Sept. 12, 1933. C. E. BERGLUND 1,926,610

JACK

Filed March 13, 1933

Fig. 1.

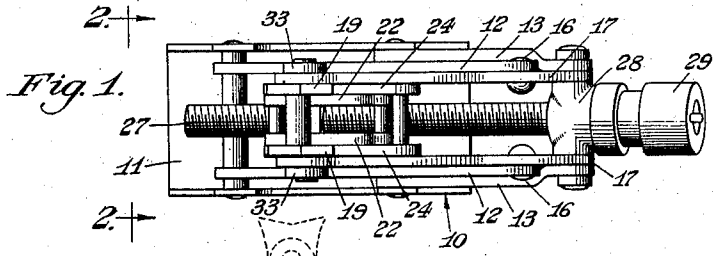



Fig. 2.

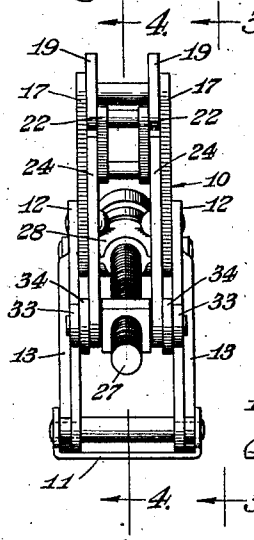



Fig. 3.

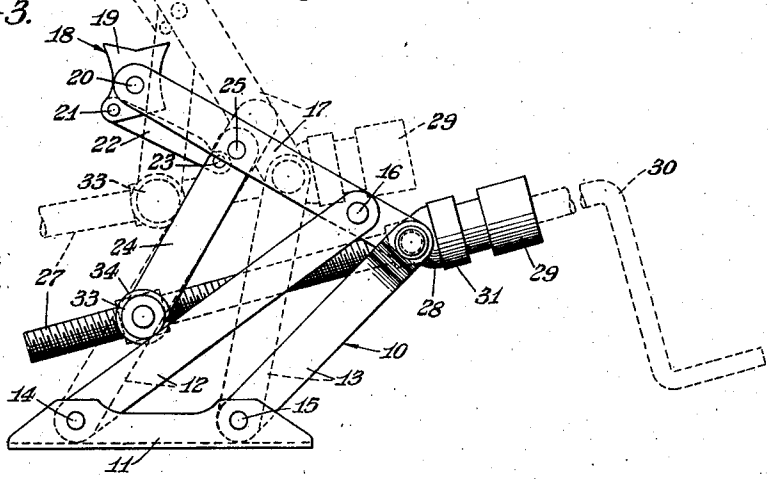



Fig. 4.

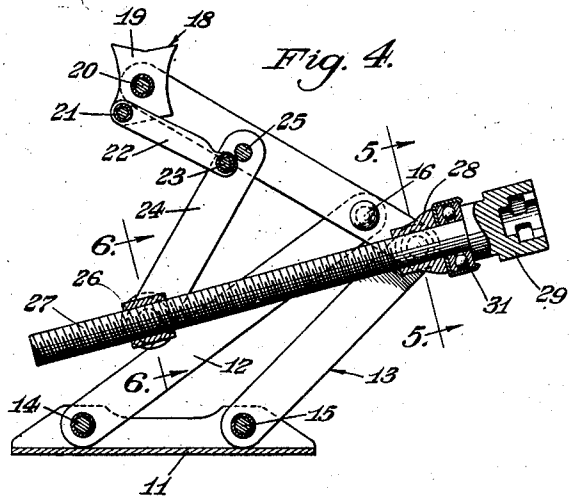



Fig. 5

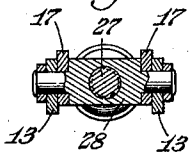
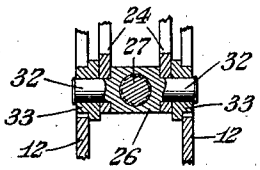



Fig. 6.




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# UNITED STATES PATENT OFFICE

1,926,610

## JACK

Carl E. Berglund, Joliet, Ill.

Application March 13, 1933. Serial No. 660,580

8 Claims. (Cl. 254—126)

This invention relates to certain novel improvements in jacks.

An object of this invention is to provide a new, improved, efficient, and relatively simple and inexpensive lifting jack, particularly designed for lifting automotive vehicles.

