

H. S. & C. P. NEATS.  
LIFTING JACK.  
APPLICATION FILED JULY 5, 1912.

1,047,107.

Patented Dec. 10, 1912.

2 SHEETS—SHEET 1.

Fig. 3.

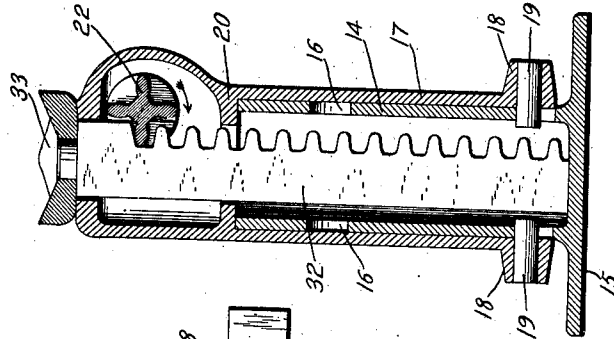


Fig. 2.

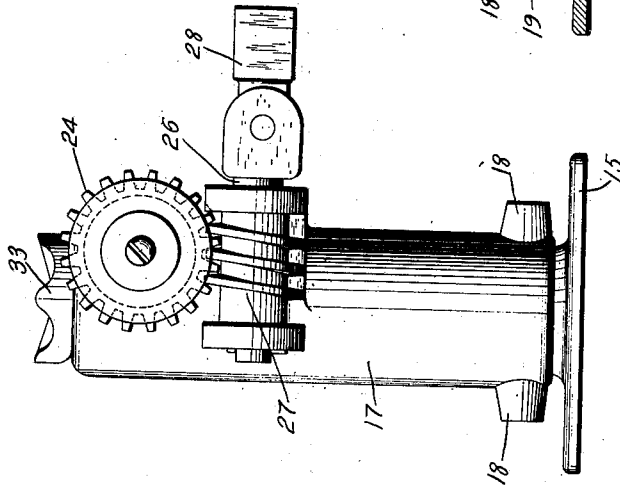
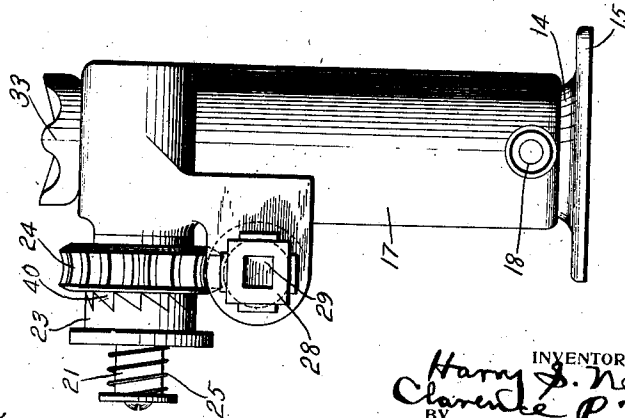


Fig. 1.



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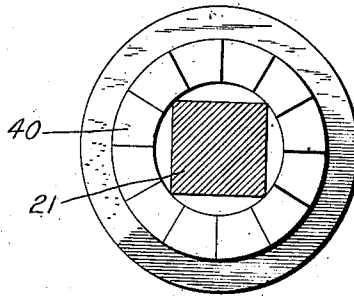
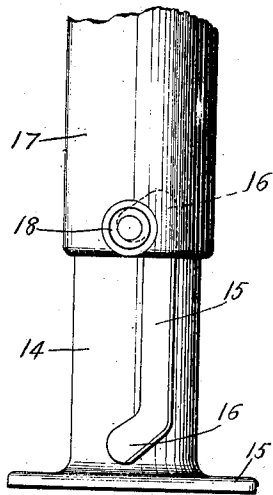
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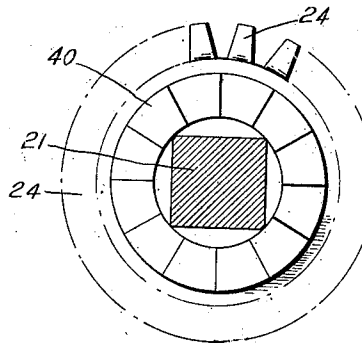
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2 SHEETS—SHEET 2.

