

PNEUMATIC JACK.

1,010,927.

Fig. 1.

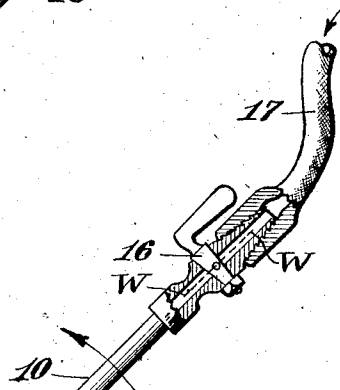
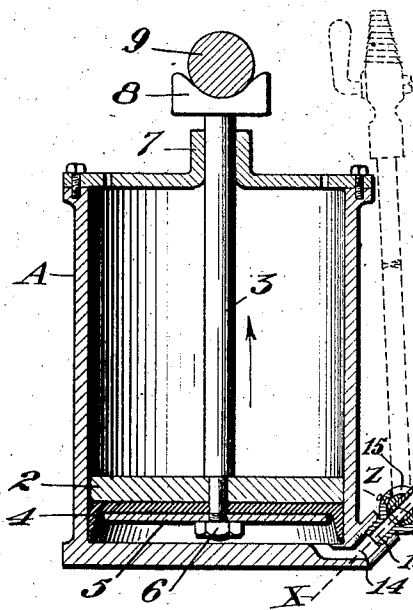


Fig. 4.

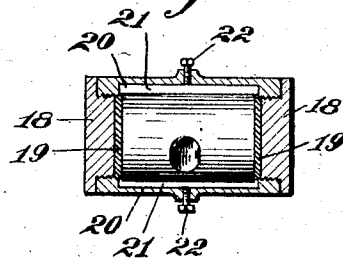
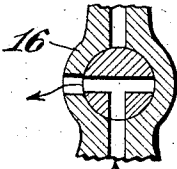
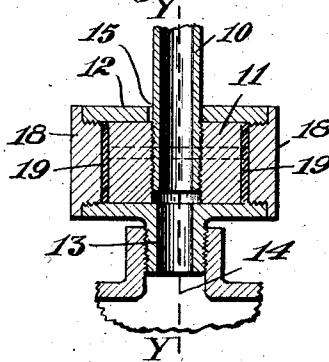


Fig. 5.



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Fig. 2.



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UNITED STATES PATENT OFFICE.

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PNEUMATIC JACK.

1,010,927.

Specification of Letters Patent.

Patented Dec. 5, 1911.

Application filed June 26, 1911. Serial No. 635,310.

To all whom it may concern:

Be it known that I, CLARENCE H. LETCHER, citizen of the United States, residing at San Jose, in the county of Santa Clara and State of California, have invented new and useful Improvements in Pneumatic Jacks, of which the following is a specification.

This invention relates to a pneumatic jack and particularly pertains to a jack which is adapted to be employed for hoisting vehicle bodies and the like.

It is the object of this invention to provide a simple, powerful, practical compact pneumatic lifting jack which is adapted to be readily placed under the axles of low vehicles, such as automobiles, trucks, and the like.

Another object is to provide a jack of the above character having means by which the jack may be placed a distance beneath the vehicle and attached to a suitable source of air supply with very little inconvenience.

The invention consists of the parts and the combination and construction of parts as hereinafter more fully described and claimed having reference to the accompanying drawings, in which—

Figure 1 is a vertical section of the invention. Fig. 2 is an enlarged section on the line X—X, Fig. 1. Fig. 3 is an enlarged section on the line Y—Y, Fig. 2. Fig. 4 is an enlarged section on the line Z—Z, partly in elevation, Fig. 1. Fig. 5 is an enlarged section of the three-way valve on the line W—W, Fig. 1.

In the drawings A represents a cylinder in which is disposed a piston 2; which piston is mounted on the lower end of a piston rod 3 and is adapted to be reciprocated on the cylinder A in a vertical direction by means of air pressure which is delivered into the cylinder A beneath piston 2, as will be later described. A cup leather 4 is mounted on the under side of the piston 2 to prevent the escape of air between the outer periphery of the piston and the inner walls of the cylinder A, and is held in place on the underside of the piston 2 by means of a metal disk 5, which disk passes over a threaded extension on the lower end of the piston rod 3 and is held thereon by a nut 6. The upper end of the piston rod 3 passes through a guide flange 7 formed on the upper end of the cylinder A and has a head 8 formed thereon, which is adapted to bear beneath an axle 9, or other object.

The essence of this invention resides in

providing a pivotally mounted tubular handle 10 which is attached to the lower end of the cylinder A and is adapted to serve the double use of a handle and a means for conducting air under pressure to and from the interior of the cylinder below the piston 2.

The handle 10 is formed of a suitable metallic tubing which is threaded at its lower end into a perforation formed in and passing diametrically through a horizontally disposed cylindrical trunnion 11, which trunnion is revolubly mounted in a tubular casing 12. The casing 12 has a hollow nipple 13 formed thereon; the interior of which registers with the perforation formed in the trunnion 11 and is adapted to be screwed into the outer end of a passage 14, leading to the interior of the cylinder A, beneath the piston 2. The casing 12 is provided with a circumferential slot 15 through which the tubular handle 10 extends; the slot 15 being of such length as to permit of the handle 10 being shifted from the vertical position shown in dotted lines in Fig. 1 to the inclined position shown in full lines; the lower end of the slot 15 acting as an abutment to limit the downward movement of the handle 10.

