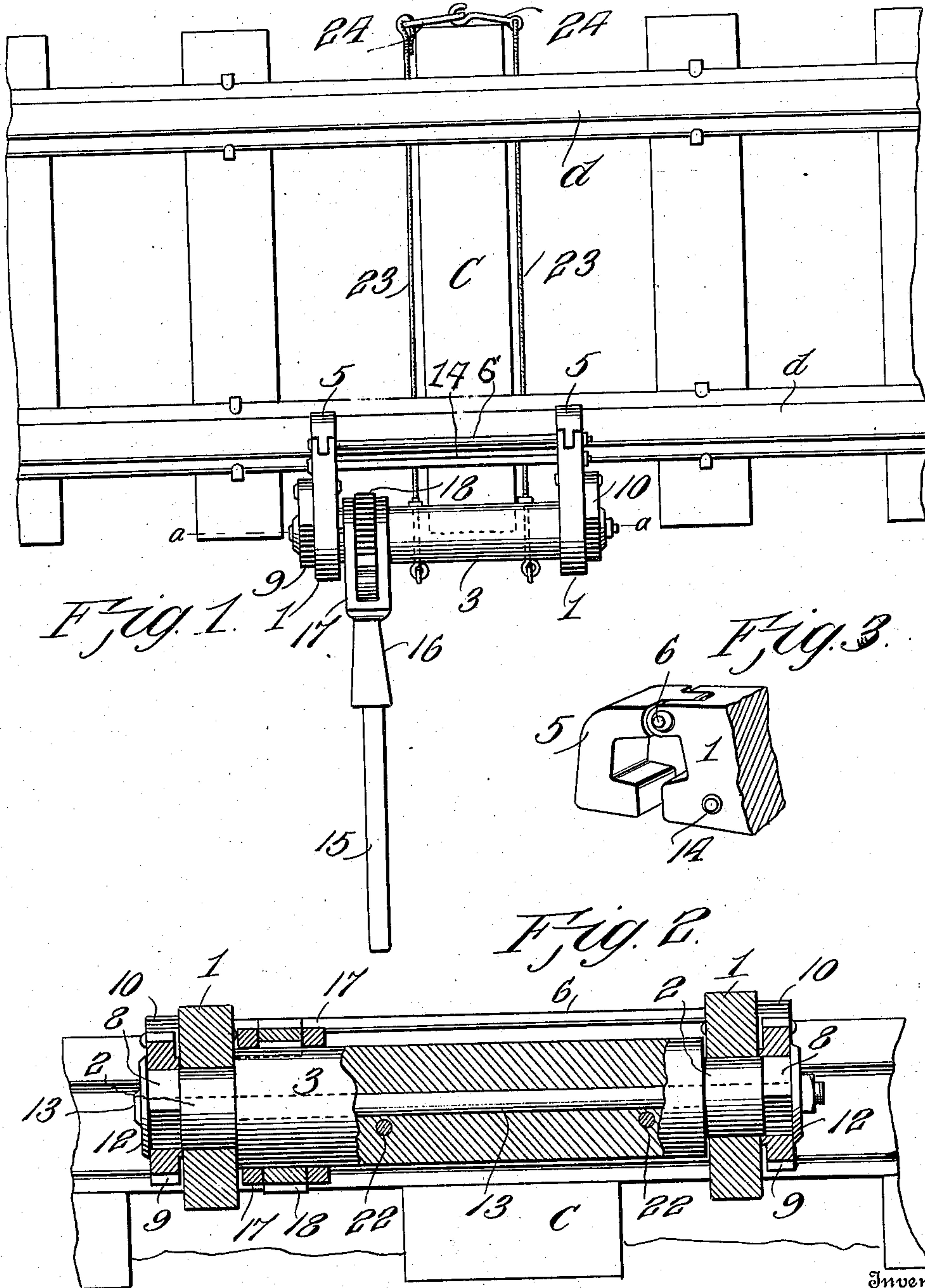


924,391.

J. R. SMITH.
RAILROAD TIE PULLER.
APPLICATION FILED JAN. 30, 1909.

Patented June 8, 1909.
2 SHEETS—SHEET 1.



