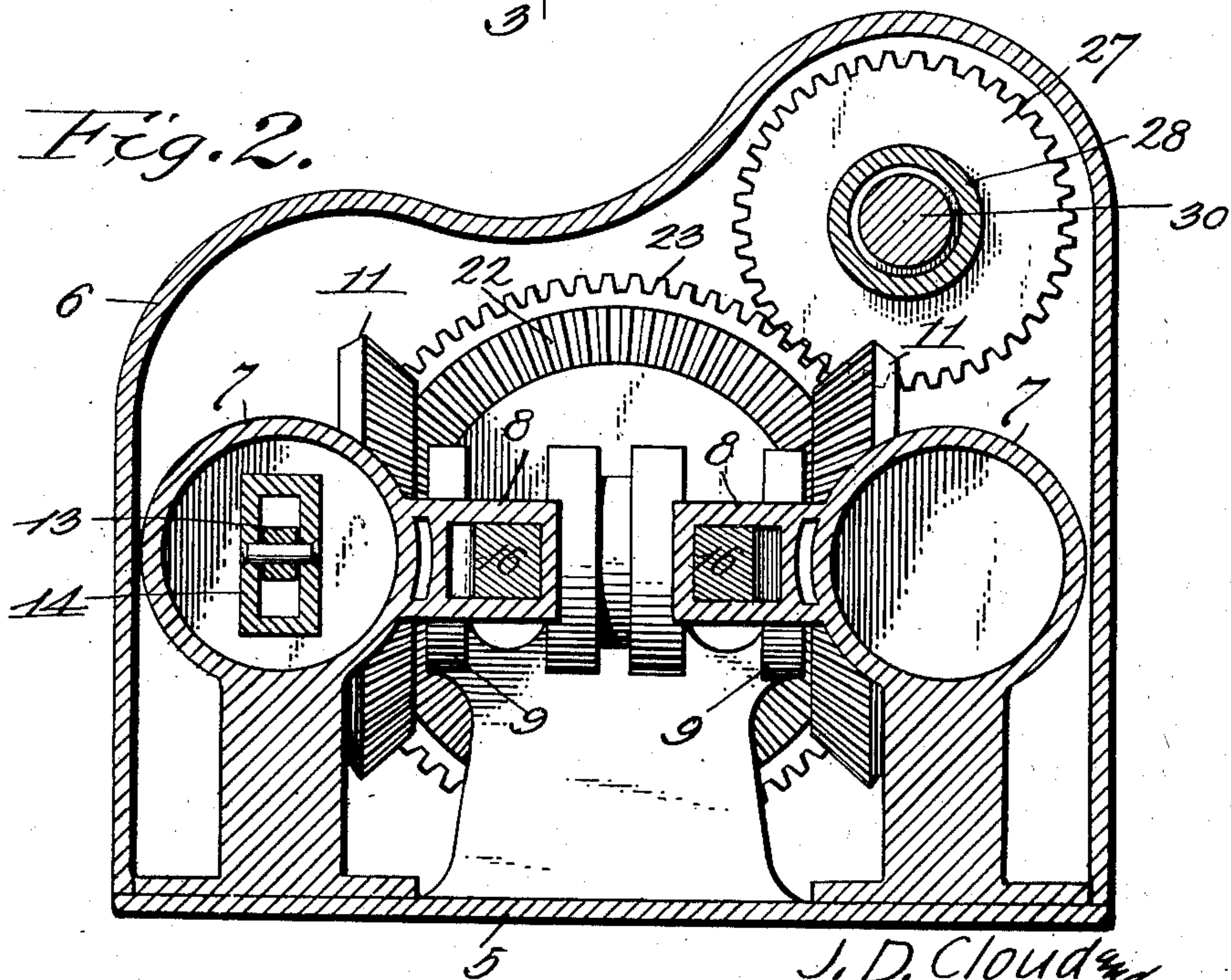
