Dec. 8, 1925. 1,564,713

H. E. REITER

JACK

Filed Aug. 3, 1925 2 Sheets-Sheet 1

Fig. 1.

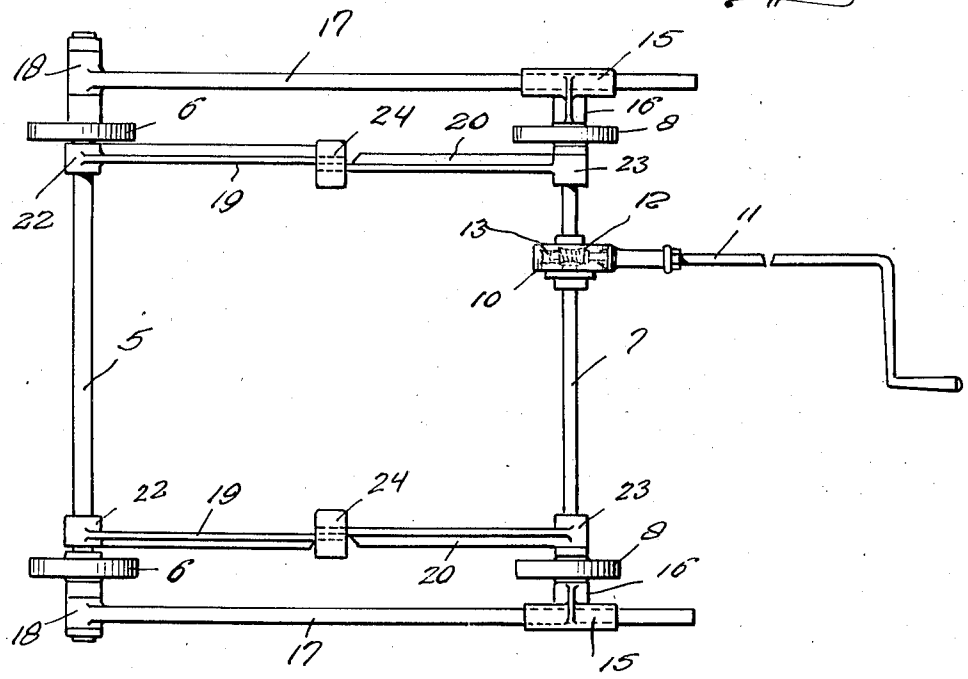
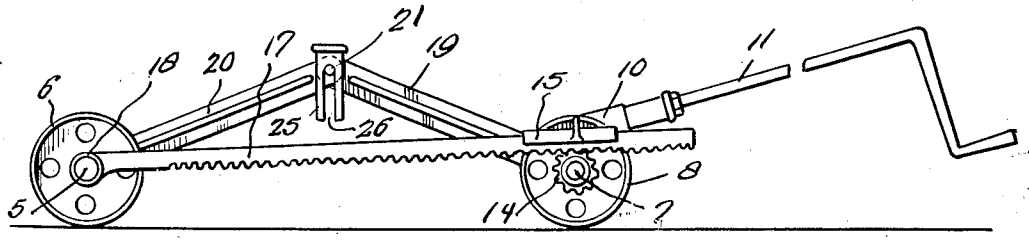


Fig. 2.



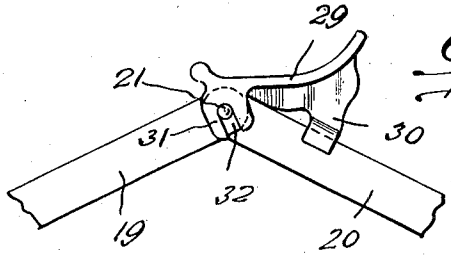


Fig. 3.

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Fig. 3.

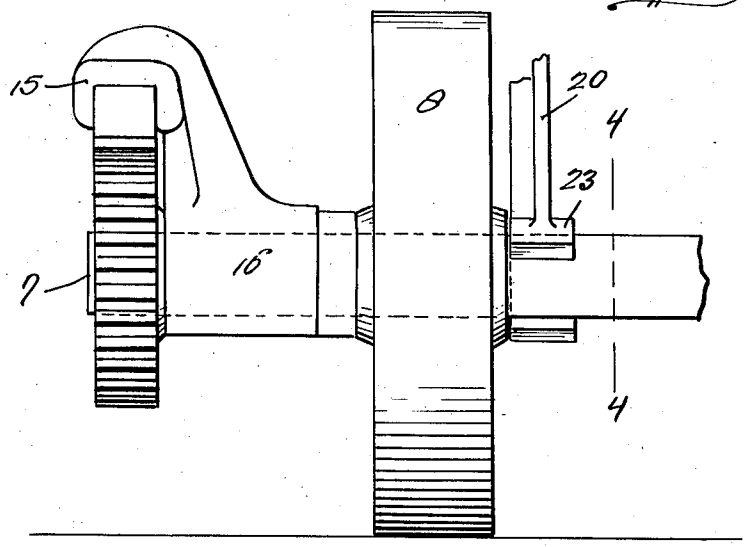


Fig. 4.