Witnesses
Frank Hough
J. W. Garner

Jesse R. Smith,

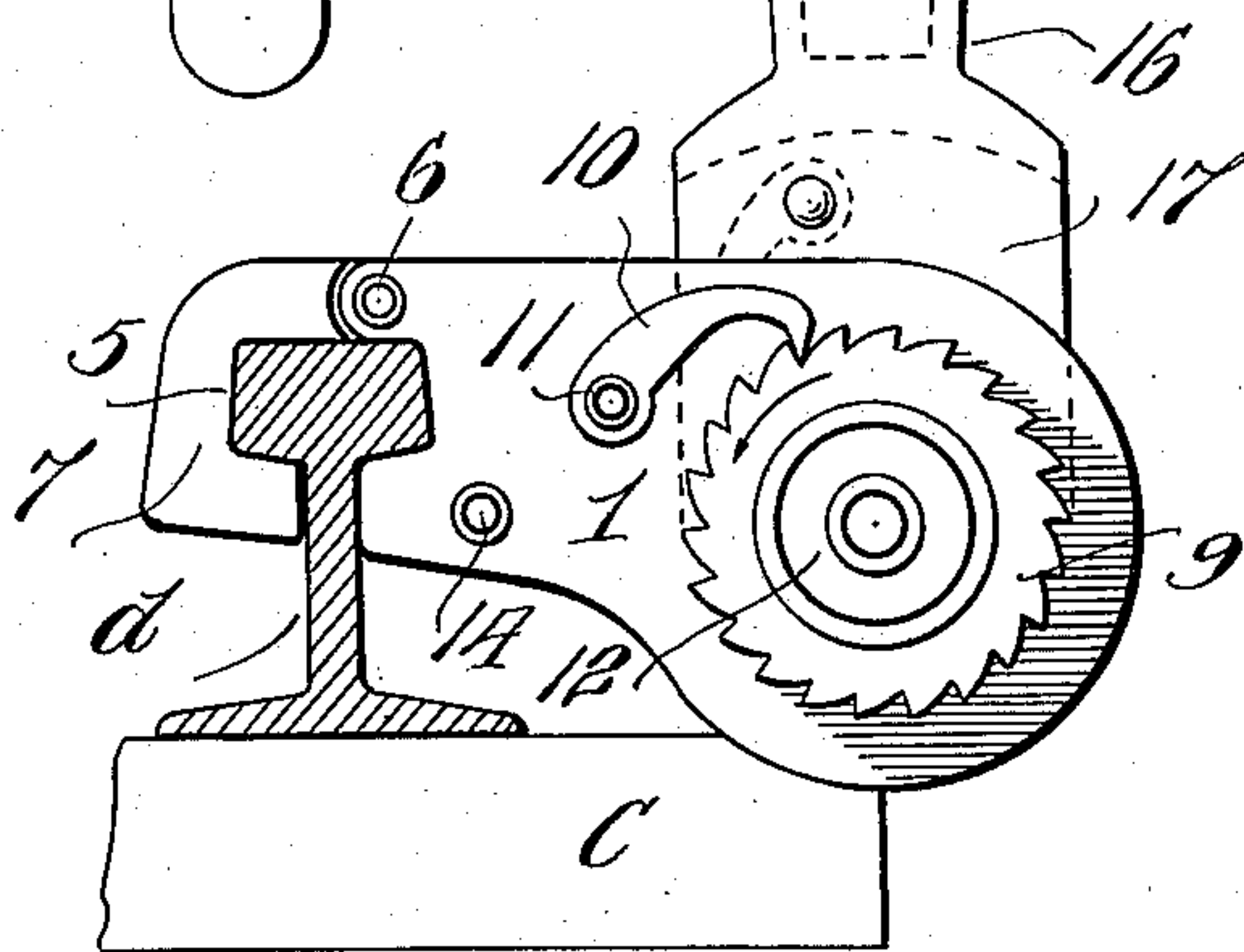
