S. HEYMANN.

AUTOMOBILE JACK.

APPLICATION FILED JULY 27, 1918.

1,344,037.

Patented June 22, 1920.

3 SHEETS—SHEET 1.

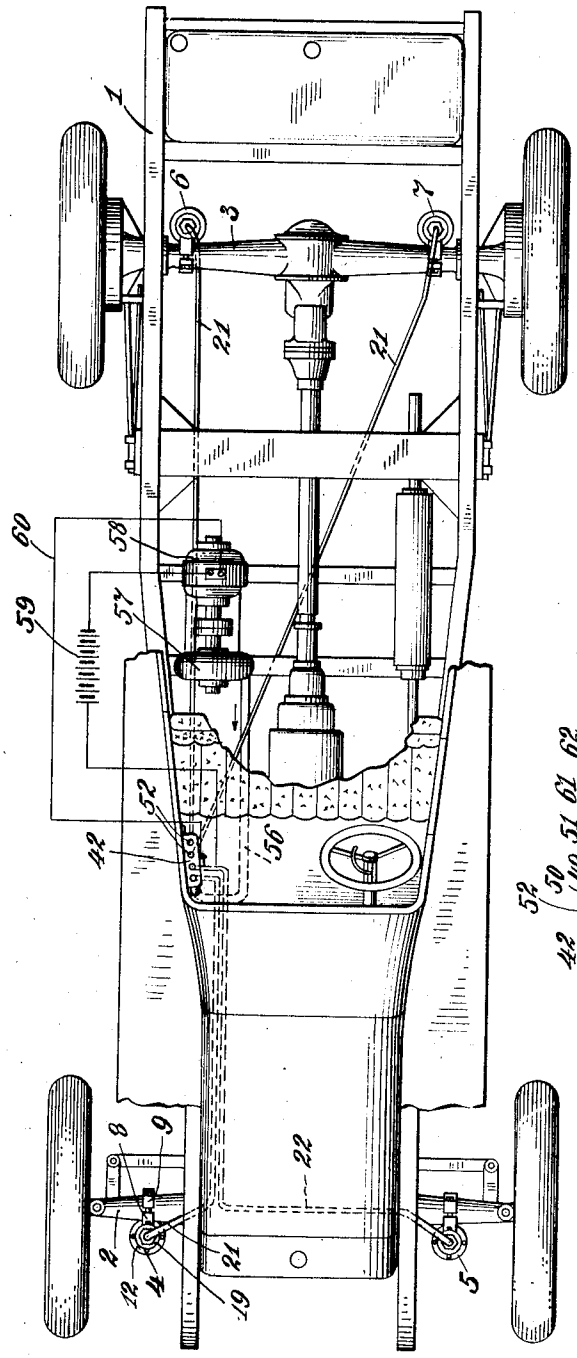


Fig. 1.

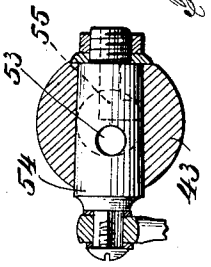


Fig. 3.

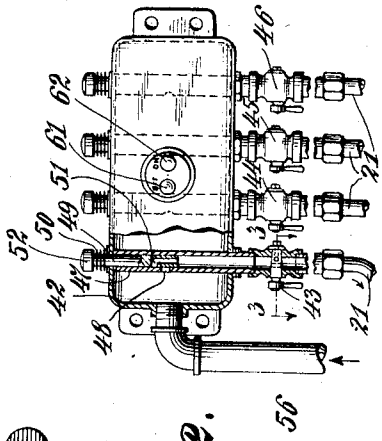


Fig. 2.

Inventor

Sidney Heymann

By his Attorney

Charles H. Wilson

S. HEYMANN.

AUTOMOBILE JACK.

APPLICATION FILED JULY 27, 1918.

1,344,037.

Patented June 22, 1920.

3 SHEETS—SHEET 2.

Fig. 4.

