

Nov. 6, 1934.

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1,979,788

CHOCKING DEVICE FOR VEHICLE LIFTS

Filed Oct. 15, 1930

2 Sheets-Sheet 1

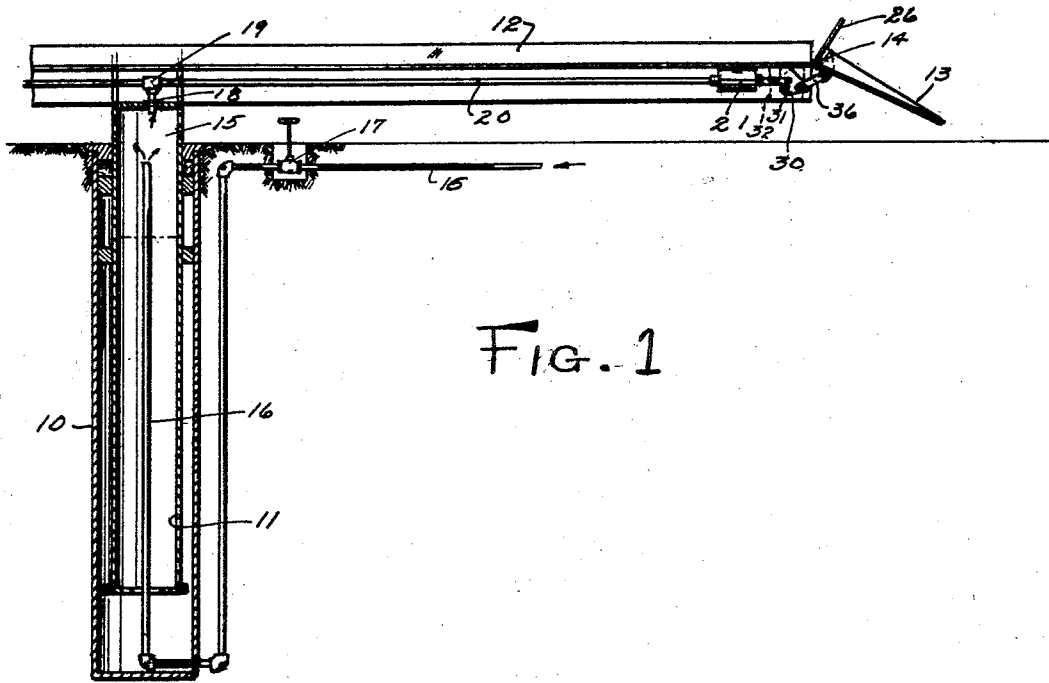
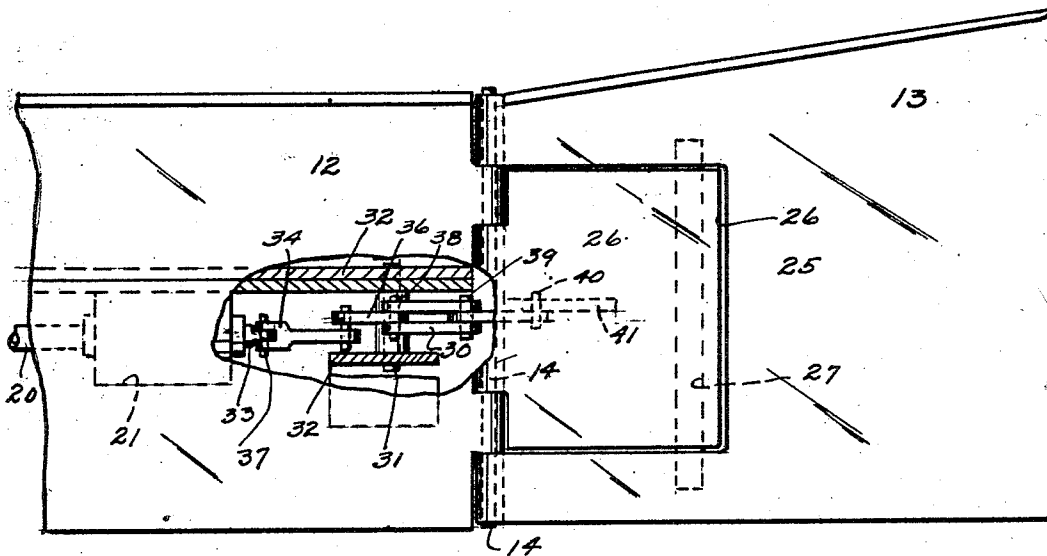


