

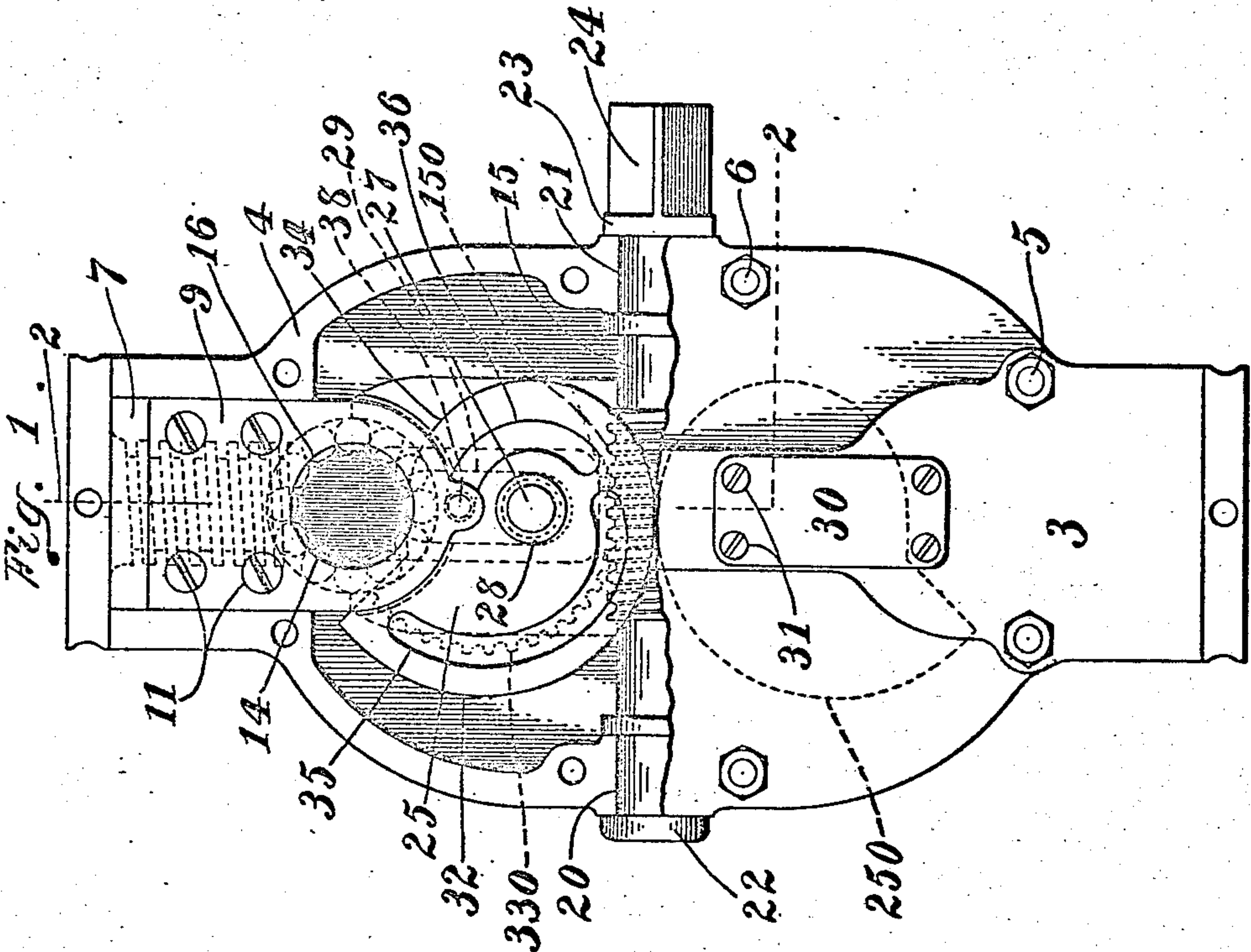