Air under pressure is delivered to the outer end of the handle 10 from any suitable source of supply through a three-way valve 16, which is mounted on the outer end of the handle 10 and forms a part thereof. The outer end of the valve 16 is corrugated and is adapted to be removably attached to a flexible hose 17 leading from any suitable source of air supply.

As the air delivered through the handle 10 through the cylinder A is under considerable pressure, means are provided for preventing leakage around the pivotal connection between the handle 10 and the cylinder A previously described. This means consists of threaded caps 18 which are screwed in the outer end of the casing 12 and press suitable packing material 19 against the outer end of the revoluble trunnion 11 to prevent the escape of air lengthwise of the trunnion.

Diametrically opposed longitudinally extending grooves 20 are formed in the inner face of the casing 12, and are disposed between the nipple 13 and the ends of the slot 15, in which grooves packing bars or blocks 21 extending the length of the trunnion 11 are disposed. The blocks 21 are faced with

a suitable packing material which bears against the trunnion 11 so as to prevent the escape of air around the trunnion 11 and out the slot 15.

- 5 These blocks 21 are adapted to be moved toward the trunnion 11 to insure a close contact by means of bolts 22 which are threaded in the casing 12 and bear against blocks 21 as shown in Figs. 3-4.
- 10 In the operation of the invention, the cylinder A is so disposed that the head 8 on the piston 3 will be arranged beneath the axle 9 or other body to be raised. The tube 17 is then attached to the outer end of the
- 15 three-way valve 16 on the handle 10 and air under pressure is admitted thereto. The valve 16 is then opened to admit of the passage of air through the tubular handle 10, trunnion 11, nipple 13, and passage 14, into
- 20 the interior of the cylinder A beneath the piston 2. This causes the piston 2 to move upward in the cylinder A and thereby raise the load 9 supported upon the upper end or head 8 of the piston rod 3. The
- 25 moment the load is lifted the desired height the valve 16 is turned so as to shut off the passage of air to the cylinder A and at the same time prevent the back flow of the air from the cylinder A, thus trapping the air
- 30 in the cylinder beneath the piston 2 so as to retain the load in its lifted position. When it is desired to lower the load the valve 16 is turned in the position shown in Fig. 5, to permit the air beneath the piston
- 35 2 in the cylinder A to exhaust and thus permit the piston 2 to travel downward by reason of the load bearing thereon.

The purpose of the pivotal mounting of the handle 10 is to allow the latter to be folded against the side of the cylinder A so that the apparatus may be packed in a small space; which is particularly desirable where the jack is carried as a part of an automobile equipment, for which purpose it is especially adapted.

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

1. In a jack, the combination with a cylinder having a piston therein, of means for conducting fluid under pressure to and from the interior of the cylinder beneath the piston, to cause the piston to reciprocate, said means comprising a hinged rigid tubular handle connected to the cylinder, and
- 55 valved means on said handle for controlling the flow of fluid under pressure therethrough.

2. In a jack, the combination with a cylinder having a piston therein, of means for conducting fluid under pressure to and from the interior of the cylinder beneath the piston, to cause the piston to reciprocate,

said means comprising a rigid tubular handle connected to the cylinder, and valved means on said handle for controlling the flow of fluid under pressure therethrough, said handle hinged to the cylinder so as to stand either parallel with the cylinder and occupy a minimum amount of space, or rest at an angle to the cylinder so as to enable the latter to be pushed in or pulled out from beneath a vehicle.

3. In a jack, the combination with a cylinder having a piston therein, of means for conducting fluid under pressure to and from the interior of the cylinder beneath the piston, to cause the piston to reciprocate, said means comprising a rigid tubular handle, a trunnion on which said handle is mounted, a casing inclosing said trunnion, a slot in said casing through which the handle extends, and a passage connecting the interior of the cylinder to the interior of the handle through said casing and said
- 85 trunnion.

4. In a jack, the combination with a cylinder having a piston therein, of means for conducting fluid under pressure to and from the interior of the cylinder beneath the piston, to cause the piston to reciprocate, said means comprising a rigid tubular handle, a trunnion on which said handle is mounted, a casing inclosing said trunnion, a slot in said casing through which the handle extends, a passage connecting the interior of the cylinder to the interior of the handle through said casing and said trunnion, and a controlling valve on said handle for regulating the flow of fluid under pressure to and from the cylinder.
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5. In a jack, the combination with a cylinder, having a piston therein, of a tubular handle hingedly attached to the cylinder and adapted to assume various positions in relation thereto, said handle adapted to be attached to a conduit leading from a source of fluid pressure to convey the fluid pressure to the interior of the cylinder.
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6. In a jack, the combination with a cylinder, having a piston therein, of a tubular handle hingedly attached to the cylinder and adapted to assume various positions in relation thereto, said handle adapted to be attached to a conduit leading from a source of fluid pressure to convey the fluid pressure to the interior of the cylinder and having a controlling valve mounted thereon.
- 110

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

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CLARENCE H. LETCHER.

Witnesses:

M. J. RANKIN,
Wm. F. JAMES.