

May 10, 1932.

J. J. VELING

1,857,772

TIE PULLER

Filed Aug. 16, 1930

2 Sheets-Sheet 1

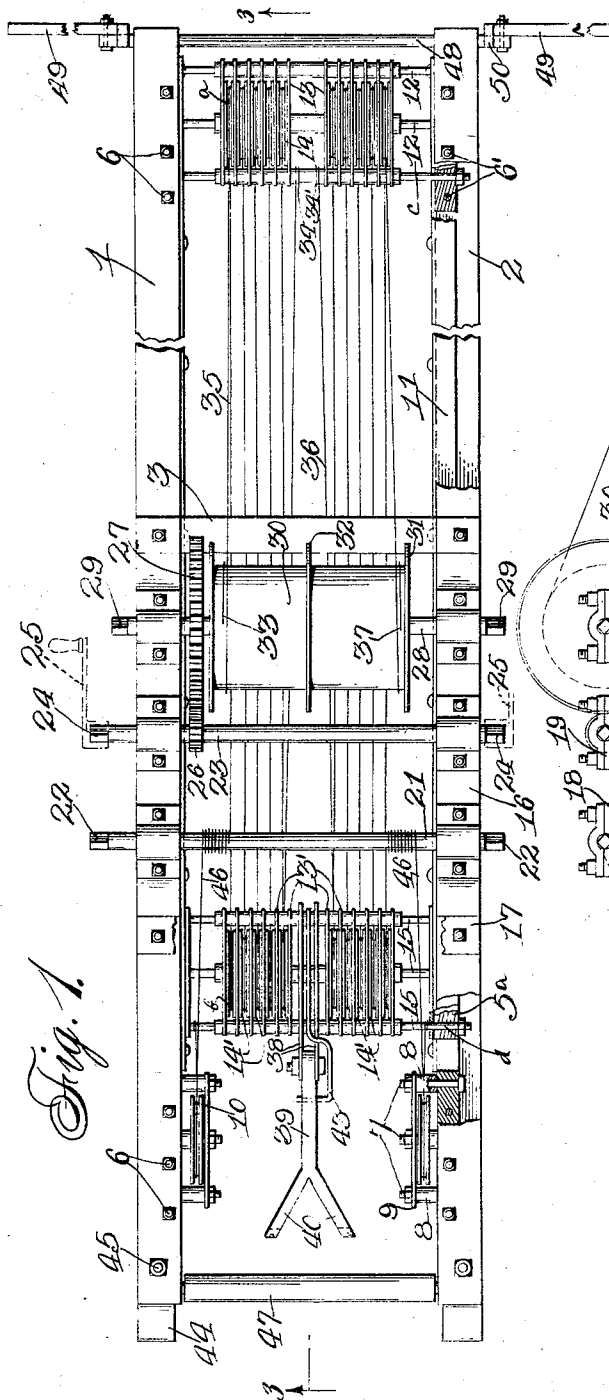


Fig. 1.

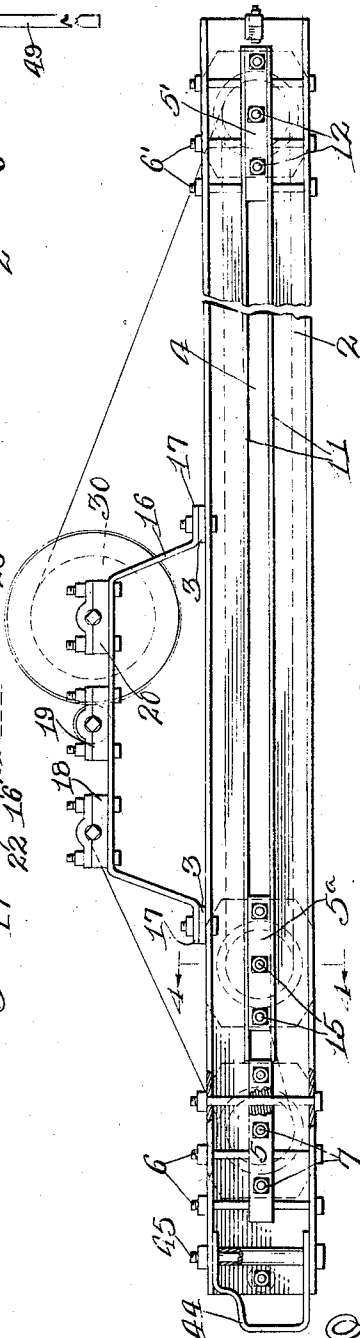


Fig. 2.