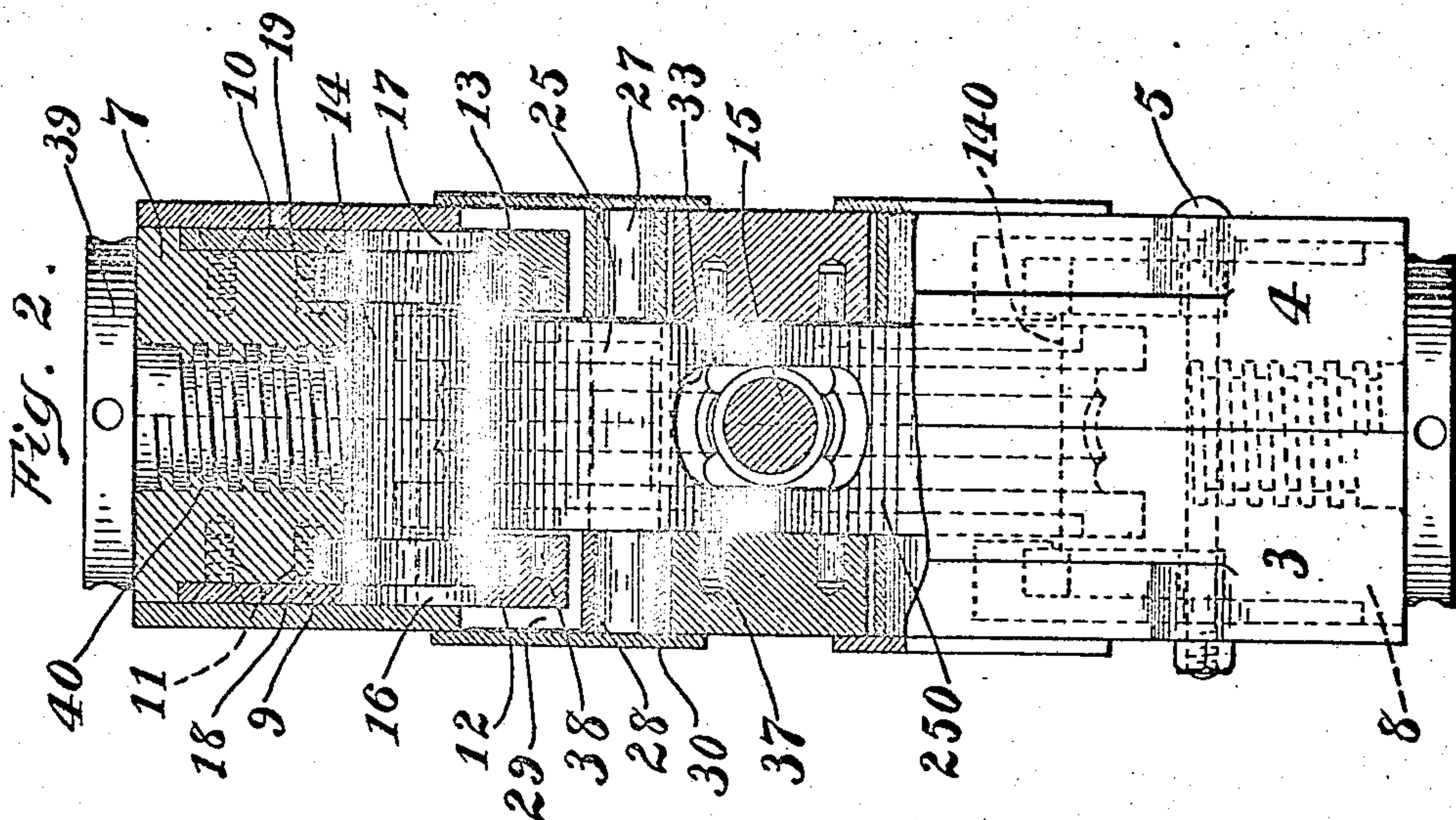
F. E. FARNHAM.

