Feb. 5, 1924. 1,482,981

E. H. FISH

RAILWAY TIE PULLER

Filed Oct. 27, 1922

FIG. 1.

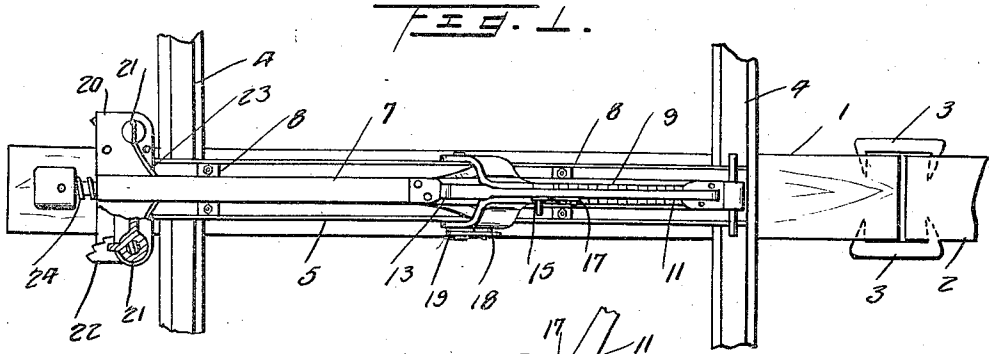


FIG. 2.

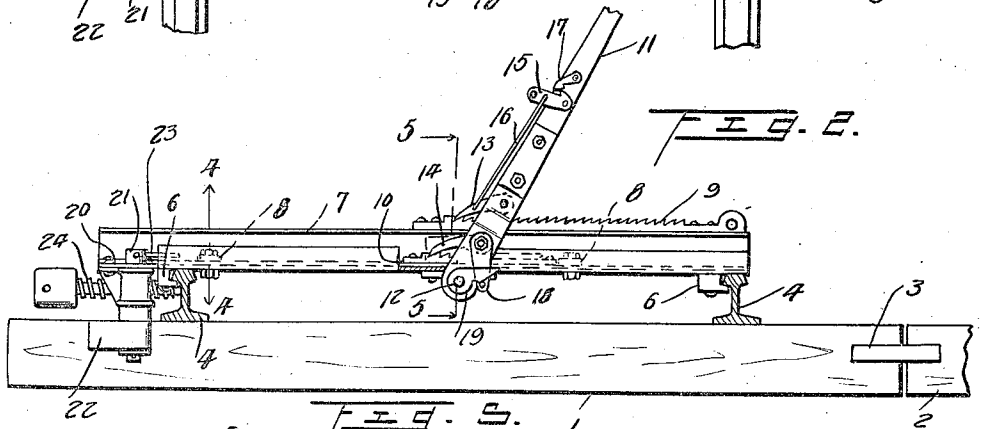


FIG. 3.

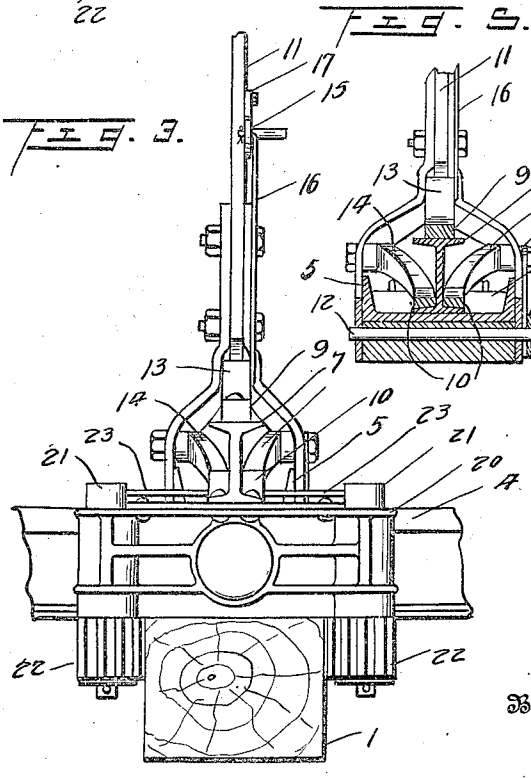
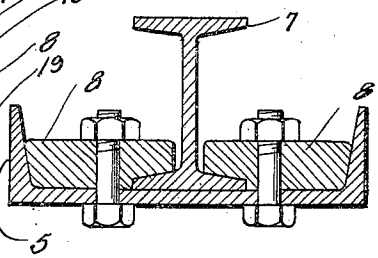


FIG. 4.