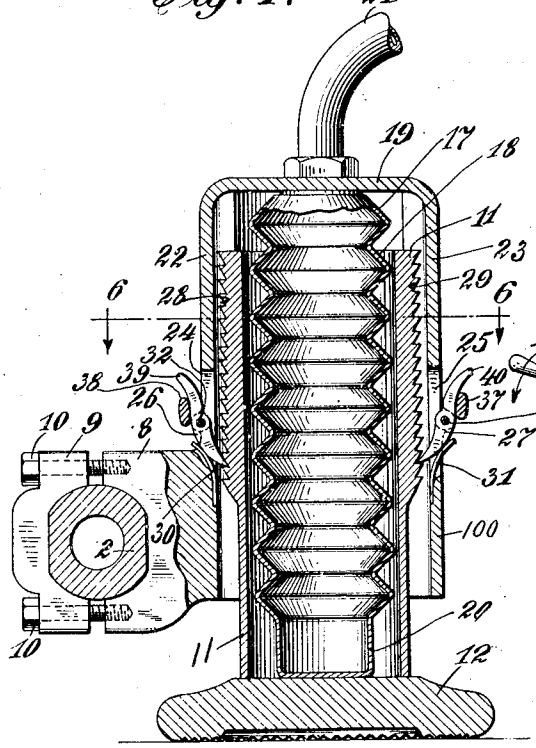
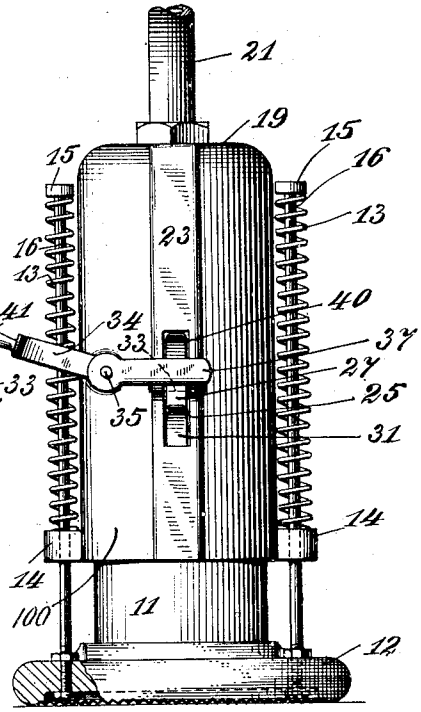


Fig. 5.



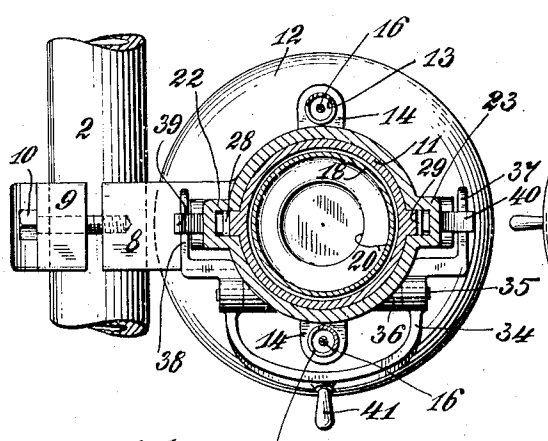


Fig. 6.

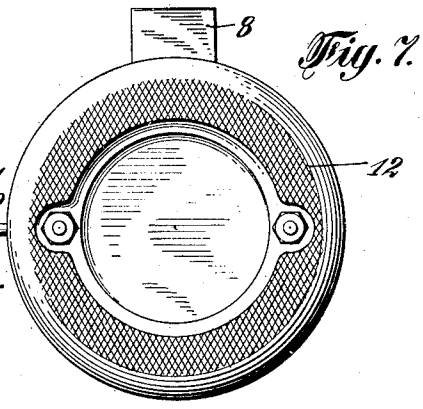


Fig. 7.

Inventor

Sidney Heymann

By his Attorney

Charles A. Wiles

S. HEYMANN.

AUTOMOBILE JACK.

APPLICATION FILED JULY 27, 1918.

1,344,037.

Patented June 22, 1920.

