

Dec. 6, 1938.

T. A. MARTIN

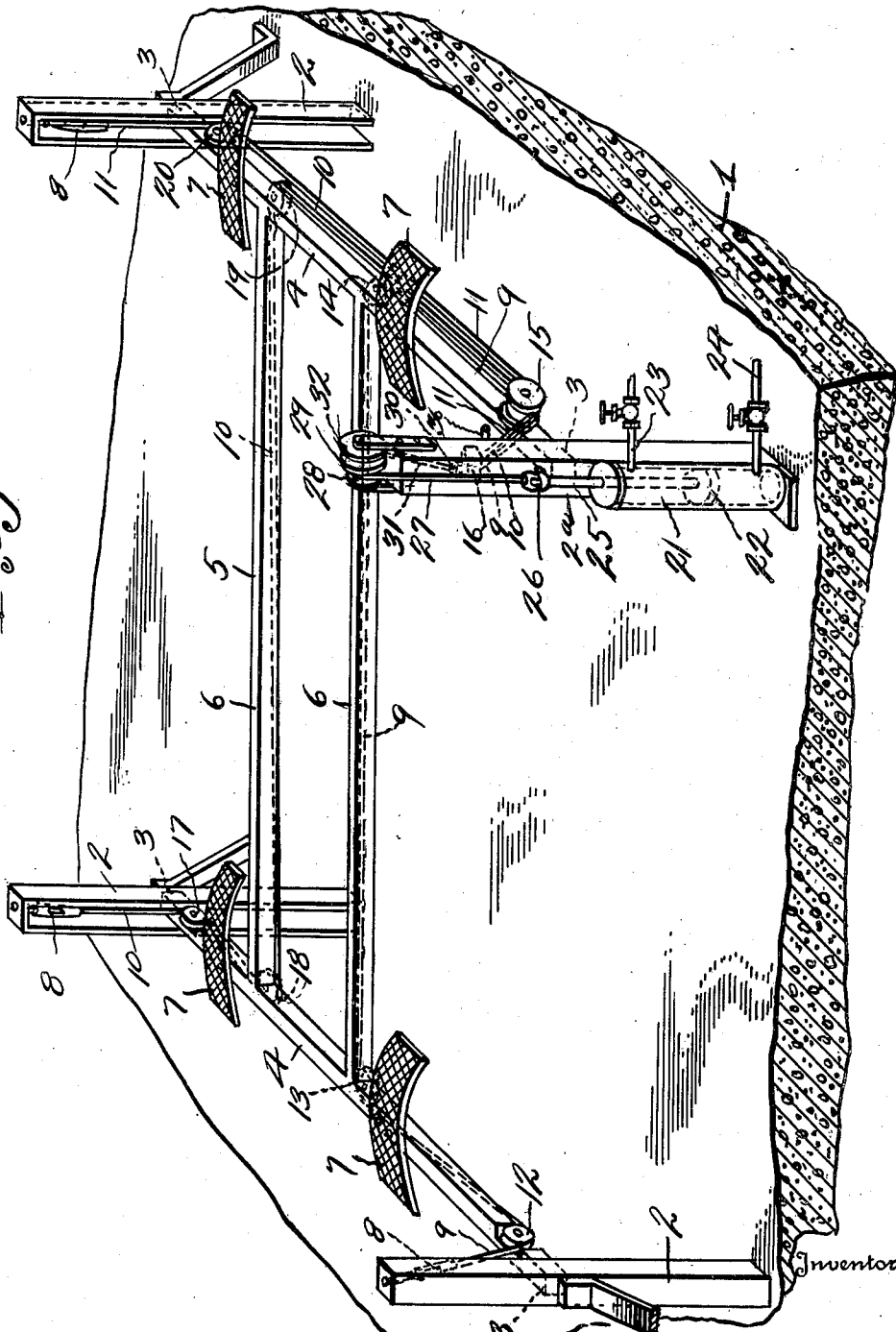
2,139,597

VEHICLE HOIST

Filed March 31, 1937

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Fig. 1.



