(No Model.)

F. JACKSON & E. R. AUSTIN.

RAIL LIFTER.

No. 274,609. Patented Mar. 27, 1883.

Fig. 1.

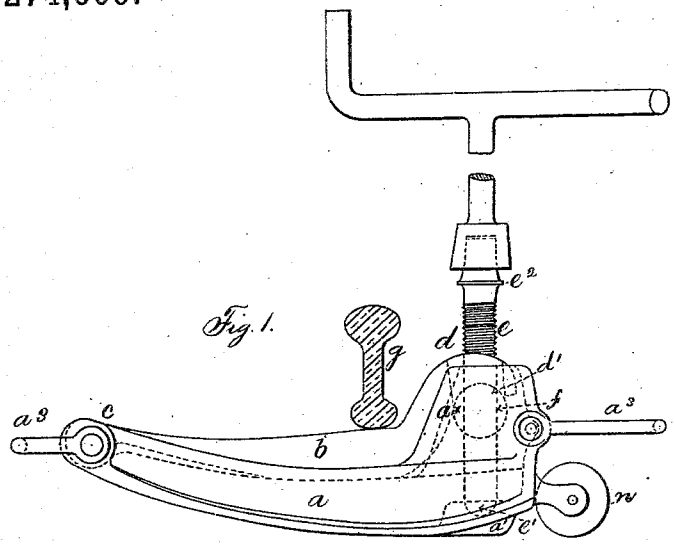


Fig. 2.

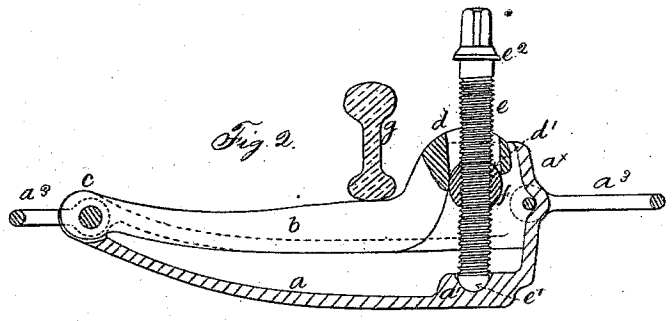
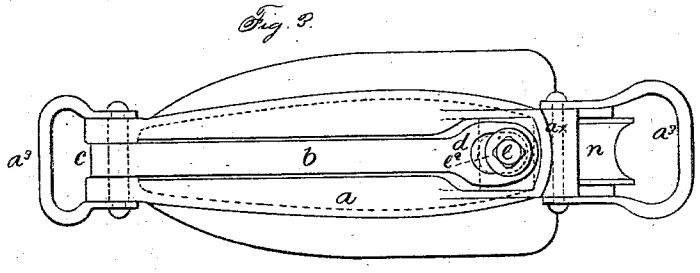


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK JACKSON AND EDWARD R. AUSTIN, OF MANCHESTER, COUNTY OF LANCASTER, ASSIGNORS TO WILLIAM RIGHTER COMINGS, OF LONDON, ENGLAND.

RAIL-LIFTER.

SPECIFICATION forming part of Letters Patent No. 274,609, dated March 27, 1883.

Application filed January 22, 1883. (No model.) Patented in England October 28, 1880, No. 4,399.

To all whom it may concern:

Be it known that we, FRANK JACKSON and EDWARD ROBERT AUSTIN, subjects of Her Majesty the Queen of Great Britain, both residing at Manchester, in the county of Lancaster, England, have invented a new and useful Improvement in Rail-Lifters, of which the following is a specification.

Our improvements consist in combining the parts of our improved instrument so that the screw will pass through a nut arranged to swivel in or under the end of the lever as it lifts, and so that the end of the screw will fit and rotate in a foot-step in the base-plate or casting. By this mode of construction the screw is maintained in a nearly perpendicular position under the load, the work is done with less friction, and thus with less labor, and the screw is better able to sustain the weight that may come upon it while a train is passing over the rails.

The accompanying drawings illustrate the manner of carrying our said improvements into effect, which is as follows:

Figure 1 represents a side elevation, Fig. 2 represents a longitudinal section, and Fig. 3 represents a plan, of the improved apparatus.

In these figures, *a* is an iron bed-plate forming the lower member of the instrument. *b* is the upper member or lever, made of wrought-iron, steel, or other suitable material, lying within the recessed or hollow form of the lower member and hinged to the same at the end marked *c*. The opposite end, *d*, instead of being tapped with a screw-hole for receiving the lifting-screw *e*, as described, is formed with an oval or elongated eye, to allow of the free passage of the lifting-screw *e*, and the lifting-screw *e* is provided with a cylindrically-shaped nut, *f*, which has a tapped hole at a right angle to its axis to receive the lifting-screw *e*. The lower end of the lifting-screw *e* is provided with a hemispherical foot, *e'*, and works in a similarly-shaped foot-step formed in the bed-plate *a* at *a'*, instead of the grooved seating shown. The end *d* of the lever *b* is formed on the under side, at *d'*, with a curved seat, so as to fit and rest upon the cylindrically-shaped nut *f*, and the upper end of the lifting-screw *e* is formed with a suitable head to receive an ordinary box key or spanner. A collar, e^2, is provided to prevent the lifting-screw *e* from falling out of the elongated eye at the end *d* of the lever *b*, when it is turned over. The member *a* is cast with a raised lip or rim, $a^\times$, which lip or rim serves not only as a protection from the ballast falling into the recess, but also as a guide for the lever *b* and the cylindrical nut *f*.

In using the instrument the operations to be performed consist in the arrangement of the lifting-screw with a separate cylindrical nut, whereby the axis of the lifting-screw is preserved more nearly in a vertical position throughout the whole range of the traverse of the nut upon it, instead of standing in the tangential position consequent upon its working in the tapped hole in the end of the lever; and our improvements further consist in the provision of a fixed foot-step bearing for the foot of the lifting-screw, instead of the longitudinal groove heretofore employed, which was necessary in consequence of the varying position of the foot of the lifting-screw in working the instrument.

The improvements may also be effected by substituting a spherical or hemispherical or other form of swivel-nut instead of the cylindrically-shaped nut *f*, and forming a correspondingly-shaped seat at *d'* of the lever *b;* or the nut may be formed into trunnion-bearings, and the end *d'* of the lever *b* may be made to embrace them; but we prefer to use the cylindrical form, as shown, as the most practical and convenient that our present experience has furnished. For convenience of moving the instrument from place to place a roller, *n*, whose face substantially corresponds to the top face of the rail, may be added, so that the instrument may be placed with said roller upon one of the rails, and then be rolled thereon to such other place as may be desired.

We have now particularly described the nature of our said invention and the mode of carrying the same into effect, and claim as our invention—

1. The combination of the bed-plate and the lever hinged therein with the lifting-screw

and the swiveling nut, substantially as described, and for the purpose specified.

2. The combination of the bed-plate having the concave foot-step, the lever hinged in said bed-plate, the lifting-screw having the rounded lower end, and the swiveling nut, substantially as described, and for the purpose specified.

3. The herein-described rail-lifter, consisting of the hinged lever, lifting-screw, and the bed-plate having the roller *n*, whose face is adapted for use upon one of the rails, substantially as described, and for the purpose specified.

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