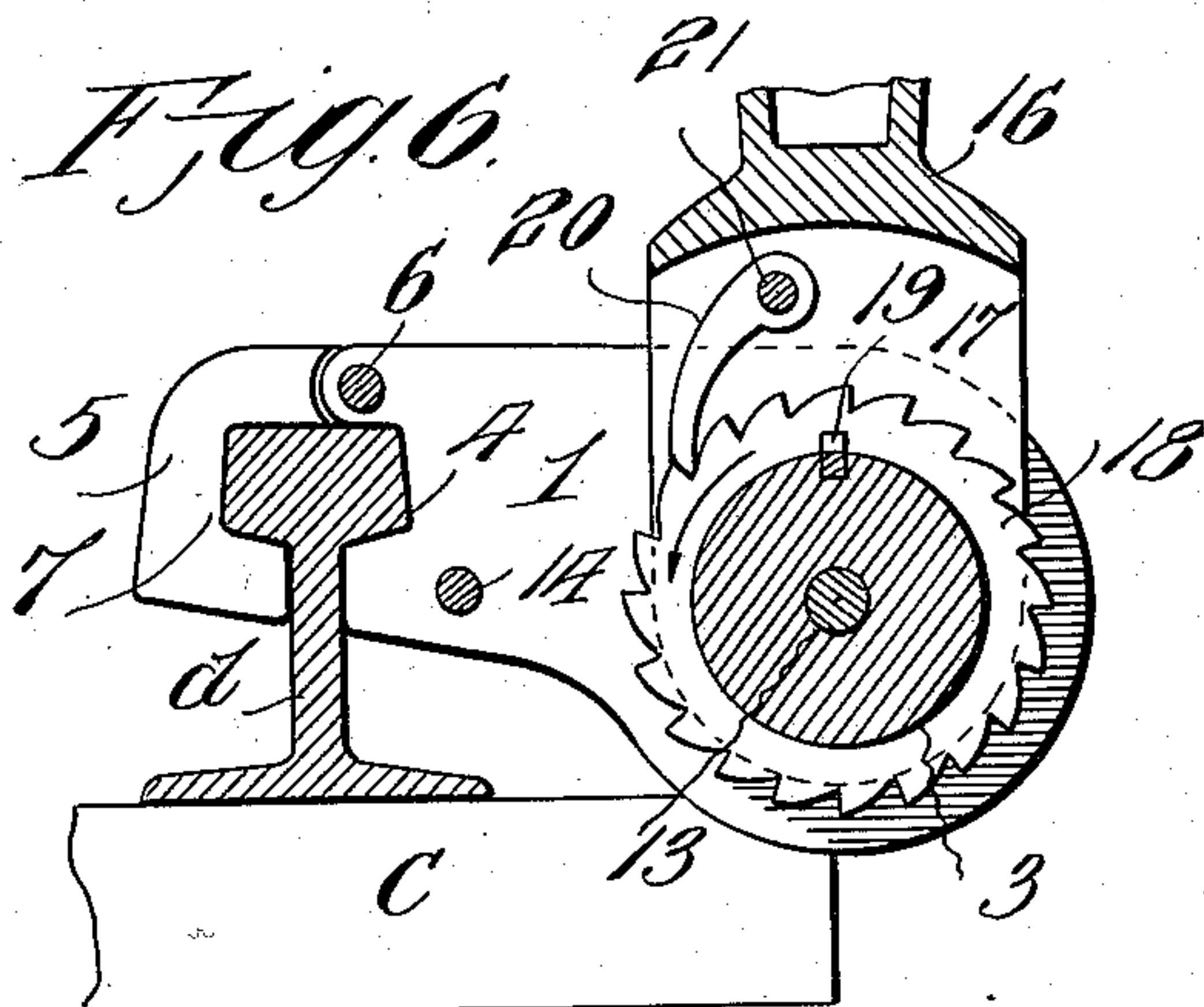
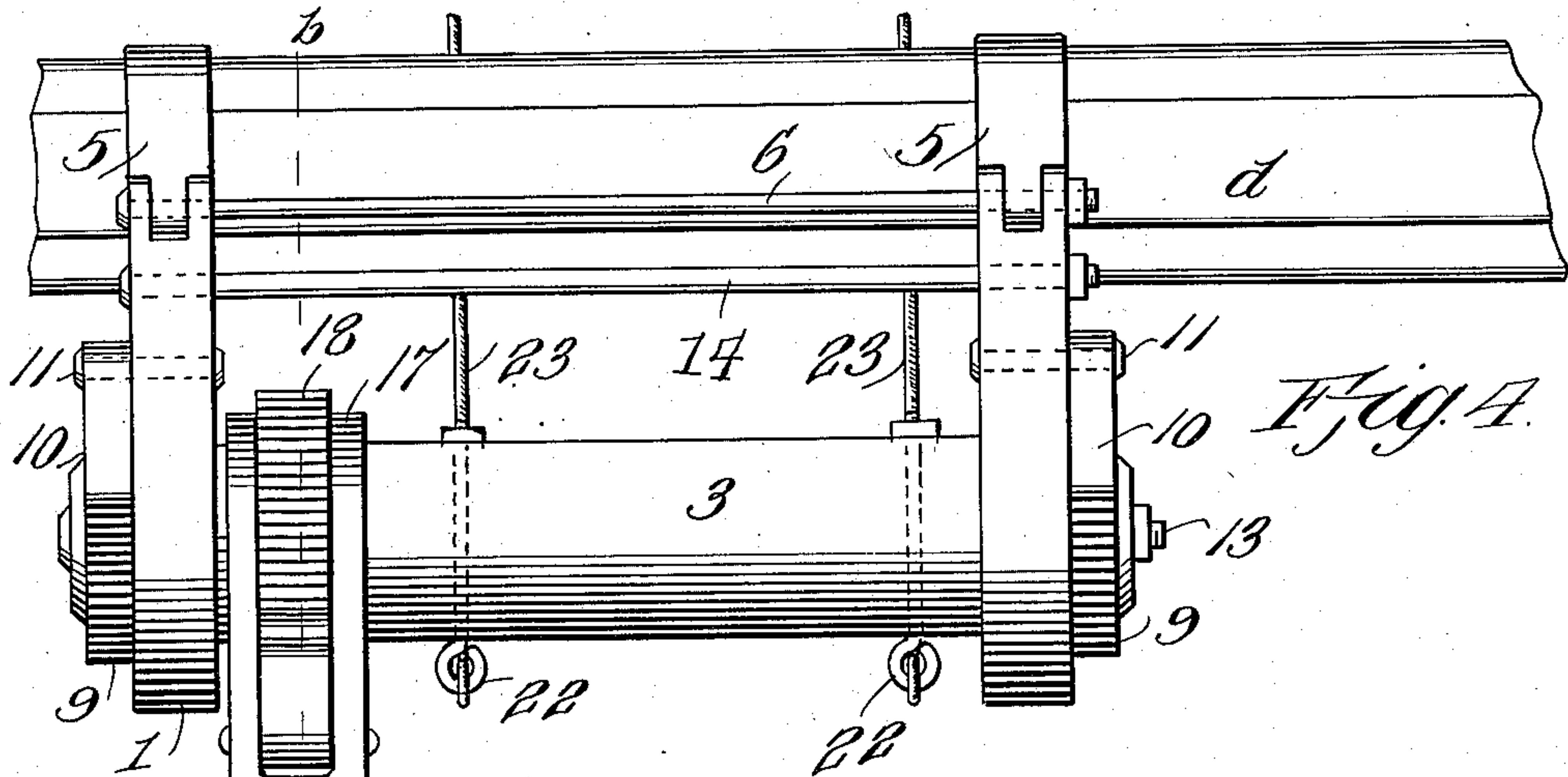
By Victor J. Evans

