

No. 892,409.

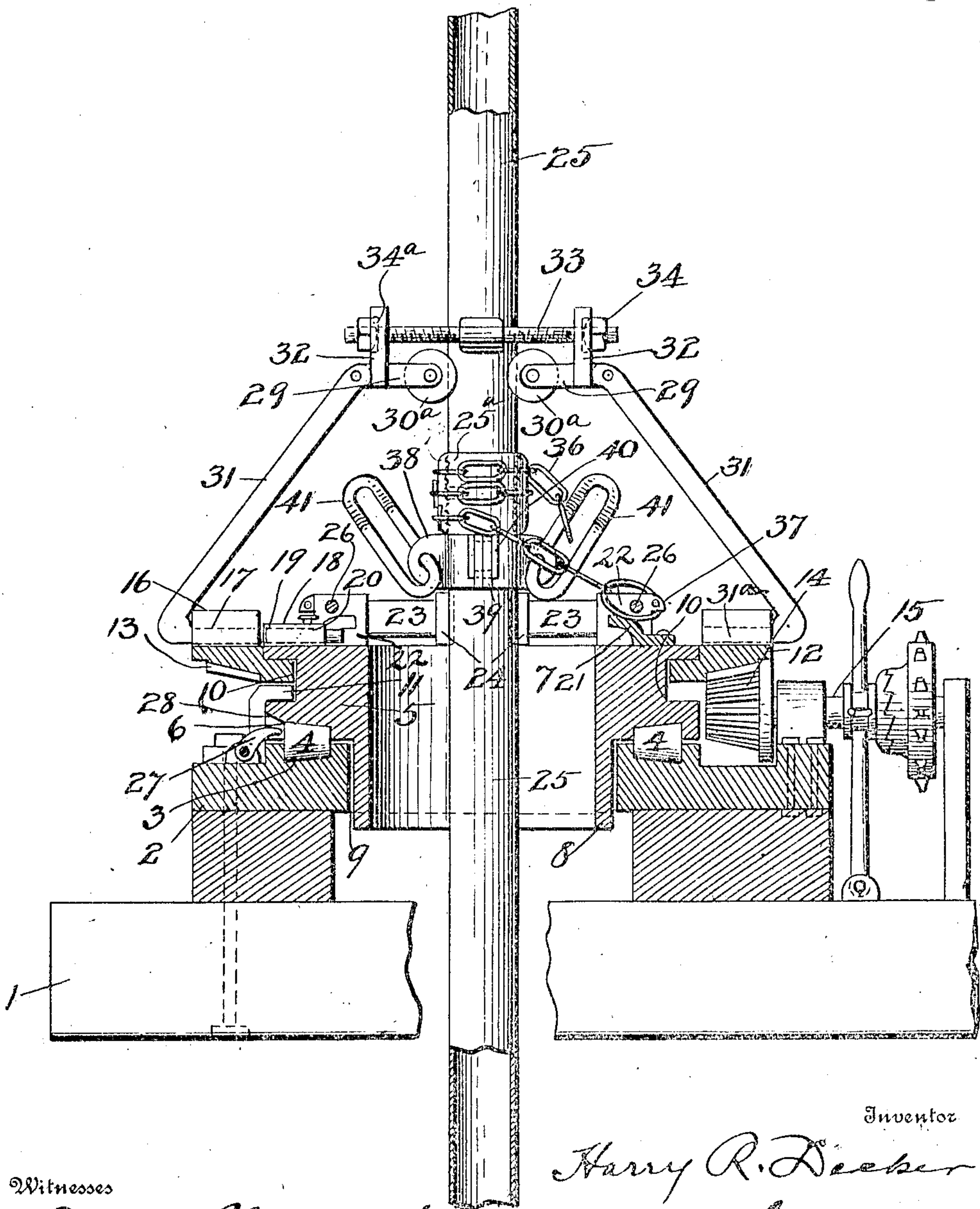
PATENTED JULY 7, 1908.

H. R. DECKER.
WELL DRILLING MACHINERY.

APPLICATION FILED OCT. 13, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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Witnesses

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2 SHEETS—SHEET 2.

FIG. 2.

