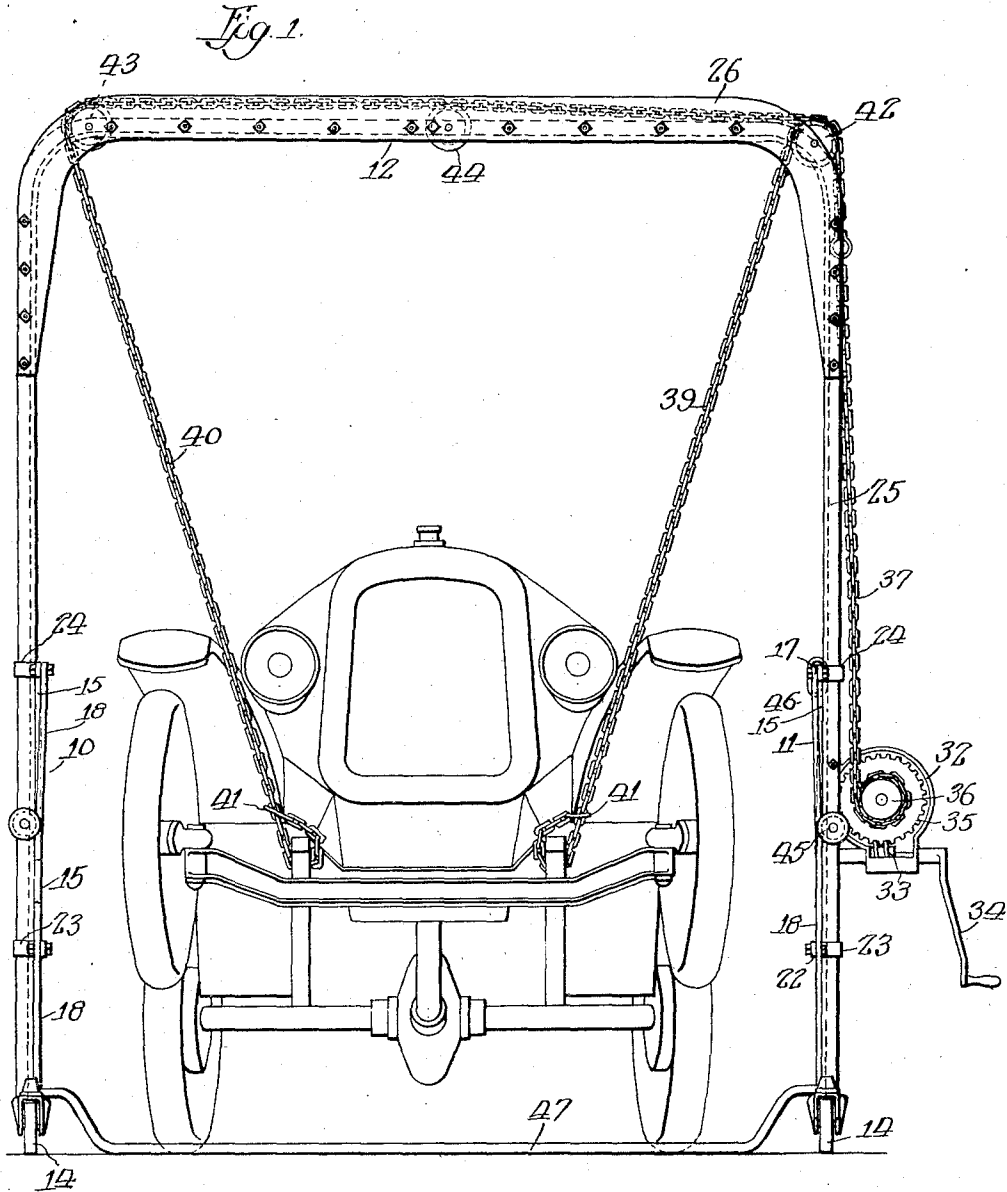


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Patented Mar. 19, 1918.  
 2 SHEETS—SHEET 1.