LIFTING JACK.

APPLICATION FILED MAY 12, 1908.

899,161.

Patented Sept. 22, 1908.



Witnesses:
Daisy V. Riggs
Chas. W. La Rue

Inventor:
Fred E. Farnham
By *Willis M. Stone*
Attorney.

UNITED STATES PATENT-OFFICE.

FRED E. FARNHAM, OF RUMFORD FALLS, MAINE.

LIFTING-JACK.

No. 899,161.

Specification of Letters Patent.

Patented Sept. 22, 1908.

Application filed May 12, 1908. Serial No. 432,423.

To all whom it may concern:

Be it known that I, FRED E. FARNHAM, a citizen of the United States, and resident of Rumford Falls, in the county of Oxford and State of Maine, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

This invention relates to lifting jacks and directly to that class thereof which are cam actuated.

In the drawing accompanying this specification is illustrated one embodiment, and which may be the preferred embodiment, of my improvements.

Therein Figure 1 is a front elevation of my device. The upper half of said Fig. 1 has the front portion thereof removed to better show details of the mechanism. Fig. 2 is a side elevation, partly in section, and corresponding with Fig. 1. The section of said Fig. 2 is taken on line 2, 2 of Fig. 1.

The containing case of my device is preferably made in two symmetrical halves 3, 4 held together by bolts 5, 6 etc. In a rectangular cavity in each end of said case is a plunger, 7 at the top and 8 at the bottom. As said plungers are alike in all particulars I will describe in detail only one. Plunger 7 is provided with side plates 9, 10 held there- to by screws as 11. Said plates extend downwardly for carrying roller bearings 12, 13 respectively in which are supported the outboard ends of cam roll 14. Plates 9, 10 have holes 16, 17 respectively therethrough for inspection and oiling of the bearings. The principal thrust of said roller bearings 12, 13 is taken by seats 18, 19 formed directly in plunger 7. Cam roll 14 is shouldered down at its ends for engagement with the roller bearings whereby the rolls of said bearings are prevented from working inwardly on their seats.

Located horizontally, at right angles to cam roll 14, in suitable bearings 20, 21 and midway vertically and crosswise in case 3, 4, is screw shaft 15. Said shaft is provided with collars as 22, 23 for engagement with its bearings in case 3, 4 to prevent endwise movement of said shaft. Also said shaft 15 has at least one end squared as at 24 or otherwise fashioned for the engagement of a crank or wrench.

Above shaft 15 and between it and cam roll 14 is cam 25, of peculiar construction. Also below shaft 15 and between it and roll

140 is cam 250 similar in all particulars to cam 25 and engaging therewith. A description of cam 25 will suffice for both it and cam 250. Cam 25 is provided with axial shaft 27 fixed therein and on each end of said shaft is a sleeve as 28. Said sleeves and the shaft ends therein may move upwardly from the position shown, in slots as 29 in case 3, 4 and said sleeves are retained on their respective shaft ends by plates as 30. Said plates are held to case 3, 4 by screws as 31, 31. Said cam 25 has its cam face 32 preferably uniformly increasing upwardly in distance from axial shaft 27 and said face has a central groove 33 therein parallel with said face. The bottom of said groove is provided with teeth 330 for engagement with the threaded portion 150 of screw 15. Face 34 of cam 25 lying axially opposite to cam face 32 is preferably formed concentric with axis 27 but if desired said face 34 may also be cam shaped. The sides of cam 25 are each provided with grooves as 35, 36 in that face lying uppermost in Fig. 1. Groove 35 is parallel with cam face 32 and is provided for engagement with pin 37 fixed in frame portion 3. The engagement of said pin 37 with groove 35 retains cam face 32 in constant contact with the cam face of cam 250 therebelow and maintains gear teeth 330 constantly in mesh with the screw-threads of shaft 15. Groove 36 is engaged by pin 38 fixed in the lower portion of plate 9 of plunger 7. Said groove 36 is parallel with face 34 of cam 25 and the engagement of said groove with pin 38 maintains face 34 in constant contact with cam roll 14.

Plungers 7, 8 may be provided with adjustable heads as head 39 of plunger 7. Adjustment of said head 39 relative to plunger 7 is had by means of screw threads 40 on the shank of said plunger in engagement with complementary screw threads in plunger 7.

The operation of my improved jack is as follows: Upon turning shaft 15 in a clockwise direction (Fig. 2) cam 25 is caused to turn in an anti-clockwise direction and cam 250 to turn in a clockwise direction (Fig. 1). This causes the coacting faces of said cams to roll together and axis 27 of cam 25 to rise in slot 29 and in the slot opposite thereto and face 34 to correspondingly move upwardly, driving roll 14 and plunger 7 before it. Similar movement in the opposite direction is imparted to plunger 8 by cam 250.

