A. P. STEPHENS.

TIE EXTRACTOR AND REPLACER.

APPLICATION FILED JUNE 14, 1909.

952,378.

Patented Mar. 15, 1910.

Fig. 1.

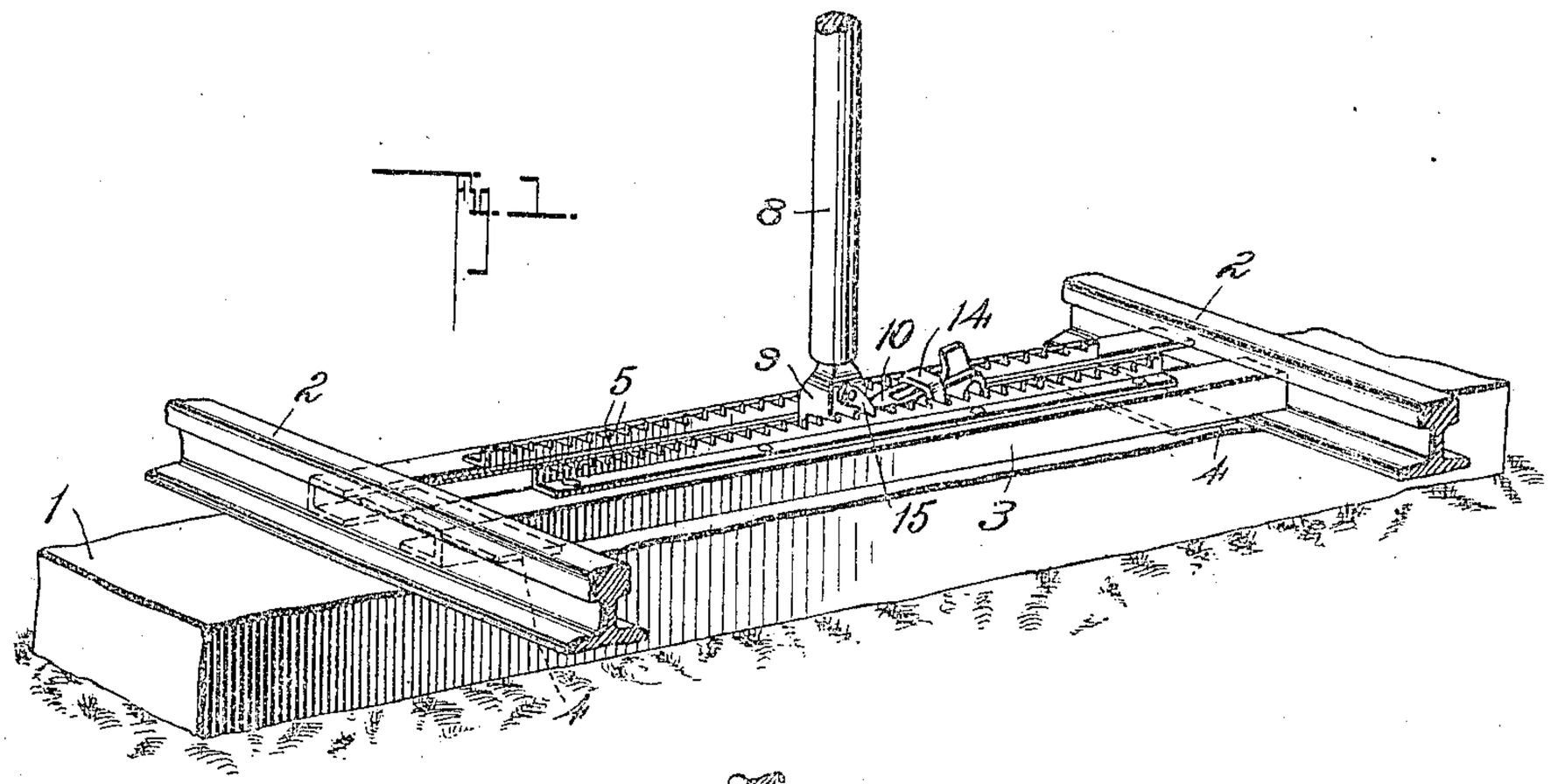



Fig. 2.

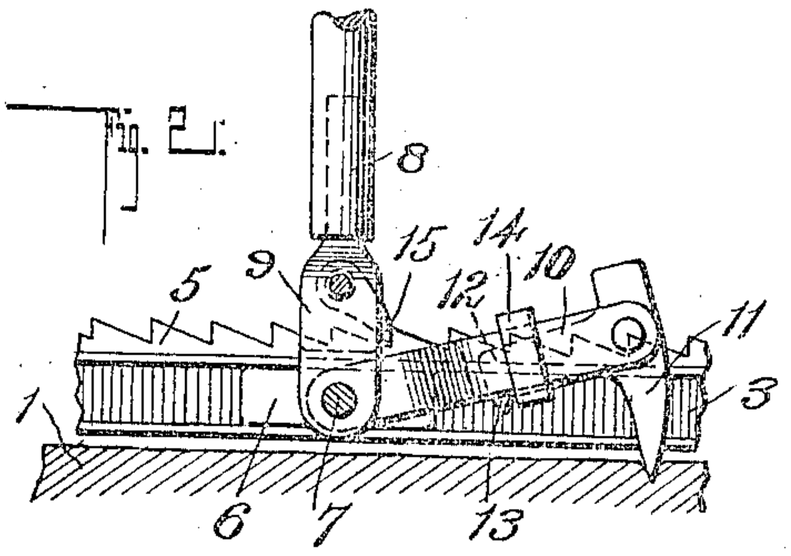



Fig. 3.