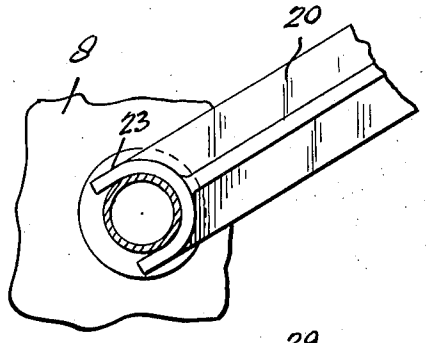


Fig. 5.

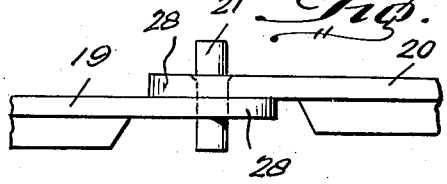


Fig. 6.

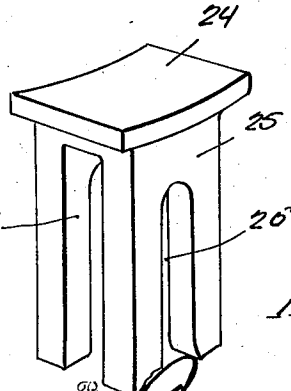
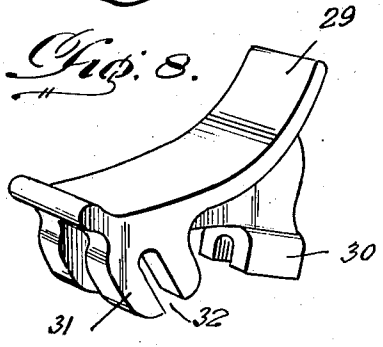


Fig. 8.



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Patented Dec. 8, 1925. 1,564,713

UNITED STATES PATENT OFFICE.

HARRY E. REITER, OF NAPOLEON, OHIO.

JACK.

Application filed August 3, 1925. Serial No. 47,323.

To all whom it may concern:

Be it known that I, HARRY E. REITER, a citizen of the United States, residing at Napoleon, in the county of Henry and State of Ohio, have invented certain new and useful Improvements in a Jack, of which the following is a specification.

The present invention relates to a jack which is designed particularly for lifting vehicles, such as automobiles and the like, and has for its principal object to provide a wheeled structure which may be conveniently and easily moved from place to place so as to be positioned properly for lifting the vehicle.

Another very important object of the invention is to provide a jack structure of this nature which is actuated by a worm drive so that the load will be maintained in any desired position without the necessity of using a pawl and ratchet structure as is now quite common.

Another very important object of the invention is to provide a jack structure wherewith it is possible to lift a considerable great weight with the minimum expenditure of labor.

A still further very important object of the invention is to provide a jack having an exceedingly simple construction, one which is very strong and durable, inexpensive to manufacture, efficient and reliable in operation, not likely to easily become out of order, readily assembled and disassembled, and otherwise well adapted to the purpose for which it is designed.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will hereinafter be more fully described and claimed.

In the drawings:—

Figure 1 is a top plan view of the jack embodying the features of my invention,

Figure 2 is a side elevation thereof,

Figure 3 is an enlarged fragmentary end elevation showing one corner of the jack structure,

Figure 4 is a detail section taken substantially on the line 4—4 of Figure 3,

Figure 5 is a detail view showing the pivoted knuckles of the lifting arms,

Figure 6 is a detail perspective view of one of the shoes,

Figure 7 is a fragmentary view of the lifting arms with another form of shoe thereon, and

Figure 8 is a perspective view of said shoe.