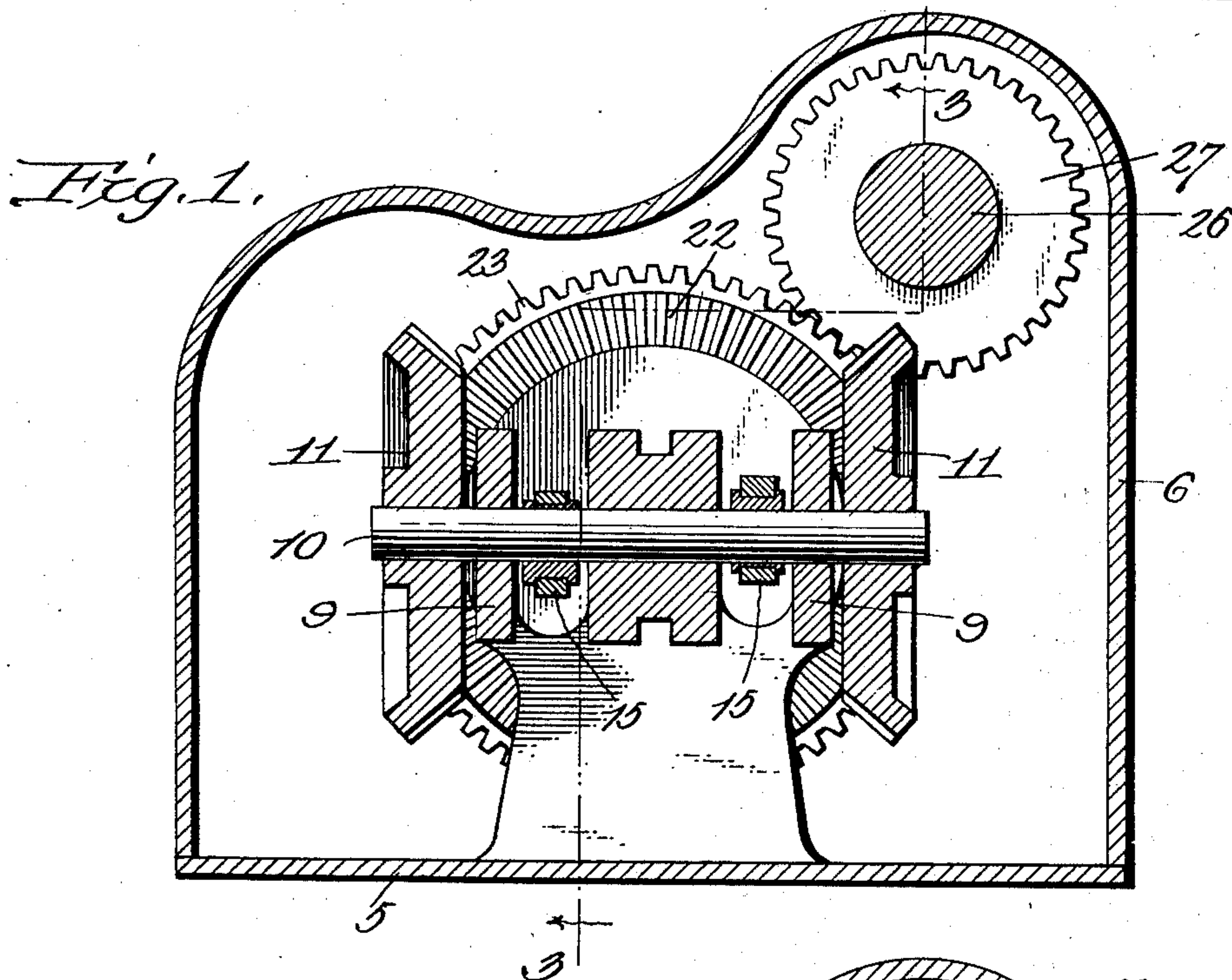
PATENTED MAY 26, 1903.