Another object of the invention is to provide a new and improved automotive vehicle jack which may be collapsed into a relatively very small vertical space so that the jack may be readily inserted under the very lowest automotive vehicle axles and the load seat arranged in lifting position, while still allowing for maximum lift of the load seat.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing, showing the preferred form of construction and in which:

Fig. 1 is a top plan view of a preferred form of the new jack;

Fig. 2 is a front elevational view on line 2—2 in Fig. 1;

Fig. 3 is a side elevational view on line 3—3 in Fig. 2;

Fig. 4 is a sectional view on line 4—4 in Fig. 2;

Fig. 5 is a sectional detail view on line 5—5 in Fig. 4; and

Fig. 6 is a sectional detail view on line 6—6 in Fig. 4.

The new jack is generally indicated at 10 in the drawing and includes a base 11. Having their lower ends pivotally mounted upon the base 11, as at 14, is a supporting beam in the form of a pair of supporting members 12. The upper ends of these supporting members 12 are pivotally connected, as at 16, to the lifting beam which includes a pair of spaced arms 17 and a load or axle seat 18 which is generally indicated at 18. The load or axle seat 18 consists of a pair of spaced plates 19 that are pivotally mounted on a pintle 20 that extends between the lifting beam arms 17 at their upper ends. Each of these load seat plates 19 has a lower end portion that is pivotally connected to a pintle 21 which is extended between the plates 19. Also pivotally connected to the pintle 21, between the load seat plates 19, is a pair of stabilizer links 22. These stabilizer links 22 are pivotally connected at their lower or inner ends, by means of a pintle 23, to a pair of lifting links 24. These lifting links 24 have their upper ends pivotally connected to the lifting beam arms 17, as at 25. Pivotally attached to the lower ends of the lifting links 24 is a traveler 26 which is threaded onto the jack operating screw 27 for movement axially therealong. At its upper end the jack operating screw 27 carries a yoke 28 to which the lifting beam arms 17 are pivotally connected at their lower ends (Fig. 5). Interposed between the base 11 and the yoke 28 is a bracing beam which includes a pair of braces 13 having their upper ends pivotally connected to the yoke 28 (Fig. 5), the lower ends of which braces are pivotally mounted upon the base 11, as at 15.

Attached to the upper end of the jack operating screw 27 is a socket 29 for the reception of a tool, such as the crank 30, for operating the screw 27, and arranged between the yoke 28 and the socket 29 is a bearing structure 31.

Mounted on each of a pair of trunnions 32 that are formed on the traveler nut 26 (Fig. 6) is a guide member in the form of a flanged roller 33. These rollers 33 bear upon the upper edges of the pivotal supporting members 12 and are guided for movement thereover by the flanges 34 that are formed on the rollers 33.

*Operation.*—The operation of the new jack is illustrated in Fig. 3, in which the parts are shown in part by lowered position in full lines and in different raised positions by dotted or broken lines. The raising or lifting operation is effected by inserting the crank 30 in the socket 29 and then rotating the crank (clockwise as seen looking from right to left in Fig. 3) to rotate the operating screw 27. This motion of the operating screw 27 causes the traveler 26 to move axially along the screw 27 toward the yoke 28. This causes the guide rollers 33, which are in effect parts of the traveler 26, to travel up the supporting members 12. This movement of the traveler 26 and its flanged guide rollers 33 up the supporting members 12 raises the lifting links 24, which in turn raise the lifting beam arms 17 and the load seat 18 to raise the load.

Counterclockwise rotation of the crank 30 and jack screw 27 (as seen looking from right to left in Fig. 3) causes the traveler 26 and its guide rollers 33 to move axially downwardly on the operating screw 27 and during this movement the guide rollers 33 travel down the supporting members 12. This downward movement of the traveler 26 and its guide rollers 33 acts through the lifting links 24 to drop the latter and lower the lifting beam arms 17 and the load seat 18. During both the lifting and lowering operations the links 22 act to stabilize the load seat 18 and to keep the upper edges or tops of the load seat

plates 19 in substantially horizontal position at all times.

The construction and design of the new jack makes it possible for the same to be collapsed into a relatively very small vertical space so that the new jack may be inserted under even the very lowest automotive vehicle axles and the jack arranged in lifting position while still allowing for a maximum lift of the load seat 18.