3 SHEETS—SHEET 3.

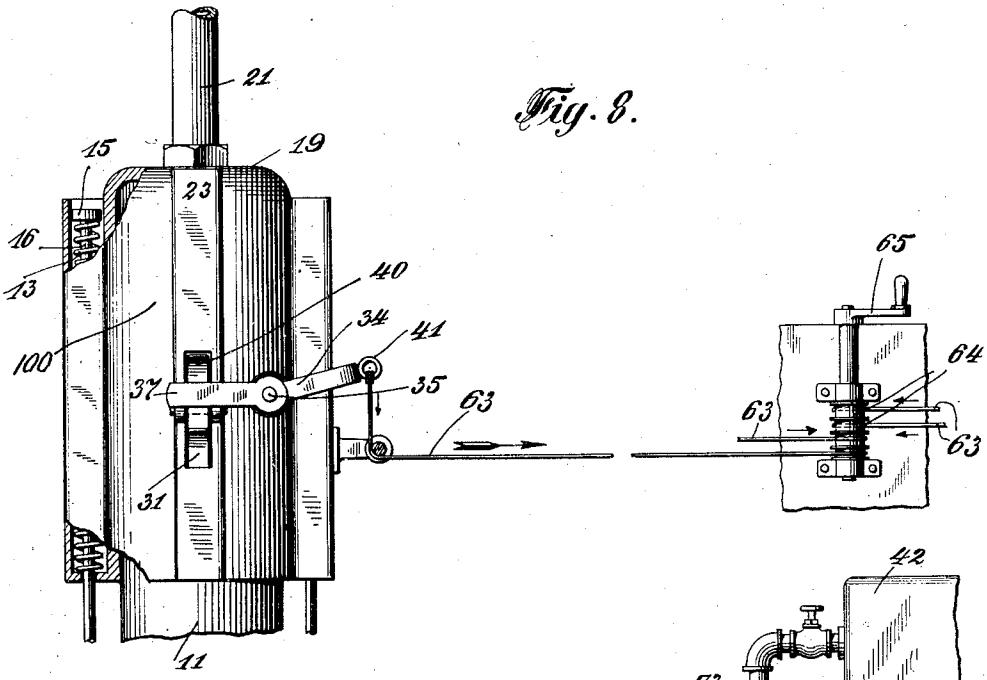


Fig. 8.

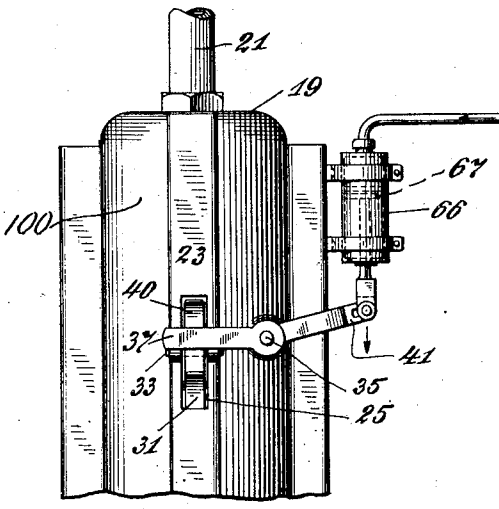


Fig. 9.

Inventor

Sidney Heymann

By his Attorney

Charles H. Wilson

UNITED STATES PATENT OFFICE.

SIDNEY HEYMANN, OF FAR ROCKAWAY, NEW YORK, ASSIGNOR OF ONE-HALF TO PHILIP S. HEYMANN, OF PITTSBURGH, PENNSYLVANIA.

AUTOMOBILE-JACK.

1,344,037. Specification of Letters Patent. Patented June 22, 1920.

Application filed July 27, 1918. Serial No. 246,953.

To all whom it may concern:

Be it known that I, SIDNEY HEYMANN, residing at Far Rockaway, in the county of Queens and State of New York, have invented certain new and useful Improvements in Automobile-Jacks, of which the following is a specification.

