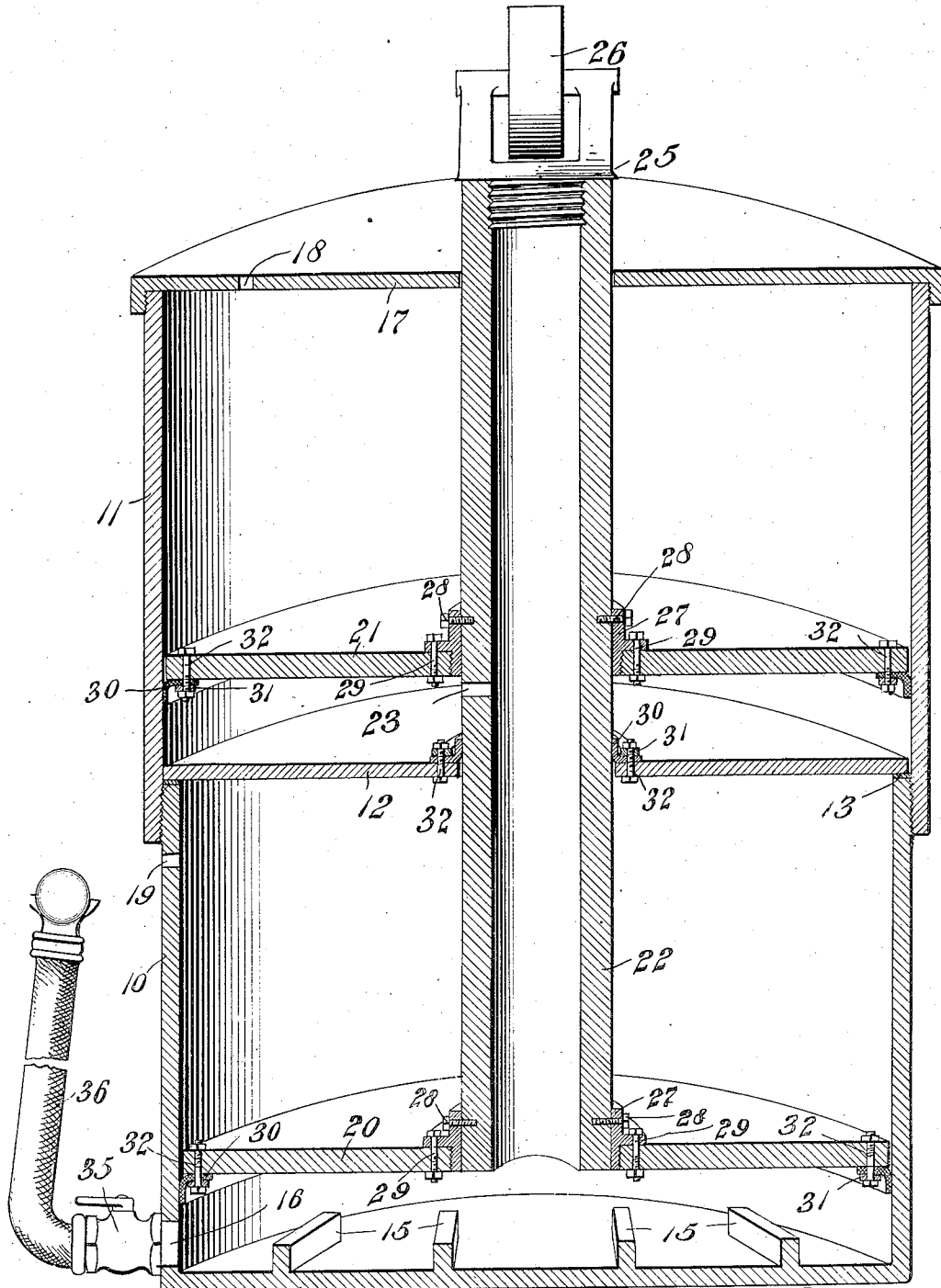


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J. A. TAYLOR.
LIFTING JACK.

APPLICATION FILED DEC. 5, 1905.



WITNESSES:

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JAMES A. TAYLOR, OF BIRMINGHAM, ALABAMA.

LIFTING-JACK.

No. 845,144.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed December 5, 1905. Serial No. 290,451.

To all whom it may concern:

Be it known that I, JAMES A. TAYLOR, a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented a new and useful Lifting-Jack, of which the following is a specification.

This invention relates to fluid-actuated lifting-jacks, and has for its principal object to provide a jack of simple and compact construction that is adapted especially for use in connection with railway work, where it may be coupled to the train-pipe or steam-pipe adjacent to the end of car, and used for raising a portion of the truck in case of a hot box or broken journal.

A further object of the invention is to provide a double or compound jack, in which the cylinders are arranged tandem, and each cylinder receives a separate piston, the pistons being all rigidly connected to a stem on which the weight to be raised is imposed.

A further object of the invention is to provide a compound jack in which all of the parts may be readily opened and disconnected for examination or repairs.

A still further object of the invention is to provide a jack in which the load-receiving member is provided with a roller or the like on which the weight is imposed, so that in case of movement of the weight the jack will not be injured.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawing, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

The accompanying drawing is a sectional perspective view of a lifting-jack constructed in accordance with the invention.