It is to be noted that the load bearing upon the seat 18 of the new jack is well distributed in the new jack by the lifting beam (17—17) to the seat 11; this distribution being primarily by way of the lifting links 24, traveler 26, and supporting members 12, and secondarily directly from the lifting beam (17—17) through the supporting beam (12—12) and the bracing beam (13—13) to the base 11 to stabilize the base and keep the same and the jack from tipping.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

1. A jack comprising a base, an operating screw, a yoke on said screw, a pair of load lifting arms pivotally connected at one end to the yoke, a pair of supporting members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said lifting arms, a pair of brace members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said yoke, a traveler threaded onto said screw for movement axially therealong, a pair of lifting links pivotally connected at their lower ends to said traveler and at their upper ends to said lifting arms, and a pair of guide members carried by said traveler having bearing engagement upon said supporting members for movement thereover.

2. A jack comprising a base, an operating screw, a yoke on said screw, a pair of load lifting arms pivotally connected at one end to the yoke, a pair of supporting members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said lifting arms, a pair of brace members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said yoke, a traveler threaded onto said screw for movement axially therealong, a pair of lifting links pivotally connected at their lower ends to said traveler and at their upper ends to said lifting arms, a pair of guide members carried by said traveler having bearing engagement upon said supporting members for movement thereover, a load seat pivotally mounted on the other end of said lifting arms, and a pair of stabilizer links pivotally attached at one end to said load seat and at their other ends to said first-named links.

3. A jack comprising a base, an operating screw, a yoke upon said screw, a lifting beam pivotally connected at one end to said yoke, a pair of supporting members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said lifting beam, a pair of brace members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said yoke, a traveler threaded onto said screw for movement axially therealong, a pair of lifting links pivotally connected at their lower ends to said traveler and at their upper ends to said lifting beam, and a pair of guide members carried by said traveler having bearing engagement with said supporting members for movement thereover.

4. A jack comprising a base, an operating screw, a yoke upon said screw, a lifting beam pivotally connected at one end to said yoke, a pair of supporting members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said lifting beam, a pair of brace members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said yoke, a traveler threaded onto said screw for movement axially therealong, a pair of lifting links pivotally connected at their lower ends to said traveler and at their upper ends to said lifting beam, a pair of guide members carried by said traveler having bearing engagement with said supporting members for movement thereover, a load seat carried by said beam, and a pair of stabilizer links each pivotally connected at one end to said load seat and at their other ends to said lifting links.

5. A jack comprising a base, an operating screw, a yoke upon said screw, a lifting beam pivotally connected at one end to said yoke, a pair of supporting members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said lifting beam, a bracing beam interposed between and pivotally connected to said yoke and base, lifting links pivotally connected at their upper ends to said lifting beam, and a traveler threaded onto said screw for movement axially therealong, said traveler having the lower ends of said links pivotally connected thereto and having portions bearing upon and guided by said supporting members for movement thereover.

6. A jack comprising a base, an operating screw, a yoke upon said screw, a lifting beam pivotally connected at one end to said yoke, a supporting beam pivotally mounted at its lower end upon said base and pivotally connected at its upper end to said lifting beam, a bracing beam interposed between and pivotally connected to said yoke and base, lifting links pivotally connected at their upper ends to said lifting beam, and a traveler threaded onto said screw for movement axially therealong, said traveler having the lower ends of said links pivotally connected thereto and having portions bearing upon and guided by said supporting beam for movement thereover.

7. A jack comprising a base, an operating screw, a yoke upon said screw, a lifting beam pivotally connected at one end to said yoke, a pair of supporting members pivotally mounted at their lower ends upon said base and pivotally connected at their upper ends to said lifting beam, a bracing beam interposed between and pivotally connected to said yoke and base, lifting links pivotally connected at their upper ends to said lifting beam, a traveler threaded onto said screw for movement axially therealong, said traveler having the lower ends of said links pivotally connected thereto and having portions bearing upon and guided by said supporting members for movement thereover, a load seat pivotally carried by said lifting beam, and stabilizer links interposed between and pivotally connected to said load seat and said lifting links.

8. A jack comprising a base, an operating screw,

a yoke upon said screw, a lifting beam pivotally connected at one end to said yoke, a supporting beam pivotally mounted at its lower end upon said base and pivotally connected at its upper end to said lifting beam, a bracing beam interposed between and pivotally connected to said yoke and base, lifting links pivotally connected at their upper ends to said lifting beam, a traveler threaded onto said screw for movement axially therealong, said traveler having the lower ends of said links pivotally connected thereto and having portions bearing upon and guided by said supporting beam for movement thereover, a load seat pivotally carried by said lifting beam, and stabilizer links interposed between and pivotally connected to said load seat and said lifting links.

CARL E. BERGLUND.