

(No Model.)

O. S. MICHAEL.
LIFTING DEVICE FOR WELL TUBING.

No. 598,527.

Patented Feb. 8, 1898.

FIG. 1.

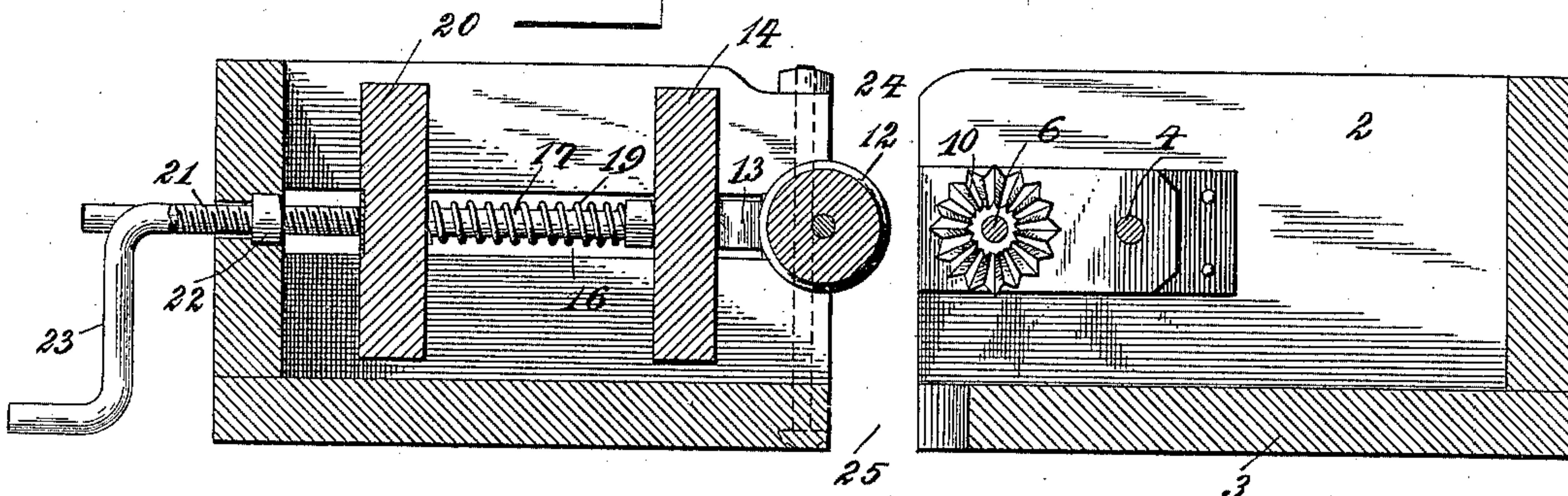


FIG. 2.

