No. 887,775. PATENTED MAY 19, 1908.

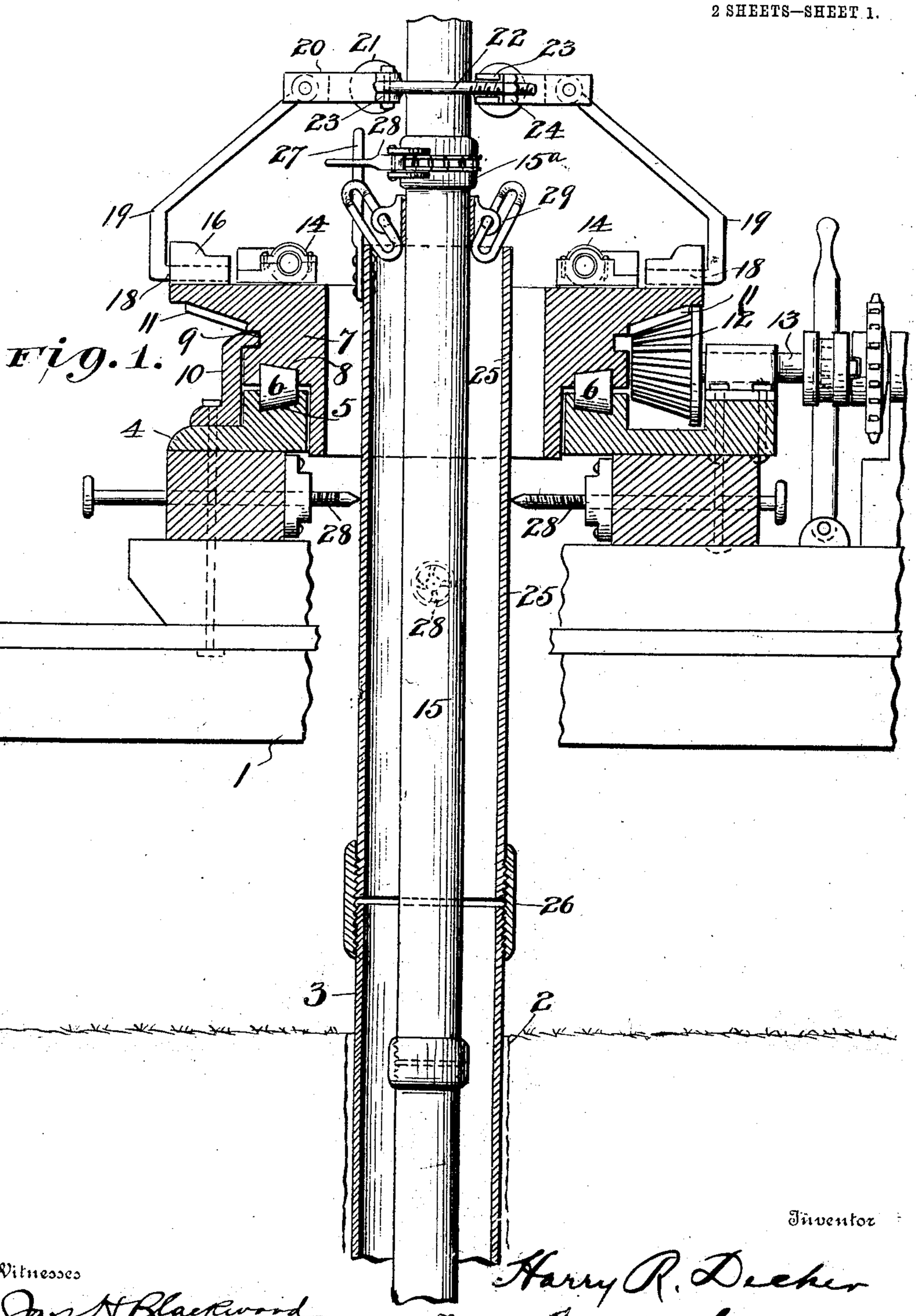
H. R. DECKER.

WELL DRILLING MACHINERY.

APPLICATION FILED NOV. 2, 1906.

2 SHEETS—SHEET 1.

Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 2.