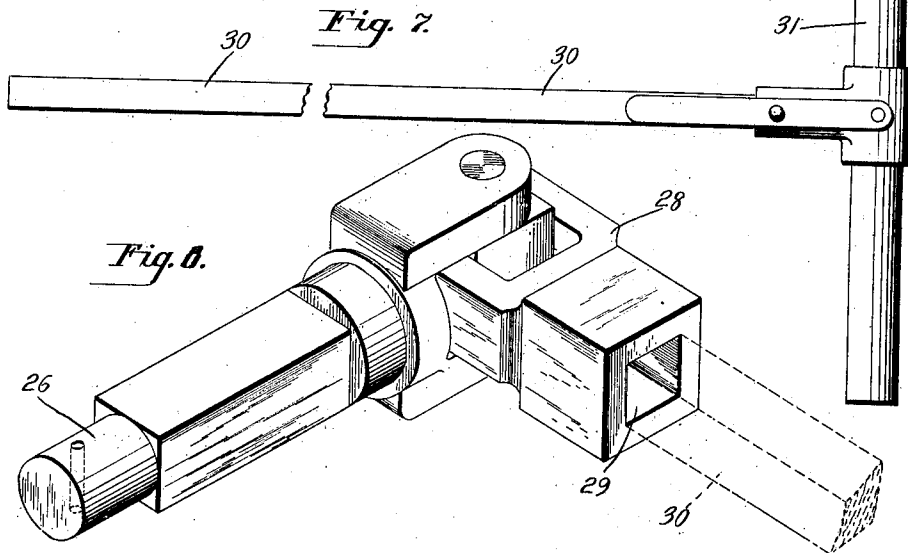
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

HARRY S. NEATS AND CLARENCE P. NEATS, OF EAST ORANGE, NEW JERSEY.

## LIFTING-JACK.

1,047,107.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed July 5, 1912. Serial No. 707,786.

*To all whom it may concern:*

Be it known that we, HARRY S. NEATS and CLARENCE P. NEATS, citizens of the United States, and residents of East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

Our invention relates to lifting jacks and more particularly to the type of such devices as are used for lifting vehicles and the like for repairing purposes, and the object of our invention is to provide a lifting jack of great strength, easily and quickly operated but occupying small space so that it may easily be carried in an automobile or similar vehicle and brought into use if occasion should require the lifting of an axle thereof to replace a tire or for any other purpose. We do not, however, limit ourselves to any particular size or to the application to any specific purpose, nor do we wish to limit our invention to the particular construction which is here shown and described, as it is obvious that more or less variation can easily be made by those skilled in the art, without departing from the spirit and scope of our invention.

In the accompanying drawings, Figure 1 is a side elevation of a lifting jack constructed according to our invention; Fig. 2 is a front elevation of the same; Fig. 3 is a transverse vertical section of the same; Fig. 4 is an elevation of the lower part of the invention, showing the means by which the outer sleeve is fixed in an elevated position upon the standard, as hereinafter described; Figs. 5 and 6 are detail views of a portion of the mechanism; Fig. 7 is a plan view of the operating handle; and Fig. 8 is a perspective view of the jointed connection of the handle. Figs. 5, 6, 7 and 8 are drawn to a scale larger than that of Figs. 1, 2, 3 and 4.

In carrying our invention into effect in the embodiment thereof which we have selected for the purpose of description and which we have shown in the accompanying drawings, we provide a tubular standard 14 (best shown in Fig. 4) which is provided with a base 15. This standard is provided with slots 15 having the ends thereof formed into laterally downwardly extending bends 16 (see Figs. 3 and 4). These slots are preferably two in number and located at approximately opposite points in the wall of the tubular standard 14. Slidably

mounted upon the standard 14 is an exterior member 17. This member 17 is provided near its lower end with lugs 18 in which are set studs 19, which project inwardly beyond the inner surface of the member 17 and which slide in the slots 15 of the standard 14; these lugs and studs are best shown in Fig. 3. Near the upper end of the member 17 is located an interior annular flange or shoulder 20 which, when the member 17 is in its lowered position, rests upon the top of the standard 14.

Suitably journaled in the upper portion of the member 17 is a shaft 21, which bears near its inner end, within the interior of the said member, a gear wheel 22. Located on a squared end of said shaft, outside of the member 17, so as to rotate with said shaft, but capable of sliding motion upon the same longitudinally thereof, is a ratchet 23, which engages with a similar ratchet 40 fast upon the worm gear 24, which worm gear is loose upon the round part of the shaft 21. This construction is shown in detail on a larger scale in Figs. 5 and 6. A spring 25 (see Fig. 1) operates to keep these two ratchets normally in operative connection, but permits the ratchet 23 to recede from the ratchet 40 of the worm gear 24, so as to permit said worm gear 24 to rotate freely on said shaft.

Suitably journaled in the member 17, somewhat above the middle thereof, is a shaft 26 bearing a worm 27. The outer end of this shaft 26 is provided with a universal joint 28, in which is a squared socket 29 which is adapted to receive the square end of an operating bar 30 which may, if desired, be provided with a cross piece or handle 31.

