

April 30, 1929.

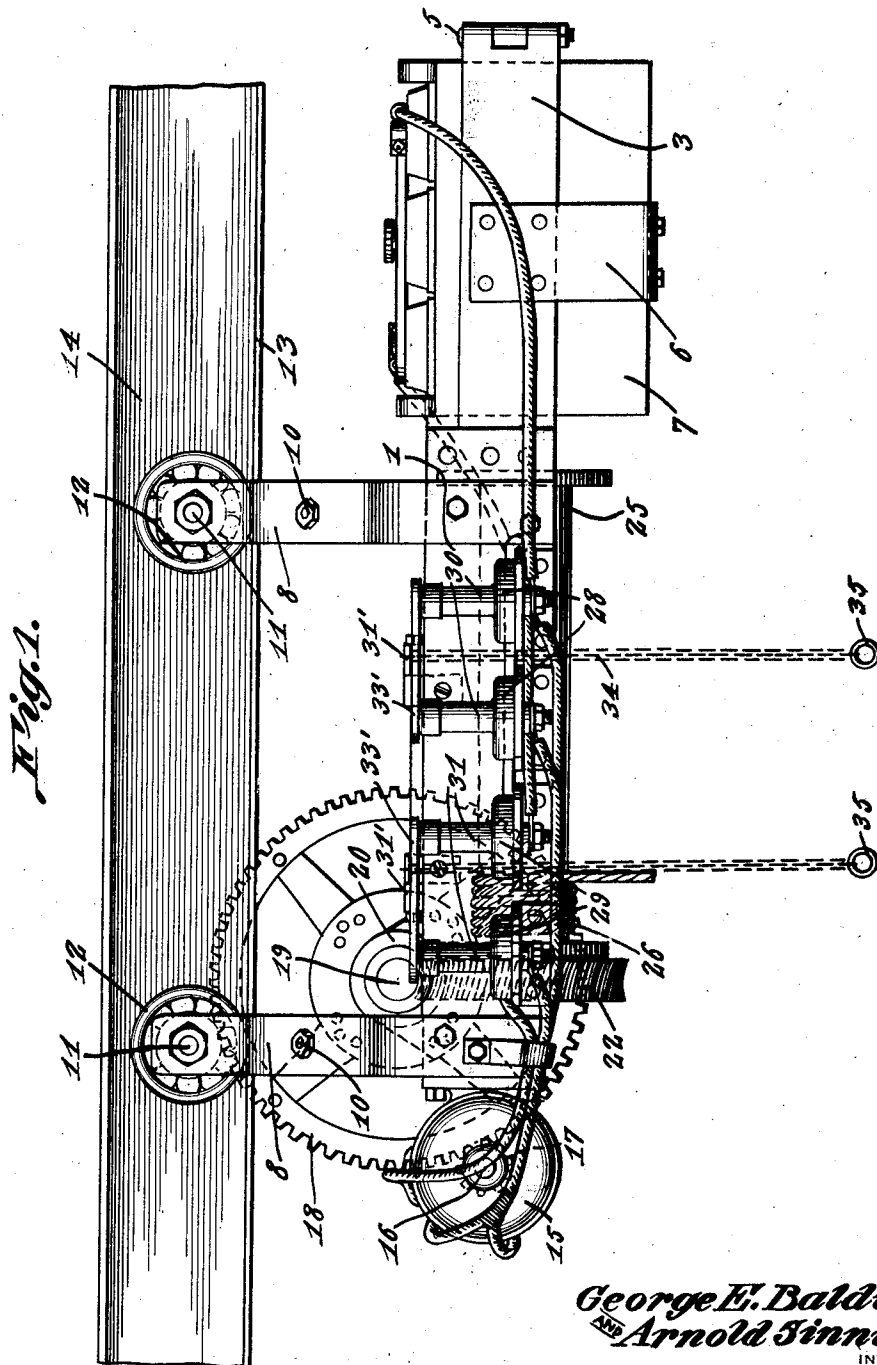
G. E. BALDWIN ET AL

1,711,401

HOIST

Filed Jan. 21, 1928

3 Sheets-Sheet 1



**George E. Baldwin
AND Arnold Finning,
INVENTORS**

INVENTOR
