July 5, 1955 J. C. HOLT 2,712,433

TRACK LIFTER

Filed July 8, 1953

Fig. 1

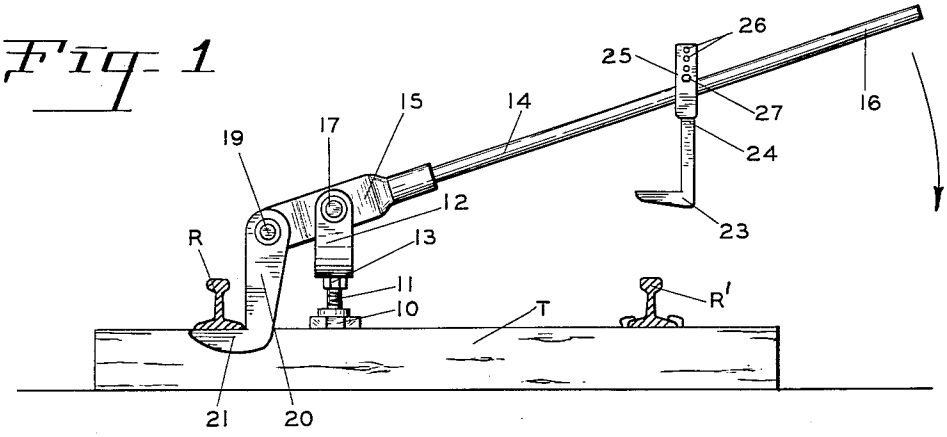


Fig 2

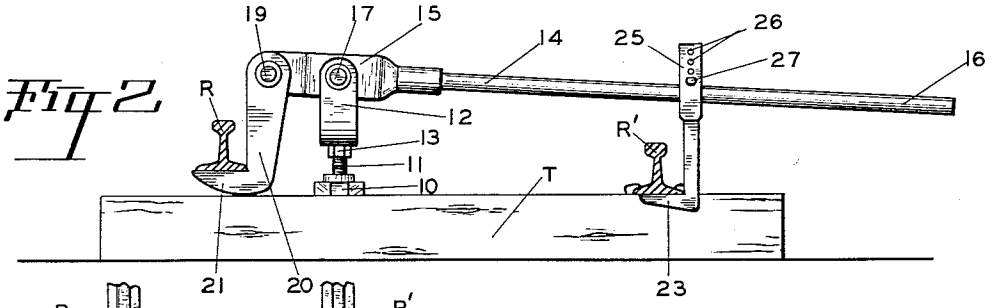


Fig 3

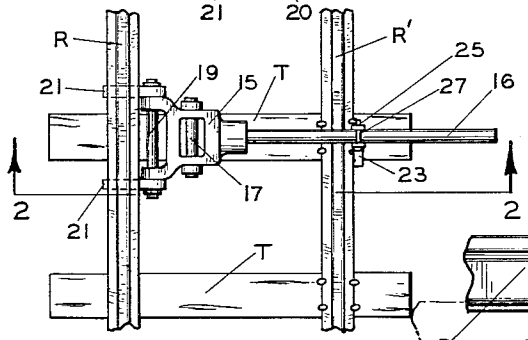


Fig 4

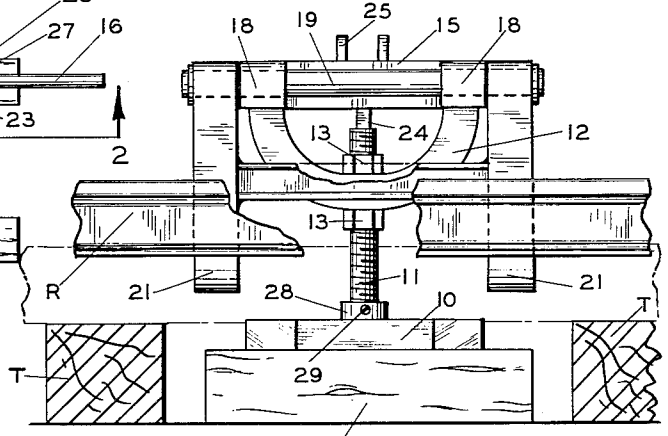
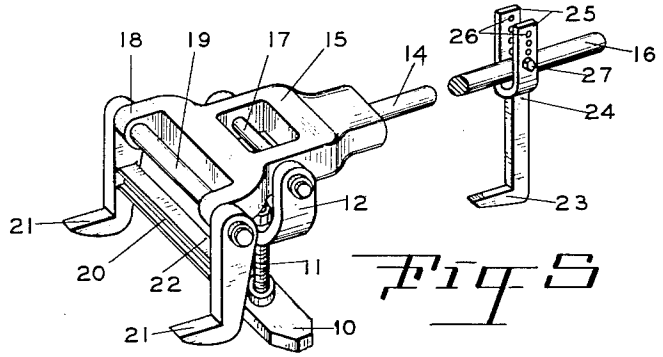