J. D. CLOUD & J. MARPLE.
DRILL OPERATING MECHANISM.

APPLICATION FILED SEPT. 23, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
E. K. Stewart,
John E. Parker

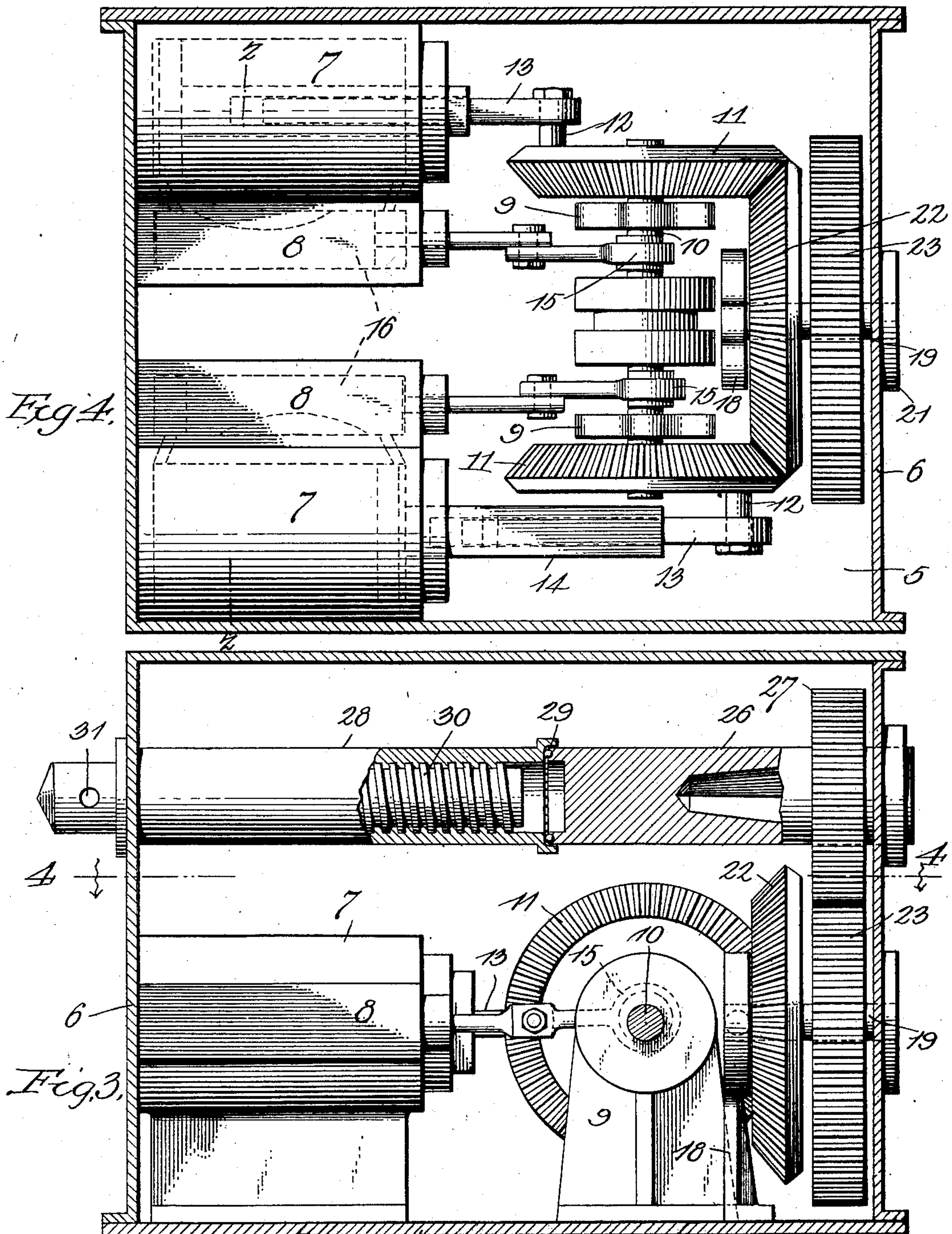
J. D. Cloud
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UNITED STATES PATENT OFFICE.

JOHN D. CLOUD, OF ROXBORO, PENNSYLVANIA, AND JOEL MARPLE, OF WESTVILLE, NEW JERSEY.

DRILL-OPERATING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 729,043, dated May 26, 1903.

Application filed September 23, 1902. Serial No. 124,592. (No model.)

To all whom it may concern:

Be it known that we, JOHN D. CLOUD, residing at Roxboro, Philadelphia, in the county of Philadelphia and State of Pennsylvania, and JOEL MARPLE, residing at Westville, in the county of Gloucester and State of New Jersey, citizens of the United States, have invented a new and useful Drill-Operating Mechanism, of which the following is a specification.

This invention relates to certain improvements in drills, and has for its principal object to provide an improved form of power-actuated drill which may be employed to drill holes at points close to an abutting wall or in a corner and other places where the ordinary form of drill cannot be successfully employed.

In drills as ordinarily made it is impossible to place the drill near enough to a wall to form a large opening close to the wall, the framework of the ordinary drill being generally too large and cumbersome to permit the adjustment of the drill within a distance less than two inches from a wall or other obstruction.