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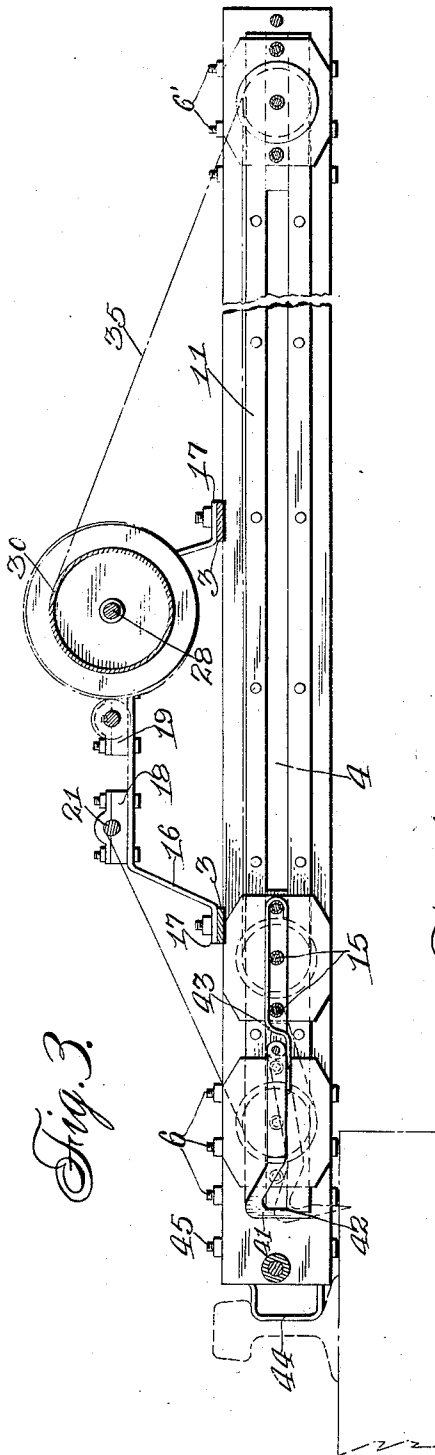
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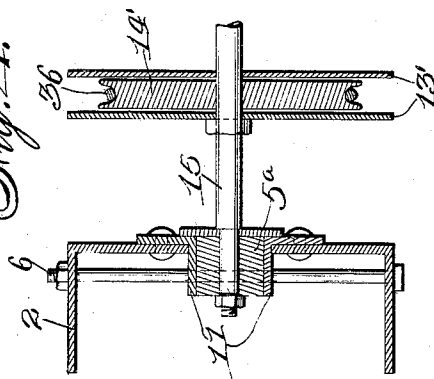
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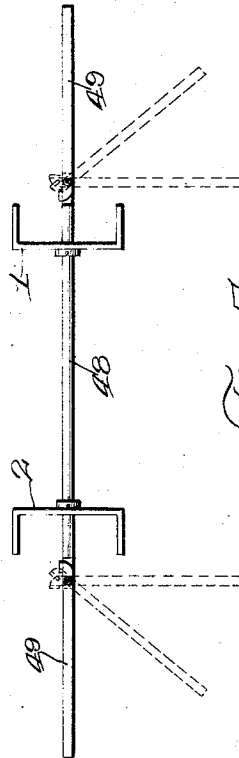
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*Fig. 4.*



*Fig. 5.*



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## UNITED STATES PATENT OFFICE

JACOB J. VELING, OF MILWAUKEE, WISCONSIN

## TIE PULLER

Application filed August 16, 1930. Serial No. 475,709.

This invention relates to an improved type of tie puller.

One of the objects of the present invention is the provision of a device particularly adapted for pulling railway ties from beneath the rails without interfering or displacing the rails, and the general construction of the device is similar to my power apparatus disclosed in Patent #1,734,546, issued November 5, 1929.

