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R. A. CLAY

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AEROSOL ACTUATED JACK

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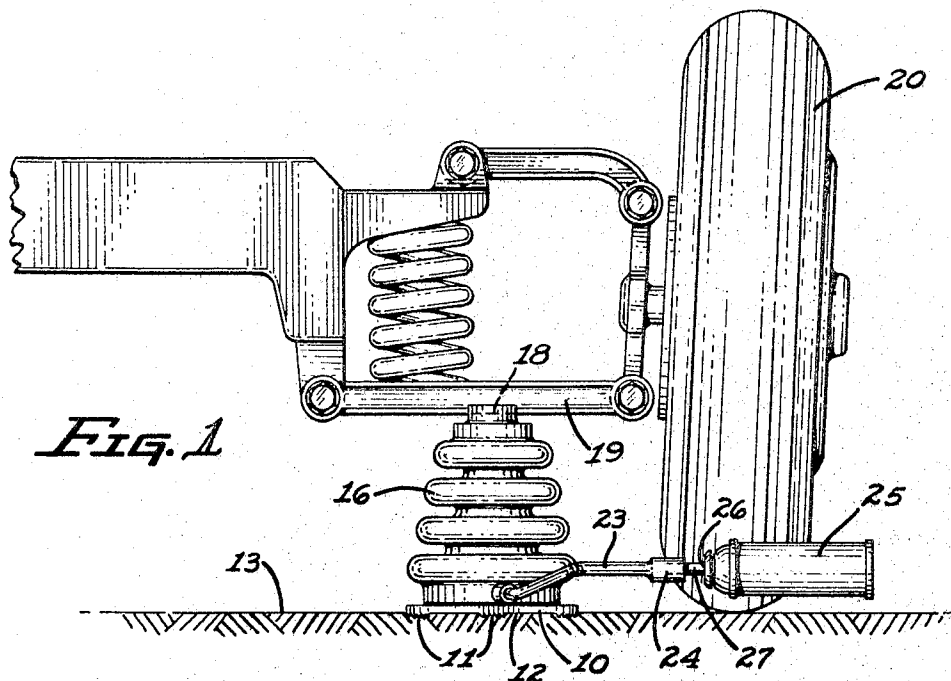


