

S. E. AARON.
LIFTING JACK FOR CARS.
APPLICATION FILED MAY 13, 1912.

1,062,871.

Patented May 27, 1913.

2 SHEETS—SHEET 1.

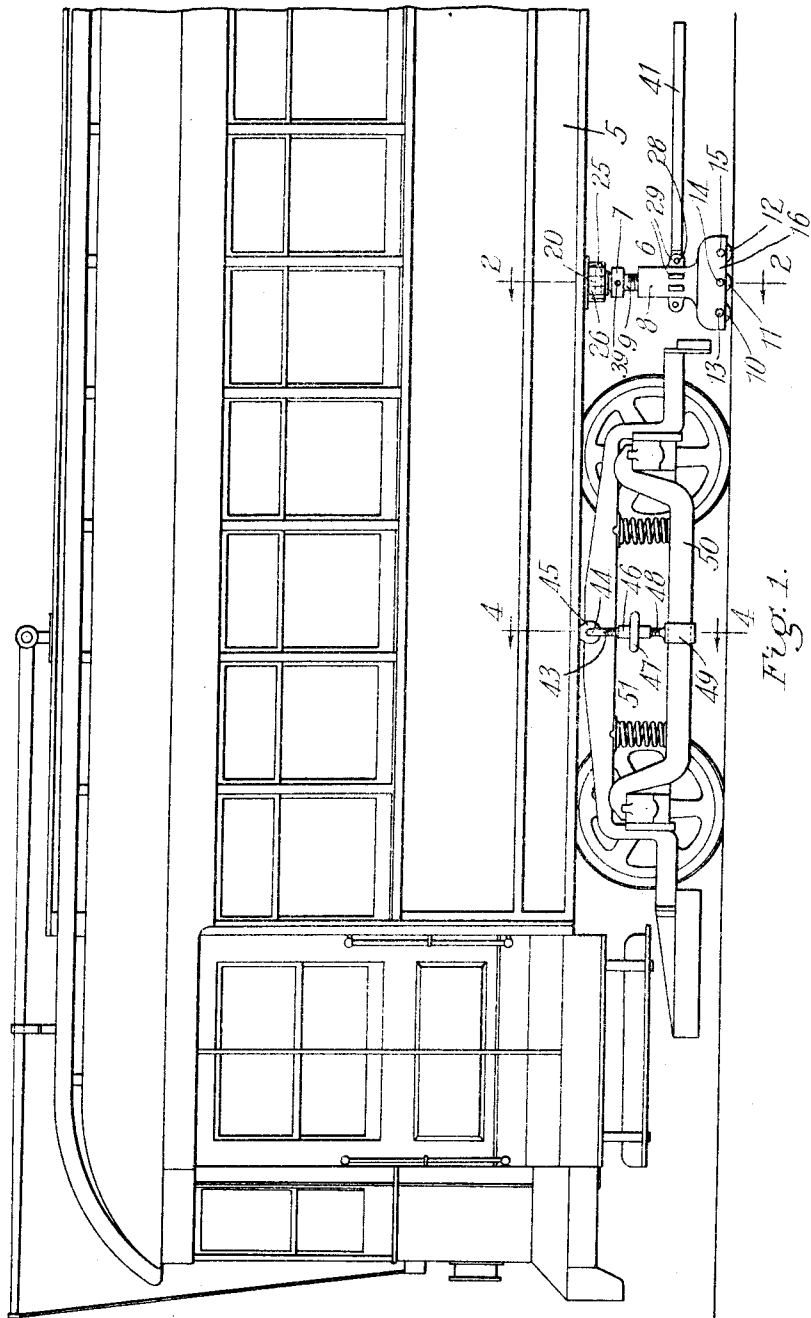


Fig. 1.

Witnesses
Franklin E. Low
Leonard A. Powell.