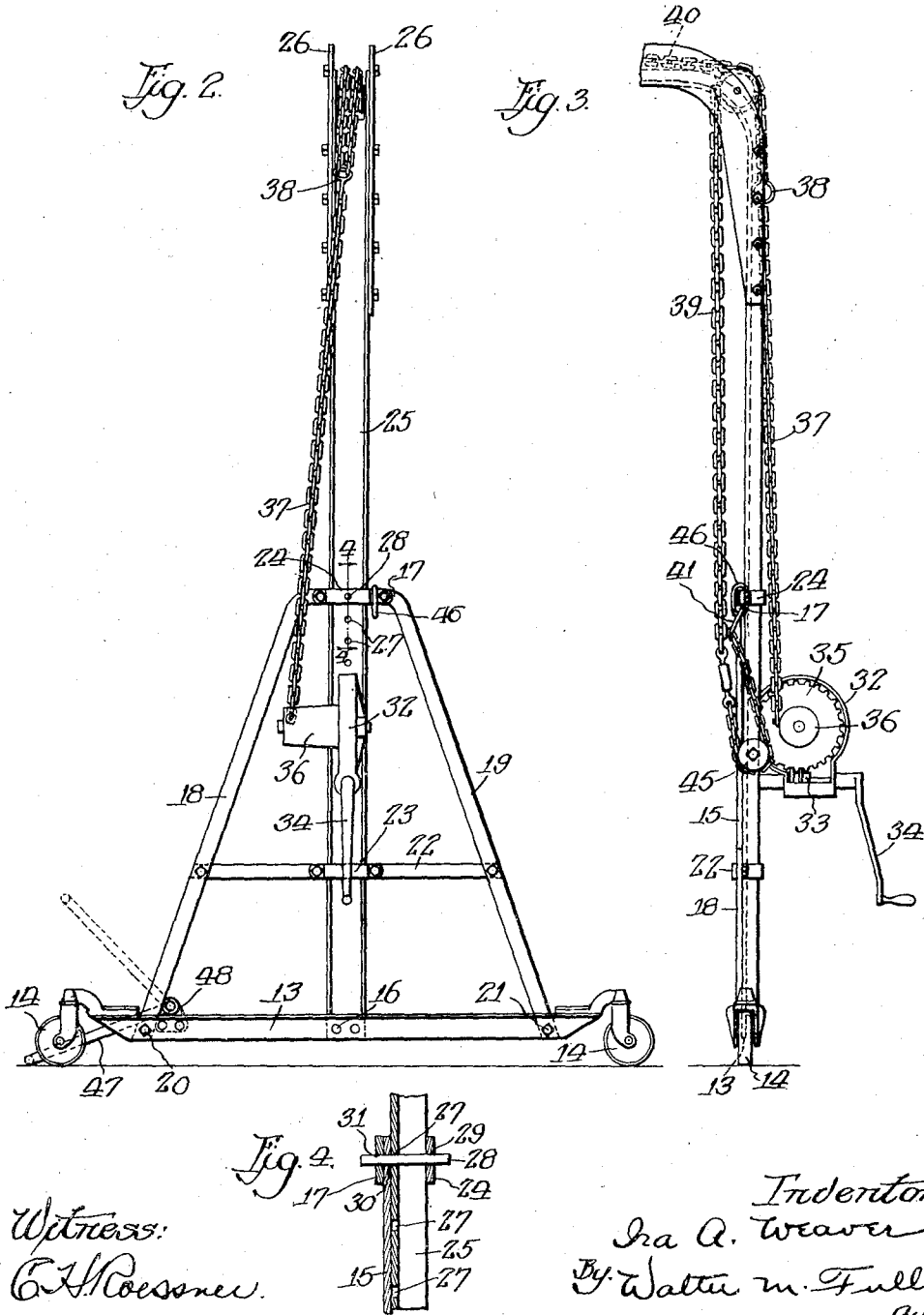
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 C. H. Hoessner.

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# UNITED STATES PATENT OFFICE.

IRA A. WEAVER, OF SPRINGFIELD, ILLINOIS, ASSIGNOR TO THE WEAVER MANUFACTURING COMPANY, OF SPRINGFIELD, ILLINOIS, A CORPORATION OF ILLINOIS.

## HOIST.

1,259,942.

Specification of Letters Patent. Patented Mar. 19, 1918.

Application filed October 17, 1917. Serial No. 197,011.

*To all whom it may concern:*

Be it known that I, IRA A. WEAVER, a citizen of the United States, residing at Springfield, in the county of Sangamon and State of Illinois, have invented certain new and useful Improvements in Hoists, of which the following is a specification.

My invention pertains to hoists, or elevating or lifting appliances in general, but has special reference to devices of this character particularly adapted for use in association with automobiles, although its employment is not necessarily limited to such line of work.

One object of the invention is to provide an appliance of this type which will obviate the necessity for a pit which experience has demonstrated is objectionable for the reason that dirt, grease, and gas accumulate in it, thus rendering it dangerous on account of explosion and fire, as well as unsightly. The improved hoist, therefore, is so designed, constructed, and operated, as to permit the work ordinarily requiring a pit to be accomplished with ease and despatch, but without necessitating a pit construction. In other words, the hoist is adapted to raise the automobile so that work beneath it can be readily and efficiently performed.

