F. DAVY.

LIFTING JACK.

APPLICATION FILED APR. 11, 1913.

1,088,263. Patented Feb. 24, 1914.

Fig. 1

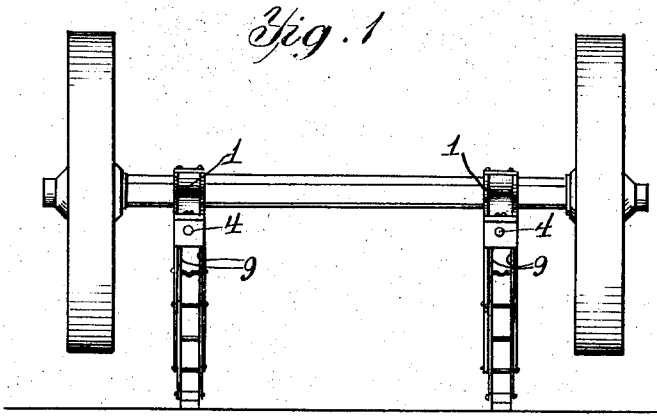


Fig. 2

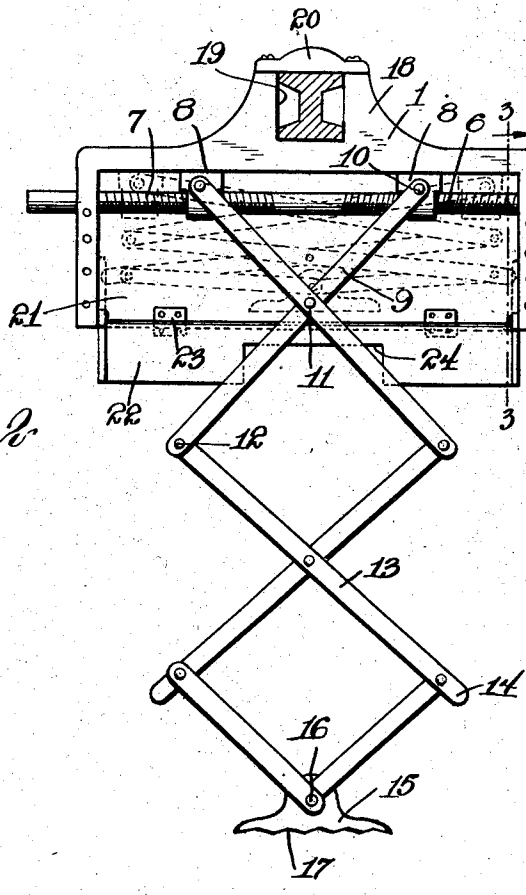
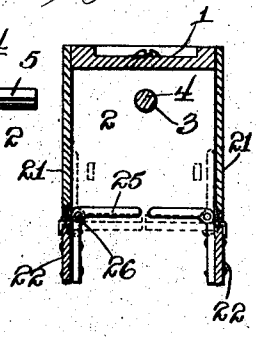


Fig. 3



WITNESSES

A. T. Davy

W. E. Walker

INVENTOR

Frank Davy

by Wilkinson Brewer

his Attorney

UNITED STATES PATENT OFFICE.

FRANK DAVY, OF ST. THOMAS, ONTARIO, CANADA.

LIFTING-JACK.

1,088,263. Specification of Letters Patent. Patented Feb. 24, 1914.

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To all whom it may concern:

Be it known that I, FRANK DAVY, subject of the King of Great Britain, residing at St. Thomas, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification.

This invention relates to a lifting jack particularly adapted for use in connection with automobiles, carriages and various types of vehicles.

The primary object of the invention contemplates the provision of a simple, compact and easily operated lifting jack adapted to be arranged beneath the axle of a vehicle for elevating the wheels thereof, the said jack broadly comprising a set of collapsible lazy-tongs so constructed and arranged with respect to a suitable operating screw as to be contracted or expanded according to the rotation of the said screw.

A further object of the invention resides in the provision of specially devised door mechanism adapted to be automatically operated by the expansion and extraction of the said tongs.

The above and additional objects are accomplished by such means as are illustrated in their preferred embodiment in the accompanying drawings, described in the following specification and then more particularly pointed out in the claims which are appended hereto and form a part of this application.

In describing my invention in detail reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is an elevation illustrating the application of the invention; Fig. 2 is a side elevation of one of the lifting jacks, one side of the casing removed; and Fig. 3 is a section on line 3—3 of Fig. 2, the interior mechanism of the casing having been removed.

Referring now more particularly to the drawings, wherein is illustrated the preferred form of my invention the numeral 1 designates a metallic boxing or casing within which the mechanism comprising the invention is contained. The ends 2 of the said casing are formed integrally therewith and are provided with an opening 3, the said opening effecting a suitable bearing for a longitudinally extending screw 4, one end of which is made angular in cross section as at 5 to facilitate the rotation of the said screw by any tool or implement such as a wrench or the like. The said screw 4 is provided at one end with a right hand threaded portion 6 while the opposite end thereof is provided with a left hand threaded portion 7, each portion of the said screw extending through a block member 8, the upper face of which engages the under side of the casing top 1. By turning or rotating the screw 4 it will be seen that the said blocks 8, by reason of their inability to turn with the said screw, are laterally moved thereupon and are either drawn toward or moved away from each other according to the rotation of the said screw.