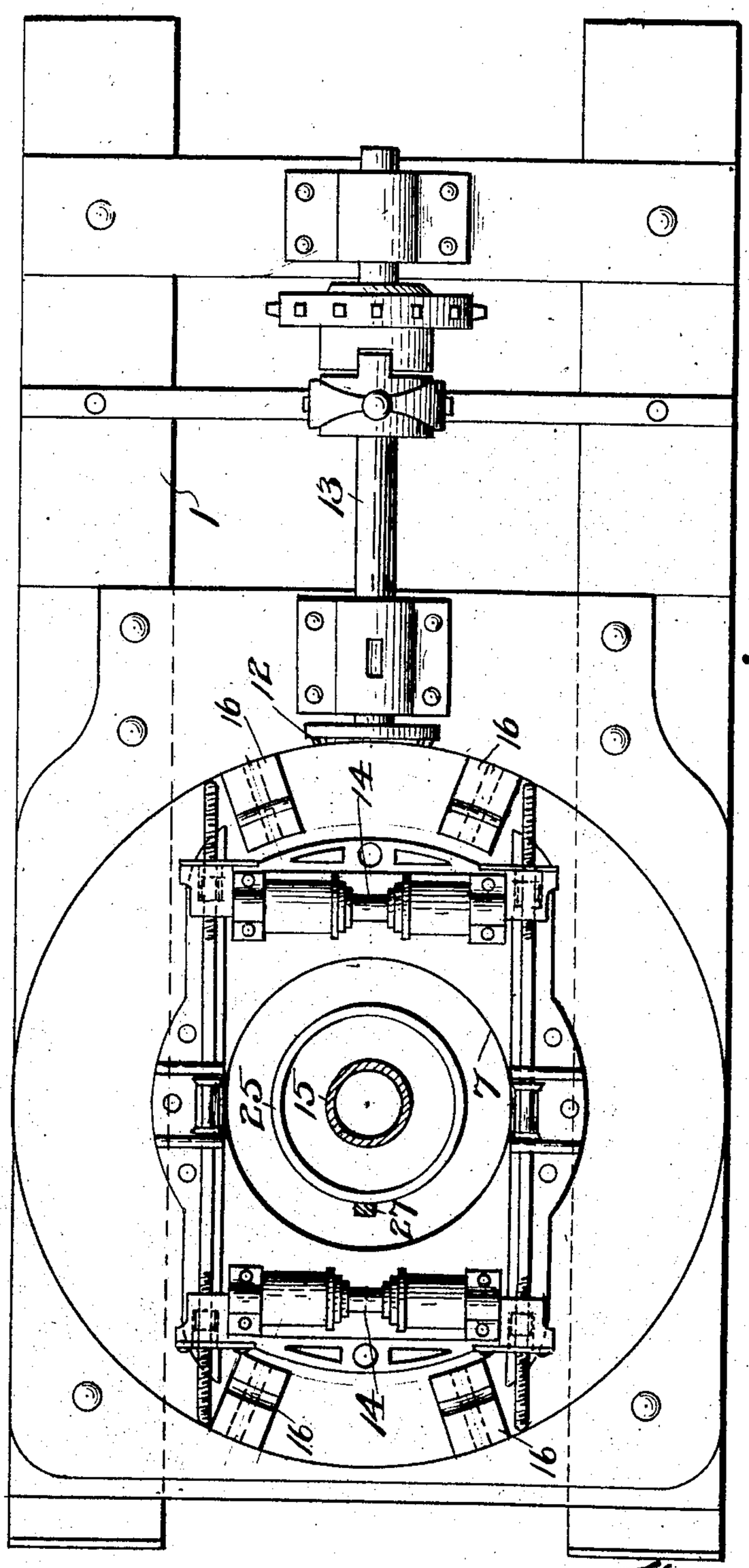
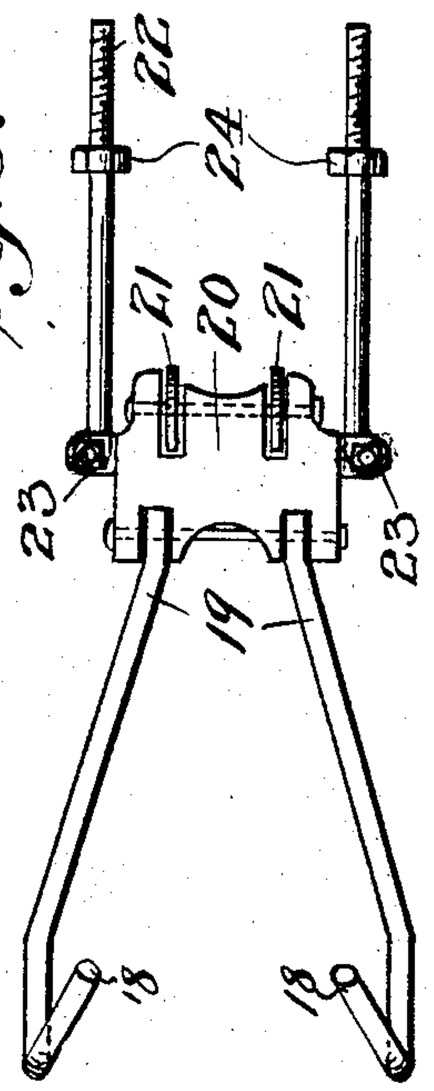