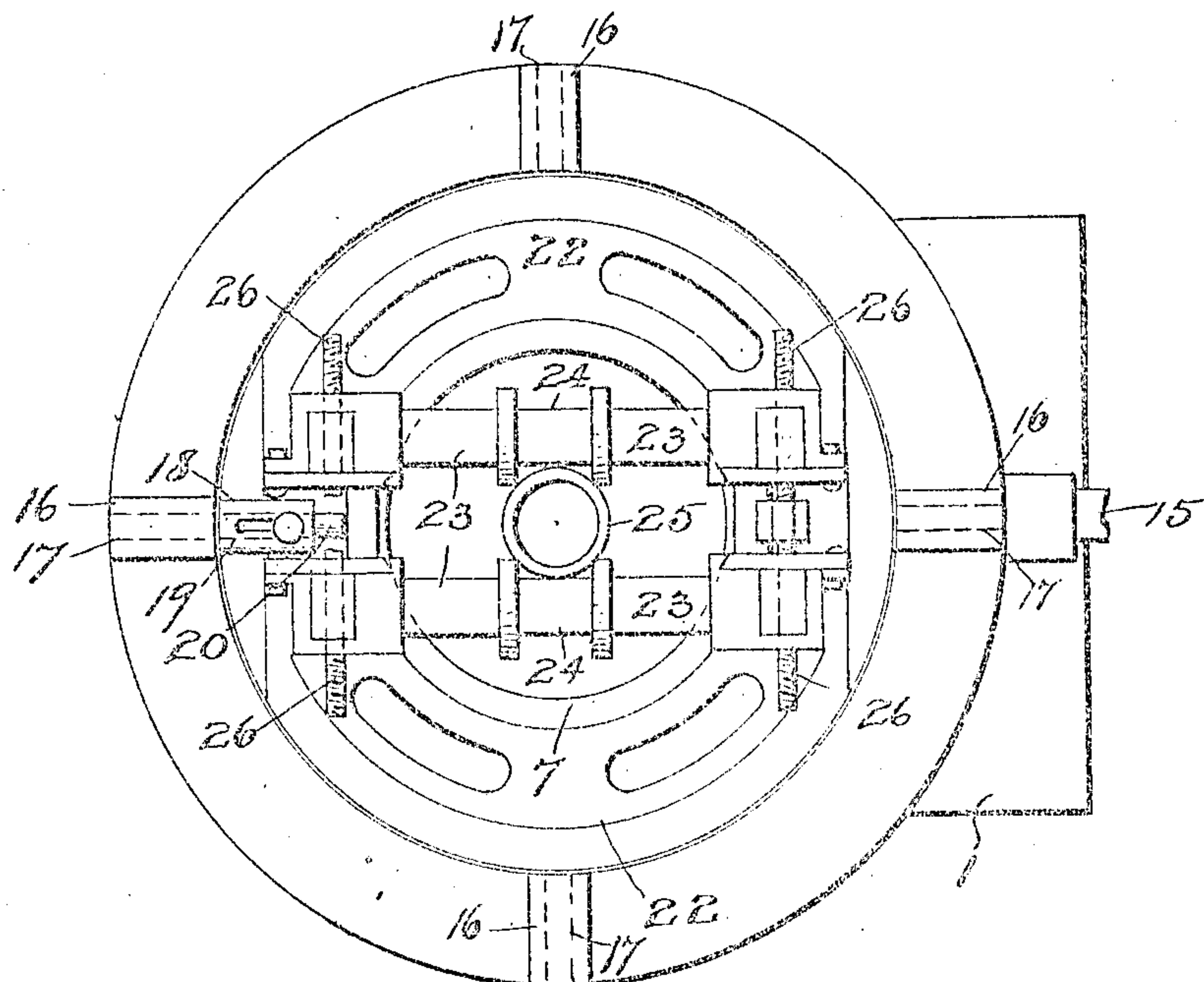
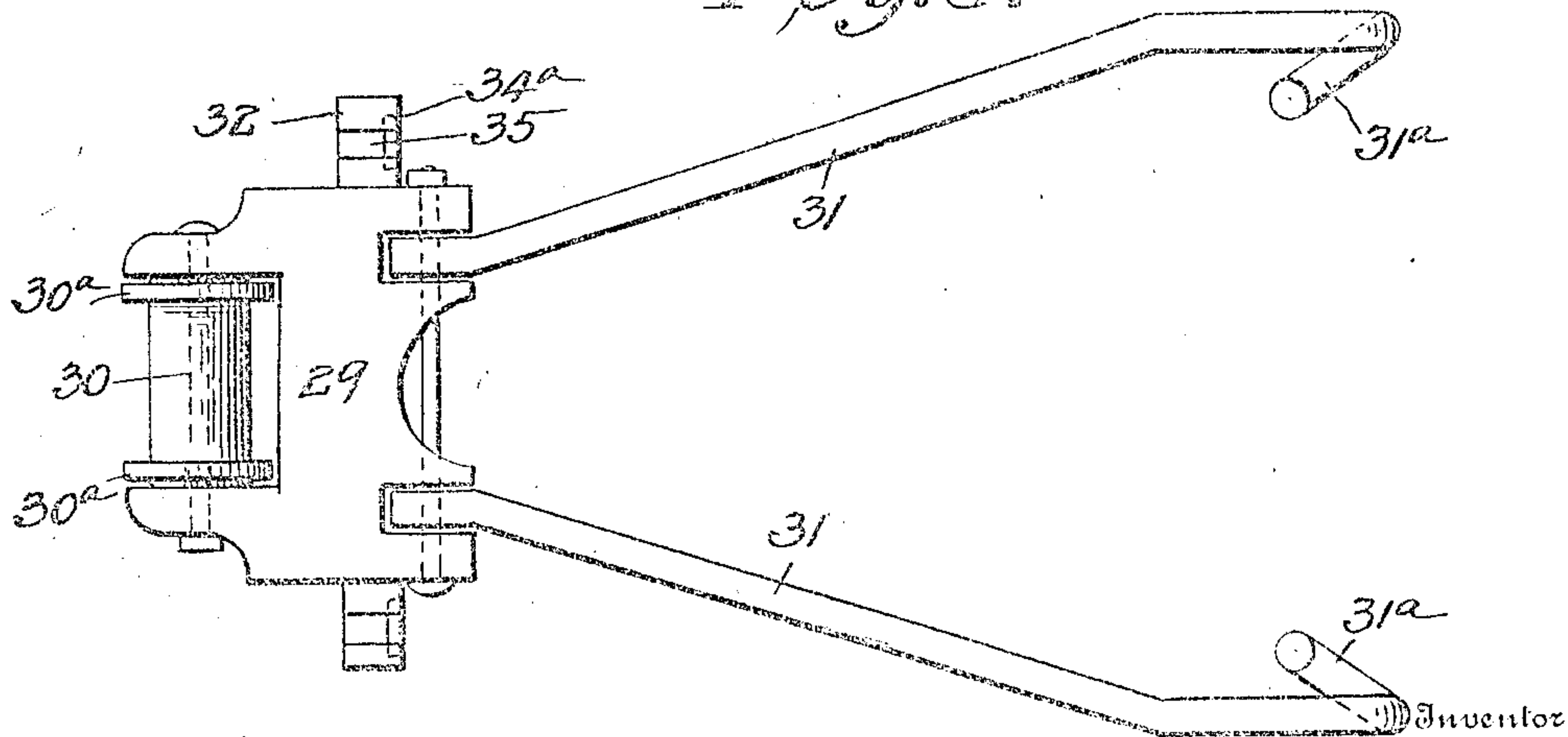