Arms 9 are pivotally secured upon each side of the block members 8, and the arrangement of the said arms being the same upon both sides of the block, but one set will be described in detail. By pivotally connecting the arms 9 about midway the length thereof as at 11, and providing additional arms likewise centrally pivoted and connected to the lower extremity of the arms 9 as at 12 it will be seen that a set of lazy-tongs are provided. Any number of arms may be employed in connection with the invention without in any way effecting the utility thereof and for the purpose of operating the door mechanism, to be hereinafter fully described, the lower pair of arms 13 comprising the lazy-tongs are made longer so as to provide an extension 14, upon their lower extremities. A metallic base 15 is arranged at the lower end or extremity of the lazy-tong mechanism above described, one set of arms being pivotally secured as at 16 to each side of the said metallic base, the latter having a serrated under face 17 for the purpose of permitting a secure grip for the jack during the operation thereof. A head 18 is formed integrally with the casing 1, the said head having a cut out portion or recess 19 formed therein within which the axle of the vehicle to be lifted is fitted as is

clearly shown in Fig. 2 of the drawings. A removable cap 20 is mounted upon the head 18 of the casing and is employed for the purpose of retaining the axle within the recess provided therefor. Sides 21 are detachably secured to the casing 2 to which doors 22 are hingedly connected as at 23, the said doors 22 having cut out portions 24 formed centrally therein within which the base or foot 17 of the lazy-tong mechanism is adapted to fit when the same is in closed or contracted position. A bell crank lever 25 is pivoted as at 26 to the ends 2 of the casing, one arm of the lever being fixedly secured to the inner face of the door 22, the other arm extending at right angles thereto and directly within the path of the projection or extension 14 of the lower lazy-tong arm 13 during the expansion or contraction of the said tongs. By providing a door constructed as above described upon each side 21 of the casing it will be seen that they are automatically opened by reason of the engagement between the extensions 14 of the lazy-tong arms and the arms of the bell crank lever 25.

Having described fully and in detail the construction of the device, the operation thereof will now be set forth. The arms being contracted as is clearly shown by the dotted lines in Fig. 2 of the drawings the device is in a condition ready to be applied to the axle of the vehicle to be lifted. After securing or fastening the axle within the recess 19 of the casing provided for that purpose a rotation of the longitudinally extending screw 4 will cause the block members 8 to laterally move upon the said screw, such movement being toward the center of the casing. By moving the blocks 8 the lazy-tong mechanism is expanded and the base or foot block 17 comes into engagement with the ground, floor or other structure upon which the vehicle is supported. A continued turning of the screw 4 will cause the axle and the vehicle to be slightly lifted from such support where it is retained until a rotation in the opposite direction of the said screw is effected. During the opening or expansion of the lazy-tong mechanism the extensions 14 which normally support one of the arms of the bell crank lever in an upright position, are forced downwardly, thereby allowing the said arm of the bell crank lever to fall, thus causing the other arm of the said lever which is secured to the door to likewise fall and in this manner widely open the doors of the casing during the expansion of the tong mechanism arranged therein. In contracting the tong mechanism the said extensions 14 again engage the arms of the bell crank levers 25, raising them during the upward movement of the said extensions and causing the doors 22 to automatically close as the extensions 14 recede within the casing. By the provision of the cut out portions 24 of the doors an opening is arranged centrally therein into which the base 17 extends, thereby permitting free operation of the said doors without any interference whatsoever from the said base.

It will be seen from the above, taken in connection with the accompanying drawings that the expansion of the lazy-tong mechanism and the opening of the doors are simultaneous; that the provision of the detachable sides 21 will permit access to the interior mechanism of the casing should occasion demand; and that by inclosing the entire mechanism within the said casing when the device is not in use a dust proof housing or boxing of the said mechanism is provided.

In reduction to practice, I have found that the forms of my invention, illustrated in the drawings and referred to in the above description, as the preferred embodiment, is the most efficient and practical; yet realizing that the conditions concurrent with the adoption of my device will necessarily vary, I desire to emphasize the fact that various minor changes in details of construction, proportion and arrangement of parts may be resorted to, when required, without sacrificing any of the advantages of my invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In combination with a lifting jack comprising a casing having lazy-tong mechanism operable therein, doors for said casing, and means actuated by movement of said lazy-tong mechanism for operating said doors, as and for the purpose set forth.

2. In combination with a lifting jack comprising a casing having lazy-tong mechanism operable therein, doors for said casing, levers connected to said doors, and means carried by said lazy-tong mechanism adapted to engage said levers to operate said doors, as and for the purpose set forth.

3. In combination with a lifting jack comprising a casing having lazy-tong mechanism operable therein, a pair of hinged doors for said casing, an operating lever connected to each door, and means carried by said lazy-tong mechanism adapted for engagement with said levers to automatically operate said doors during the actuation of the said lazy-tong mechanism, as and for the purpose set forth.

4. In combination with a lifting jack comprising a casing having lazy-tong mechanism operable therein, a pair of hinged doors for said casing, said doors being cut away at a point intermediate their ends to provide an opening therein when in closed position, operating levers connected to each

door, the said levers adapted to be engaged by the said lazy-tong mechanism during the expansion or contraction thereof to automatically open or close the said doors, a portion of the said lazy-tong mechanism closing the said door opening, as and for the purpose set forth.

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

FRANK DAVY.

Witnesses:
D. A. McKILLOP,
G. J. McKILLOP.