H. KAWASHIMA.

TRACK LIFTER AND LINER.

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1,329,185.

Patented Jan. 27, 1920.

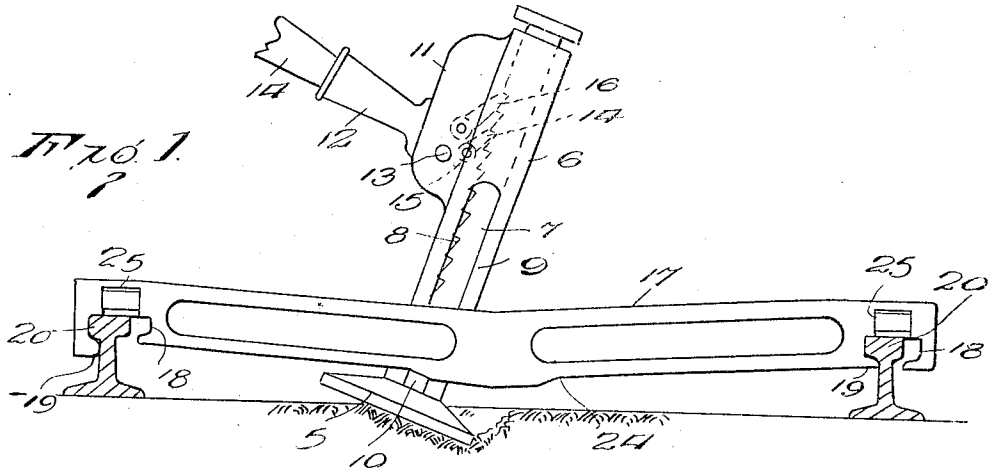


Fig. 1.

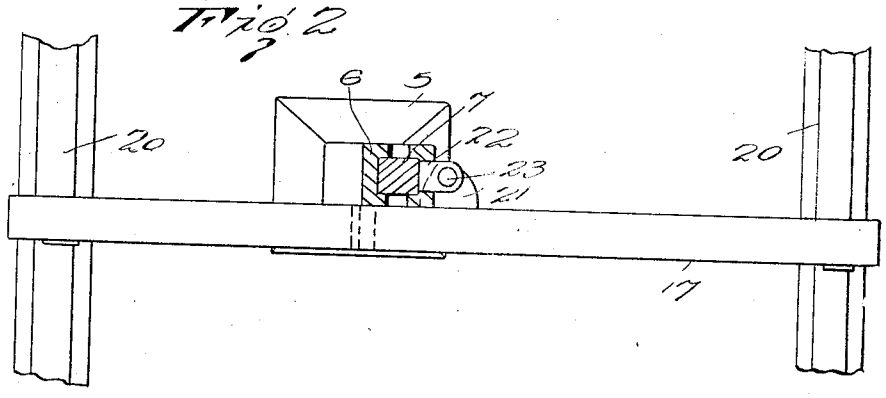


Fig. 2.

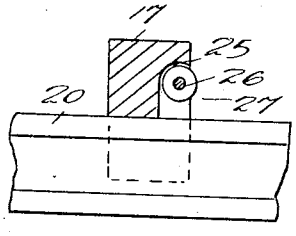


Fig. 3.

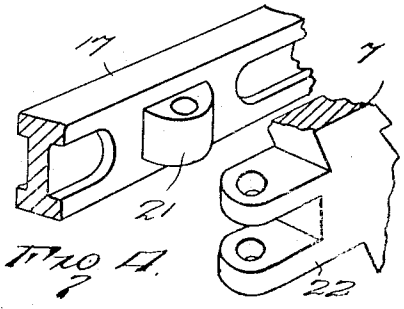


Fig. 4.

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TRACK LIFTER AND LINER.

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To all whom it may concern:

Be it known that I, HARUO KAWASHIMA, a subject of the Emperor of Japan, residing at North Platte, in the county of Lincoln and State of Nebraska, have invented certain new and useful Improvements in Track Lifters and Liners, of which the following is a specification.