FIG. 3.



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UNITED STATES PATENT OFFICE.

HARRY R. DECKER, OF HOUSTON, TEXAS.

WELL-DRILLING MACHINERY.

No. 892,409.

Specification of Letters Patent.

Patented July 7, 1908.

Application filed October 13, 1906. Serial No. 338,850.

To all whom it may concern:

Be it known that I, HARRY R. DECKER, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented certain new and useful Improvements in Well-Drilling Machinery, of which the following is a specification.

My invention relates to machines used in drilling oil, water and gas wells and has for its object the improvement of the structure of the rotary table used in drilling to the end that the part of it immediately surrounding the opening for the drill stem may be held stationary and locked to the drill stem, while the outer rim, on which is the gear-face meshing with the driven pinion, turns on the stationary portion and has secured thereto clamping devices for turning a length of the drill stem when screwing and unscrewing it.

The details of construction and operation of my improved machinery will be fully described hereinafter and illustrated in the accompanying drawings in which—

Figure 1 is a central vertical sectional view of my improved well drilling machine, Fig. 2, a top plan view, Fig. 3, a detail view of the clamping arms and their connections.

In the drawings similar reference characters indicate corresponding parts throughout the several views.

1 indicates a suitable base frame on which is mounted the base ring 2 having the race-way ring 3 formed therein in which are mounted anti-friction bearings 4, the form shown in the drawings being conical-shaped cylinders but it will be apparent that any other form of bearings either anti-frictional or otherwise may be substituted as desired.

5 indicates the master wheel or rotary table mounted on base ring 2 and having a race-way ring 6 in the bottom surface to receive the bearing cylinders 4. The central portion of wheel 5 is formed with an opening 7 and the inner portion of the base of the wheel is extended downwardly as shown at 8 through the opening 9 in base ring 2 to serve as a guide for the master wheel when in operation. The side of the wheel 5 is formed with a circumferential groove 10.

11 represents angular clamps secured to the base ring 2 and bearing against the lower surface of groove 10.