BY *Victor J. Evans*

ATTORNEY

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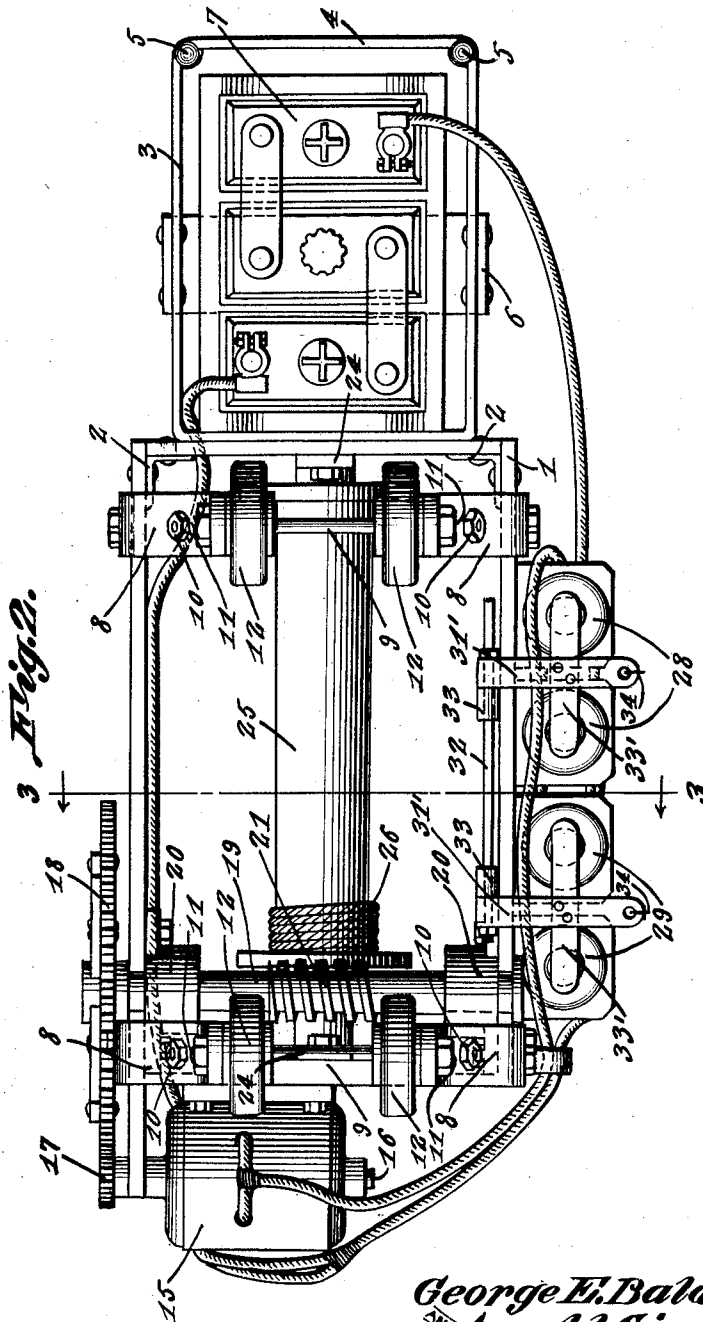
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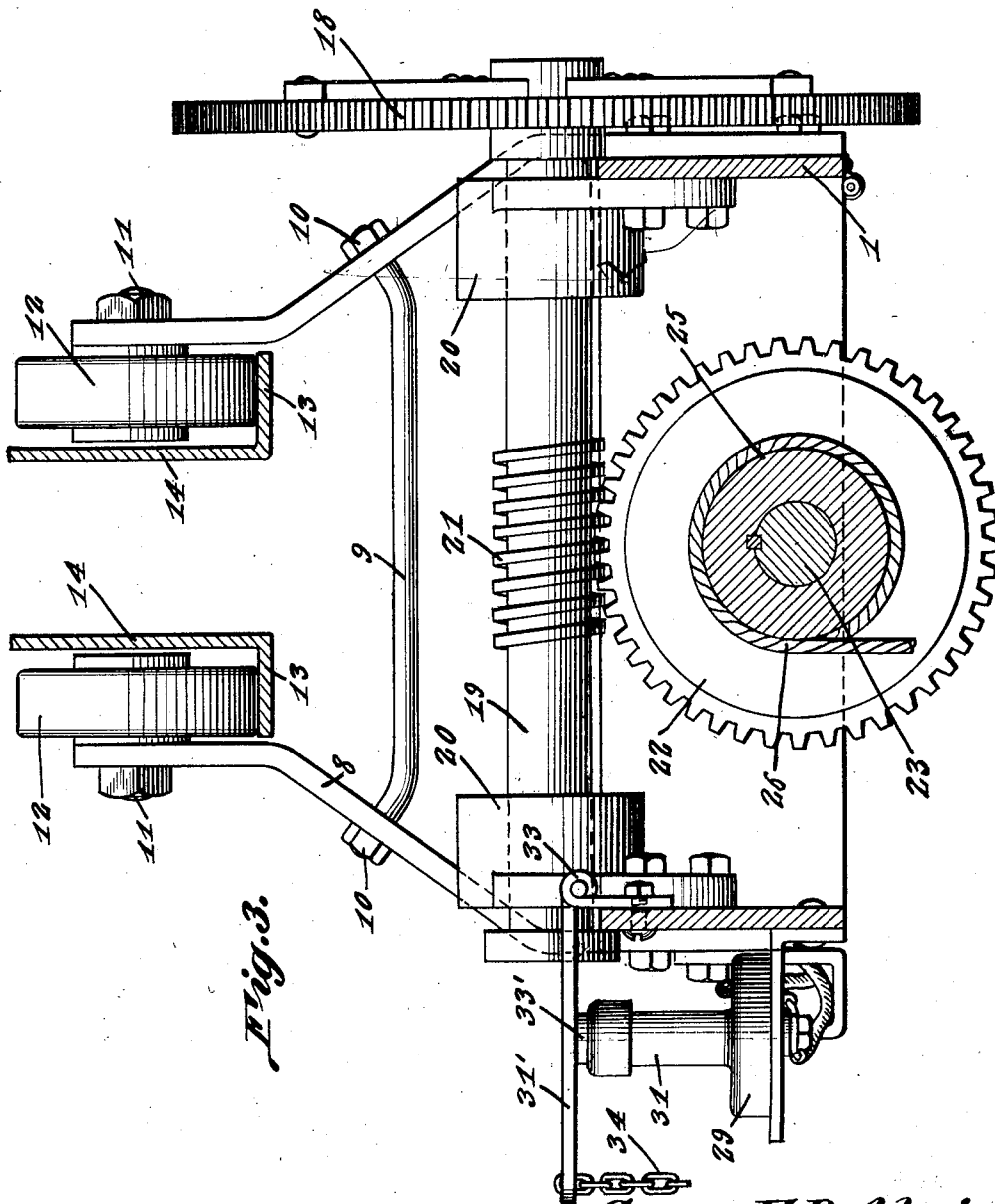


