

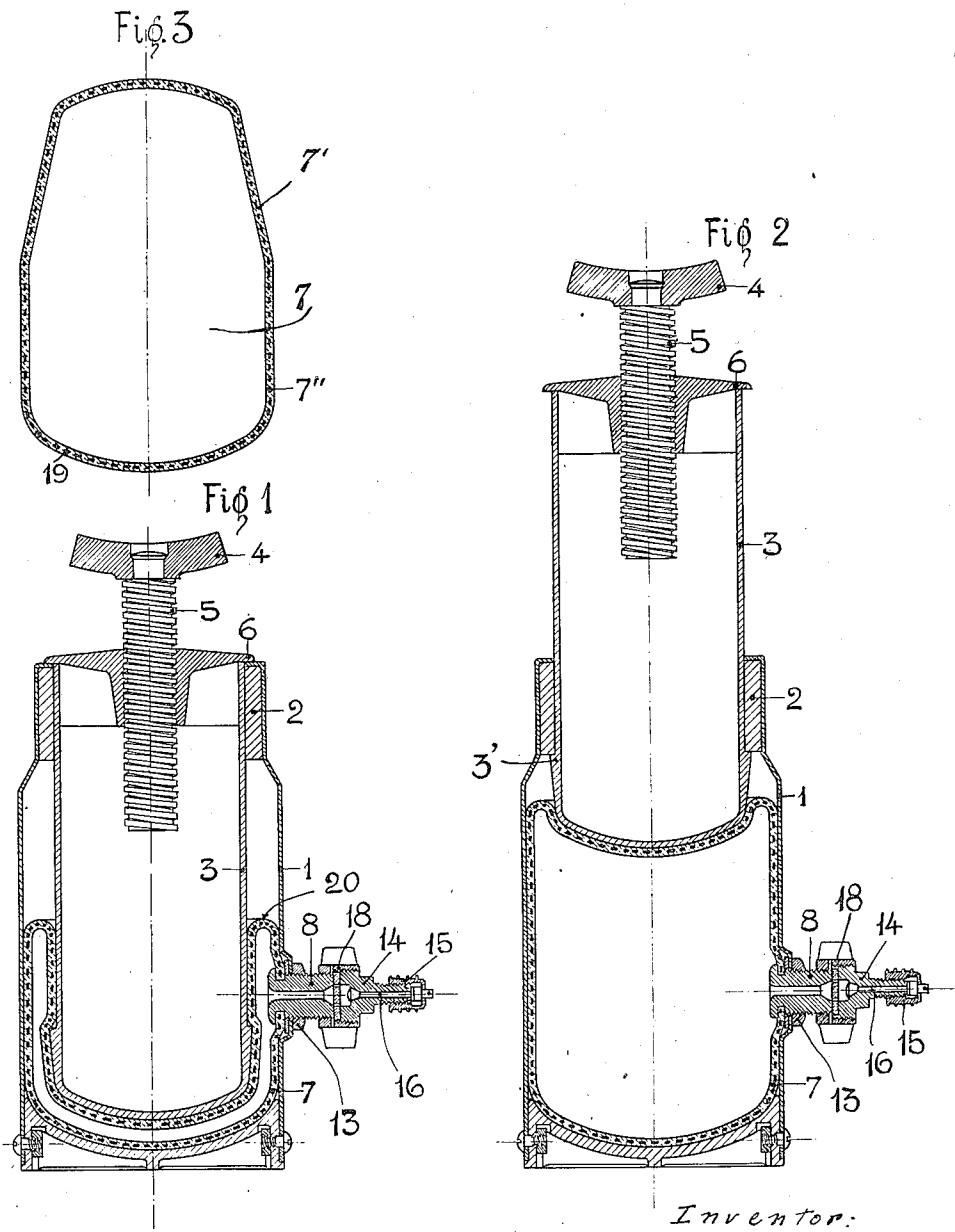
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E. CARETTA

LIFTING JACK

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UNITED STATES PATENT OFFICE.

ETTORE CARETTA, OF TURIN, ITALY.

LIFTING JACK.

Application filed June 6, 1922. Serial No. 566,276.

To all whom it may concern:

Be it known that I, ETTORRE CARETTA, a subject of the King of Italy, residing at Turin, Italy, have invented a new and useful Improvement in Lifting Jacks; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to lifting jacks and more particularly to lifting jacks employed for lifting vehicles. It comprises a stationary base, a lifting member movably guided in said base and a collapsible chamber arranged between said base and member, said chamber being adapted to receive a fluid under pressure for the purpose of lifting said member and the charge resting thereon.

According to the present invention the lifting member movable in the hollow base is so much smaller in size than said hollow base, as to leave a space intermediate its sides and the base wall, and the collapsible and inflatable chamber comprises a frusto-conical portion adapted to enter the other portion of the same chamber when it is collapsed.