FIG. 1

FIG. 2



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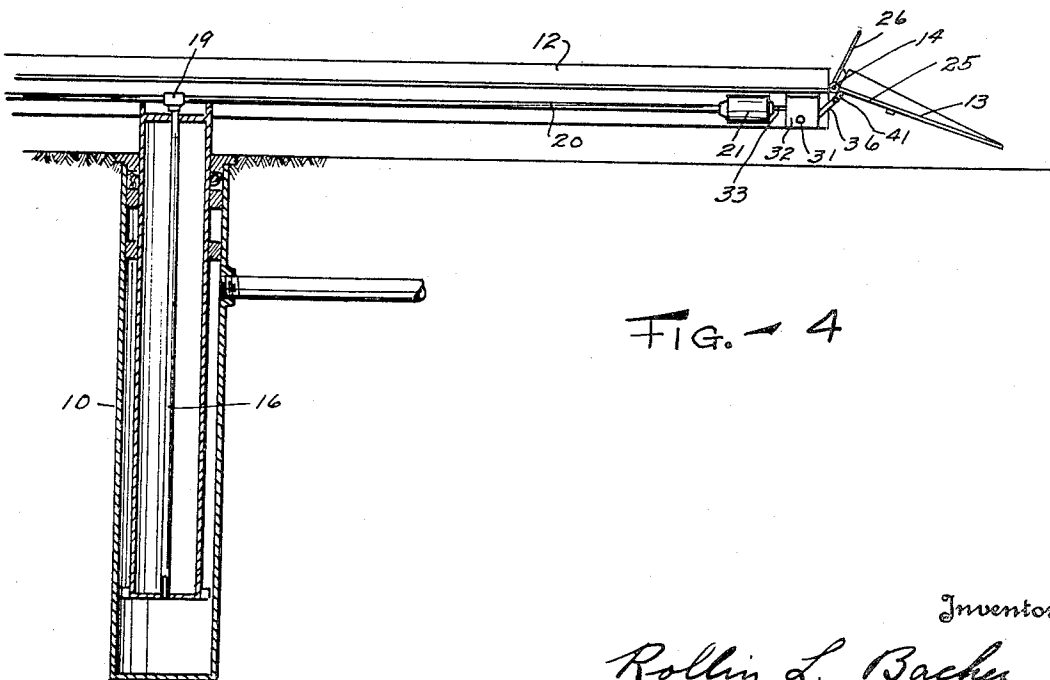
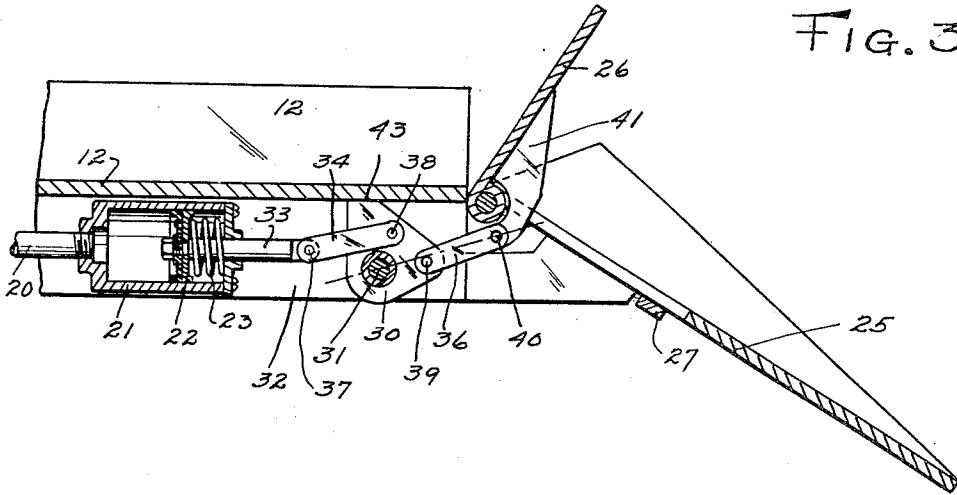
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UNITED STATES PATENT OFFICE