Fig. 1

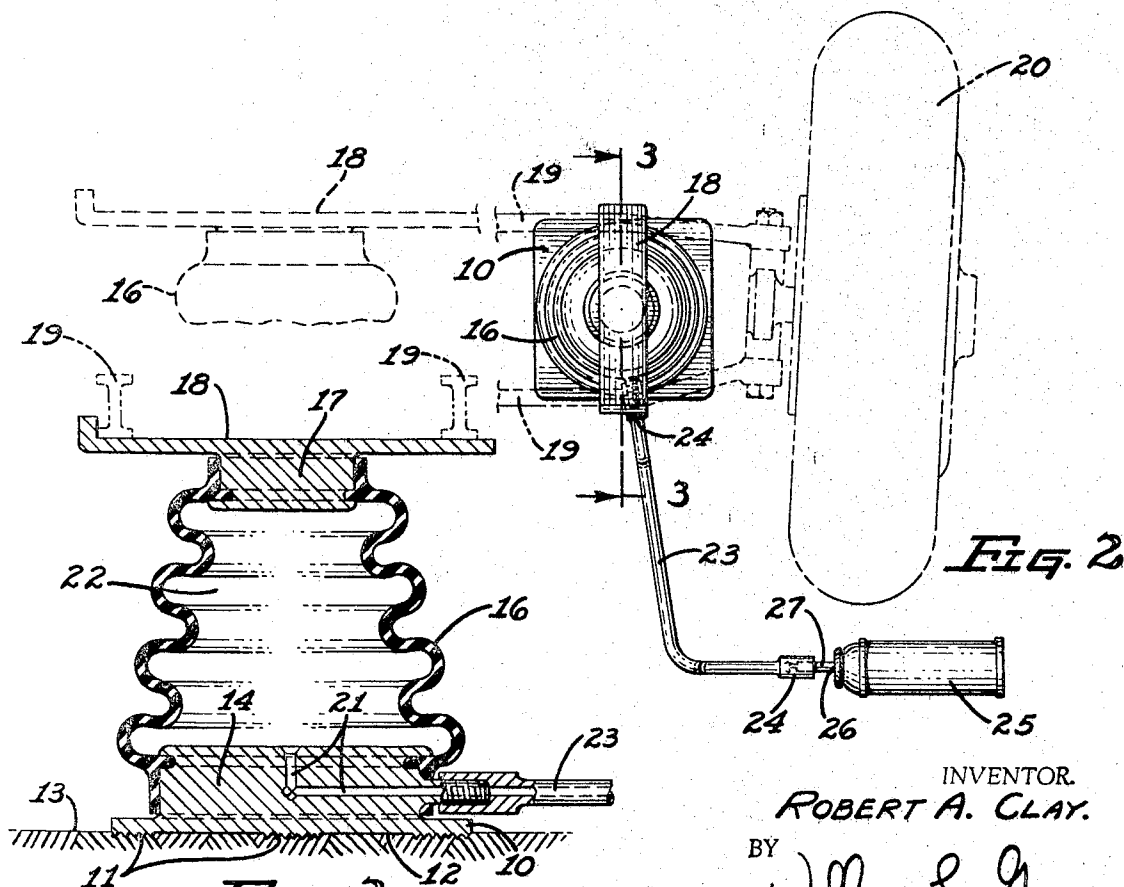


Fig. 2

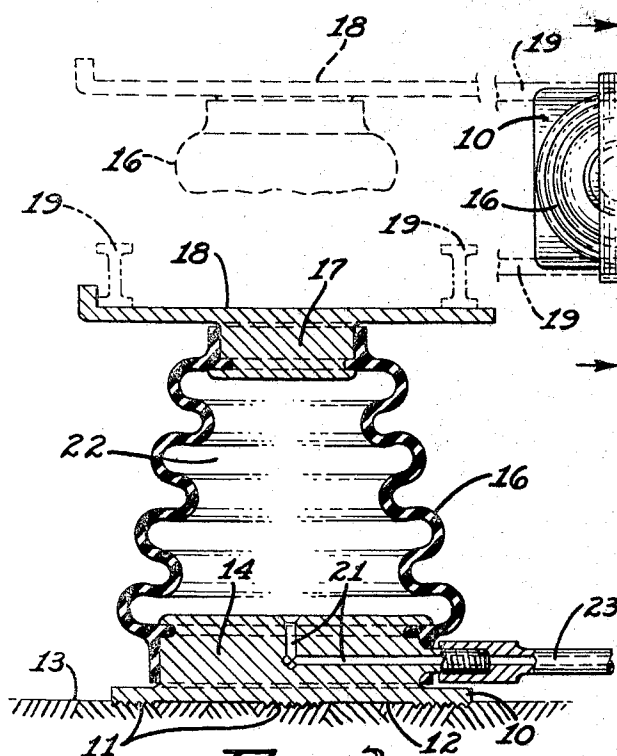


Fig. 3

INVENTOR.
ROBERT A. CLAY.
BY
Willard S. Gower
ATTORNEY.

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AEROSOL ACTUATED JACK

Robert A. Clay, 3616 E. Denton Lane,
Scottsdale, Ariz. 85251

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5 Claims

ABSTRACT OF THE DISCLOSURE

A pneumatically actuatable plastic boot jack energized from an aerosol can for rapidly and easily lifting a motor vehicle for tire changing and the like. The boot is peripherally pleated and upwardly tapered so that successive pleated sections fold down into the next pleated section.

CROSS-REFERENCES TO RELATED APPLICATIONS

There are no cross-references to related applications.

BACKGROUND OF THE INVENTION

The field of this invention lies in jacks and particularly to an aerosol actuated plastic jack.

Heretofore, it has been difficult to insert and remove a mechanical metallic jack from under the motor vehicle for raising the wheel to change the tire. It has also been difficult to store because of the large space such jacks have taken up and the heavy weight involved in handling and manipulating and stowing the jack in the motor vehicle.

There has also been the difficulty with mechanical jacks of trying to raise the car by means of the bumper because it was too difficult to put a mechanical jack under the car.

Former jacks also were difficult to operate and required considerable physical effort and pressure so that weaker persons were not able to properly raise the car with safety and ease.

SUMMARY OF THE INVENTION

In the present invention it is an object to provide a completely collapsible jack which is energized from a pressure tank or aerosol can for raising the vehicle with a minimum or no effort on the part of the operator.