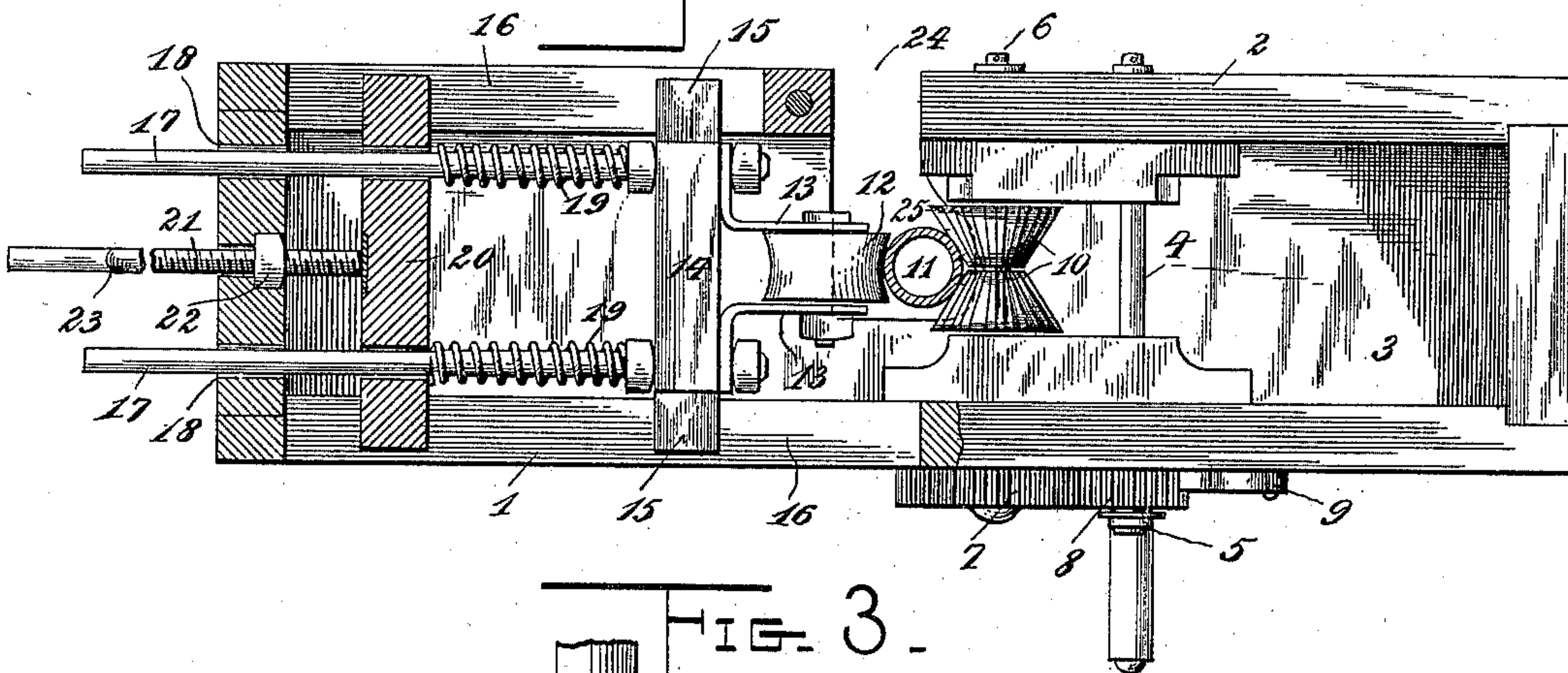
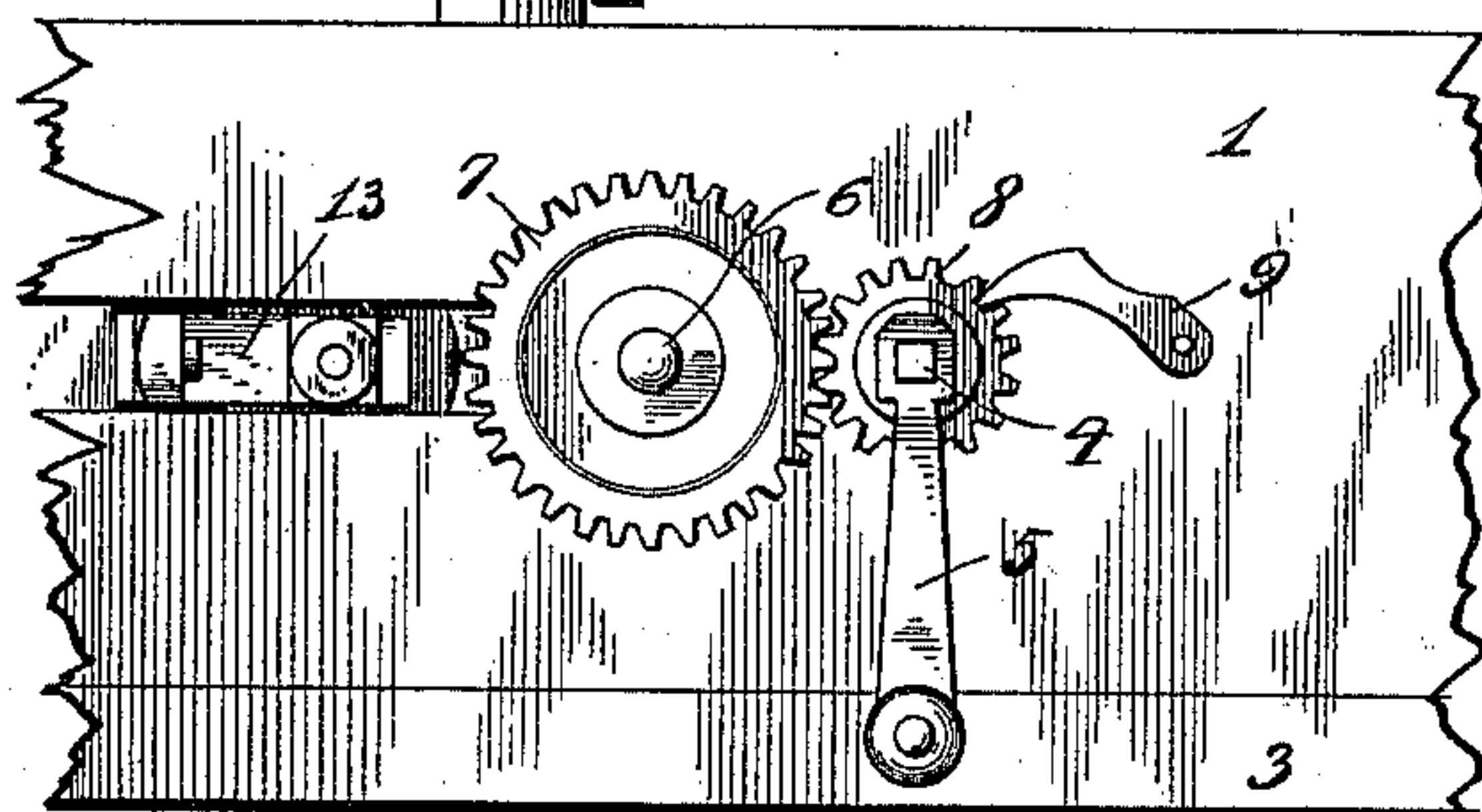