Inventor

Thomas A. Martin
By Philip A. Ferrell
Attorney

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T. A. MARTIN

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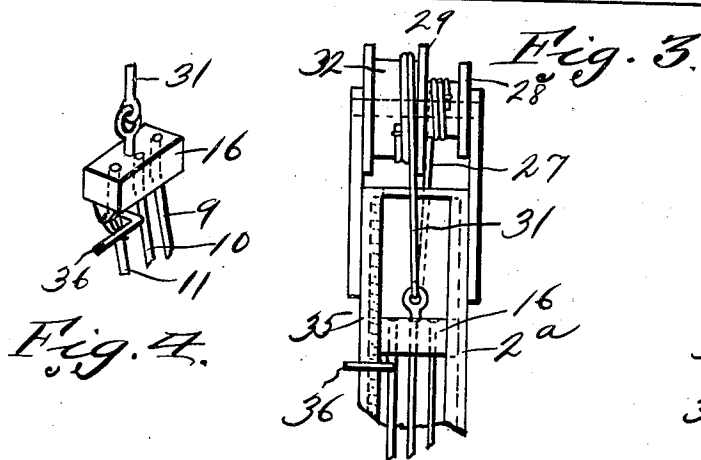
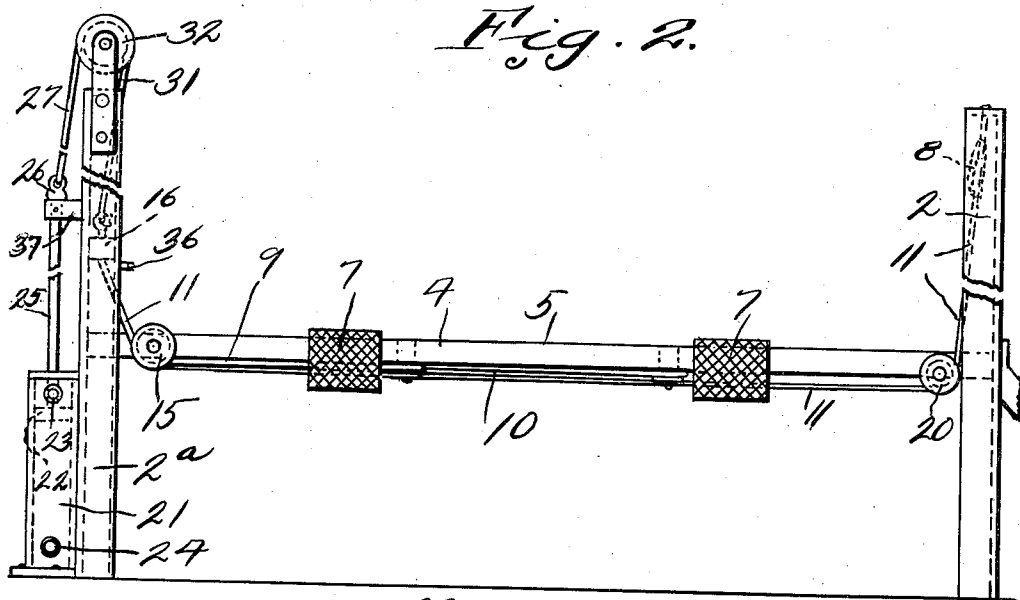
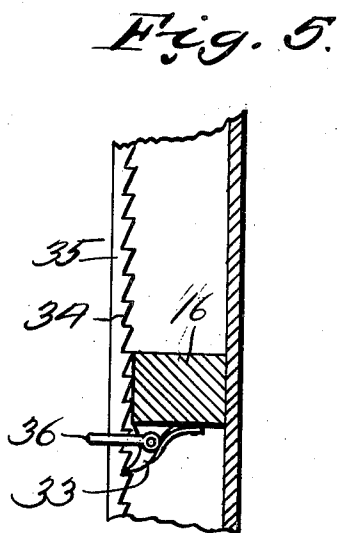


Fig. 4.



Inventor
Thomas A. Martin

By *Philip A. Serrell*
Attorney

UNITED STATES PATENT OFFICE

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VEHICLE HOIST

Thomas A. Martin, New York, N. Y.

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3 Claims. (Cl. 254-144)

The invention relates to vehicle hoists, and has for its object to provide a device of this character comprising corner posts forming guides for a horizontal frame, and cable means connected to the posts and extending over pulleys adjacent the corners of the frame and over pulleys carried by the frame, and terminating adjacent one of the posts so that all of said cables can be controlled from adjacent the last named post.

10 A further object is to eliminate longitudinal connecting bars between the posts to the sides of the frame, thereby obviating the danger of automobile doors being damaged when opened against said side bars.

15 A further object is to provide cross bars at the ends of the frame and extending beyond the sides of the frame and into the guide posts and pulley and cable means controlled from adjacent one post for simultaneously and uniformly elevating all corners of the frame from a single source of power by imparting a pull on the cables.

A further object is to provide a vertically slidable block within one of the posts and to which all of the cables are connected, and a fluid pressure member adjacent the post and extending over a reduced pulley having a larger drum around which a cable connected to the block extends, and forming means whereby the distance of movement of the frame in relation to the movement of the fluid control device is increased, thereby insuring a rapid hoisting of the frame on which a vehicle may be disposed and to a maximum elevation with a minimum of movement of the fluid control device.

35 A further object is to provide the transverse bars with arcuate thread members over which the wheels of the vehicle pass to its position where the longitudinal bars will engage the vehicle axle for a hoisting operation. Also to dispose the cables beneath the hoisting frame for protecting the same and prevent damaging the vehicle during the movement of the cables.

40 A further object is to provide a ratchet means in connection with slidable block for positively holding the same against downward movement in case of loss of pressure in the fluid control device.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawings, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

55 In the drawings:

Figure 1 is a perspective view of the hoist, showing the same partially raised.

Figure 2 is an end elevation of the hoist, showing the same partially raised.

Figure 3 is a view in elevation of the upper end of the control post, showing the inner side thereof.