In carrying out the invention we have provided a strongly-braced and compact supporting-frame and arranged the drill-support in such manner as to permit of the adjustment of the drill close to a wall or corner, the frame while light and compact being of sufficient strength to resist all ordinary strains to which it is likely to be subjected.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claim, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a transverse sectional elevation of a drilling-machine constructed in accordance with the invention. Fig. 2 is a section of the same on the line 2 2 of Fig. 4. Fig. 3 is a longitudinal sectional elevation of the drill on the line 3 3 of Fig. 1. Fig. 4 is a sectional plan view of the same on the line 4 4 of Fig. 3.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The mechanism rests on a base-plate 5, to which is connected a housing or casing 6, completely inclosing all of the operative parts of the drill and forming a support for the several members of the device. The base-plate is formed integral with a pair of parallel cylinders 7 and valve-chests 8, all of which may be formed in a single casting with the bed-plate and a portion of the casing and then bored and finished in any suitable manner. The base-plate is further provided with standards 9, forming a support for a transversely-disposed shaft 10, which carries a bevel-gear 11 at each of its ends. The bevel-gears are provided with crank-pins 12, connected by rods 13 to pistons 14 in the two cylinders, the pistons being so arranged that when one is at the completion of its instroke the other is completing its outstroke, although the pistons may be so arranged as to keep the crank-pins spaced at ninety degrees from each other in order to prevent danger of stopping on a dead-center. The shaft 10 is further provided with eccentrics 15, connected in the usual manner to valves 16 in the chests 8 and controlling the admission of air or other actuating fluid to the cylinders. Secured to or formed integral with the base is a standard 18, provided with a bearing-opening for the reception of a short shaft 19, the opposite end of which is guided in a similar opening formed in the adjacent vertical portion of the frame 2, the frame being further strengthened at this point by an integral lug or boss 21. The shaft 19 carries a bevel-gear 22 and a gear-wheel 23, the teeth of the bevel-gear intermeshing with the teeth of both the piston-actuated gears 11 and receiving constant motion therefrom while actuating fluid is supplied to the cylinders. The casing is extended at one side to provide a support for the drill-shaft 26, said shaft being provided with a suitable socket for the reception of the drill and carrying a gear-wheel 27, which intermeshes with the revoluble gear 23. The vertical portion of the casing is provided with a bearing-opening for the passage of the drill-shaft, and longitudinal movement of said

shaft is prevented by an internally-threaded stationary nut 28, a suitable ball-bearing 29 being introduced between the end of the nut and the adjacent end of the drill-shaft to permit free rotative movement of the latter.

Fitting in the nut 28 is an adjusting-screw 30, having at its outer end a pointed portion adapted to fit against any suitable form of back piece, the screw being further provided with an opening 31 for the insertion of a suitable operating-tool for revolving the screw and adjusting the drill to the work.

As that portion of the frame or casing which supports the drill-shaft is offset and rounded in the manner indicated in Figs. 1 and 2, it is possible to adjust the drill close to a wall or other obstruction or to effect the drilling of a hole in a corner and at other points where power-driven drills cannot ordinarily be employed. The arrangement of the screws and bevel-gearing constitutes a practically rectangular frame capable of resisting all ordinary strains, while the several bearing-pieces being integral with the base-plate and the cylinder prevents the possibility of the movable members being twisted out of operative position to each other.

By removing the drill-socket and its gear the device may be used as a motor and quickly attached to any mechanism which it is desired to operate.

Having thus described the invention, what we claim is—

The combination in a drill, of a frame, a pair of cylinders secured to the frame, pistons disposed in said cylinders, a main shaft, bevel-gears carried thereby and having crank-pins connected to the pistons, a counter-shaft, a bevel-gear carried thereby and intermeshing with the two bevel-gears of the main shaft, a drill-spindle arranged at one corner of and in an offset portion of the frame, a pinion on said spindle, a gear-wheel carried by the counter-shaft and intermeshing with said pinion, a stationary sleeve carried by the frame in alinement with and bearing against the top of the drill-spindle, said sleeve being provided with an internal thread, a feed-screw engaging said thread and having its outer end extending beyond the line of the frame, and an inclosing casing forming part of the frame, said casing and frame being so arranged as to be relieved of the working pressure of the drill, substantially as specified.

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

JOHN D. CLOUD.
JOEL MARPLE.

Witnesses:

SALLIE M. ADAMS,
CHAS. E. PANCOAST.