The two cylinders 10 and 11 are preferably provided with a threaded connection, as illustrated, the upper cylinder being of slightly greater diameter than the lower cylinder, and the top of said lower cylinder forming a support for a partition-plate 12, which forms the bottom of the top cylinder and the top of the lower cylinder, a packing-ring 13 being preferably introduced be-

tween the partition and the edge of said cylinder 10. The lower cylinder is provided with a thickened or reinforced base and has a plurality of upwardly-extending flanges or lugs 15, which limit the downward movement of the piston, so that air or steam for actuating the jack may freely enter at the port 16.

The top of the upper cylinder is closed by a detachable cap 17, and in said cap is formed a vent 18, a similar vent 19 being formed in the upper portion of the wall of the lower cylinder to permit the escape of air above the pistons.

The two cylinders 10 and 11 are arranged to receive pistons 20 and 21, respectively, said pistons being rigidly secured to a hollow stem 22. The stem 22 is open at its lower end to permit the passage of air from the lower cylinder and is provided at a point below the piston 21 with a port 23, through which the air may pass to the upper cylinder, so that pressure may be simultaneously exerted on both pistons.

The stem 22 extends through suitable openings formed in the partition 12 and cap 17, and the top of said stem is closed by a block 25, having a threaded connection with the stem and forming bearings for the support of a roller 26, on which the weight of the truck or other object to be raised is imposed, so that in the event of the movement of the truck or other object there will be no danger of breaking or otherwise injuring the jack.

In securing the pistons to the stem each stem is first provided with a flanged collar 27, that is secured by bolts or screws 28 to the stem, and the lower portion of said collar is threaded for the reception of a female thread formed in an opening in the piston. This connection is further strengthened by bolts 29, extending through the pistons and the flange of the collar. At the periphery of each piston is a packing 30, usually in the form of a cup-leather, held in place by ring 31 and bolts 32, and a packing of somewhat similar nature may be employed at the wall of the opening in the partition 12 in order to prevent the escape of a fluid under pressure from the upper to the lower cylinder.

Connected to the inlet-port 16 is a three-way cock 35, to which is connected a flexible pipe 36, the free end of which is preferably provided with a coupling of the type ordinarily used for air-hose couplings, so that when used for railway-work it may be connected to

the train-pipe nearest the point where the jack is to be used.

In use the jack is placed in position and the three-way cock is turned to permit the air, steam, or other fluid to enter the cylinder 10 at a point below the piston 20. A portion of the air will pass upward through the hollow stem 22 and out through port 23 in order to act under the upper piston 21. Both pistons 10 will then be raised, and when the weight has been elevated to the required height the three-way cock is turned to hold the pressure and maintain the load in elevated position. After the work has been accomplished the 15 cock is turned to release position and the air allowed to exhaust.

With a device constructed in accordance with this invention a heavy load may be quickly raised, and the device may be made 20 of such material as to permit its use in places where a single piston-jack of the ordinary type would not be available.

The parts may be opened for examination or repairs by merely unscrewing the cap 17, 25 after which the stem, together with its two pistons and the partition 12 may be removed from the cylinder.

I claim—

1. The combination in a jack, of a pair of 30 superposed cylinders having an admission-port for fluid under pressure, pistons arranged in said cylinders, a hollow stem carrying both pistons and provided with a lateral port through which the pressure-spaces 35 of both cylinders are placed in communication, the upper end of the stem extending through the head of the upper cylinder and forming the load-engaging member.

2. In a lifting-jack, a pair of superposed 40 cylinders, a partition separating the cylinders, pistons disposed in the cylinders, a hollow lifting-stem extending through the upper cylinder and into the lower cylinder, pistons secured to said stem, and means for controlling the admission of fluid under pressure to 45 one of said cylinders.

3. The combination in a lifting-jack, of a pair of superposed cylinders, a hollow lifting-stem extending into said cylinders and ar-

50 ranged to establish communication between them, pistons secured to the stem, means for limiting downward movement of the piston, and means for admitting fluid under pressure into one of said cylinders.

4. The combination in a lifting-jack, of a 55 pair of superposed cylinders, a partition separating the cylinders and arranged to rest on the upper edge of the lower cylinder, said partition being provided with a central opening, a removable cap or head for the upper 60 cylinder, a hollow stem extending through the partition, and cap and arranged to establish communication between the pressure-spaces of the two cylinders, a pair of pistons 65 secured to the stem, the pistons, stem and partition being bodily removable from the cylinders after the cap is detached, and means at the lower portion of the lower cylinder for controlling the inlet and exhaust of 70 fluid under pressure.

5. The combination in a lifting-jack, of upper and lower cylinders having a threaded 75 connection, a partition resting on the upper edge of the lower cylinder and separating the cylinders from each other, said partition being provided with a central opening, a removable cap or cover for the top of the upper 80 cylinder, a hollow stem arranged to slide through the partition and cap, said stem being adapted to establish communication between the pressure-spaces of the two cylinders, a roller arranged at the top of the stem 85 for receiving the load, a pair of pistons having threaded openings at their centers, collars bolted to the stem and having threaded portions screwed into such openings, means 90 at the lower end of the lower cylinder for limiting the downward movement of the pistons, and means connected to the lower cylinder for controlling the admission and exhaust of fluid under pressure.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES A. TAYLOR.

Witnesses:

C. C. ADAMS,
J. H. TAYLOR.