FIG. 3.



Inventor

Witnesses

John F. Deffenwerf
[Signature]

By his Attorneys,

Oliver S. Michael.

[Signature]

UNITED STATES PATENT OFFICE.

OLIVER S. MICHAEL, OF WALDO, KANSAS.

LIFTING DEVICE FOR WELL-TUBING.

SPECIFICATION forming part of Letters Patent No. 598,527, dated February 8, 1898.

Application filed August 10, 1897. Serial No. 647,707. (No model.)

To all whom it may concern:

Be it known that I, OLIVER S. MICHAEL, a citizen of the United States, residing at Waldo, in the county of Russell and State of Kansas, have invented a new and useful Lifting Device for Well-Tubing, of which the following is a specification.

My invention relates to a lifting device for pump-tubing, drill-rods, and the equivalents thereof, and has for its objects to provide a simple, inexpensive, and efficient apparatus adapted to engage and elevate a device of the class named without injury to the surface thereof and to provide yielding means for maintaining the engaging devices in operative contact with the object to be elevated.

A further object of the invention is to provide suitable means of adjustment, whereby the parts of the apparatus may be suited to the diameter of the tubing to be manipulated.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a longitudinal section of a lifting device constructed in accordance with my invention. Fig. 2 is a plan view of the same, partly broken away. Fig. 3 is a partial side view to show the operating devices and the means for preventing backward rotation thereof.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The frame comprises terminally-connected side walls 1 and 2 and a floor or base 3, and 4 designates a driving-shaft mounted in bearings on the side walls and terminally provided with a crank-arm 5 or equivalent means for communicating rotary motion to the shaft. Also mounted in bearings on the side walls and arranged parallel with the driving-shaft is a driven shaft 6, having a gear 7, with which meshes a pinion 8 on the driving-shaft, a clutch device, consisting in the construction illustrated of a pawl or dog 9, being arranged in operative relation with the pinion to prevent backward rotation thereof.