Fig 5



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TRACK LIFTER

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1 Claim. (Cl. 254—121)

This invention relates to devices for use in the maintenance and repair of railroad tracks and more particularly to a rail jack.

In the maintenance and repair of railroad tracks, it is frequently necessary to lift a rail for leveling or adjusting a track with reference to the companion track or for removal and replacement of a defective tie. If the rail is lifted for leveling, it is necessary to raise it to the desired height for inserting a conventional steel plate between the tie and the rail. When it is desired to replace a defective tie, the rail must be lifted sufficiently to permit the removal of the old tie and the placement of a new tie.

I have found it to be quite essential to provide a means cooperatively related with both rails of a track, to be able to adjust one of the rails in relation to the other to effectively set both rails according to the road bed. Therefore one of the objects of the invention is to provide means supported on a tie to be fastened to a fixed rail and which is supported on a tie, with a means to engage the opposite rail to be adjusted with reference to the companion fixed rail.

According to present general practice, the lifting of a rail requires the labor of at least two men and the use of jack screws for raising the rails. The principal difficulty resides in the fact that the jack screws cannot fit under the rails and, consequently, it is usually necessary to dig a hole under the rail and place a solid support in the bottom of the hole for taking the pressure of the jack screw. It necessarily follows that after the operation is completed the jack screw and support must be removed from the hole and the hole filled in and tamped down to prevent any possible shifting of the road bed.

Having in mind the defects of the prior art apparatus, it is an object of the present invention to provide a rail jack that may be mounted in the open and is capable of operation by a single operator.

It is another object of the invention to provide a rail jack which may be releasably latched in position when the rail is lifted to the desired height.

It is a further object of the invention to provide a readily adjustable support and an adjustable latch mechanism for enabling accurate elevation of the rail when the latch is secured.

It is a still further object of the invention to provide a rail jack having simplicity of organization, economy of construction and efficiency in operation.

The foregoing objects and other ancillary thereto are preferably accomplished, in accordance with a preferred embodiment of the invention, by a lever type jack that is capable of operation by a single operator. This jack preferably comprises a base plate supporting a vertical screw which adjustably supports a fulcrum bracket. A lever is mounted by a horizontal pivot on said bracket and adjacent one end of said lever. A rail engaging hook is pivotally suspended from the short end of said lever and the long end of said lever comprises a handle for actuation by the operator.

The rail engaging hook preferably comprises two rigidly connected hooks that are spaced to straddle a tie. A latch hook is suspended from the handle for engaging under a suitable fixed part such as the other rail, and is adjustably mounted on the handle by means of a forked shank, the forks of which straddle the handle and each have a series of corresponding holes for selectively receiving a crosspin by which the hook is suspended.

The novel features that are considered characteristic of the invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of specific embodiments when read in connection with the accompanying drawing wherein like reference characters indicate like parts throughout the several figures and in which:

Figure 1 is a side view in elevation of a rail jack in accordance with the present invention;

Figure 2 is a side view of the rail jack in latched rail lifting position;

Figure 3 is a plan view of Figure 2;

Figure 4 is an enlarged end view of the jack in rail lifting position, to illustrate the use of the invention when set between ties, a portion of the lifted rail and of the jack being broken away.

Figure 5 is a view in perspective of the jack.

Referring now to the drawing, a rail jack in accordance with the present invention comprises a base plate **10** rotatably supporting a vertically disposed screw **11** on which a fulcrum bracket **12** is adjustably supported by means of a thread member **13** threaded on the screw **11**. A lever **14**, comprising a fulcrum head **15** at one end of a handle **16**, is pivotally mounted on the bracket **12** by a pivot pin **17** extending horizontally through the bracket **12** and the fulcrum head **15** and spaced slightly from the free end of the fulcrum head.