Still another object is to provide a light-weight powerful jack mechanism operated from a pressure source of portable aerosol type which may be easily placed under the vehicle by means of the supply pressure tube connected to the jack and to an aerosol can exterior from underneath the automobile.

It is also an object to provide a pneumatically or fluid actuated jack which can be completely collapsed and stowed in a minimum of space and which is light in weight and easy to handle.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a general view showing the jack applied to lifting the wheel structure of a motor vehicle.

FIG. 2 is a plan view of the jack shown in FIG. 1.

FIG. 3 is an enlarged sectional view on the line 3—3 of FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As an example of one embodiment of this invention, there is shown an aerosol actuated jack comprising a base plate 10 having appropriate serrated pads 11 on the

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bottom 12 thereof to engage the pavement surface 13. Upstanding from and integral with the base plate is the base 14 to which is mounted the lower end 15 of an expandable pleated tapered boot or bellows unit of flexible material 16, the top end of which is closed by a lifting plug 17 having a lifting pad 18 arranged to engage the object 19 to be lifted, such as an auto chassis and frame to lift the tire 20 from the road pavement 13 for changing a tire.

It will be evident from the drawings, and particularly FIG. 3, that successive pleated sections, from the base upwardly, are of progressively reduced diameter so as to fold inside the next lower section as the jack is collapsed, and to unfold out of the lower section as the jack is extended. This provides optimum compactness.

A passageway 21 is formed in the base 14 in communication with the closed pressure chamber 22 formed by the boot or bellows unit 16, base 14 and lifting plug 17. The outer end of the passageway 21 is connected to a rigid supply pipe 23 which serves as a manipulating handle for placing and removing the jack in operative position relative to the object to be lifted. The outer end of the supply pipe 23 is provided with a coupling socket 24 for attaching a conventional aerosol can 25 containing a compressed gas and unusual operating valve 26. By placing the above described jack in desired position with the manipulating pipe 23 and deflecting the aerosol can valve 26, fluid pressure is applied in the chamber 22 to rapidly lift the object 19. Pulling the valve stem 27 from the coupling socket, the fluid pressure may be released from the chamber 22 to lower the object 19 and allow the jack to be pulled out from under the vehicle by the pipe 23.

While the apparatus herein disclosed and described constitutes a preferred form of the invention, it is also to be understood that the apparatus is capable of mechanical alteration without departing from the spirit of the invention and that such mechanical arrangement and commercial adaption as fall within the scope of the appendant claims are intended to be included herein.

Having thus fully set forth and described this invention what is claimed and desired to be obtained by U.S. Letters Patent is:

1. A pneumatically actuated jack having, in combination:

a bellows defining a pressure chamber, said bellows having a portion that is tapered toward one end of the jack and comprises a plurality of connected sections of progressively reduced diameter toward said one end from the other end whereby each successive section from said one end is foldable into the next larger section during collapsing of the jack;
a lifting element fast on said one end for engagement with an object to be lifted;
a base on said other end of the jack;
and means for introducing gas under pressure into said pressure chamber when said jack is collapsed, thereby causing said sections to unfold and extend said jack.

2. A jack as defined in claim 1 in which said base is fast on the larger end of said tapered portion.

3. A jack as defined in claim 1 in which said bellows comprises a peripherally pleated tapered boot of flexible material.

4. A jack as defined in claim 1 in which said bellows comprises a plurality of integrally joined pleated sections with a lifting element in the form of a plug fast on its smaller end and a base element fast in its larger end, said means for introducing gas opening into said chamber through said base element.

5. A jack as defined in claim 1 further including a rigid gas supply pipe connected to said bellows in communication with said chamber and functioning as a manipulating handle for the jack.

References Cited

UNITED STATES PATENTS

1,295,471	2/1919	Fleury	-----	254—93 X
1,957,151	5/1934	Pollard	-----	254—86
2,328,970	9/1943	Farquhar.		

2,495,092	1/1950	Cox.	
2,609,177	9/1952	Hughes	----- 254—93

FOREIGN PATENTS

1,427,118	12/1965	France.
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ROBERT C. RIORDON, Primary Examiner

D. R. MELTON, Assistant Examiner

U.S. Cl. X.R.

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