F. MILLER.

LIFTING JACK.

APPLICATION FILED JUNE 16, 1919.

1,342,057.

Patented June 1, 1920.

2 SHEETS—SHEET 1.

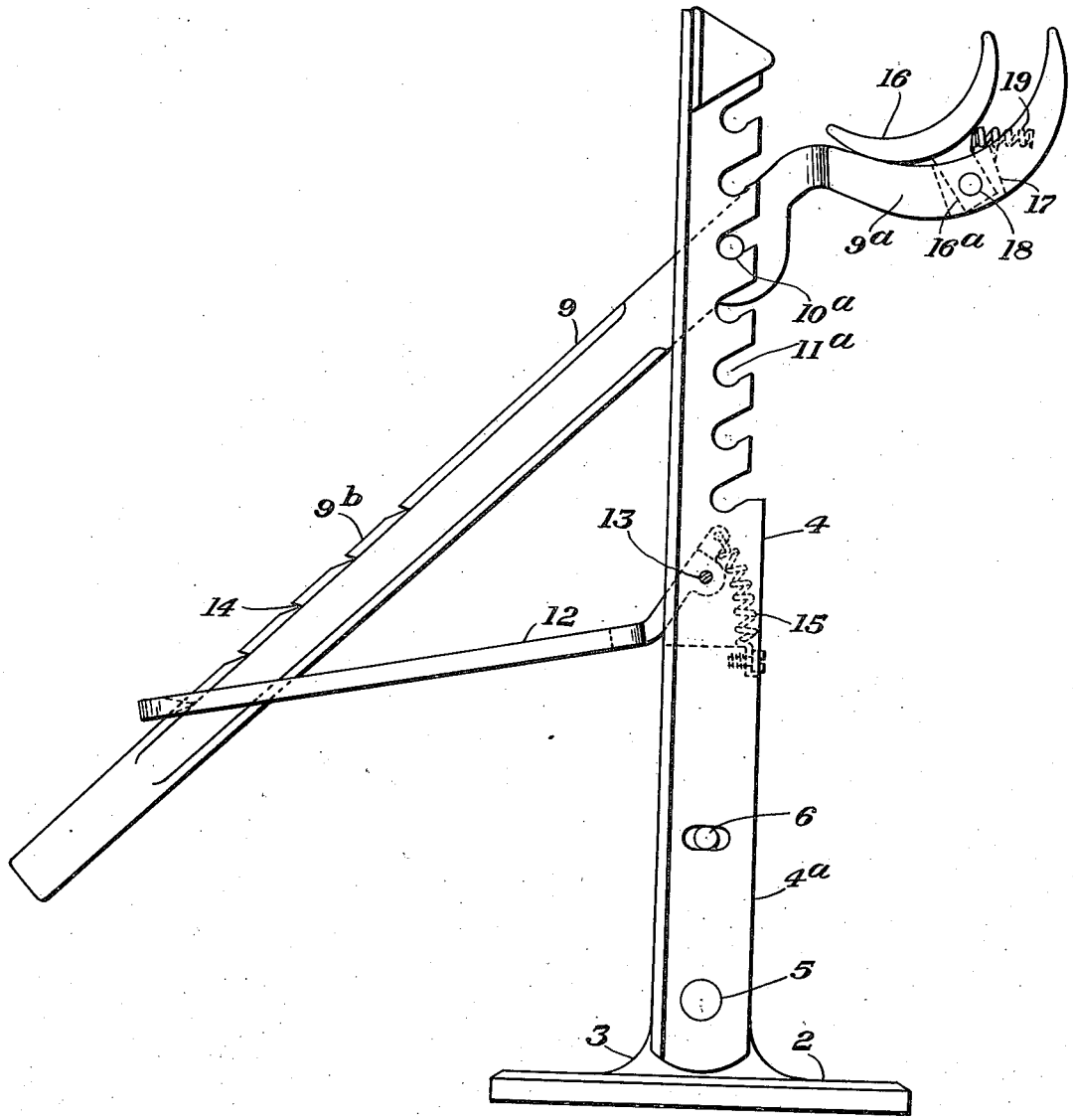


Fig. 1.

