No. 825,557. PATENTED JULY 10, 1906.

J. RUSSELL.

BALL BEARING SCREW JACK.

APPLICATION FILED NOV. 20, 1906.

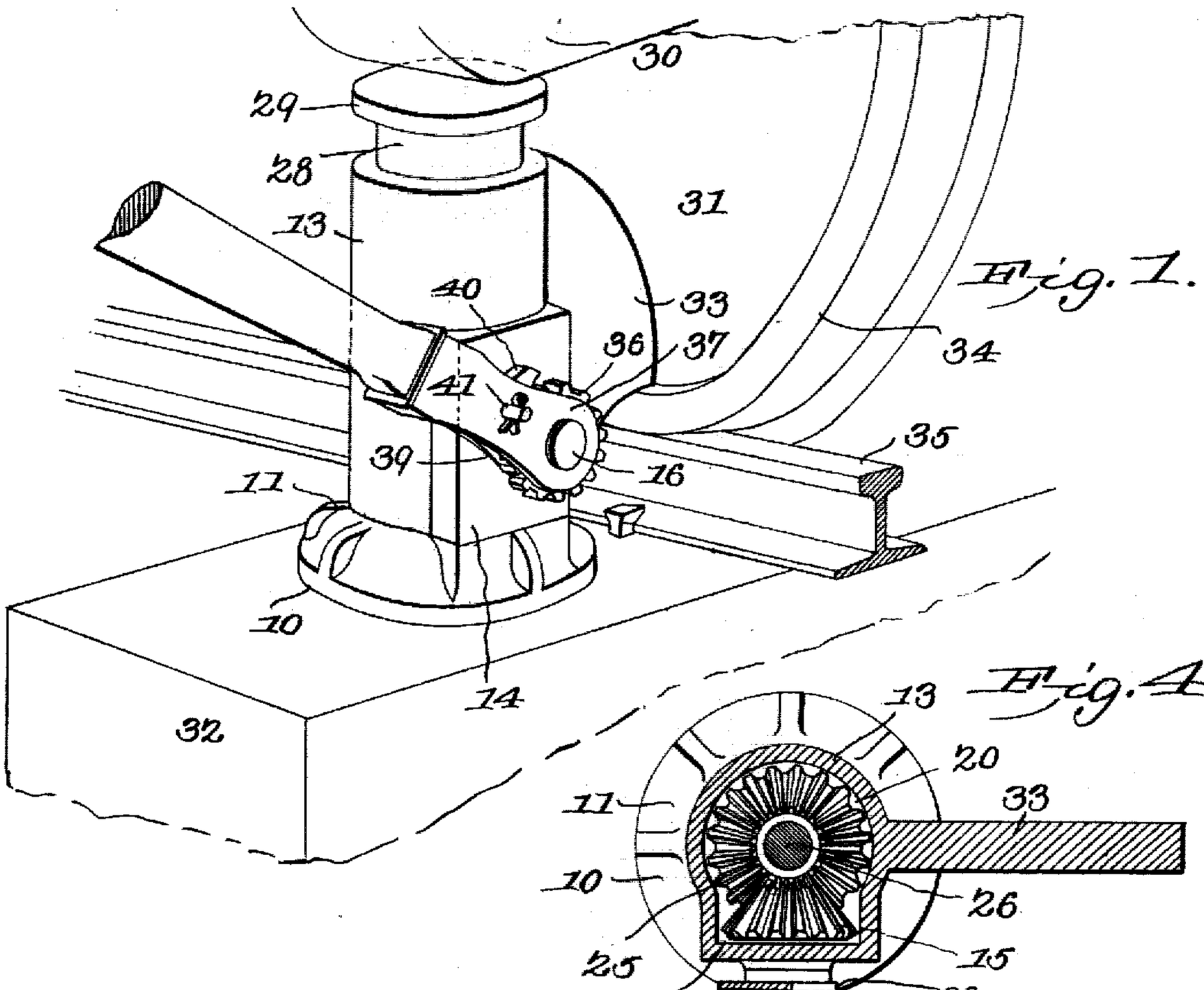

Fig. 1.

Fig. 4.