As shown, the bracket **12** is preferably U-shaped and straddles the fulcrum head which preferably is relatively wide and comprises an open rectangular box structure. The free end of the fulcrum head terminates in a widened fork portion **18**, the legs of which carry a transverse pivot **19** on which is pivotally suspended a rail engaging hook member **20**. The hook member comprises a pair of hooks **21** which are spaced sufficiently to straddle a tie, the hooks being rigidly connected by a crossbar **22** so that the hook member **20** comprises a unitary element.

A latch hook **23** has a forked shank **24**, the forks **25** of which straddle the handle **16** and are each provided with a series of corresponding holes **26**. A pin **27** is selectively inserted through corresponding holes **26** in the forks **25** to retain the latch hook **23** on the handle. It will be noted that the latch hook **23** is freely slidable longitudinally of the handle and is adjustable relative to the handle by the selective insertion of the pin **27** in the desired pair of corresponding holes **26**.

As previously indicated, the fulcrum bracket **12** may be vertically adjusted on the screw **11** by adjustment of the threaded member **13**. In addition the screw **11** is provided with a collar **28** which is fixed thereto, said collar having one or more bores **29** for receiving a handle. As the screw **11** is rotatably supported by the base plate **10**, this screw may be rotated by means of a handle inserted in a collar bore **29**, and due to the pressure and resistance to rotation of the fulcrum bracket **12**, the threaded member **13** will be relatively threaded along the screw **11** to thereby vary the adjustment in elevation of the fulcrum bracket **12**.

In use and operation, if it is desired to raise the rail to level the track, or one of the rails thereof, the base plate

10 may be mounted on a tie T adjacent the rail R and the hooks 21 of the hook member 20 engaged under the base flange of the rail R, as shown in Figure 1. In this case, the hooks 21 straddle the tie T and engage under the rail R on opposite sides of the tie, as shown in Figure 3. The lever handle 16 is then depressed, as indicated in the arrow in Figure 1, to lift the rail R, and when said rail R is lifted the latch hook is engaged under the opposite rail R' as shown in Figure 2.

The lifted rail R is thereby supported in elevated position while the operator is free to insert one or more of the conventional steel lift plates between the tie T and the rail R. Obviously, in order to support the rail at the exact desired elevation, the jack may be adjusted either by rotation of the screw 11 or reinserting the pin 27 in another corresponding pair of holes to selectively vary the length of the hook shank 24.

When it is desired to remove one or more ties, the jack may then be positioned between two ties, as shown in Figure 4, and preferably mounted upon a block B for a firm support and to obtain elevation. When the rail R is suitably elevated, the latch hook 23 may then be secured and suitable blocks placed under the rail R to hold it in elevated position. The jack may then be released and applied to the opposite rail R' and the operation repeated. Thus, only one jack is necessary for raising both rails. While the rails are thus elevated the old ties may be removed and the new ones inserted in their place.

Although a certain specific embodiment has been shown and described, it is obvious that many modifications thereof are possible. The invention, therefore, is

not to be restricted except insofar as necessitated by the spirit of the appended claims in the light of the prior art.

What I claim is:

A rail jack comprising a base member adapted to be supported upon a railroad cross tie, a vertical screw rotatably supported in said base member, a collar fixed on said screw and having a radial bore for removably receiving a handle for turning said screw, a member non-rotatably mounted on said screw to move vertically in response to rotation of said screw, a journal bracket supported by said member, a lever pivotally mounted adjacent one end on said bracket by a horizontal pivot, rigidly connected spaced-apart rail lifting hooks pivotally suspended from the short end of said lever to straddle the tie supporting said base and engage a rail at either side of said tie, a latch hook having a forked shank to straddle the long end of said lever, said forks each having a series of corresponding holes, and a pin removably and selectively inserted through corresponding holes in said forks to pivotally suspend said latch hook from said lever, whereby said latch hook anchors the jack to one rail, while the two rigidly connected spaced-apart hooks engage and lift the companion rail when the handle is depressed.

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