Attorney

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Witnesses

Frank Hugh
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UNITED STATES PATENT OFFICE.

JESSE R. SMITH, OF BENTON, ILLINOIS.

RAILROAD-TIE PULLER.

No. 924,391.

Specification of Letters Patent.

Patented June 8, 1909.

Application filed January 30, 1909. Serial No. 475,263.

To all whom it may concern:

Be it known that I, JESSE R. SMITH, a citizen of the United States, residing at Benton, in the county of Franklin and State of Illinois, have invented new and useful Improvements in Railroad-Tie Pullers, of which the following is a specification.

This invention is an improved railroad tie puller especially adapted for use by section hands in removing old ties and substituting new ones in their stead, the object of my invention being to provide a novel machine of this character which is adapted for use in removing or replacing a tie by pulling the same lengthwise from beneath the rails without the necessity of shoveling out and replacing the earth and ballast between the ties when thus replacing them and also without the necessity of marring the ties by sticking picks therein to enable them to be readily handled.

My invention consists in the construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawings:—Figure 1 is a plan of a portion of a railroad track and showing one of my improved tie pullers in use thereon for removing a tie. Fig. 2 is a detailed sectional view of my improved tie puller on the plane indicated by the line *a—a* of Fig. 1. Fig. 3 is a detail perspective view of one of the rail engaging blocks which also form the bearings for the winch. Fig. 4 is a top plan of my improved tie puller. Fig. 5 is partly an end elevation and partly a section of the same on the plane indicated by the line *b—b* of Fig. 4. Fig. 6 is a detail sectional view of the same on the plane indicated by the line *b—b* of Fig. 4.

In the construction of my improved tie puller, I employ a pair of blocks 1 which have openings therein that form bearings for the journals 2 of a winch or roller 3. The inner end of each block 1 is shaped as at 4 to receive one side of the head of a railroad rail and is provided with a hook block 5 which is hinged thereto at its upper side as at 6, the said hook block being shaped as at 7 to fit on the other side of the rail head so that the said blocks 1 may be readily attached to a rail and caused to extend outwardly therefrom as shown clearly in Figs. 5 and 6 of the drawings, the said blocks and their hinged hook blocks by gravity retaining their engagement with the rail so that in order to secure the blocks to a rail so as

to dispose the winch parallel with the rail and beyond its outer side, it is only necessary to first raise the hook blocks, to fit the said ends 4 of the blocks 1 against the outer side of the rail at the head thereof and then permit the hook blocks 5 to drop into engagement with the inner side of the rail head.