By reversing the direction of rotation of screw 15 cams 25, 250 are caused to reverse their directions of rotation and by means of the engagement of pins and grooves, as pin 37 in groove 35, cam 25 is drawn downwardly and by means of the engagement of pins and grooves as pin 38 in groove 36 plunger 7 is returned to its lower position (Fig. 1). The same operation is carried out in reference to cam 250 and plunger 8 but in the opposite direction.

By my improved construction plungers 7, 8 can be moved only by the rotation of shaft 15 and said rotation may be stopped at any point without danger of plungers 7, 8 slipping back or running down. Said plungers are always locked against movement at any point in their upward or downward movement without any special device therefor, such as ratchet and pawl.

I claim:

1. The combination of a cam member having teeth in the cam face thereof, a screw member for engagement with the teeth of the cam member, means for maintaining those teeth in engagement with the screw member at a constant distance from the axis of the screw member and means for rotating the screw member.

2. The combination of a rotatable member, a portion of whose periphery is a cam, teeth formed in the cam face, that portion of the periphery axially opposite said cam face being concentric with the axis of said rotatable member, a toothed member for engagement with the teeth in the rotatable member, a slidable member for engagement with the concentric face of the rotatable member, means for guiding the axis of the rotatable member in the line of travel of the slidable member and means for rotating the toothed member.

3. The combination of a rotatable member, a portion of whose periphery is a cam, teeth formed in the cam face, that portion of the periphery axially opposite said cam face being concentric with the axis of said rotatable member, a toothed member for engagement with the teeth in the rotatable member, a slidable member for engagement with the concentric face of the rotatable member, means for maintaining a constant relation between those teeth of the rotatable member in engagement with the toothed member and the toothed member and means for maintaining a constant relation between the slidable member and the axis of the rotatable member, means for guiding the axis of the rotatable member in the line of travel of the slidable member and means for rotating the toothed member.

4. The combination of a pair of oppositely disposed coacting cams, a peripheral groove in each cam face, teeth in said grooves, a screw member in common engagement with

the teeth of both cams and a plunger actuated by each cam, and means for rotating the screw member.

5. The combination of a pair of oppositely disposed coacting cams, a peripheral groove in each cam face, teeth in said grooves, a screw member in common engagement with the teeth of both cams and a plunger actuated by each cam, means for maintaining each cam in coaction with the screw member, means for maintaining each plunger in coaction with its respective cam, and means for rotating the screw member.

6. The combination of a pair of oppositely disposed coacting cams, a peripheral groove in each cam face, teeth in said grooves, a screw member in common engagement with the teeth of both cams, a pair of plungers each having an antifriction roll mounted therein for engagement with each of the cams respectively and means for rotating the screw member.

7. The combination of a pair of oppositely disposed coacting cams, a peripheral groove in each cam face, teeth in said grooves, a screw member in common engagement with the teeth of both cams, said cams each having a peripheral portion concentric with its axis of rotation, a slidable member in engagement with the concentric portion of each cam, means for guiding each cam axis in the line of movement of its slidable member and means for rotating the screw member.

8. The combination of a pair of oppositely disposed coacting cams, a peripheral groove in each cam face, teeth in said grooves, a screw member in common engagement with the teeth of both cams, said cams each having a peripheral portion concentric with its axis of rotation, a slidable member in engagement with the concentric portion of each cam, means for guiding each cam axis in the line of movement of its slidable member, means for maintaining each cam in coaction with the screw member, means for maintaining each slidable member in engagement with the concentric portion of its respective cam, and means for rotating the screw member.

9. The combination of a containing case, comprising two substantially equal parts, a screw shaft mounted for rotation in the place of jointure of said case parts, a cam on each side of said shaft, said cams having teeth for engagement with the screw shaft, a plunger for engagement with each cam, means for holding said case parts together and means for rotating the screw shaft.

Signed this 30 day of April, 1908, at Rumford Falls, Maine before two subscribing witnesses.

FRED E. FARNHAM.

Witnesses:

CHARLES E. GARCELON,
FRANK J. COLBY.