Located within the standard 14 is a rack bar 32, the upper end of which projects through an opening in the top of the said standard and through the member 17 and bears a rest 33. As shown more particularly in Fig. 3, the gear wheel 22 is adapted to engage with the teeth of this rack bar.

The operation of our invention is as follows: If the axle or other object to be lifted by the jack is moderately low, so that the jack in its lowered position as shown in Fig. 2 will reach conveniently near to the axle, the jack is placed in position. The rack bar 32 is then raised by hand until it touches the axle, the teeth of the ratchets 23 and 40 disengaging so that the shaft 21 may rotate backward without rotating the worm gear

24, which is of course held against backward rotation by its engagement with the worm 27. The operating bar 30 is then inserted into the square socket 29 and rotated. The joint 28 permits this bar to be bent more or less so as to allow of the operation of the mechanism from a position other than directly in front of the jack, which is often desirable, as will be readily understood. By rotating this bar the shaft 26 and the worm 27 are rotated, the latter engaging with the worm gear 24, which, acting through its ratchet 40 and the ratchet 23 and the shaft 21, causes the gear wheel 22 to elevate the rack bar 32 and thereby lift the object placed upon the jack. Should the object to be lifted be too high for the rack bar 32 to reach when the jack is in the lowered position shown in Fig. 3, the member 17 is raised, the studs 19 sliding up through the slots 15, and then, upon giving the member 17 a partial rotation or twist, the studs pass into the upper bends 16 of the said slots and the member 17 is held in the elevated position as shown in Fig. 4; the bar 30 is then operated to elevate the rack 32 in the same manner as heretofore described. In order to restore the rack 32 to its lowered position, the ratchet 23 is withdrawn from its engagement with the ratchet 40.

The advantages of our invention will be obvious from what has been above said. It will be seen that in using a jack constructed according to our invention the operating handle can be bent or turned and operated from any convenient point, the handle being, for instance, put in between the spokes of a wheel, or turned toward the front or the rear or otherwise as desired.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is as follows:

1. A lifting jack, comprising in combination a standard, a stem slidably mounted in said standard, a rack on said stem, a shaft rotatably mounted in said standard and provided with a gear adapted to engage with said rack, the outer end of said shaft being square-ended and bearing a ratchet mounted thereon and adapted to slide longitudinally thereof, a gear loose on said shaft inside of said square-end provided with a ratchet adapted to engage with said first mentioned ratchet when the two ratchets are placed in operative contact with each other, a second shaft rotatably mounted on said standard and provided with a worm adapted to engage with said last named gear, and means adapted to rotate said second shaft.

2. A lifting jack, comprising in combination a standard, a stem slidably mounted in said standard, a rack on said stem, a shaft rotatably mounted in said standard and pro-

vided with a gear adapted to engage with said rack, the outer end of said shaft being square-ended and bearing a ratchet mounted thereon and adapted to slide longitudinally thereof, a gear loose on said shaft inside of said square-end provided with a ratchet adapted to engage with said first mentioned ratchet when the two ratchets are placed in operative contact with each other, a spring adapted to normally hold said ratchets in operative engagement, a second shaft rotatably mounted on said standard and provided with a worm adapted to engage with said last named gear, and means adapted to rotate said second shaft.

3. A lifting jack, comprising in combination a standard, a telescopic sleeve slidably mounted upon said standard, a stem slidably mounted in said standard, a rack on said stem, a shaft rotatably mounted in said standard and provided with a gear adapted to engage with said rack, the outer end of said shaft being square-ended and bearing a ratchet mounted thereon and adapted to slide longitudinally thereof, a gear loose on said shaft inside of said square-end provided with a ratchet adapted to engage with said first mentioned ratchet when the two ratchets are placed in operative contact with each other, a second shaft rotatably mounted on said standard and provided with a worm adapted to engage with said last named gear, and means adapted to rotate said second shaft.

4. A lifting jack, comprising in combination a standard, a telescopic sleeve slidably mounted on said standard, a stem slidably mounted in said standard, a rack on said stem, a shaft rotatably mounted in said standard and provided with a gear adapted to engage with said rack, the outer end of said shaft being square-ended and bearing a ratchet mounted thereon and adapted to slide longitudinally thereof, a gear loose on said shaft inside of said square-end provided with a ratchet adapted to engage with said first mentioned ratchet when the two ratchets are placed in operative contact with each other, a spring adapted to normally hold said ratchets in operative engagement, a second shaft rotatably mounted on said standard and provided with a worm adapted to engage with said last named gear, and means adapted to rotate said second shaft.

In witness whereof we have hereunto signed our names this 26th day of June 1912, in the presence of two subscribing witnesses.

HARRY S. NEATS.  
CLARENCE P. NEATS.

Witnesses:

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FRANK M. MUNN.