Figure 4 is a perspective view of the slidable block and adjacent mechanism.

Figure 5 is a vertical transverse sectional view through a portion of the control post and the slidable block therein.

Referring to the drawings, the numeral 1 designates the floor of a garage or other storage place and 2 channeled corner posts, which, in connection with the corner posts 2a, form a rectangular shaped structure. The corner posts 2 and 2a have their channels inwardly disposed, and in which channels are slidably mounted the extreme ends 3 of the transverse frame bars 4 of the frame 5. The transverse bars 4 are connected together and maintained in parallel relation by means of the longitudinally disposed axle engaging bars 6, which engage the vehicle axles during a hoisting operation for elevating the vehicle for various purposes, for instance for repair, cleaning or storage purposes. It will be noted that the bars 2 and 2a at opposite sides of the device are not connected by any structure, hence there is no danger of automobile doors being damaged when opened, and the operator will have free access to and from the vehicle.

In operation, the frame 5 is in lowered position adjacent the floor 1 with the arcuate treads 7, which arch the transverse bars 4 on the floor. When in this position, the vehicle is driven over the tread 7 at one end of the frame to a position above the bars 6.

Connected to the upper ends of the posts 2 within the channels thereof, by means of turn buckles 8, are cables 9, 10, and 11. The cable 9 extends downwardly and under a pulley 12, and thence inwardly and around a pulley 13 beneath one of the bars 6, and thence longitudinally and around a pulley 14. The cable 9 then extends outwardly and under the pulley 15 and upwardly, and is anchored to the slide block 16 within the channeled post 2a. The cable 10 extends downwardly and under a pulley 17, and thence inwardly around a pulley 18 and longitudinally and over the pulley 19. Cable 10 then extends outwardly and under the pulley 15 and upwardly and is anchored to the slide block 16. It will be noted that when a pull is imparted on cables 9 and 10 by an upward movement of the block 16, three

corners of the frame 5 will be raised, including the corner at the post 2a. To impart an upward movement on the other corner of the frame, the cable 11 is provided. The cable 11 extends downwardly and under the pulley 20 and thence transversely under the tread members 7, under the pulley 15 and upwardly, and is anchored to the slide block 16, therefore it will be seen that when the block 16 is moved upwardly, the frame 5 as a whole will be raised in a horizontal plane.

Disposed adjacent the post 2a is a fluid cylinder 21 having a piston 22 therein, which is forced downwardly by the supply of fluid through a pipe 23, fluid being exhausted through pipe 24 during a hoisting operation. The piston 22 is provided with a piston rod 25 to the upper end of which is connected at 26, a cable 27. Cable 27 extends upwardly and over the reduced portion 28 of the double pulley 29 and is anchored thereto. Connected at 30 to the slidable block 16 is a cable 31 which extends upwardly and around the enlarged pulley portion 32 for increasing the hoisting speed of the frame.

By providing this increased speed of operation, it is obvious the amount of movement of the piston 22 is reduced to a minimum. In fluid controlling devices of this character, there is often a leakage, which would cause or allow the frame to lower, and to obviate this difficulty from a single point, the slide block 16 is provided with a spring pawl 33, which cooperates with ratchet teeth 34 carried by one of the flanges 35 of the post 2a, therefore it will be seen, even if there is a pressure loss, the frame will be maintained in raised position from a single source adjacent the termination of all the cables. Pawl 33 is preferably provided with an angularly shaped handle 36 within reach of the operator, thereby allowing a positive control of the device at all times.

From the above it will be seen that a hoisting device is provided which is simple in construction, the parts reduced to a minimum, and one

constructed in a manner whereby it may be cheaply manufactured and installed.

The piston rod 25 is preferably provided with an inwardly extending brace arm 37, slidably engaging the post 2a, thereby obviating a bending action on the piston.

The invention having been set forth what is claimed as new and useful is:

1. A vehicle hoist comprising a horizontal frame, transverse bars carried by said frame and forming ends thereof, longitudinally disposed spaced connecting bars between the transverse bars, channeled posts at the corners of the frame, the ends of the transverse bars being slidably mounted in the channeled posts, cables anchored to the upper ends of the posts at one end of the frame, said cables extending downwardly, pulleys carried by the adjacent transverse bar and under which said cables extend, said cables extending inwardly and over pulleys carried by said last named transverse bar and thence forwardly under the connecting bars and over pulleys outwardly to one of the posts at the other end of the frame, said last named post being provided with a slidable block to which said cables are connected, means for moving said slidable block upwardly and downwardly, a cable carried by the remaining post, said cable extending downwardly and under pulleys carried by the other transverse bar and connected to the slidable block.

2. A device as set forth in claim 1 including a large and small pulley on the block post, a cable connected to the slidable block and extending around one of said pulleys, a cable extending around the other pulley and connected to a pulling device for imparting a pull thereon.

3. A device as set forth in claim 1 including ratchet teeth within the block post and a latching device carried by the block and cooperating with said teeth within the post.

THOMAS A. MARTIN.