This invention relates to jacks for self-propelled vehicles, such as automobiles, motor trucks, and the like, and the present invention contemplates certain improvements over the construction shown in my co-pending application Serial No. 237,784, filed on June 1st, 1918.

One of the objects of the invention is to provide a new and improved jack which may be incorporated as a fixed part of the vehicle, so that the same is always ready for use, together with the provision of new and improved means for operating the several jacks either singly or simultaneously.

Another object of the invention is to provide new and improved means for controlling the operation of the several jacks.

Another object of the invention is to provide controlling means for jacks of the above character, which is exceedingly light in weight and which will not rattle during the operation of the motor vehicle.

Other objects and aims of the invention, more or less specific than those referred to above, will be in part obvious and in part pointed out in the course of the following description of the elements, combinations, arrangements of parts and applications of principles, constituting the invention; and the scope of protection contemplated will be indicated in the appended claims.

In the accompanying drawings wherein I have shown a preferred embodiment of my invention:

Figure 1 is a top plan view of a portion of a motor car equipped with my invention.

Fig. 2 is a view in elevation of a portion of the controlling means.

Fig. 3 is a sectional view showing the construction of the valve mechanism of the controlling means, said section being taken on line 3—3 of Fig. 2.

Fig. 4 is a vertical sectional view taken through one of the jacks, showing the interior construction thereof.

Fig. 5 is an elevational view of one of the jacks.

Fig. 6 is a horizontal sectional view through one of the jacks, taken on line 6—6 of Fig. 4.

Fig. 7 is a bottom plan view of one of the jacks.

Fig. 8 is an elevational view showing a modified form for releasing the jacks; and

Fig. 9 is a similar view of still another means for releasing the jacks.

Referring now to the drawings, wherein similar reference characters refer to similar parts throughout the several views thereof, the reference numeral 1 denotes the frame or chassis of the motor vehicle, and 2 and 3 denote respectively the front and rear axles thereof. Clamped to the front axle near the ends thereof, are jacks 4 and 5 and to the rear axle 3 near the end thereof are clamped jacks 6 and 7.

Referring to Figs. 4, 5, 6 and 7, which illustrate the construction of the jack, it will be noted that each jack comprises a bracket member 8, which is adapted to be clamped to the axle by means of the head piece 9 of the clamp screws 10, so that the same is rigidly and permanently secured thereon. The bracket 8 carries a casing 100, which as shown is an integral part of the bracket, and located within the casing is a plunger or piston 11, the lower end of which projects without the casing, and is provided with a foot 12, which is adapted to engage with the ground, or support during the operation of the jack.

The plunger 11 is normally held in a retracted position within the casing 100, as by means of the extensile springs 13, which rest upon shoulders 14, formed on the casing 100, and act against heads 15 of rods 16, which extend through the shoulders 14 and are anchored in the foot 12. The foot 12 is, therefore, normally held in an upward position by the construction just described.

Located within the plunger or piston 11 in the present instance is an endwise expansible casing 17, the same being constructed in the nature of a bellows, and comprising a plurality of pivotally or flexibly connected sections 18. The wall of this casing may be formed of rubber, leather, or

such material as is suitable for the purpose, and one end of the casing rests in engagement with the upper wall 19 of the casing or shell 100, and the other end 20 engages the upper surface of the foot 12 within the plunger or piston 11. The flexible casing 17 is intended to be air tight so that when air under pressure is delivered thereinto through the conduit 21, which is connected with the upper end of said casing the latter will expand and cause the plunger 11 to be projected downwardly through the casing, whereby the foot 12 will be caused to engage with the ground, so that a further expanding of the casing 17 will cause the jack to lift the portion of the car to which it is attached.

The casing 17 fits nicely within the plunger 11, which prevents a lateral expansion thereof and compels the lower end 20 to operate the foot 12, as above described, through the re-action of the parts against the wall 19 of the casing or shell 100.

Referring to Figs. 4 and 6, it will be noted that the shell or casing 100 is provided with lateral extensions 22 and 23 respectively, which are apertured, as at 24, and 25, through which extend pawls 26 and 27, which are adapted to engage ratchet teeth 28 and 29 formed upon the plunger 11; said pawls being held in engagement with said teeth as by means of the leaf springs 30 and 31. The pawls 26 and 27 are pivoted at 32 and 33 upon brackets formed exteriorly of the wall of the casing 100.