A further feature of the invention is that the hoisting mechanism forming a part thereof may be used either to raise some part of the automobile, such as the body or engine, or may be alternatively employed for elevating or adjusting the hoist itself.

Another salient object of the invention is to so shape the hoist framework and so mount it on wheels that it can be easily operatively associated with an automobile, even though the latter may be one of a row arranged close together. Stated differently, the appliance occupies but little space and is easily moved about from one car to another although they may be in somewhat inaccessible places.

In order that those skilled in this art may have a full and complete understanding of the invention and its various benefits and advantages, I have illustrated a preferred and desirable embodiment of the same in the accompanying drawings, forming a part of this specification, and throughout the various views of which like reference characters refer to the same parts.

In these drawings:

Figure 1 is a front elevation of the improved appliance, indicating the manner in which it may be employed for lifting the front end of an automobile;

Fig. 2 is an end view of the device;

Fig. 3 is a fragmentary elevation illustrating the connection employed when the frame itself is to be raised or lowered; and

Fig. 4 is a vertical cross-section on an enlarged scale on line 4-4 of Fig. 2, the parts being viewed in the direction indicated by the arrows.

Referring to the drawings more in detail, it will be observed that the appliance comprises two spaced parallel frames 10 and 11 (Fig. 1), slidingly associated with a transversely-arranged, connecting, inverted, U-shaped frame 12. Each of the frames 10 and 11 comprises a bottom angle-bar 13 (Fig. 2) equipped at each end with a suitably mounted caster wheel 14. Rising from this bottom bar 13 is a framework composed of a central upright plate 15 riveted or bolted at its lower end at 16 to the vertical flange of the angle-bar 13. At its upper end such plate 15 is fastened by one or more bolts or rivets to the top horizontal portion 17 of a bent bar having two oppositely-inclined portions 18 and 19 fastened at their lower ends at 20 and 21 to the same flange of the bar 13 that the plate 15 is secured to. The two portions 18 and 19 are connected together by an intermediate horizontal bar 22 which at its center portion, is provided with a bent strap 23 fastened thereto in vertical register with a similar bent strap 24 secured to the part 17.

The transverse connecting frame 12 of inverted U-shape comprises a bent channel-bar 25 strengthened at its upper part on each side by deeper or wider U-shape plates 26, 26, bolted or otherwise suitably secured to the outstanding flanges of such bar. The two vertical legs of this connecting frame are slidingly received in the socket members 23 and 24, thus enabling the connecting frame to be capable of vertical adjustment, as may be required from time to time. In order that such frame may be suitably held or maintained in its various adjusted positions of elevation, the webs of the lower portions of the two parallel legs of such frame have apertures 27, 27, adapted to receive holding pins or bolts 28, 28, each

of which extends through registering holes 29 in the strap 24, 30 in the upper end of the bar 15, and 31 in the cross-piece 17 of the side-frame.

5 Mounted on one leg of the frame 12 I provide a casting 32 on or in which is supported a worm 33, equipped with an operating-handle 34, and a worm-wheel 35 with which the worm co-acts, the hub 36 of such  
10 worm-wheel, constituting a winding drum for a chain or cable 37 connected at 38 to two companion chains or cables 39 and 40, each of which at its free end has a hook 41. These two chains or cables pass over sheaves  
15 or pulleys 42 and 43 suitably revolubly mounted on the top crosspiece of the central connecting frame near its ends, or either chain may be shifted so as to cooperate with the substantially centrally located pulley 44, the association of the chains with the pulleys  
20 depending, as will be readily understood, upon the nature of the work to be done.

Obviously, by turning the handle, the chain 37 may be wound upon or unwound  
25 from the drum, thus modifying its effective length and causing the ascent or lowering of the chains 39 and 40 and the piece of work to which they may be attached, or as explained above, either chain may be used  
30 singly with the middle pulley. The worm, of course, acts as a lock for the worm-wheel and drum, thus preventing unintentional action of the chain by reason of unlocking.

In order that the appliance may be  
35 quickly and easily adjustable as to height, so that it can be used with automobiles, especially those with closed bodies, of different heights or dimensions, each leg of the central frame is provided with a pulley 45  
40 and each side-frame at its top has a loop or link 46 into which the members 41 are adapted to hook with the chains passing beneath such pulleys, as shown in Fig. 3. By thus making the chain connections so as to  
45 support the central transverse frame, the pins 28 may be removed and the frame adjusted either up or down by turning handle 34, whereupon the pins may again be inserted in the registering apertures and hold  
50 the frame in adjusted position. The loops or bent straps 23 and 24 guide the legs of the frame during such manipulations and securely hold the three parts of the complete frame together. The adjustment having  
55 been effected, the hooks 41 are released from the loops or links 46 and then the chains and hoisting mechanism are ready for the performance of their usual work.