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UNITED STATES PATENT OFFICE.

EDWARD H. FISH, OF SPOKANE, WASHINGTON.

RAILWAY-TIE PULLER.

Application filed October 27, 1922. Serial No. 597,355.

To all whom it may concern:

Be it known that I, EDWARD H. FISH, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Railway-Tie Pullers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to an appliance for removing and replacing railway ties and has for its object to facilitate the work and materially reduce the cost incident thereto, since the appliance obviates the necessity of loosening and removing a portion of the roadbed and subsequently replacing the same and tamping the earth or material to obtain a firm seat for the tie replacing the one that has been removed.

Other objects and advantages will be apparent and suggest themselves as the nature of the invention is understood.

While the drawings illustrate an embodiment of the invention it is to be understood that in adapting the same to meet different conditions and requirements, various changes in the form, proportion and minor details of construction may be resorted to without departing from the nature of the invention.

Referring to the accompanying drawings forming a part of the application—

Figure 1 is a top plan view of a railway tie puller embodying the invention, showing the same in operative position, a portion being broken away;

Figure 2 is a side elevation of the appliance in operative position;

Figure 3 is an end view;

Figure 4 is a sectional detail on the line 4—4 of Figure 2; and

Figure 5 is a sectional detail on the line 5—5 of Figure 2.

Corresponding and like parts are referred to in the following description and designated in the several views of the drawings by like reference characters.

The numeral 1 designates a railway tie which it is intended to replace by means of a tie 2, the two ties 1 and 2 being arranged in line with their ends in close proximity or abutting and connected by suitable fastenings 3 which are double pointed, one point of each engaging a tie, whereby both ties 1 and 2 are caused to move in unison so that as the tie 1 is withdrawn, the tie 2 is drawn into position, thereby obviating the necessity of disturbing the roadbed and subsequent replacing of loose material and the tamping thereof to obtain a firm seat for the tie 2. It will thus be understood that the work is greatly facilitated and the cost materially reduced. The numeral 4 designates the rails which are supported upon the ties in a manner well understood. The tie to be replaced has the fastenings removed so that it may be withdrawn endwise from beneath the rails 4.

The appliance comprises a channel bar 5 of a length to rest upon the rails 4 with the channel side facing upwardly. Hooked lugs 6 are secured to the bottom side of the channel bar 5 at opposite ends in position to engage the rails 4 and resist longitudinal movement of the bar 5 in one direction and retain it in position upon the rails. A bar 7 is mounted in the channel of the bar 5 and is retained in place and directed in its longitudinal movement by means of lugs 8 secured to the bar 5 as indicated most clearly in Figure 4. The bar 7 is preferably of I-form in cross section and is provided upon its top side with a ratchet bar 9 and upon the top side of the lower flanges with ratchet bars 10, the teeth of the several ratchet bars facing in the same direction.

An operating lever 11 is fulcrumed at its lower end to the channel bar 5 as indicated at 12 and is provided with two sets of pawls 13 and 14 at different distances from the fulcrum 12 and adapted to cooperate with the respective ratchet bars 9 and 10. Only one set of pawls is in operative position at a time, the other set being rendered inactive and held out of operative position by suitable means. A latch 15 is connected by means of a rod 16 with the pawl 13 and a catch 17 is adapted to engage the latch 15 and hold the pawl 13 out of operative position. An arm 18, secured to one end of the shaft carrying the pawls 14, is adapted to cooperate with a catch 19 whereby to hold the pawls 14 out of operative position when required. When great force is required to be exerted to move the tie 1,

the pawl 13 is thrown out of operative position and the pawls 14 aranged to cooperate with the ratchet bars 10. However, when the tie 1 may be moved by a lesser force, the pawls 14 are thrown out of operative position and the pawl 13 arranged to cooperate with the ratchet bar 9. Upon oscillating the lever 11, the bar 7 is moved longitudinally by a ratchet action, thereby moving the tie 1 and at the same time drawing the tie 2 into position. It should be stated that the forward end of the bar 7 is attached to the tie 1 and this may be effected in any manner, such as the means illustrated.