This invention relates to improvements in jacks or lifting devices of that type especially designed for lifting and lining the rails of railway tracks and the invention has for its primary object to provide a lifter affording a limited movement of the track lifting beam with relation to the jack sufficient to permit of proper lining of the rails.

Another object is to provide a means supplemental to the hinge connection between the jack and beam to assist in elevating the latter.

Another object is to provide the lifting beam with laterally disposed rollers for convenience in transporting the lifter over the rails of the track and so arranged with relation to the lifting fingers or hooks of the beam as to be guided thereby.

With these and other objects in view, as will appear as the description proceeds, the invention comprises the novel arrangement of parts and combination of elements which will be more fully described in the following specification and set forth with particularity in the claims appended hereto.

In the drawings:

Figure 1 represents a fragmentary transverse sectional view of a railway track illustrating the lifter applied to use,

Fig. 2 represents a fragmentary plan view of the track and lifter, the latter being partially in section,

Fig. 3 represents an enlarged transverse sectional view through one terminal of the lifting beam illustrating one of the supporting rollers in detail, and

Fig. 4 represents an enlarged fragmentary perspective view of the hinge connection between the jack and beam.

Referring to the drawing in detail, wherein similar reference numerals designate corresponding parts throughout the several views, the numeral 5 indicates a foot or base plate supporting the lower portion of a hollow post or casing 6 in which is slidably mounted the movable rack bar 7 having downwardly and laterally directed ratchet teeth 8 formed along one edge. The opposed side walls of the casing 6 are formed with longitudinal slots 9 receiving laterally projecting guide and lifting lugs 10 integrally connected with the lower terminal of the bar 7 and designed to coöperate with the lifting beam to assist in elevating the latter in a manner which will hereinafter appear. The side of the casing 6 contiguous to the toothed edge of the bar 7 is slotted and provided with lateral extensions 11 receiving the terminal of a socket lever 12 pivotally supported at 13 between the extensions and adapted to receive a detachable handle 14 for convenience in operating the lever.

A relatively short lifting pawl 14 is pivotally secured at 15 adjacent the pivoted terminal of the lever 12 and coacts with the teeth of the bar 7 to elevate the latter during vertical oscillation of the lever, the movement of said bar being step-by-step, as will be understood, during the oscillation of the lever. During the period of inaction of the pawl 14 incident to the up-stroke of the free end of the handle 14 the bar is retained in adjusted position by the locking pawl 16 pivotally connected with the extension 11 at a point above the pin 13 and arranged to coact with the teeth 8.

A rail engaging and lifting beam 17 preferably substantially V-shaped to increase the inherent strength and rigidity of the beam is provided terminally along the longitudinal edge with rail receiving recesses 18 having the inner portions enlarged to define lifting fingers or hooks 19 which are designed for engagement beneath the head of the rails 20 whereby the latter are lifted during elevation of the beam. The distance between the fingers 19 is such as to accommodate the rail heads and by a slight longitudinal movement of the beam the fingers or hooks 19 and the corresponding ends of the respective recesses are engaged beneath the rail heads.

At the longitudinal center of the beam 17 a laterally projecting ear 21 is formed thereon and is received between the bifurcations of an integral lateral projection 22 carried adjacent the lower terminal of the bar 7 and a pin 23 is entered through registering apertures formed in the projections 21 and 22 whereby a pivotal connection between the

beam and jack is established. Accuracy in locating the projection 21 centrally between the recesses 18 is essential in order to insure an equal vertical pull upon both track rails 20 and the position of the pin 23 with relation to the axis of the casing 6 is preferably angular suggested in Fig. 1 so that the operative position of the jack is inclined and thus during operation the tendency of the lifter is to elevate and at the same time move the rails laterally. If it is desired to move the track rails in a true vertical plane, the jack is swung upon the pin 23 in an arc of approximately 90 degrees which occupies a position at right angles to the beam 17 and thus when the latter is elevated the pull is exerted in a true vertical plane except for an inappreciable tendency to move the rails longitudinally.