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARRY R. DECKER, OF HOUSTON, TEXAS.

WELL-DRILLING MACHINERY.

No. 887,775. Specification of Letters Patent. Patented May 19, 1908.

Application filed November 2, 1906. Serial No. 341,761.

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 machinery for drilling wells in alluvial deposit soil and has for its object the improvement of the rotary ordinarily used in this work by which the rotary may be used for screwing and unscrewing the lengths of tubular casings or drill stem instead of it being necessary to do the screwing by hand, or use a machine designed expressly for a combination rotary and screwer.

To this end my invention consists in securing ears to the top of the rotary table to receive the ends of arms supporting tube clamps to grasp the length of tubing to be turned, while the tubing in the well bore is held from turning by means of a supporting sleeve or nipple secured to the upper end of the surface casing to which is secured an upright post which engages the handle of pipe tongs secured to the coupling ring at the lower end of the length of tubing that is being unscrewed, or other clamping devices may be used as desired.

The construction and operation of my improved well drilling machinery will be explained in detail hereinafter and illustrated in the accompanying drawings in which—

Figure 1 is a vertical sectional view of the upper end of a well bore and the surface casing seated therein, and of a rotary drilling machine showing my improvements added thereto, Fig. 2, a top plan view, and Fig. 3, a detail view of the clamping jaws.

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

1 represents the frame of a rotary drilling machine, 2 the drill hole and 3 the surface casing of hole 2. The base plate or ring 4 of the rotary is secured to frame 1 and is provided with a raceway ring 5 in its upper surface in which is mounted antifriction bearings 6. The rotary table 7 is provided with a raceway ring 8 in its bottom surface complementary to raceway ring 5 to receive antifriction bearings 6, a groove 9 in its side to receive clamps 10 secured to base plate or ring 4, and beveled gear face 11 with which meshes a beveled gear wheel 12 keyed to power shaft 13.

14 indicates clamping jaws of any selected construction, slidably mounted on top of table 7 to clamp the tubular drill tube 15 when the machine is used for drilling but which are drawn back in the position shown when the device is used for screwing tubing or casing as hereinafter described.

In fitting the rotary in general use for a casing or tubing screwer I secure perforated ears 16 to the top of the table adjacent to its edge to receive the horizontal portion 18 of legs 19 pivotally secured to clamping jaws 20 having cylindrical clamps 21 journaled therein which are held in engagement with the length of tubing to be screwed by means of threaded rods 22 pivotally secured in notched ears 23 on one jaw 20 and which fall into notched ears 23 on the other jaw, a nut 24 on each rod 22 being used to tighten the grip of the clamps 21 on the tubing 15.

25 indicates a sleeve consisting of a short length of tubing of the same diameter as the surface casing 3 and secured thereto by means of a coupling ring or nipple 26. A post 27 is secured to the upper end of sleeve 25 to engage the handle of pipe tongs 28 secured to the coupling ring or nipple 15^a connecting the length of tubing to be screwed with the balance of the drill stem 15.

28 indicates screw shafts secured in frame 1 and adapted to engage sleeve 25, when in position, to steady it.

29 indicates a conventional elevator used in handling well tubing.

In operation when it is desired to remove the drill stem from the well or to replace it the sleeve 25 is secured to the upper end of surface casing 3 by means of coupling ring or nipple 26. The sleeve 25 may be secured in position by hand or the clamping jaws 20 may be secured to the drill tube 15 and a pair of pipe tongs to the same length of the drill tube and the drill tube rotated so as to screw the sleeve 25 into the nipple. The pipe tongs 28 are then secured to coupling ring or nipple 15^a and the jaws 20 are secured to the length of tubing above the nipple 15^a. The pipe tongs, by engaging the post 27, will prevent rotation of the drill stem in the well, while, by rotating the table 7 by means of power shaft 13 and gearing 11 and 12, the length of tubing above nipple 15^a may be screwed or unscrewed as desired.