Another object of the invention is the provision of a device of the above character which comprises a supporting frame having a movable carriage member slidably mounted therein which has attached thereto a comparatively heavy hook adapted to be engaged with railway ties, together with means for moving the carriage longitudinally of the frame after the hook has been engaged with the tie for quickly withdrawing the tie from beneath the rails.

A further object of the invention is the provision of an improved tie puller which comprises a main frame having abutment members at one end thereof which are adapted to engage the webs of the rails while the ties are being pulled from beneath the same and suitable means is carried by the frame for removing ties from beneath the rails while the abutment members are engaged therewith.

With the above and other objects in view, the invention consists in the novel features of construction, the combination and arrangement of parts hereinafter more fully set forth, pointed out in the claims and shown in the accompanying drawings wherein:

Figure 1 is a plan view of my improved tie puller with parts thereof broken away and illustrated in cross section;

Figure 2 is a side elevation with parts broken away and illustrated in cross section;

Figure 3 is a longitudinal section on the line 3—3 of Figure 1;

Figure 4 is a detailed section on the line 4—4 of Figure 2;

Figure 5 is a detailed rear end elevation of the frame and handle members attached thereto.

Referring more particularly to the drawings, it will be noted that I provide a main

frame which has U-shaped side portions 1 and 2 connected by means of cross members 3 and each side portion is provided with a longitudinal slot 4 and in the forward ends of the slots 4, I provide stationary blocks 5 retained in position by means of the transverse bolts 6 which extend through the side flanges of the side portions 1 and 2 and through the blocks, as illustrated in Figure 2. The blocks 5 also carry a number of bolts 7 having sleeves 8 thereon which space the plate 9 from the inner sides of the members 1 and 2, and mounted on the centrally disposed bolt of the bolts 7 is a pulley 10.

In the greater portion of the length of each slot 4 there are arranged on opposite sides of the slot, angle bars 11, the horizontal portions of which forms suitable guides and positioned between the guides at one end of the slot are the blocks 5' connected to the side portions by means of the transverse bolts 6'. Spaced parallel cross bars 12 have their ends connected with the blocks 5' and carry a plurality of spaced plates 13. These plates 13 are arranged in sets upon opposite sides of the center of the parallel cross bars 12 and between the plates 13 are mounted a plurality of pulleys 14.

Slidably mounted within the slots 4 and between the horizontal flanges of the angle bars 11 are the movable blocks 5a which carry the spaced parallel bars 15 having two sets of spaced plates 13' mounted thereon upon opposite sides of the transverse center of the bars, as shown in Figure 1, and between the plates of each set are the pulleys 14' which correspond to the plates and pulleys 13 and 14 mounted upon the stationary bars 12.

Supported upon side flanges of the members 1 and 2, are the inverted U-shaped brackets 16, the ends of which are disposed at right angles, as shown at 17, and bolted or otherwise secured to the flanges of the side members 1 and 2. Each one of the brackets 16 carry spaced bearings 18, 19 and 20. The bearings 18 carried by the bracket 16 support a transverse shaft 21, the outer ends of which are provided with crank engaging portions 22. The bearings 19 support shaft 23 which also has crank engaging portions 24

to be engaged by handle members 25. Shaft 23 also carries a pinion 26 adapted to mesh with a gear 27 on shaft 28 mounted in bearings 20. Shaft 28 also has at its outer ends crank engaging portions 29.

A shaft 28 carries a drum 30 having end flanges 31 and an annular center flange 32 which divides the drum into two separate sections. Two separate cables are provided, one of which has one end connected to the drum as shown at 33 and then passed around pulley *a* of pulleys 14, the cable then extends forwardly and passes around pulley *b* of pulleys 14'. This cable then passes back and forth between one set of the pulleys 14 and one set of the pulleys 14', until all of the pulleys have been engaged and the end of the cable is then fixed to a bar *c* of the parallel bars 12. This cable in the drawing is generally indicated at 35, while the second cable 36 is connected to the drum, as shown at 37, and then passed around the second set of the pulleys 14 and the second set of the pulleys 14' with its other end connected to bar *c*, as shown at 34'. From this it will be apparent that when rotary movement is imparted to drum 30, the cables will be wound thereon, and due to their passage around the pulleys 14 and 14', the blocks 5*a* which carry the cross bars 15 will be moved longitudinally in the slots 4.