The under edge of the beam 17 on opposite sides of the pin 23 is formed with inclined shoulders 24 adapted to be alternately engaged with the projections 10 of the rack bar 7 when the jack is swung in either direction against the beam. The abutment of the projections 10 with the shoulders 24 materially relieves the pin 23 of strain incident to the lifting of the track although the lugs are ineffective to assist in elevating the beam when the jack is swung to the angular position above mentioned.

As will be understood, the rails may be moved in either direction laterally, the direction being controlled by the position of the jack with relation to the beam. For instance, as illustrated in Fig. 1, the beam 17 during elevation moves toward the right moving the rails in a corresponding direction. However, when the jack is swung upon the pin 23 so as to engage the beam 17 at the right of the pin the tendency during elevation of the beam is to move the rails toward the left.

One of the lateral surfaces of the beam 17 is formed with cavities 25 communicating with the recesses 18 and receiving stub-shafts 26 supporting rollers 27 which project slightly beyond the surface of the beam and when the latter is tilted contact with the tread surfaces of the rails 20 and permit of convenient transportation of the track lifter thereover.

What I claim is:

1. In combination a jack including a movable bar, a track engaging and lifting beam, and a pivotal connection between the beam and bar extending in angular relation to the direction of movement of the latter whereby the position of the bar with relation to the beam may be varied to cause pressure to be applied to the beam and effect movement of the track engaged with the beam laterally in either direction.

2. In combination, a jack including a longitudinally movable bar, a track engaging and lifting beam, and a pivotal connection between the bar and beam having its axis disposed in angular relation to the direction of movement of the bar whereby the position of the bar with relation to the beam may be varied to cause pressure to be applied to the beam and effect movement of the track engaged with the beam laterally in either direction.

3. In combination a jack including a movable bar, a horizontally disposed rail engaging and lifting beam, and a pivotal connection between the beam and bar permitting the jack to be swung into various angular positions with relation to the beam so as to move the latter upwardly and longitudinally in either direction according to the position of the jack.

4. In combination a jack including a movable bar, a rail engaging and lifting beam, and a pivotal connection between the bar and beam having its axis disposed in angular relation to the direction of movement of the bar whereby the position of the jack with relation to the beam may be varied to produce a lateral movement of the track rails in either direction without readjustment of the beam.

5. A track lifter including a rail engaging and lifting beam, and laterally disposed rotatable rail engaging members carried by the beam for transporting the lifter over the rails and arranged to engage the rails when the beam is turned to inoperative position.

6. A rail lifter including a rail engaging and lifting beam, rail engaging fingers carried by the beam, and laterally disposed rotatable supporting members movable against the rails when the beam is tilted to an inoperative position for supporting and transporting the lifter.

7. A track lifter including a track engaging beam, rotatable track engaging elements carried by the beam movable against the rails for supporting and moving the lifter thereon, and lifting fingers carried by the beam for engagement with the rails during the lifting operation thereof and constituting guides for the lifter during transportation.

8. A track lifter including a jack provided with a movable lifting bar, a track engaging beam, a pivotal connection between the beam and bar, and means independent of the pivotal connection to transmit the movement of the beam.

9. A track lifter including a jack provided with a movable bar, a beam, a pivotal connection between the beam and the bar, and bar carried means for engaging and assisting in lifting the beam.

10. A track lifter including a casing, a bar movable longitudinally in said casing, means for elevating said bar, a pivotal con-

nection between the beam and the bar, and means carried by said bar to engage and assist in lifting the beam.

11. A track lifter including a casing, a bar movably supported in said casing, means for elevating said bar, a track engaging and lifting beam pivotally connected with said bar, shoulders carried by said beam, and opposed shoulder engaging members carried by said bar movable into engagement with the shoulders during movement of the casing with relation to the beam to assist in elevating the latter.

In testimony whereof, I affix my signature hereto.

HARUO KAWASHIMA.