Fig. 3.

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UNITED STATES PATENT OFFICE.

GEORGE E. BALDWIN AND ARNOLD SINNING, OF HOLTON, KANSAS.

HOIST.

Application filed January 21, 1928. Serial No. 248,505.

Our present invention has reference to an electric hoist for use in garages or automobile repair shops and which shall be of a construction that carries its own power, that is, the same is equipped with a storage battery and a motor to operate the battery, the motor, of course, imparting motion to the improvement and being controlled by switches which are readily actuated by an operator so that the motor will be caused to turn in either of two directions and to impart a like motion to the drum to either elevate or lower the machine part engaged by the bit on the cable for the drum.

A further object is the provision of an electric hoist for use in garages which is mounted over an overhead track and which shall be of a simple construction, but is made up or built of parts of machinery that are available in any garage, the motor for the hoist receiving power from an ordinary storage battery and is controlled by a switch to cause the same to wind or unwind the hoist cable attached to the drum operated by the motor, and further wherein the construction permits of the machine part elevated by the hoist being sustained at any desired elevation with respect thereto.

The invention will be fully and comprehensively understood from a consideration of the following detailed description when read in connection with the accompanying drawings which form part of the application, with the understanding, however, that the improvement is capable of extended application and is not confined to the exact showing of the drawings nor to the precise construction described and, therefore, such changes and modifications may be made therefrom as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claim.

In the drawings:

Figure 1 is a side elevation of our improvement.

Figure 2 is a top plan view thereof.

Figure 3 is a transverse sectional view approximately on the line 3—3 of Figure 2.

As it is one of the principal objects of our invention to construct a device for garage or repair shops in a cheap, but in a sturdy, strong and effective manner, we propose to make use of parts that are usually found in

such garages or repair shops in constructing our improvement, it being, of course, understood that these parts are in no ways defective. We construct a substantially rectangular frame 1 of suitable metal plates. The corners of this frame are preferably reinforced by angle irons or angle brackets 2. We fix by rivets or other similar securing means to one end of the frame an open substantially rectangular compartment 3. The outer end of this frame-like compartment 3 is closed by a swingable plate which forms the same with a gate 4. The gate is hingedly secured to one of the side members of the open compartment or frame 3, and has its second end rolled or formed with an eye that is received between the rolled eye or barrel portions on the second side member of the compartment and a pivot element 5 passes through these rolled portions or eyes. As a matter-of-fact, both ends of the gate are hingedly secured to the frame in the same manner and one or both of the pivots 5 is removable. If desired, each pivot may be in the nature of a bolt which is engaged by a nut. Secured to the sides of the open frame or compartment 3, by rivets or other sustaining means, there are the sides of the U-shaped member 6 that affords the bottom of the open compartment 3. On this bottom there rests and there is preferably secured the outer casing for a storage battery 7. The battery is preferably of the six volt type and, as stated, may be detached from an automobile in the garage or repair shop.