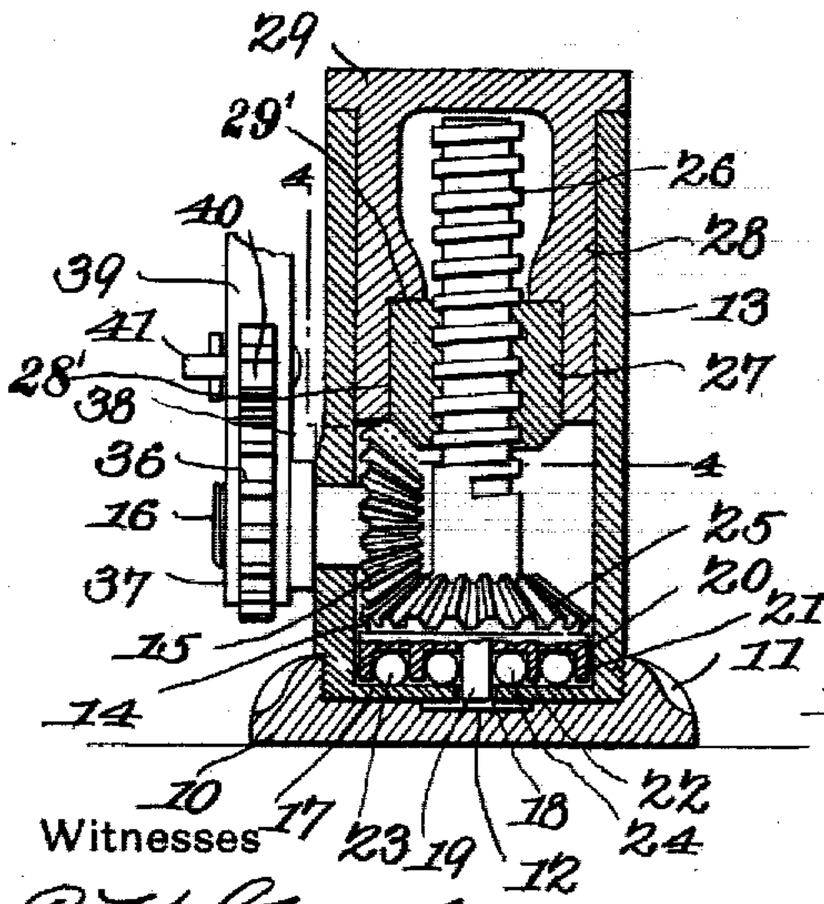

Fig. 2.

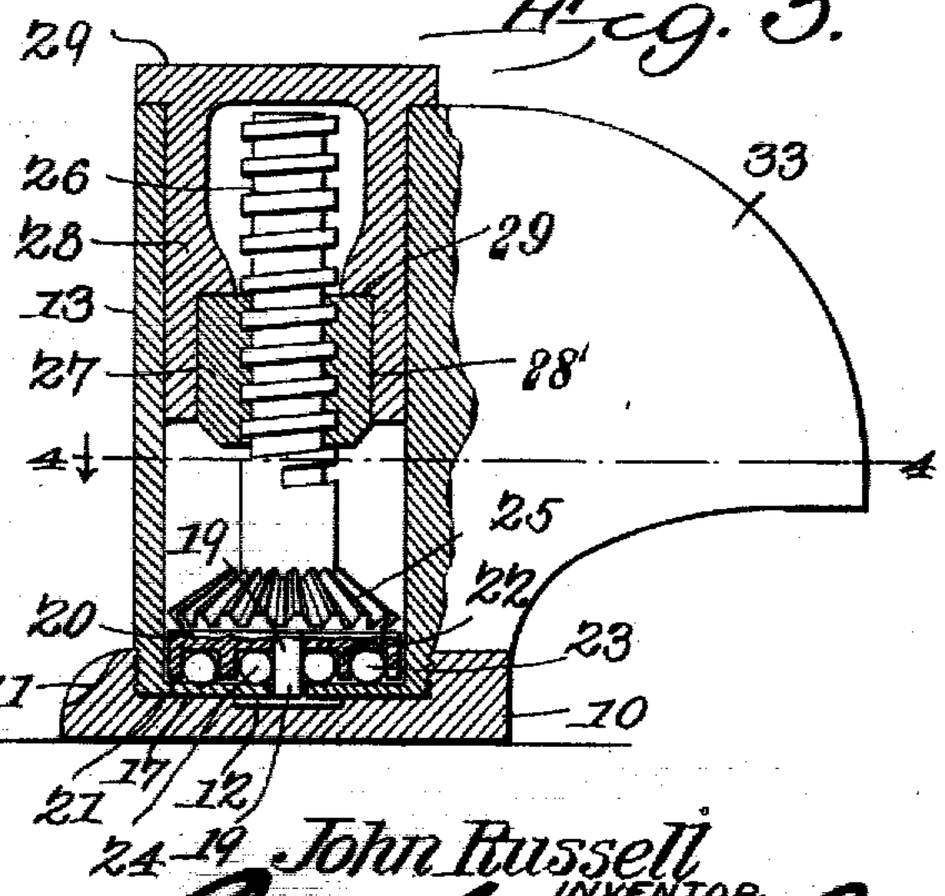

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

JOHN RUSSELL, OF CANANEA, MEXICO, ASSIGNOR OF ONE-HALF TO ULRIC HUQUENIN, OF CANANEA, MEXICO.

BALL-BEARING SCREW-JACK.

No. 825,557. Specification of Letters Patent. Patented July 10, 1906.

Application filed November 20, 1905. Serial No. 288,323.

To all whom it may concern:

Be it known that I, JOHN RUSSELL, a citizen of the United States, residing at Cananea, in the State of Sonora, Republic of Mexico, have invented a new and useful Ball-Bearing Screw-Jack, of which the following is a specification.

This invention relates to lifting-jacks, and has for an object to provide a device of the class embodying new and improved features of durability, utility, and efficiency.