Having thus described my invention what I claim is—

1. In combination with a rotary drilling machine, surface casing secured in a well bore, and a drill stem in the well bore, comprising coupled lengths of tubing, a sleeve secured to the surface casing having a projection thereon, a clamping device secured to the drill stem and engaging said projection to hold the drill stem in the well bore stationary, and means secured to the rotary drilling machine to rotate one length of said drill stem, substantially as shown and described.

2. In combination with a rotary drilling machine, surface casing secured in a well bore, and a drill stem in the well bore, comprising coupled lengths of tubing, a sleeve secured to the surface casing having a projection thereon, pipe tongs secured to the drill stem and engaging said projection to hold the drill stem in the well bore stationary, and means secured to the rotary drilling machine to rotate one length of said drill stem, substantially as shown and described.

3. In combination with a rotary drilling machine, surface casing secured in a well bore, and a drill stem in said well bore comprising coupled lengths of tubing, a sleeve secured to the surface casing, a post secured to the upper end of said sleeve, a clamp secured to the drill stem and engaging the post to hold the drill stem stationary, and means secured to the rotary drilling machine to rotate one length of said drill stem, substantially as shown and described.

4. In combination with a rotary drilling machine, surface casing secured in a well bore, and a drill stem in the well bore, comprising coupled lengths of tubing, a sleeve secured to the surface casing having a projection thereon, a clamping device secured to the drill stem and engaging said projection to hold the drill stem in the well bore stationary, and clamping jaws secured to the rotary drilling machine to engage one length of the drill stem and rotate it, substantially as shown and described.

5. In combination with a rotary drilling machine, surface casing secured in a well bore, and a drill stem in the well bore, comprising coupled lengths of tubing, a sleeve secured to the surface casing having a projection thereon, a clamping device secured to the drill stem and engaging said projection to hold the drill stem in the well bore stationary, perforated ears secured to the rotary drilling machine, and clamping jaws having supports shaped to fit said ears, said clamping jaws being adapted to engage one length of the drill stem, substantially as shown and described.

6. In combination with a rotary drilling machine, surface casing secured in a well bore and a drill stem in the well bore, comprising coupled lengths of tubing, a sleeve secured to the surface casing having a projection thereon, pipe tongs secured to the drill stem and engaging said projection to hold the drill stem in the well bore stationary, and clamping jaws secured to the rotary drilling machine to engage one length of the drill stem and rotate it, substantially as shown and described.

7. In combination with a rotary drilling machine, surface casing secured in a well bore, and a drill stem in said well bore comprising coupled lengths of tubing, a sleeve secured to the surface casing, a post secured to the upper end of said sleeve, a clamp secured to the drill stem and engaging the post to hold the drill stem stationary, and clamping jaws secured to the rotary drilling machine to engage one length of the drill stem, substantially as shown and described.

8. In combination with a rotary drilling machine, surface casing secured in a well bore, and a drill stem in the well bore, comprising coupled lengths of tubing, a sleeve secured to the surface casing having a projection thereon, pipe tongs secured to the drill stem and engaging said projection to hold the drill stem in the well bore stationary, perforated ears secured to the rotary drilling machine, and clamping jaws having supports to engage said ears, said clamping jaws being adapted to engage one length of the drill stem, substantially as shown and described.

9. In combination with a rotary drilling machine, surface casing secured in a well bore, and a drill stem in said well bore comprising coupled lengths of tubing, a sleeve secured to the surface casing, a post secured to the upper end of said sleeve, a clamp secured to the drill stem and engaging the post to hold the drill stem stationary, perforated ears secured to the rotary drilling machine, and clamping jaws having supports to engage said ears, said clamping jaws being adapted to engage one length of the drill stem, substantially as shown and described.

10. In combination with a rotary drilling machine, surface casing secured in a well bore, and a drill stem in said well bore comprising coupled lengths of tubing, a sleeve secured to the surface casing, screw shafts mounted on the drilling machine to engage said sleeve, a post secured to the upper end of said sleeve, a clamp secured to the drill stem and engaging the post to hold the drill stem stationary, perforated ears secured to the drilling machine, and clamping jaws engaging said ears and adapted to engage one length of the drill stem, substantially as shown and described.

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

HARRY R. DECKER.

Witnesses:
G. C. BOCKLY,
E. L. DENNIS.