Inventor:
Solomon E. Aaron
By his attorney *Wm. V. Gooding*

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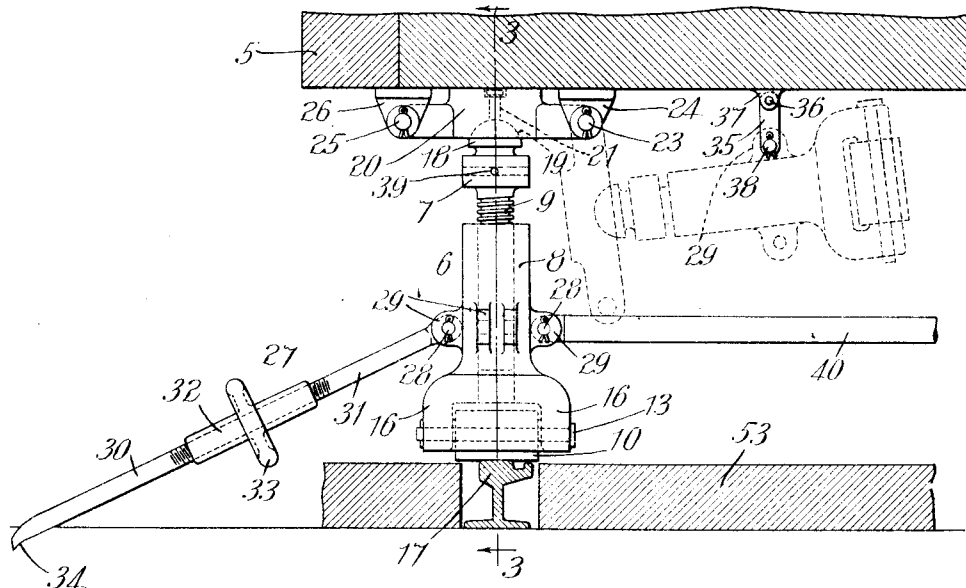


Fig. 2.

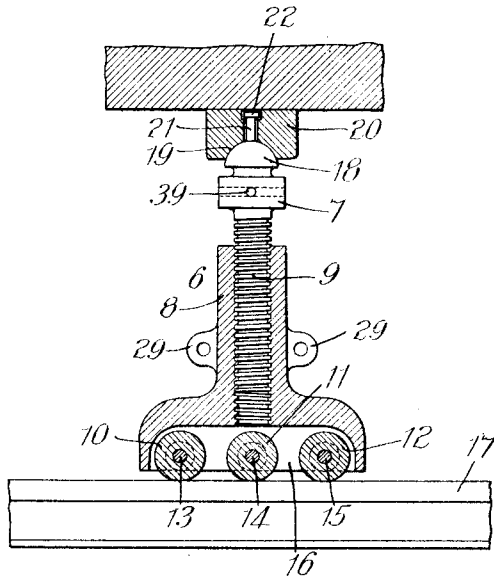


Fig. 3.

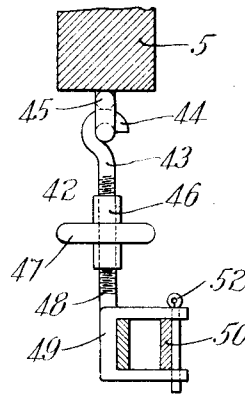


Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

SOLOMON E. AARON, OF CHARLESTOWN, MASSACHUSETTS.

LIFTING-JACK FOR CARS.

1,062,871.

Specification of Letters Patent.

Patented May 27, 1913.

Application filed May 13, 1912. Serial No. 696,817.

To all whom it may concern:

Be it known that I, SOLOMON E. AARON, a citizen of the United States, residing at Charlestown, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Lifting-Jacks for Cars, of which the following is a specification.

This invention relates to means for lifting a car from the tracks upon which it is supported.

The object of the invention is especially to provide a device which can be positioned quickly and used to raise a car body and its trucks from the track in case of accident of any kind, but especially in that class of accidents in which the body of a human being is caught beneath the car.

The object of the invention is further, besides raising the car and its trucks from the track, to move the car along the track upon the means by which it is raised or to move the car transversely of the tracks upon the device by which it is raised.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claims thereof.