A further object of the invention is to provide a lifting-jack embodying improved means for holding down a car-wheel and axle while the box is being lifted and supported to permit a change of brasses.

A further object of the invention is to provide in a lifting-jack an improved ball-bearing for supporting the weight carried by the jack and reduce frictional resistance in lifting.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made without departing from the spirit or sacrificing any of the advantages of this invention.

In the drawings, Figure 1 is a perspective view of the improved jack applied. Fig. 2 is a vertical sectional view of the jack. Fig. 3 is a vertical sectional view of the jack, taken on a plane at right angles to Fig. 2. Fig. 4 is a transverse sectional view of the jack, taken on line 4 4 of Figs. 2 and 3.

Like characters of reference indicate corresponding parts in all of the figures of the drawings.

In its preferred embodiment the improved lifting-jack forming the subject-matter of this application comprises a base 10, having the upstanding internally-screw-threaded flange 11 and a depression or cavity 12 centrally of the flange. Within the flange 11 is threaded a substantially cylindrical standard 13, having one wall flattened at 14 to form a housing for a pinion 15, mounted upon the shaft 16, the latter being journaled in the wall or section 14 of the standard, as shown.

Upon the base 10 and within the standard 13 is mounted the wear-disk 17, having a central aperture 18 for the accommodation of a stud 19, formed upon the circular member 20. The member 20 is provided upon its under side with the concentric annular flanges 21 and 22, forming ball-races for a series of balls 23 and 24.

Upon and concentric with the member 20 is rigidly mounted the bevel-gear 25, engaging with the pinion 15, and a screw 26 is rigidly carried by the gear axial to the gear and standard 13. Upon the screw 26 is threaded a nut 27 smaller than the internal diameter of the standard 13, and interposed between the nut and interior walls of the standard is a vertically-slidable sleeve 28, having an annular recess 28′ formed therein defining a shoulder 29′, adapted to engage the nut. The sleeve 28 is provided with a lifting-head 29, arranged and proportioned to engage beneath and lift a box, as 30, in which is journaled the axle of a car-wheel, as 31.

The base 10 of the jack is proportioned to stand upon a tie, as 32, and a nose 33 is formed rigid upon or integral with the standard 13 and proportioned to bear upon a rim 34 of the car-wheel where it stands upon a rail, as 35.

Upon the shaft 16 externally of the standard is rigidly mounted the ratchet-wheel 36, and the arms 37 and 38 of the bifurcated lever 39 are pivoted upon the shaft. Between the arms 37 and 38 are pivoted the pawls 40, as by the pin 41, and provided with any approved form of springs to permit either to be thrown into operative contact with the ratchet-wheel 36.

It will be obvious that the sleeve 28 and integral lifting-head 29 may be lifted at will from the standard and from engagement with the nut 27 to permit the proper lubricating or removal of the screw, nut, gear, and other parts.

From the foregoing it is believed that the use, operation, and advantages of the improved jack will be fully and clearly understood.

Having thus described the invention, what is claimed is—

1. A lifting-jack embodying a hollow standard, an upstanding screw rotatably mounted in the standard, a nut engaged upon the screw, a sleeve proportioned to be

slidably inserted in the standard and provided with an annular recess defining a shoulder adapted to engage the nut, a lifting-head carried by the sleeve, and means for rotating the screw.

2. A lifting-jack embodying a supporting-base provided with a threaded opening, a hollow standard threaded in said opening, an upstanding screw rotatably mounted in the standard, a nut engaged upon the screw, a sleeve proportioned to be slidably inserted in the standard and to embrace and engage the nut, a lifting-head carried by the sleeve and means for rotating the screw.

3. A lifting-jack embodying a hollow standard, an upstanding screw mounted within the standard, a gear rigidly carried at the lower end of the screw and having a ball-race within its under side, a pinion engaging the gear and mounted upon a shaft extending without the standard, a ratchet-wheel carried upon the shaft externally of the standard, a lever pivoted upon the shaft a pawl carried by the lever for engagement with the ratchet-wheel, a nut engaging the screw, a sleeve proportioned to be slidably placed within the standard and provided with an annular shoulder for engagement with the nut, and a lifting-head carried by the sleeve.

4. A lifting-jack embodying a base provided with a central depression, a tubular standard detachably secured to the base, a screw disposed within the standard and provided with a bevel-gear, a plate carried by the gear and provided with depending concentric flanges defining raceways, a pinion engaging the gear for rotating the screw and a bearing-plate carried by the standard and interposed between the base and the concentric flanges.

5. A lifting-jack embodying a base having a threaded opening, a tubular standard having a threaded portion for engagement with the threads on the base and provided with an inwardly-extending wear-plate, a screw disposed within the standard and having a bevel-gear secured thereto, a plate secured to the bevel-gear and provided with raceways, antifriction-balls disposed between the raceways and wear-plate, a nut engaging the screw, a sleeve slidably mounted within the standard and provided with an annular shoulder for engagement with the nut, a pinion engaging the bevel-gear and means for rotating the pinion to actuate the screw.

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

JOHN RUSSELL.

Witnesses:

R. ALDERSLEY,

ROY BUNSTINE.