Thus it will be seen, by means of the construction just described, when the plunger 11 is forced downwardly the pawls 26 and 27 will ride over the inclined surfaces of the teeth 28 and 29, and will operate to prevent a retractile movement of said plunger in whatever position it may be moved by the air pressure exerted interiorly thereof.

The reference numeral 34 indicates a lever pivoted at 35 to a bracket 36 formed upon the casing 100, said lever having arms 37 and 38 which straddle said casing, and are so disposed as to lie in proximity to the upper ends or tail pieces 39 and 40, which are curved or cammed outwardly, as shown. The lever 34 is provided with an operating handle 41, by means of which it may be manipulated.

It will be seen that when the handle 41 of the lever is moved or swung downwardly the arms 37 and 38 thereof will engage the curved upper ends of the pawls 39 and 40 causing the pawls to be disengaged from the ratchet teeth of the plunger, whereby the latter will be free to move to its normal position within the casing or shell 100.

The above description of one of the jacks applies to all of them, inasmuch as they are identically constructed.

All of the jacks have conduits 21, which connect the expansible casings therein with an air reservoir 42, which is preferably located within the body of the vehicle in a position conveniently to be reached by the hands of the driver, as shown in Fig. 1 of the drawings, located upon the righthand side of the forward portion of the body near the front seat.

The conduits 21 lead into the air reservoir 42 and each conduit is independently valved as at 43, 44, 45 and 46, and each is provided with a second valve mechanism comprising a tube 47 apertured as at 48, and provided with a plunger valve 49, which is normally held in the position shown in Fig. 2 of the drawings, as by means of the spring 50. In this position the by-pass 51 of the valve is held out of registry with the passageway or aperture 48 of the tube 47. When, however, the valve member 49 is depressed, which operation may be effected by pushing downwardly upon the head 52, the by-pass 51 and the aperture 48 will be carried into registry, whereby the air under pressure may pass through the tube 47, thence into the conduit 21. The construction of the valves 43 to 46 respectively is illustrated in Fig. 3 of the drawings, and it will be noted that this valve is what is known as a "two-way valve," so that when the valve is in one position a free passageway is at all times maintained for the passage of compressed air into the conduits 21 through an aperture 53 of the valve stem 54. When, however, the valve stem 54 is turned to an angle of 90° a by-pass 55, shown in dotted lines in Fig. 3 is carried into such position that the compressed air in the flexible casings 17 of the jack will pass through the conduit 21 and escape to the atmosphere, whereby release-ment of the air pressure will permit the foot of the jack to be returned to normal position, by the means above described.

Leading into the reservoir, or air chest 42, is a conduit 56, which is connected with an air pump, the latter preferably being operated by means of an electric motor 58, which may be operated as by means of the battery 59 to the circuit 60 and controlled as by means of the push-buttons 61 and 62.

In the embodiment of the invention shown in Fig. 8 the operating handle 41 of the lever 34 is shown as being controlled by means of a cable 63, which passes over a drum 64, which may be located in position convenient to the driver of the car, and which may be operated as by means of the handle 65, whereby the jacks may be released simultaneously and allowed to return to their normal positions.

In the embodiment of my invention shown in Fig. 9 of the drawings the operating handles 41 are shown as being operated by air pressure as by means of the cylinder and piston 66 and 67 respectively, and a common

supply conduit 68, suitable branch conduits 69, 70, 71 and 72 being connected with the controlling means of the various jacks. The supply conduit 68 receives its air supply from the air chest or reservoir 42 through the valve pipe 73.

Having thus described this embodiment of my invention, the manner in which the same operates, which should be obvious, may now be understood:

When it is desired to operate one or more of the jacks, it is merely necessary to start the motor in the manner above described, in which the air will be produced in the air chest or reservoir 42. Any one or a plurality of the jacks may then be operated by pushing upon the heads 52 of the valve stems 49, whereupon air pressure will be released into particular conduits 21 of the jacks which it is designed to operate, whereupon the air pressure within the flexible casing 17 will operate the jacks in a manner which has already been described.