Referring to the drawings: Figure 1 is a side elevation of a portion of a car with my improved lifting mechanism attached thereto. Fig. 2 is a cross sectional elevation taken on line 2—2 of Fig. 1 illustrating a portion of the car frame in connection with my improved lifting mechanism, and also illustrating said lifting mechanism in dotted lines out of operative position. Fig. 3 is a sectional elevation taken on line 3—3 of Fig. 2. Fig. 4 is an enlarged sectional elevation taken on line 4—4 of Fig. 1.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings, 5 is the car body. 6 is a lifting jack consisting of an upper member 7 and a lower member 8, the upper member 7 being screw-threaded at 9 to engage a corresponding thread formed on the lower member 8. A plurality of rolls 10, 11 and 12 are journaled upon pins 13, 14 and 15, respectively, said pins being fastened to ears 16 of the bifurcated lower portion of the lower member 8 of the jack. These rolls rest upon the track 17 when the car is being raised from the track. The upper member 7 terminates at its upper end in a hemispherical portion 18 which fits in

a similarly shaped hemispherical recess 19 formed in the under side of a bracket 20. A shank 21 with a head 22 thereon extends from the hemispherical portion 18 upwardly through a corresponding hole in the bracket 20, the function of said shank 21 and head 22 being to prevent the jack, as a whole, from dropping off of the bracket 20 when not in contact at its lower end with the rail or other support. The bracket 20 is pivoted at 23 to a bracket 24 fast to the under side of the car body 5 and said bracket is held locked to said car body in the position illustrated in Fig. 2 by a pin 25 extending through ears formed upon a bracket 26 fast to the under side of the car body.

It will be noted that the shank 21 extends longitudinally of the upper member 7 and the bracket 20 is pivoted to swing about a horizontal axis, while the pin 25 constitutes a locking means to hold the jack in a vertically disposed position. A strut 27 is pivoted at 28 between ears 29 and is made in two parts 30 and 31 screw-threaded right and left, respectively, to engage similar screw-threads in a nut 32 which is provided with a handle 33 by means of which it may be rotated, the end 34 of the part 30 being adapted to project into the ground or into a stationary object or body. Said strut 27 acts, when the parts are in the position illustrated in Fig. 2, as a brace to prevent the jack from moving transversely of the track 17 during the lifting of the car body. This strut can also be used to move the car across the tracks in a manner hereinafter described.

When the jack is not in operative position it is swung to the position illustrated in dotted lines, Fig. 2, and held in that position by a link 35 pivoted at 36 to a bracket 37 fast to the frame of the car body. A pin 38 passes through the link 35 and through the ears 29 on the lower member 8 of the jack 6. When it is desired to use the jack the pin 38 is moved and said jack swings down into a vertical position, as illustrated in Fig. 2, and the screw-threaded upper member is rotated by means of a suitable wrench or bar inserted in holes 39 extending transversely of said upper member.

A plurality of the jacks 6 are preferably employed to raise the car, the jacks being arranged in pairs, the two jacks of each pair being opposite each other upon the two rails of the track, and the lower members of these two pairs of jacks are joined to-

gether by tie-rods 40. Only one of the jacks is shown with the tie-rod as attached thereto, as illustrated in Fig. 2, but the other jack is a duplicate thereof located on the other track.

The periphery of the lower member 8 has a plurality of ears 29 arranged at different points around said periphery and the tie-rod 40 and strut 27 are adapted to be fastened to said lower member by pins 28 extending through said ears and through the ends of said tie-rod and strut. The lower member 8 is adapted to be rotated around the screw-threaded portion of the upper member 7 to a position at right angles to that shown in Fig. 2 and illustrated in dotted lines and when in that position will be locked to the lower member of the other jack which rests upon the opposite rail by the tie-rod 40. The car can then be moved transversely of the tracks, after having been raised by means of the jacks, by rotating the nut 32 by means of the handle 33 and thus lengthening the strut 27, so that it will push the car, by means of the jacks, transversely of the tracks, it being understood that there is no strut applied to the other jack of the oppositely disposed pair of jacks on the other rail.

When it is desired to move the car when the jacks are in the position illustrated in Fig. 2, or to move the car longitudinally of the rails, then the strut 27 can be utilized, if desired, to move the car by changing its position and attaching the same to the ears 29 located on the left of the jack as viewed in Fig. 1, and at that time said jack may also be tied to another jack on the same rail by a tie-rod 41, or, if sufficient assistance is at hand the car may be pushed by a number of passengers or persons who may be present, with the rolls of the jacks resting on the rails and supporting the weight of the car and its trucks.