Referring to the drawings in detail it will be seen that numeral 5 designates an axle having journaled thereon wheels 6. Another axle 7 has journaled thereon wheels 8. The axles 5 and 7 are disposed in parallelism and one wheel 6 is aligned with one wheel 8. A housing 10 is journaled on an intermediate portion of the axle 7, and has rotatably mounted therein a crank shaft 11, having thereon a worm 12 disposed interiorly of the housing and meshing with a worm 13 keyed to the axle 7 within the housing 10. Pinions 14 are fixed to the ends of the axle 7 and rack guides 15 are journaled by means of collars 16 to the axle 7 adjacent the pinions 14. Rack bars 17 have sleeves 18 at one end journaled on the axle 5. The teeth of these rack bars 17 are held in engagement or mesh with the pinions 14 by rack guides 15.

Lifting arms 19 and 20 are arranged in pairs and have their ends pivoted together by pins 21. The other ends of the arms 19 and 20 are engaged with the axles 7 and 5 respectively. Said other ends of arms 19 are in the form of sleeves 22 journaled on the axle 5 while the said other ends of arms 20 are in the form of yokes 23, detachably engageable with shaft 7. A pair of shoes 24 is provided with depending shanks 25 slotted as at 26 and 27. These slots 26 and 27 are rectangularly disposed to each other so that the shank may straddle the arms at their knuckle portions 28, and the pins 21 which pass through these knuckle portions.

In using the jack the same is pushed or pulled under the vehicle, and the crank shaft 11 is actuated so that the pinions 14 cause the rack bars 19 to move the axles 5 and 7 toward each other. As these axles 5 and 7 move toward each other, the arms 19 and 20 are swung in relation to each other so as to decrease the angle therebetween, thereby raising upwardly on the shoes 24, and lifting whatever may be in engagement therewith. The vehicle or object raised by the jack will be maintained in its raised position without the necessity of using further mechanism because of the worm 12, and worm gear 13, since, as is well known, the worm gear cannot rotate the worm.

In Figures 7 and 8 a modification of the shoe has been shown. In this modified form of the shoe, the body is curved as is indicated at 29, and a yoke 30 is provided at one end which is adapted to straddle one of the arms 19, 20. A pair of lugs 31 depend from the body and straddle the elbows of these arms and are provided with slots 32 for receiving the pivot pin 21. With this shoe it is possible to use the jack under an axle or the like, and the shape thereof will prevent the axle from slipping therefrom.

It will be apparent that this jack structure is exceedingly convenient since it may be very easily and quickly placed in the proper position for lifting purposes, and after the same has lifted the vehicle or object it may be moved with the vehicle or object thereon to a desired position. The structure allows considerable leverage so that vehicles of great weight may be easily lifted. Furthermore, because of the detachable engagement of the yokes 23 with the axle 5 it will be seen that the device may be easily stored in an out of the way position. The structure is very durable in spite of its simplicity, and the present embodiment has been disclosed merely by way of example since in actual practice it attains the features of advantage enumerated as desirable in the statement of the invention, and the above description. It will be apparent, however, that numerous changes in the details of construction, and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described the invention, what I claim as new is:—

1. In a jack, a pair of axles, wheels journaled on the axles, a pair of rack bars having one end journaled on one axle, pinions on the other axle, guide means for holding the racks in mesh with the pinions, means for actuating the last mentioned axle, arms having their ends journaled on the axles and pivoted together, and shoes on the pivoted portions of the arms.

2. In a jack, a pair of axles, wheels on the axles, a pair of rack bars pivoted at their ends to one of the axles, the other axle having a pair of pinions fixed thereto for meshing with the rack bars, rack guides on said other axle for holding said rack bars in mesh with said pinions, a pair of arms, one arm having one end journaled on one axle, and the other arm having one end detachably engaged with the other axle, the other ends of said arms being pivoted together, shoes engaged with said pivoted ends of said arms, and means for rotating the axle having the pinions thereon.

3. In a jack, a pair of axles, wheels on the axles, a pair of rack bars pivoted at their ends to one of the axles, the other axle having a pair of pinions fixed thereto for meshing with the rack bars, rack guides on said other axle for holding said rack bars in mesh with said pinions, a pair of arms, one arm having one end journaled on one axle, and the other arm having one end detachably engaged with the other axle, the other ends of said arms being pivoted together, shoes engaged with said pivoted ends of said arms, and means for rotating the axle having the pinions thereon, said means comprising a housing journaled on the axle having the pinions, a worm gear fixed to the last mentioned axle within the housing, a shaft journaled in the housing and having a worm within the housing in mesh with the worm gear.

In testimony whereof I affix my signature.

HARRY E. REITER.