1,979,788

CHOCKING DEVICE FOR VEHICLE LIFTS

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Application October 15, 1930, Serial No. 488,821

5 Claims. (Cl. 254—93)

This invention relates to power actuated vehicle lifts, such as are used for elevating a motor vehicle to make it accessible for greasing, and particularly to a mechanism for chocking a vehicle while it is on the lift. An object of the invention is to provide a mechanism by means of which the vehicle may be chocked automatically as soon as the lift starts to raise, and may be released as soon as the lift is lowered. A further object is to utilize the lift raising power to actuate the chocking mechanism thus assuring positive actuation and locking of the mechanism in the chocking position, so long as pressure is applied to the lift.

The preferred mechanism for carrying out my invention is shown in the drawings wherein Fig. 1 is a diagrammatic view of a vehicle lift embodying my invention; and Fig. 2 is a top plan view partly in section of a vehicle trackway adjacent one end thereof, Fig. 3 is a vertical longitudinal section through part of the vehicle trackway and Fig. 4 is a diagrammatic view of a vehicle lift having a modified form of power means for actuating the lift.

A conventional form of lift is illustrated in Fig. 1 wherein 10 designates a casing, which is imbedded in the ground, while 11 designates a plunger, which is adapted to be reciprocated within the casing. The plunger carries a vehicle trackway 12, each end of which may have a ramp 13 hinged thereto at 14 for enabling a vehicle to be rolled onto and off the track when the lift is in lowered position.

The lift which I have shown diagrammatically is fluid actuated and is commonly known as a semi-hydraulic lift. To this end, the space between the plunger and casing is filled with liquid, such as oil, and the plunger is also partly filled with liquid while provision is made for the liquid to flow into and out of the plunger through a passageway 15 in the bottom of the plunger. The motive power for raising the plunger may comprise air under pressure, which is introduced into the interior of the plunger through a pipe 16, which extends upwardly through the passageway 15. The air conduit may be connected to a source of air under pressure and controlled by a manually operable valve 17.

It is my intention to utilize the fluid pressure which is used for actuating the plunger to effect operation of a chocking device which is associated with the vehicle trackway. To this end, I have shown a conduit 18 which extends into the plunger adjacent the top end thereof. This conduit in turn is connected by a T 19 to con-

duits 20 which extend along and preferably beneath each of the trackways toward the outer ends thereof. The end of each conduit 20 communicates with a cylinder 21 in which a piston 22 is adapted to operate. The piston is so arranged that fluid pressure may be applied to force it in one direction, while a spring 23 is adapted to return it when the fluid pressure is released. Such reciprocation of the plunger is utilized for actuating the chocking device.

The chocking device, which I prefer to use comprises a plate 25, which is hinged to the trackway on the hinge pin 14. The plate is shaped to conform to the shape of the cutout portion 26 in the ramp so that when the lift is in the lowered position, the plate cooperates with the ramp to provide a continuous trackway as is shown in Fig. 2. A bar 27 may be welded onto the bottom of the ramp, and may act as a stop to hold the plate in proper position.

The mechanism for connecting the plunger to the plate 25 preferably comprises an eccentric or plate 30, which is pivotally mounted at 31 between brackets 32 that are attached to the bottom of the trackway. This plate in turn is operatively connected to the piston rod 33 by a link 34 and to the chocking plate 25 by a link 36. The link 34 has its pivot connections at 37 and 38 on the rod and plate, respectively, while the link 36 has its pivot connections at 39 and 40 on the plates 30 and 25, respectively. The pivot connection 40 occurs on an arm 41 which extends downwardly from the plate 25 and is rigidly attached thereto.

The relationship between the pivots 31, 39 and 40 is such that when the lift is lowered and the plate 25 is also lowered, the pivot 39 is on one side of the line extending through the axes of the pivots 31 and 40 respectively. This relationship is shown by the broken lines in Fig. 3, wherein the piston 22 is moved to the left under the influence of the spring 23.