INVENTOR

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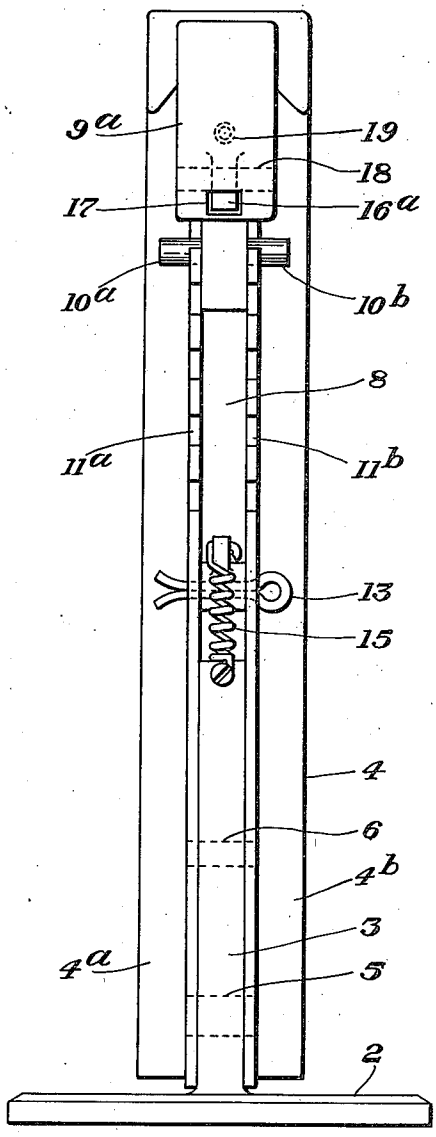


Fig. 2.

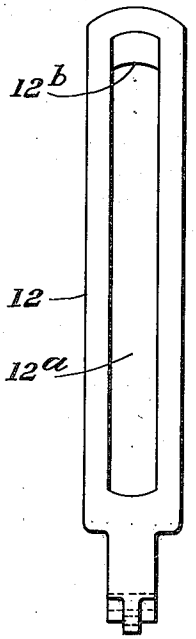


Fig. 3.

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FRED MILLER, OF BRADDOCK, PENNSYLVANIA.

LIFTING-JACK.

1,342,057. Specification of Letters Patent. Patented June 1, 1920.

Application filed June 16, 1919. Serial No. 304,643.

To all whom it may concern:

Be it known that I, FRED MILLER, a citizen of the United States, residing at Braddock, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

My invention relates to jacks, and particularly to jacks which are designed for lifting road vehicles, such as motor cars and motor trucks.

One feature of my invention is the provision of a jack having a lifting lever fulcrumed on an upright, and a latch for locking the lever in any one of a plurality of different positions.

Another feature of my invention is the provision of a jack having a fulcrumed lifting lever, and a cradle mounted to swing on the lifting foot of the lever, to avoid scraping the part of the vehicle with which the jack comes in contact.

Still another feature of my invention consists in mounting the upright member of the jack to swing on its supporting base, so that the lifting foot of the lifting lever may move in a vertical line while elevating the load.

I will describe one form of jack embodying my invention, and will then point out the novel features thereof in claims.

In the accompanying drawings Figure 1 is a view showing in side elevation one form of jack embodying my invention. Fig. 2 is a front elevation of the jack shown in Fig. 1. Fig. 3 is a detail view showing a latch 12 embodied in the jack shown in the preceding views.

Similar reference characters refer to similar parts in each of the several views.

Referring first to Figs. 1 and 2, the jack comprises a base plate 2 adapted to rest on the ground or floor, which plate is provided with an upwardly projecting block 3. Attached to this block 3 is an upright member 4, the lower end of which comprises two spaced legs 4^a and 4^b located on opposite sides of the block 3. Passing through suitable holes in the block 3 and the legs 4^a and 4^b is a pin 5 about which the member 4 may swing through a small angle. The movement of the member 4 with respect to the block 3 is limited by a second pin 6 which passes through a round hole in the block 3 and through two horizontally elongated holes in the two legs 4^a and 4^b. It will be seen, therefore, that the upright member 4 can swing around the pin 5 as a center through an angle determined by the length of the elongated holes in the legs of this member. The reason for this construction will appear hereinafter.

The upper part of the member 4 is provided with a slot 8 through which passes a lifting lever 9 having a lifting foot 9^a and a handle 9^b. Projecting from the opposite sides of this lever are trunnions 10^a and 10^b. The front of the upright member 4 is provided with notches 11^a and 11^b located on opposite sides of the slot 8, which notches serve as bearings for the lever trunnions 10^a and 10^b. By virtue of this construction, it will be clear that the lever may be fulcrumed at a plurality of points at different elevations on the upright member 4, the point which is chosen for any given load depending on the initial height of the load from the ground or floor.