Between the walls of the frame the driven shaft carries conical superficially-serrated feed-wheels 10, having their smaller or reduced ends arranged contiguous to each other,

whereby the coacting faces of the combined wheels form a V-shaped seat to receive a pump-rod or equivalent device, (shown at 11.)

Coöperating with the feed-wheels is a peripherally-grooved pressure-roll 12, mounted between parallel bearing-ears 13 on a plunger 14, which is mounted to slide between and parallel with the side walls of the frame and is preferably provided with lateral guide-ears 15, engaging longitudinal guide-slots 16 in said side walls. This plunger is provided with parallel rearwardly-extending guide-rods 17, extending through guide-openings 18 in the end wall of the frame, and plunger-actuating springs 19 are coiled upon the guide-rods and bear against the rear side of the plunger to hold the latter yieldingly advanced, with the pressure-roll in contact with the opposite side of a tube or rod from that with which the feed-wheels are engaged. In order that the tension of the actuating-springs may be varied to suit the diameter of the tube or rod to be elevated, I provide a follower 20, which is mounted to slide between and parallel with the side walls of the frame and arranged to receive the rearward pressure of the actuating-springs, said follower being provided with suitable openings, through which the guide-rods of the plunger project, and an adjusting-rod 21, threaded in a suitable nut 22 in the end wall between the guide-rods and provided with an exposed crank-arm 23. It is obvious that by turning the adjusting-rod the follower may be advanced or retracted to vary the tension of the actuating-springs and hence vary the pressure of the roll 12 upon the tube or rod to be elevated.

The side wall 2 is provided with an opening 24, registering with a slot 25 in the floor or bottom of the frame, whereby the apparatus may be applied to a tube or rod to be elevated by laterally moving the frame toward said rod and causing it to enter through the opening 24 and slot 25. Having thus applied the machine to the tube or rod and arranged the latter between the coöperating faces of the pressure-roll and feed-wheels, the driving-shaft is rotated to cause the rotation of the feed-wheels in the direction necessary to elevate the tube or rod, and inasmuch as the pressure of the roll is yieldingly held in contact with the tube or rod it is adapted to re-

cede at the couplings or unions to allow the latter to pass without releasing the tube or rod. It is obvious that a tube or rod may be lowered by the same mechanism, the operation thereof being reversed.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. An apparatus of the class described, having a supporting-frame, frictional feed-wheels and means for communicating motion thereto, a spring-actuated plunger mounted to slide toward and from the feed-wheels, a peripherally-grooved pressure-roll carried by the plunger, a follower disposed to receive the backward thrust of the plunger-actuating springs, and means consisting of a cranked feed-rod and a fixed feed-nut for advancing the follower to vary the tension of said springs, substantially as specified.

2. An apparatus of the class described having a frame provided with a lateral opening

by which it may be applied to a tube or rod, co-operating peripherally-serrated conical feed-wheels arranged with their reduced ends in contiguity, a driving-shaft geared to the spindle of the feed-wheels, a clutch device for preventing backward rotation of the driving-shaft, a plunger mounted to slide in the frame and carrying a pressure-roll to coöperate with the feed-wheels and bear against the opposite side of a tube or rod engaged by said wheels, guide-rods on the plunger, actuating-springs coiled upon the guide-rods to advance the plunger, a follower mounted to slide in the frame in rear of the plunger and receiving the backward thrust of the plunger-actuating springs, and means for advancing the follower to vary the tension of the actuating-springs, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

OLIVER S. MICHAEL.

Witnesses:

A. S. COOK,

H. W. MICHAEL.