12 indicates a ring or rim mounted in the upper portion of groove 10 and riding on the tops of angular clamps 11, the underside of said ring or rim being formed with a beveled

gear face 13 which meshes with beveled gear pinion 14 keyed to shaft 15 driven by any suitable power.

16 indicates ears on the upper surface of ring 12 having holes 17 therethrough, while 18 represents other ears on the master wheel 2 having holes 19 therein adapted to register with the holes 17 aforesaid.

20 indicates a sliding bolt in each ear 18 that is adapted to enter the hole 17 in registering ear 16 to lock the master wheel 2 and ring or rim 12 together when the rotary table is used as a drilling machine.

21 indicates guides on the top of master wheel 5 on which are slidably mounted frames 22 having journaled therein cylinders 23 with shoulders 24 to engage drill stem 25, the frames 22 being actuated by screw shafts 26.

The machine above described is used in drilling, the master wheel 2 and ring or rim 12 being locked together by means of bolt 20 so that power transmitted through shaft 15 and beveled pinion 14 to ring or rim 12 is transmitted through clamps 23 to the drill stem 25 to rotate it.

The drill stem in use in rotary drilling consists of a number of lengths of pipe or tubing joined together by coupling rings 25^a. Heretofore in practice these lengths of pipe have been joined together and taken apart by hand which requires a great deal of time and besides at times, because of inability to turn the pipe lengths, it is necessary to cut the coupling rings to get the lengths apart. My invention contemplates the combination with the rotary table above-described of means to clamp the coupling ring 25^a to the master wheel 2 and by sliding the bolts 20 out of engagement with ears 16 allow the master-wheel 5 to remain stationary and held so by means of a gravity pawl 27, pivotally secured to base ring 2, and engaging a notch 28 in said master wheel, while the ring or rim 12 has secured thereto clamps to engage the length of pipe 25 above the coupling ring 25^a and by actuating said ring or rim 12 in the proper direction said length of pipe may be screwed into or unscrewed from the coupling ring.

Each of the clamps mentioned above consists of a jaw 29 having a cylinder 30 journaled therein with circumferential shoulders 30^a thereon to engage the length of pipe, said jaws being mounted on the ring or rim 12 by means of upright arms 31 pivotally secured to the jaws and formed with horizontal ex-

tensions 31^a to fit into the holes 17 in ears 16, the two arms 31 and extensions 31^a on each jaw being so shaped that they engage two of the ears 16 on the ring or rim 12 which serves
5 to brace the clamp.

32 indicates ears on the upper side of jaws 29, 33 right and left threaded shafts and 34 nuts seated in depressions 34^a in said ears and engaging the shafts 33, the ears 32 being pro-
10 vided with notches 35 to receive said shafts.

36 indicates a chain passed several times around coupling 25^a and secured to the master wheel 5 or to an ear 37 on the side of frame 22 to hold the coupling ring 25^a and
15 the casing below it stationary while the length of pipe above the coupling ring is being screwed into or unscrewed therefrom.

38 indicates a conventional elevator having the clamping members 39, the latch link
20 40 and the links 41 secured to the clamping members 39 and adapted to be secured to a hoist (not shown).

From the above description it will be understood that when the master wheel 5 and
25 ring or rim 12 are secured together by bolts 20 the device may be used as a drilling machine but when it is desired to screw or unscrew the casing, the bolts 20 are moved from engagement with the ears 16 and the clamp
30 arms 31 secured in said ears. The lengths of pipe may then be secured to said arms by means of clamping jaws 29 actuated by screw shafts 33 and power being imparted to rotate the ring or rim 12 the length of pipe

will be screwed or unscrewed depending on 35 the direction of rotation of the ring or rim 12, the chain 36 holding the coupling 25^a stationary by being secured to the stationary master wheel 5.

Having thus described my invention what 40 I claim is—

In combination with a rotatable table comprising a master wheel having a central opening and a circumferential groove, and a drill stem mounted in said opening, means 45 to secure said master wheel from rotation, means to secure the drill stem to the master wheel, a rim rotatably mounted on the periphery of said master wheel and having an inwardly extending offset engaging the cir- 50 cumferential groove therein, means to rotate said rim, perforated ears on said rim, arms removably and replaceably secured in said ears, clamping jaws pivotally secured to said arms, notched ears on said jaws, and screw 55 shafts mounted in said notched ears to actuate said jaws, and a sliding lock bolt mounted on the master wheel to engage one of said ears when the arms are not in engagement therewith to lock the master wheel and rims to- 60 gether for simultaneous rotation, substantially as shown and described.

In testimony whereof I hereto affix my signature in the presence of two witnesses.

HARRY R. DECKER.

Witnesses:

J. C. N. BURKETT,
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