The operation of the parts thus far described, is as follows: Assuming that an axle of a motor car is to be lifted, the lifting lever is trunnioned on the upright member at such elevation that when the lifting foot 9^a rests against the underside of the axle this foot is at or near its lowest position; the handle 9^b is then considerably above the horizontal position. The jack is then placed in such position on the ground that the upright member 4 is tilted forward on the pin 5, that is, tilted in the direction of the lifting foot 9^a or toward the right as viewed in Fig. 1. The axle is then elevated by pushing down on the handle 9^b. During this movement of the lever 9, the upright member 4 first swings back on pin 5 until the lever reaches the horizontal position, whereupon if the movement of the lever is continued, the member 4 again swings forward. The result of this swinging movement of the upright member is that the lifting foot 9^a moves in a vertical direction, thus avoiding any horizontal motion of the axle during the lifting process.

If the load is too great to be easily lifted by merely pushing down on the handle 9^b, the leverage may be increased to the desired amount by placing a piece of pipe of suitable size over the handle 9^b.

It is, of course, desirable to lock the lever 9 after the load has been lifted. To accomplish this I provide a latch 12 (see Figs. 1 and 3) which is pivotally mounted on a

pin 13 passing through the upright member 4. This latch is provided with a slot 12^a through which the lever 9 passes, and the inner surface of the free end of the latch is provided with a knife-edge 12^b which cooperates with notches 14 cut in the upper side of the handle 9^b. This latch is acted on by a spring 15 which tends to swing the latch upwardly to the vertical position wherein it rests against the back of the upright member 4, so that the latch normally occupies this position when the jack is not in use. After a load has been elevated to the desired height, the latch is swung down by hand and the knife-edge 12^b is placed in the nearest notch 14 on the lever handle, thus locking the lever with the load elevated. To release the load, it is only necessary to push handle 9^b down far enough to remove the knife-edge from the notch 14, whereupon the latch swings up to its vertical position due to the action of the spring, and the load may be let down.

If the foot 9^a of the lifting lever were applied directly to the load, it is evident that a scraping action would occur due to the fact that the movement of this foot is in an arc of a circle of which the trunnions 10^a and 10^b are the center. If the part of the load to which the jack is applied is painted, as is usually the case with a motor car axle or axle housing, this scraping action would be likely to mar or remove the paint. To avoid such result, I preferably provide the lifting foot with a cradle 16 which swings with respect to the foot so that the cradle rests in fixed position against the load while the latter is being elevated. The cradle is provided with a lug 16^a which projects downwardly into a slot 17 in the foot 9^a, and the cradle rocks on a pin 18 passing through this lug and the foot 9^a. The cradle is biased to a rearward position by a spring 19 acting on the lug 16^a. While the load is being elevated, this cradle swings forwardly and so it rests in fixed position on the load.

It will be seen that by virtue of the pivotal mounting of the upright member 4 on the base 2, and the pivotal connection between the cradle 16 and foot 9^a, the ultimate result is a movement of the cradle in a vertical line and in fixed position with respect to the load.

Although I have herein shown and described only one form of jack embodying my invention, it is understood that various changes and modifications may be made therein within the scope of the appended claims without departing from the spirit and scope of my invention.

Having thus described my invention, what I claim is:

1. A jack comprising a base, an upright member pivotally mounted on said base, a lifting lever fulcrumed in said member and having a lifting foot, and a cradle mounted to swing on said foot and biased to one extreme position.

2. A jack comprising a base, an upright member pivotally mounted on said base, a lifting lever fulcrumed in said member and having a lifting foot, a cradle pivotally mounted in said foot, and a spring for biasing said cradle to one extreme position.

3. A jack comprising a base, an upright member mounted on said base and arranged to swing with respect to the base, a lifting lever fulcrumed in said upright member and having a lifting foot, and a cradle mounted to swing on said foot.

4. A jack comprising a base, an upright member mounted on said base and arranged to swing in one vertical plane with respect to the base, a lifting lever fulcrumed in said upright member and having a lifting foot, and a cradle mounted to swing on said foot in the same vertical plane as that in which said upright member swings.

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

FRED MILLER.

Witnesses:
A. L. VENCILL,
A. HERMAN WEGNER.