The pawl and ratchet mechanism of each jack will operate to hold it in any position to which it is projected by means of the fluid under pressure, and as has already been described, the jacks may be released either by the direct operation of the handle 41, or by means of the drum 64 to which the lever handles may be connected by the cable 63; or in the embodiment shown in Fig. 9, by means of compressed air, as has already been described.

Thus it will be seen that I have provided a construction well adapted to attain, among others, all the aims and objects above pointed out in an exceedingly simple yet efficient manner.

As many changes could be made in this construction without departing from the scope of the following claims, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative only and not in a limiting sense.

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

1. In apparatus of the class described, in combination, a casing, means for securing said casing to the axle of the vehicle, a plunger located in said casing, a foot carried by said plunger, and an expansible casing located within said plunger bearing at one end against said casing and at its other end against said foot and adapted to operate the plunger.

2. In apparatus of the class described, in combination, a casing, means for securing said casing to the axle of the vehicle, a plunger located in said casing, a foot carried by said plunger, and an expansible casing located within said plunger bearing at one end against said casing and at its other end against said foot, and adapted to operate the plunger and means for holding said plunger in any position to which it is moved with respect to said casing.

3. In apparatus of the class described, in combination, a casing, means for securing said casing to the axle of the vehicle, a plunger located within said casing, a foot carried by said plunger, an expansible casing located within said plunger adapted to project said plunger from within said casing, and means interposed between said casing and said plunger adapted automatically to hold the plunger in any position to which it is moved with respect to said casing.

4. In apparatus of the class described, in combination, a casing, means for mounting the latter upon the axle of a vehicle, a plunger located within said casing, a foot carried by said plunger, an expansible casing located within said plunger adapted for projecting said plunger from within said casing, and pawl and ratchet mechanism interposed between said casing and said plunger for holding the latter in any desired position with respect to said casing.

5. In apparatus of the class described, in combination, a casing, means for securing the latter to the axle of a vehicle, a plunger located within said casing, a foot carried by said plunger, an endwise expansible casing located within said plunger and operating between said plunger and said casing, whereby the plunger may be moved outwardly with respect to said casing, and pawl and ratchet mechanism interposed between the casing and the plunger adapted automatically to hold the latter in any position to which it is moved by said endwise expansible casing.

6. In apparatus of the class described, a plurality of jacks, means for supporting each of said jacks upon the axles of a vehicle, pneumatic means common to all of said jacks for operating them, means common to all of said jacks for automatically holding them in any desired position, and means common to all of said jacks for simultaneously releasing said holding means.

7. In apparatus of the class described, in combination, a plurality of pneumatically operated jacks each of which is adapted to be mounted upon an axle of a vehicle, source of compressed fluid supply common to all of said jacks, whereby they may be operated, means common to all of said jacks for automatically holding them in any desired position, and means common to all of said jacks for simultaneously actuating said holding means whereby all of said jacks may be simultaneously released when operated.

8. In apparatus of the class described, in combination, a plurality of pneumatically operated jacks, each of which is adapted to be mounted upon an axle of a vehicle, me-

chanical means for locking each of said jacks in any position to which it is operated, a common source of pressure supply to all of said jacks, and a means common to all of said jacks, whereby they may be released when operated.

9. In apparatus of the class described, in combination, a plurality of pneumatically operated jacks, means for mounting each of said jacks upon the axle of a vehicle, a reservoir for containing compressed air, a connection between said reservoir and each of said jacks, means for supplying air under pressure into said reservoir, means for connecting each of said jacks with said reservoir, mechanical means adapted automatically to lock each of said jacks in any position to which it is operated by said pneumatic means, and means common to all of said jacks adapted simultaneously to release them when in any operative position.

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

SIDNEY HEYMANN.

Witnesses:
EMMA WEINBERG,
MARCY LEVY.