As the fluid pressure is applied against the piston to overcome the force of the spring, which action occurs when the valve 17 is opened, the plate 30 is moved to the position shown in Fig. 3 at which time the axis of the pivot 39 has moved across the line extending through the axes of the pivots 31 and 40 and therefore has moved beyond the dead center position. Such movement has caused the chocking plate to be swung about its pivot and elevated to the operative or active position. At the same time, a stop in the form of a flattened edge 43 of the plate 30 has engaged the bottom of the trackway, thereby limiting further movement of the piston, and moving the pivot 39

on the opposite side of the line extending through the axes of the pivots 31 and 40 respectively as shown by the full lines in Fig. 3. The off center position of the pivot 39 at such time tends to prevent any force exerted against the chocking plate, as by the wheel of a vehicle on the trackway, from acting against the piston, for any tendency of the chocking plate to move toward the ramp exerts a pressure through the link 36 onto the pivot plate 30, in a direction that would tend to force the edge 43 against the bottom of the trackway. It is apparent therefore, that my chocking device is automatically locked so long as the power is applied to raise the lift.

In Fig. 4, I have shown a modified form of lift, which is commonly known as the full hydraulic lift. In this case, the bottom of the plunger is closed and liquid only is utilized for raising the plunger. Accordingly, the conduit 18 extends downwardly through the bottom of the plunger and communicates with the space between the plunger and the casing, so that oil under pressure flows therethrough, and through the conduit 20 to actuate the piston 22.

In each case, the operation is identical in that the chock is automatically moved to the active position when fluid is applied to raise the lift, and is automatically moved to the lowered position when fluid pressure in the line is reduced to the extent that it can be overcome by the spring 23. Normally, this occurs only when the lift is in its lowermost position.

An advantage of my invention is the fact that the chocking device is actuated by ample force to assure positive operation, and that the force is applied automatically whenever the operator opens the valve which controls the lift actuating fluid. A further advantage is the fact that the device is not released until the pressure acting on the lift has been substantially and entirely released. As this occurs only when the lift is in its lowermost position, it is apparent that the chocking device will function to hold the vehicle on the trackway so long as the lift is elevated to any degree.

I claim:

1. In combination, a vertically shiftable lift having a trackway thereon, a movable chock for said trackway, linkage mechanism including a rocking member having an operative connection with said chock, means for rotating the said member to move said chock to raised position, a stop associated with said member and operating as a positive means for limiting its rotative movement to thereby hold the chock in a predetermined raised position, the connection between the said rocking member and chock moving past dead

center with respect to the axis of said member to thereby cause the back pressure of the chock to be imposed on the stop and not on the means for rotating the rocking member.

2. In combination, a vertically shiftable lift having a trackway thereon, a movable chock for said trackway, linkage mechanism having an operative connection with said chock and including a pivotally mounted rocking plate, a fluid-operated piston for rotating said plate to move the chock to raised position, and means for holding the plate against further rotation after the chock has reached its raised position without exerting back-pressure on said piston.

3. In combination, a vertically shiftable lift having a trackway thereon, a movable chock for said trackway, linkage mechanism having an operative connection with said chock and including a pivotally mounted rocking plate, means for rotating said plate to move the chock to raised position, a stop located to contact said plate when the chock reaches its raised position, and a link connecting the plate and chock, the end of the link which is connected to the plate passing dead center with respect to the axis of the plate when the chock reaches its raised position to thereby cause back pressure exerted by or on the chock to be imposed on the stop and not on said means for rotating the plate.

4. In combination, a vertically shiftable lift having a trackway thereon, a movable chock for said trackway, a pivotally mounted rocking member, a link connecting the member with the chock, a fluid-actuated piston for rotating said member to move the chock to raised position, and a stop located to contact said member when the chock reaches its raised position and the end of the link which is connected to the member has passed dead center with respect to the pivotal axis of the latter.

5. In combination, a vertically shiftable lift having a trackway thereon, a chock hinged at one end of the trackway, a rocking plate, a fluid pressure cylinder having a piston therein which is operatively connected to the plate to rotate the latter, a link connecting the chock with the plate whereby when the latter is rotated the chock is swung to chocking position, and a stop located to contact said plate when the chock reaches such position and the end of the link which is connected to the plate has passed dead center with respect to the axis of the latter so that the pressure of the wheel of a vehicle on the chock will urge the plate against the stop instead of exerting back pressure on said piston.

ROLLIN L. BACHER.