The main frame 1 has fixedly secured to the sides, adjacent to the ends thereof, oppositely disposed inwardly directed but upwardly inclined plates or arms 8. The inwardly inclined portions of these pairs of arms 8 are held in spaced relation by rod members 9 having reduced threaded end extensions which pass through suitable openings in said arms 8 and have screwed thereon nuts 10. The upper and straight ends of the arms have either fixed thereto or journaled thereon inwardly directed stub shafts 11 on each of which there is mounted or journaled a roller 12. While not shown by the drawings, there are anti-frictional bearings between the hubs of the rollers 12 and the shafts 11 therefor. The rollers 12 rest on the horizontal flanges 13 of angle

plates 14 which provide the rails of an elevated track.

The plates 14 are, of course, suitably supported at a desired elevation in the garage or repair shop.

On the end of the main frame 1, opposite that to which the battery carrying frame or compartment 3 is fixed, there is bolted or otherwise removably but fixedly secured an electric motor 15. This motor may be in the nature of a starting motor for an automobile or the same may be in the nature of a generator motor for such machines. However, the field wires for the motor are wound so that the same will turn in either of two directions. A shaft 16 for the motor has fixed upon one of its ends a pinion 17 and this pinion is in mesh with a gear wheel 18. The shaft 19 for the gear wheel has journaled through bearing openings, suitable angle brackets 20 which are riveted or otherwise fixedly secured to the sides of the frame 1 so that the shaft is disposed a slight distance above the frame 1. The shaft 19 is centrally formed with worm threads 21 which are in mesh with the teeth of a worm gear 22. The shaft 23 for the worm gear has its ends journaled in bearing openings in the end members of the frame 1, or preferably the said end members are provided with journals for such ends of the shaft and likewise preferably there are anti-frictional bearings and likewise anti-frictional thrust bearings between the bearings, the shaft proper and the ends of the shaft. The bearings, for distinction, are indicated by the numeral 24. There is splined on the shaft 23 a drum 25. This drum has coiled therearound and fixedly secured thereto one end of a hoist cable 26. The second or free end of the hoist cable is provided with the grapple for engaging with material to be raised by the hoist.

Fixedly supported on one side of the main frame 1 there are spring influenced normally open switches that control the current through the conductor wires from the battery to the cable. These switches may and preferably are of the type employed as starting switches on automobiles. Four of these switch members are provided and the same are arranged in cooperating pairs. The lower casing portions and the lower casing portion for each pair of these switches are indicated by the numerals 28—28 and 29—29. The casings have the usual tubular extensions 30—30 and 31—31, through which the button ends of the spring influenced normally open elements of the switches project. Each movable element of the switch engages with two spaced contacts, the said contacts being connected respective-

ly to the terminals of the wires that lead from the plug and minus poles of the battery and the remainder pair of contacts for each pair of switches being directed to the respective sets of field coils for the motor. The throw elements for closing either of the pairs of switches each comprises a plate 31' having a barrel end through which passes a pivot or bolt 32 that also passes through ears or eyes 33 supported on one of the sides of the main frame 1. Each plate 31' has fixed on the under face thereof but insulated therefrom a transverse bridge member 33' which is in the path of contact with the mentioned buttons of the said switches. The outer ends of the plates 31' have loosely connected thereto depending flexible elements preferably in the nature of chains 34 and the lower links of these chains have secured thereon pull rings 35. Thus it will be noted that by the operator exerting a pull upon one of the rings 35 the motor will receive energy from the battery to cause the same to turn in one direction and say turn the drum 25 to wind the cable thereon. As soon as pressure upon the chain is released the flow of current to the motor will be stopped. Incident to the construction of the normally open spring influenced switches and because of the toothed engagement between the worm gear 22 and the worm 21 on the shaft 19, the device engaged by the cable will be sustained at a desired elevation. A pull upon the second chain 34 will direct the current from the battery into the motor in an opposite direction, causing the same to turn the drum to unwind the cable therefrom and as soon as pressure upon this chain is released, the machine or other article gripped by the cable will be halted and sustained at any desired elevation with respect to the hoist. A longitudinal movement is imparted to the hoist by the operator pressing against either end of the chain, but obviously it is within the province of this invention for stopping the hoist at desired intervals throughout the length of the track.

Having described the invention, we claim:

A hoist for use in garages, automobile repair shops or the like, comprising a substantially rectangular open metal frame, upstanding arms fixed on the sides thereof, brace means between the arms, a roller journaled on each arm and designed for travel on an elevated track, an open compartment at one end of the frame, having an outer swingable gate.

In testimony whereof we affix our signatures.

GEO. E. BALDWIN.
ARNOLD SINNING.