The outer ends of the journals 2 are angular in cross section, as at 8, to enable them to fit in correspondingly shaped openings in the centers of ratchet wheels 9. Said ratchet wheels are normally engaged on their upper sides by pawls 10 which are disposed on the outer sides of the blocks 1 and the pivots of which are indicated at 11. Disks 12 are placed on the outer sides of the ratchet wheels 9 and a tie bolt 13 which is also a reinforce bolt passes through the centers of said disks and the winch and coacts with said disks to hold the ratchet wheels in place on the reduced angular portions of the winch journals. The blocks 1 are connected together by a tie bolt or rod 14 and also by a tie bolt which forms the pivots 6 for the hook blocks 5.

An operating lever 15 has a socket piece 16 at its inner end, which socket piece is provided with a pair of arms 17 spaced apart and provided with openings through which the winch extends, so that said socket piece is pivotally mounted on the winch. A ratchet wheel 18 is keyed to the winch, as at 19 and disposed between the said arms 17 and is normally engaged by a pawl 20 which is mounted between the arms 17 on a pivot 21.

It will be understood from the foregoing and by an inspection of the drawings, that by means of the said lever or said pawl 20 and ratchet wheel 18, the winch may be readily rotated in the direction indicated by the arrows shown in Figs. 5 and 6 by step by step movement, the pawls 10 and ratchet wheels 9 preventing rotation of the winch in the reverse direction excepting when said pawls 10 are disengaged from said wheels 9.

Eye-bolts 22 of which there are two, properly spaced apart, extend transversely through the winch and are secured thereto and to the eyes of said eye-bolts are secured the outer ends of a pair of ropes, chains or the like 23, the inner ends of which may be connected or disconnected by means of links 24.

In practice, my improved tie puller is placed on a rail with its winch above the tie

to be removed and in the drawings indicated at *c*, the rails being indicated at *d* and the ropes or chains 23 are attached to the said tie by engaging the links 24 with one end thereof, that is to say, by extending said links across said end of the tie. By means of the hand lever and other devices herein before described, the operator then rotates the winch, thereby causing the latter to wind up the ropes or chains and hence draw the tie outwardly from under the rail and it will be evident that this may be done without digging up the road bed in the vicinity of the tie. It is also evident that the puller may be employed for replacing a tie since it may be attached to either side of the track and caused to extend from either side thereof. When the tie is thus placed there is little or no necessity for tamping the road bed in this vicinity, and it will be understood that since all the power required for moving the tie is exerted directly lengthwise thereof and by the tie puller there is no necessity for the section hands to stick picks in the tie when handling it as has heretofore been the custom. These pick holes in the ties are exceedingly injurious thereto and they admit and retain rain and accordingly hasten the decay of the ties as well as materially marring their appearance. It will be further understood that by means of my improved tie puller the number of persons required to keep a track in repair may be very materially reduced, thus correspondingly reducing the expense of maintenance of the road and the construction thereof.

What is claimed is:—

1. A tie puller and replacer comprising a

winch, bearings therefor, means to attach said bearings to a railroad rail, flexible members for winding on the winch and attachment to a tie, and means to rotate the winch.

2. A tie puller and replacer comprising a winch, means for mounting the same on a railroad at one side of a rail, flexible members for winding on the winch and attachment to a tie and means to rotate the winch.

3. A tie puller and replacer comprising blocks having hook blocks at their inner end for attachment to a railroad rail, a winch mounted in said blocks, means to rotate said winch, means to prevent casual retrograde rotation thereof and flexible members for winding on the winch and attachment to a tie.

4. A tie puller and replacer comprising blocks having bearings in their outer ends and gravity acting pivotally connected hook blocks at their inner ends for engagement with a railroad rail, a winch having journals mounted in said bearings and further provided with ratchet wheels, pawls pivotally mounted on said blocks for engagement with said ratchet wheels, a ratchet wheel attached to said winch, a lever pivotally connected to the winch and having a pawl for engagement to the last mentioned ratchet wheel and flexible members connected to the winch and for attachment to a tie.

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

JESSE R. SMITH.

Witnesses:

J. T. CLEMENTS,
A. L. ESKEW.