A crosshead 20 is secured in any substantial manner to the underside of the forward end of the bar 7 and shafts 21 are mounted in opposite ends thereof in position to come upon opposite sides of the tie 1. Dogs 22 are fast to the lower ends of the shafts 21 and are of cam formation and toothed upon their gripping faces to insure positive engagement with the sides of the tie 1 so as to prevent slipping. Springs 23 are secured to the upper ends of the shafts 21 and engage the sides of the bar 7 and normally hold the dogs 22 in engagement with the sides of the tie 1. A power screw 24 is threaded into the crosshead 20 and its inner end is adapted to engage the adjacent rail 4, whereby to admit of sufficient force being exerted to initially move the tie 1 when power may not be advantageously applied by means of the lever 11 and the ratchet mechanism associated therewith. After the tie 1 has been started by means of the power screw 24 it may be removed by force applied through the lever 11 and either set of ratchet mechanism coacting therewith, as will be readily understood.

What is claimed is:

1. A railway tie remover comprising complemental members, the one being provided with means for connecting it to the rails and the other with means for connecting it to the tie to be removed, an operating lever fulcrumed to one of the members, two sets of pawls carried by the operating lever and disposed at different distances from the fulcrum thereof, and ratchet bars carried by the movable member and adapted to cooperate with the respective sets of pawls.

2. A railway tie remover comprising complemental members, the one being provided with means for connecting it to the rails and the other with means for connecting it to the tie to be removed, an operating lever fulcrumed to one of the members, two sets of pawls carried by the operating lever and disposed at different distances from the fulcrum thereof, ratchet bars carried by the movable member and adapted to cooperate with the respective sets of pawls, and means for holding one of the sets of pawls out of operative position while the other is in operative position.

3. A railway tie puller comprising a member provided with means for securing it to the rails, a companion member mounted thereon for longitudinal movement, a head applied to the movable member, dogs carried by said head and adapted to grip opposite sides of the tie to be removed, and means in cooperative relation with the movable member for operating the same.

4. A railway tie remover comprising a channel bar, lugs carried thereby for securing the same to the rails, an I-bar movable longitudinally in the channel bar, means for securing the I-bar to the channel bar and directing the same in its longitudinal movement, a crosshead at one end of the channel bar, dogs carried by the crosshead and adapted to grip opposite sides of the tie to be removed, a power screw threaded into the crosshead and adapted to initially start the I-bar, an operating lever fulcrumed to the channel bar, two sets of pawls carried by the operating lever and disposed at different distances from the fulcrum thereof, ratchet bars carried by the I-bar and adapted to cooperate with the respective sets of pawls, and means for holding one of the sets of pawls out of operative position.

5. A railway tie puller comprising a member provided with means for securing it to the rails, a companion member mounted thereon for longitudinal movement, a head applied to the movable member at one of its ends, spaced shafts carried by said head, a dog secured to the lower end of each of said shafts and adapted to grip opposite sides of the ties to be removed, springs engaging said shafts and urging said dogs into engagement with the respective sides of the tie, and means in cooperative relation with the movable member for operating the same.

6. A railway tie remover comprising complemental members, one of said members being provided with means for connecting it to the rails and the other of said members being provided with means for connecting it to the tie to be removed, an operating lever fulcrumed to the movable member, two sets of pawls carried by the operating lever and disposed at different distances from the fulcrum thereof, ratchet bars carried by the movable member and adapted to cooperate with the respective set of pawls and means on said operating lever to hold either set of said pawls in inoperative position.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD H. FISH.

Witnesses:

HARVE H. PHIPPS.

GRACE H. FISH.