A constructional form of an improved jack according to this invention is illustrated by way of example in the accompanying drawings in which:—

Figure 1 is an axial section of the improved jack in its normal position before lifting;

Figure 2 is a similar section showing the lifting member in a raised position;

Figure 3 is a separate view of the air chamber in vertical section,

In the illustrated example the improved jack comprises a hollow stationary base 1 open at the top, and in the mouth 2 of which there is mounted, so as to be capable of vertical motion, a tubular lifting member 3.

This lifting member carries an adjustable head 4, preferably by means of a screw-threaded spindle 5 screwing in a screw-threaded hole in the top 6 of the lifting member 3.

Said member 3 is provided with an abutment 3' for stopping it when it has reached its uppermost position.

Between the inside wall of the base 1 and the outside wall of the member 3 there is a space in which is located a flexible air chamber 7 having preferably the shape

shown in vertical section in Figure 3, which is such that its upper half 7' is frusto-conical in shape and is readily capable of collapsing into its lower half 7'' which constitutes a portion for receiving the upper half as shown in Figure 1.

This air chamber 7 is made of suitable material, for instance rubber, so as to be capable of being inflated and expanding under internal pressure from the shape shown in Figure 1 to that shown in Figure 2. In the case of rubber, the wall of the air chamber 7 is preferably reinforced by a network 19 of suitable material incorporated in the rubber for the purpose of giving it the strength necessary for withstanding high internal pressures while avoiding the necessity of enclosing the air chamber in an outer cover.

To this air chamber 7 there is connected an union 8 (Figures 1 and 2) which is fixed to the wall of the base 1 by means of the nut 13 screwed thereon. In the examples shown in Figures 1 and 2 the union is constituted by an ordinary pneumatic tyre valve comprising a screwthreaded union 14 for a pump socket having a protective cover 15 and a valve 16 adapted to open towards the chamber when a pressure is applied from outside by a pump; the air chamber 7 may thus be inflated by an usual tyre pump.

The said union 14 is preferably connected to the chamber union 8 by means of a winged socket nut 18, for the purpose of releasing it to leave the chamber 7 in free communication with the atmosphere when the pressure is to be discharged from said chamber for lowering the charge or load.

Whatever may be the means adopted for producing an increase of pressure in the chamber 7, the latter can be deflated quickly by releasing the nut 18, whereupon the lifting body 3 will drop down inside the base 1.

The space left free intermediate the base wall and the wall of the lifting member 3 is preferably small, as shown, for the purpose of reducing to a minimum the portion of the chamber 7 subjected to pressure and not supported by rigid parts, and therefore the tensile stress acting on said chamber.

Attention is called to my copending divisional application filed Aug. 6, 1923, Ser.

No. 656,086, dealing with features described or illustrated, but not claimed, in this application.

What I claim as my invention and desire to secure by United States Letters Patent is:—

1. A fluid operated jack comprising a hollow base, a lifting member movable in said base and leaving an annular space intermediate its sides and the wall of said base, an inflatable collapsible chamber in said space and means to admit a gas under pressure to said chamber to inflate it and raise said lifting member.

2. A fluid operated lifting jack comprising a hollow base, a lifting member movable in said base and leaving an annular space intermediate its sides and the wall of said base, an inflatable collapsible chamber in said space, said chamber comprising a frusto-conical portion adapted to enter another portion of said collapsible chamber when collapsed, and means for admitting a gas under pressure to said chamber to expand it and raise said lifting member.

3. A fluid operated lifting jack comprising a hollow base, a lifting member movable in said base and leaving an annular space intermediate its sides and the wall of said base, an inflatable collapsible chamber in said space, said chamber comprising a portion adapted to enter another portion of said collapsible chamber when collapsed,

and a union connected with said chamber, said union admitting a gas under pressure into said chamber to expand it and to raise said lifting member.

4. A fluid operated lifting jack comprising a hollow base, a lifting member movable in said base and leaving an annular space intermediate its sides and the wall of said base, an inflatable collapsible chamber in said space, said chamber comprising a portion for receiving the bottom of said lifting member, and entering another portion of said collapsible chamber when collapsed, and means for admitting a gas under pressure in said chamber to expand it and to raise said lifting member.

5. A fluid operated lifting jack comprising a hollow base, a tubular member movable in said base and leaving an annular space intermediate its sides and the wall of said base, an adjustable load-supporting head on said member, an inflatable collapsible chamber in said space, said chamber comprising an upper frusto-conical portion for supporting the bottom of said movable member and entering the other portion of said collapsible chamber when collapsed, and means for admitting a gas under pressure into said chamber to expand it and to raise said lifting member.

In testimony whereof, I have signed my name to this specification.

ETTORE CARETTA.