It is evident that when the upper members of the jacks are rotated to lift the car body, the trucks of the car together with their wheels and axles would be lifted solely by the transom bolt of the truck, if such a thing were possible, but this would not be practicable and, therefore, in order to raise the trucks, with their axles and wheels, simultaneously with the raising of the car body, and in order to prevent the springs from expanding during this raising of the car body and the trucks, means are provided to lock the frame of the truck to the car body, as illustrated in Figs. 1 and 4. This means consists of a locking member 42 adapted to lock the truck to the car body and consisting of a rod 43 terminating at its upper end in a hook 44 adapted to be hooked into an eye 45 fast to the frame of the car body 5. This rod is screw-threaded to engage a nut 46 which has a handle 47

thereon by means of which it may be rotated, the lower end of said nut being screw-threaded in the opposite direction from the upper end to engage a corresponding screw-thread upon a rod 48 extending upwardly from a U-shaped bracket 49 which clasps the lower frame 50 of the car truck 51. This bracket is held upon the said lower part of the car frame by a pin 52. By this means the frame of the truck may be locked to the car body and will be raised by said car body by means of the jacks hereinbefore specifically described, all in a manner which I will now proceed to describe in general.

When it is desired to raise the car from the tracks and to move the same longitudinally of the tracks away from the body which may be underneath the trucks or car body, the jacks are swung down from the position shown in dotted lines, as in Fig. 2, by removing the pin 38 and allowing the jack to swing, together with the bracket 20, about the pivot 23 to the position illustrated in Fig. 2, with the jack in a vertically disposed position. The locking pin 25 is inserted through the ears of the bracket 26 and through the bracket 20, locking said bracket in the position illustrated in full lines, Fig. 2. The jack on the opposite rail is placed likewise in a vertically disposed position and the two are joined together by the tie-rod 40. The locking members 42 are hooked into the eyes 45, the U-shaped brackets 49 are thrown into engagement with the lower portion of the truck frame and are locked thereto by the pins 52. The nuts 46 in each case are then rotated, by means of their handles 47, until the truck frame is locked to the car body by said locking device. The upper member 7 of each of the jacks is then rotated by a suitable rod placed within the holes 39 and the car body, together with the trucks and their axles and wheels, will then be raised from the track to any desired extent. The human body which is beneath the car body or beneath the trucks can then be removed and the operations hereinbefore described are reversed and the jacks are thrown back into the positions shown in dotted lines, Fig. 2, while the locking members 42 are removed from the trucks and car body and stored in a convenient place.

If it is desired to move the car longitudinally of the track, the tie-rods 41 are connected from one of the jacks to another on the same rail and then the car is moved, either by pushing it by means of a number of persons or by pushing it by means of the strut rods 27 which are connected to the jacks as hereinbefore described and upon rotating the nuts 32 of said strut rods, by means of their respective handles 33, said strut rods will be lengthened so as to move the car longitudinally of the track.

If it is desired to move the car transversely of the tracks after having been raised, then the lower members of the jacks are rotated to a position at right angles to that illustrated in Figs. 1 and 2, the oppositely disposed jacks are tied together by the tie-rods 40 and 41 and the car is moved by pushing the same off of the tracks supported on the rolls 10, 11 and 12 of each jack onto a suitable timber or other support 53 placed between the rails. If desired, said timber may be placed upon the rails extending from one to the other and the jack raised to a sufficient extent so that the rolls 10, 11 and 12 will rest thereon and then the car can be pushed along the transversely extending timber to any extent desired. The car in this instance can be pushed bodily by a number of persons pushing directly on the car, or the same can be moved by means of the strut rods 27 attached to the lower members of the two jacks on the same rail, and located in the position of the strut rod illustrated in Fig. 2.

To place the car on the track again, it can be moved in an opposite direction in a similar manner and the operations hereinbefore described reversed, so that the jacks can be utilized to lower the car and its trucks, bringing the wheels of the trucks into engagement with the rails and subsequently removing the tie-rods 40 and 41 and the strut rods 27, swinging the jacks into their dotted position illustrated in Fig. 2 and locking the same in said dotted position by means of the pins 38.