Attached to the parallel bars 15 are the plates 38 and pivotally mounted between the outer ends of plates 38 is a shank 39 of the divergent hook members 40. These hook members 40 extend downwardly as shown at 41 and terminate into penetrating points 42 adapted to be engaged with a railway tie, as illustrated by dotted lines in Figure 3.

Normally the hooks 40 are maintained in a disengaging position, as shown by the full lines in Figure 3 by means of a spring hook 43 supported by the parallel bars 15 as shown at Figure 3. At the forward end of the side portions 1 and 2, abutment members 44 are provided, said abutment members being substantially U-shaped with their ends disposed between the side flanges of side portions 1 and 2, as shown in Figure 2 and connected thereto by means of the bolts 45. These abutment members 44 are substantially of a width which is approximately equal to the standard rail web, so that these abutment members will engage the web and fit between the base and head of the rail as shown in Figure 3. As an abutment member 44 is provided for each side portion 1 and 2, they will engage the rails at spaced points and prevent buckling of the rails while the ties are being withdrawn from beneath the same.

In order to return the pulleys 14' to their normal operative positions, as shown in Figures 1 and 2, cables 46 are provided, each having one end adapted to be wound around the shaft 21 as shown in Figure 1, while the other

end of each cable passes around the pulleys 10 and is connected to bar *d* of the spaced bars 15, thus after a tie has been pulled from beneath the rails and the carriage which carries pulleys 14' moved toward the other end of the frame, the same can be returned to its normal position as shown in Figure 1 by rotating shaft 21 and winding the cables 46 thereon which have been previously played out during the movement of the carriage in the pulling of the tie.

This frame and the parts carried thereby can be moved along the right-of-way of the railroad by means of a bearing roller 47 extended between the side portions 1 and 2 at one end of the frame, while at the other end of the frame there is provided a cross bar 48 and pivotally connected to the outer ends of the cross bar are the handle members 49 which are normally disposed in a substantially vertical position as shown by dotted lines in Figure 5, but which can be moved to a horizontal position as shown by the full lines in Figure 5 until the cross piece 50 engages the upper surface of cross member 48, thus the roller 47 can be mounted upon one of the rails and by lifting the frame through the medium of the handle members 49, the entire device can be moved along the top of one of the rails, or if the frame should be made wide enough, the roller 47 can ride on both rails.

It will be apparent from the foregoing that the operation of this device is somewhat similar to my improved apparatus upon which a patent was granted to me November 5th, 1929, bearing Patent #1,734,546, and the principle involved in this improved tie puller is of the same nature as that disclosed in the patent mentioned above.

One of the important features of this invention resides in the application of the device wherein when the frame is arranged in close proximity to the rails, as shown in Figure 3, and the abutment members 44 engage with the rail while the hook members 40 are engaged with the tie and pulling power applied to cables 35 and 36, the frame will readily assume a horizontal position, as shown in Figure 3, due to the engagement of the abutment members with the rail, as shown, thus positively preventing any buckling of the rails and causing the frame to assume a horizontal position substantially aligning with the transverse center of the web of the rail.

The above feature is outstanding where tie pullers of this character are concerned, as it permits the tie to be more quickly and readily pulled from beneath the rail against any transverse movement whatever, so that a number of ties can be pulled from beneath a single rail, while the rail will still maintain its normal position.

I claim:

1. A device of the class described including a frame, a carriage movable relative to the frame, a load engaging member carried by the carriage, means for moving said carriage longitudinally of the frame, and abutment members carried by the frame and arranged in spaced relation for engaging the web portions of rails to prevent said rails from buckling when the load engaging member is used for displacing the ties beneath the same.

2. A device of the class described including a frame, a movable carriage mounted therein, means for moving said carriage relative to the frame, a pivoted load engaging member attached to the carriage, a bearing roller transversely of the frame at one end thereof, and means at the other end of the frame whereby to support the latter end for riding the roller on a guide rail.

3. A tie puller including a frame, abutment members carried by one end of the frame and adapted to engage the web of a rail between the head and base thereof, an engaging member adapted to actively engage a tie beneath the rail, and means carried by the frame for applying pulling action to the engaging member and simultaneously applying pressure to the abutment members for creating a load strain on the frame, whereby to cause the same to assume a horizontal position aligning with the web of the rail.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

JACOB J. VELING.