In some cases it may be desirable and  
60 advantageous to equip such a hoist appliance with a bent rod or bail 47 rockingly mounted at its opposite ends in bearings 48, 48, on the bars 13, 13, and assisting in preventing the side-frames 10 and 11 from spreading apart.  
65 When swung up as shown in dotted lines in

Fig. 2, such rod or bail may be employed as a handle for moving the hoist from one position to another, but when not so used, such bail rests on the floor as indicated in full lines, and forms no obstruction to the auto- 70 mobile with which the hoist may be used. Such automobile may be easily rolled over it if occasion requires. It is to be understood that the employment of such a lower cross-connecting member is quite optional, 75 as the appliance can easily be made strong enough without its presence.

To those skilled in this art it will be appreciated that many minor mechanical changes may be made in the structure pre- 80 sented herein without departure from the substance and essence of the invention and without the sacrifice of any of its substantial benefits and advantages.

I claim:

1. In a hoisting appliance of the character described, the combination of a framework composed of a pair of spaced side-frames and an inverted U-shape frame transversely connecting and vertically adjustable on said 90 spaced side-frames, and hoisting means on said framework adapted to elevate or lower the work, and means permitting said hoisting means to be employed in vertically extending or contracting said framework by 95 simultaneously and equally vertically adjusting the legs of said U-shape frame on said side-frames, substantially as described.

2. In a hoisting appliance of the character described, the combination of a framework 100 composed of a pair of spaced side-frames, and an inverted U-shape frame transversely connecting and vertically adjustable on said spaced side-frames, hoisting means on said framework including a winding drum and 105 an associated pair of flexible elements adapted either singly or jointly to elevate or lower the work, and means permitting said hoisting means to be employed in vertically extending or contracting said frame- 110 work by simultaneously and equally vertically adjusting the legs of said U-shape frame on said side-frames, substantially as described.

3. In a hoisting appliance of the character 115 described, the combination of a framework composed of a pair of spaced parallel side-frames, and an inverted U-shape frame transversely connecting and vertically adjustable on said spaced side-frames, hoist- 120 ing means on said framework including a winding drum mounted on one of the legs of said U-shape frame, an associated pair of flexible elements adapted either singly or jointly to elevate or lower the work, and 125 sheaves on said U-shape frame with which said flexible elements are adapted to cooperate, and means permitting said hoisting means to be employed in vertically extending or contracting said framework by simul- 130

taneously and equally vertically adjusting the legs of said U-shape frame on said side-frames, substantially as described.

4. In a hoisting appliance of the character described, the combination of a framework composed of a pair of spaced parallel side-frames and an inverted U-shape frame transversely connecting and vertically adjustable on said spaced side-frames, hoisting means on said framework including a winding drum mounted on one of the legs of said U-shape frame, an associated pair of flexible elements adapted either singly or jointly to elevate or lower the work, and sheaves on said U-shape frame with which said flexible elements are adapted to cooperate, means to attach said flexible elements to said side-frames, and sheaves on the legs of said U-shape frame, whereby said hoisting means may be employed to vertically extend or contract said framework by simultaneously and equally vertically adjusting the legs of the U-shape frame on said side-frames, substantially as described.

5. In a hoisting appliance of the character described, the combination of a framework composed of a pair of spaced side-frames, and an inverted U-shape frame transversely connecting and vertically adjustable on said spaced side-frames, hoisting means on said framework including a

winding drum and a single flexible element adapted to be wound upon said drum and having a double portion the parts of which are adapted either singly or jointly to elevate or lower the work, and means permitting said hoisting means including said double portion to be employed in vertically extending or contracting said framework by simultaneously and equally vertically adjusting the legs of said U-shape frame on said side-frames, substantially as described.

6. In a hoisting appliance of the character described, the combination of a pair of spaced parallel side frames, an arch frame connecting said side frames, and an offset tie rod for and rockingly mounted on said side frames adapted to rest on the floor or be swung upwardly and used as a handle, substantially as described.

7. In a hoisting appliance of the character described, the combination of a pair of spaced parallel side frames, an arch frame connecting said side frames and having its legs vertically adjustable on said side frames, and an offset tie rod for and rockingly mounted on said side frames adapted to rest on the floor or be swung upwardly and used as a handle, substantially as described.

IRA A. WEAVER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."