It is evident that if desired the rolls 10, 11 and 12 may be removed from the jack by removing the pins 13, 14 and 15, respectively, and the lower part of the jack will then rest directly upon the rail instead of said rolls contacting therewith.

It is evident that without departing from the spirit of my invention the part 43 might terminate in an eye and the part 45 be made as a hook, such a construction being merely a reversal of the construction shown in Fig. 4 without securing any difference in function.

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

1. In combination, a railroad car embodying in its construction a body and a truck, means to lock the frame of said truck to said car body, a jack adapted to raise said car and its truck from the rail upon which it may rest and consisting of an upper member and a lower member having screw-threaded connection with each other and a roll journaled to rotate on said lower member about an axis extending transversely of said lower member, said roll being adapted to contact with said rail.

2. In combination, a railroad car embody-

ing in its construction a body and a truck, means to lock the frame of said truck to said car body, a jack adapted to raise said car and its truck from the rail upon which it may rest, said jack embodying an upper member and a lower member having screw-threaded connection with each other, a roll journaled to rotate on said lower member about an axis extending transversely of said lower member, said roll being adapted to contact with said rail and a bracket adapted to be fastened to the framework of said car upon which bracket said upper member is journaled to rotate about its longitudinal median axial line.

3. A jack for lifting the car from the rail having, in combination, an upper member and a lower member having screw-threaded connection with each other and a roll journaled to rotate on said lower member about an axis extending transversely of said lower member, said roll being adapted to contact with said rail and a strut pivotally connected at one end to said jack and adapted to engage a stationary object with its other end.

4. A jack for lifting the car from the rail having, in combination, an upper member and a lower member having screw-threaded connection with each other, a roll journaled to rotate on said lower member about an axis extending transversely of said lower member, said roll being adapted to contact with said rail, a strut pivotally connected at one end to said jack and adapted to engage a stationary object with its other end and means to lengthen said strut.

5. A jack for lifting the car from the rail having, in combination, an upper member and a lower member having screw-threaded connection with each other, a roll journaled to rotate on said lower member about an axis extending transversely of said lower member, said roll being adapted to contact with said rail, a plurality of ears on said lower member arranged at different points around its periphery and a tie-rod adapted to be fastened to said ears.

6. In combination, a railroad car embodying in its construction a body and a truck, means to lock the frame of said truck to said car body, a jack adapted to raise said car and its truck from the rail upon which it may rest, said jack embodying an upper member and a lower member having screw-threaded connection with each other, a roll journaled to rotate about an axis extending transversely of said lower member, said roll being adapted to contact with said rail and a strut pivotally connected at one end to said jack and adapted to engage a stationary object with its other end.

7. In combination, a railroad car embodying in its construction a body and a truck, means to lock the frame of said truck to said car body, a jack adapted to raise said car

and its truck from the rail upon which it may rest, said jack embodying an upper member and a lower member having screw-threaded engagement with each other, a roll journaled to rotate about an axis extending transversely of said lower member, said roll being adapted to contact with said rail, a strut pivotally connected at one end to said jack and adapted to engage a stationary object with its other end and means to lengthen said strut.

8. In combination, a railroad car embodying in its construction a body and a truck, a jack adapted to raise said car and its truck from the rail upon which it may rest and a locking member adapted to lock said truck to said car body and consisting of an eye fast to one of said two last-named parts and a hooked rod adapted to engage said eye fast to the other of said two last named parts and means to lengthen said hooked rod.

9. In combination, a railroad car embodying in its construction a body and a truck, a jack adapted to raise said car and its truck from the rail upon which it may rest, a locking member adapted to lock said truck to said car body and consisting of an eye fast to said car body, a bracket fast to the frame of said truck, a rod extending upwardly from said bracket, a nut having screw-threaded engagement with said rod and another rod screw-threaded at one end to engage said nut and terminating at its opposite end in a hook adapted to engage said eye.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SOLOMON E. AARON.

Witnesses:

FRANKLIN E. LOW,
SYDNEY E. TAFT.