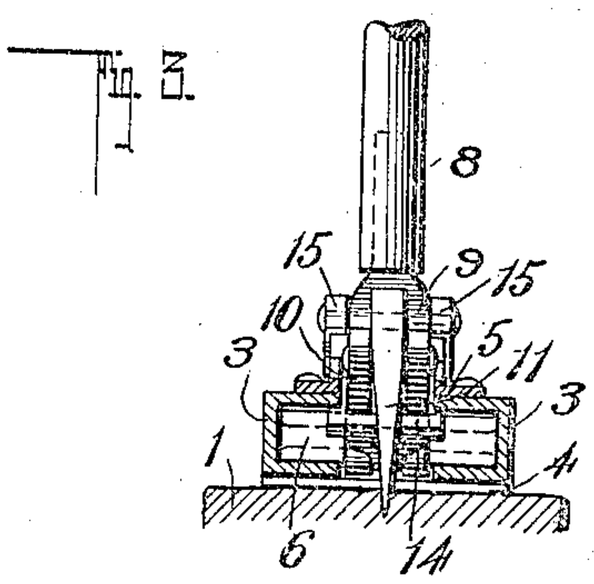
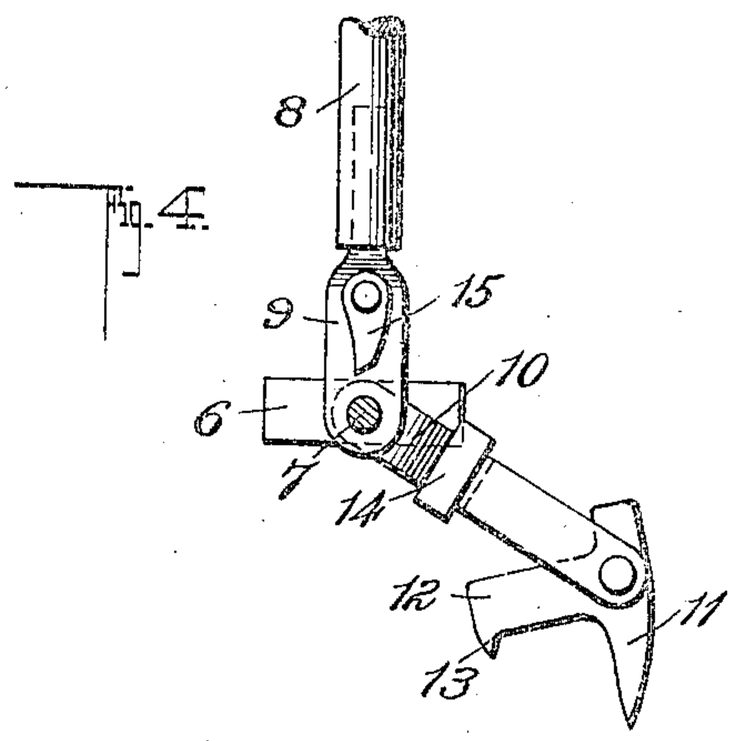



Fig. 4.




Witnesses

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# UNITED STATES PATENT OFFICE.

ALLEN P. STEPHENS, OF RARDEN, OHIO, ASSIGNOR TO STEPHENS TIE EXTRACTOR COMPANY, OF RARDEN, OHIO, A FIRM.

## TIE EXTRACTOR AND REPLACER.

952,378. Specification of Letters Patent. Patented Mar. 15, 1910.

Application filed June 14, 1909. Serial No. 502,114.

*To all whom it may concern:*

Be it known that I, ALLEN P. STEPHENS, a citizen of the United States, residing at Rarden, in the county of Scioto and State of Ohio, have invented a new and useful Improvement in Tie Extractors and Replacers, of which the following is a specification.

This invention relates to a device for shifting cross ties transversely with respect to the tracks of a railroad for the purpose of removing or replacing ties.

The invention consists of a suitable rack frame resting at its ends upon the bases of the track rails and slidable along said bases, and means carried by and coöperating with said rack frame for engaging a tie beneath said frame and giving it a longitudinal movement.

In the accompanying drawings: Figure 1 is a perspective view showing the device in position for use. Fig. 2 is an enlarged elevation of the tie engaging means, a side member of the rack frame being removed. Fig. 3 is an end elevation of Fig. 2, the rack frame being shown in section. Fig. 4 is a detail view of the tie engaging means removed from the frame, a bolt being shown in section.

In these drawings 1 represents a cross tie and 2 the track rails. A rack frame rests transversely with respect to the track, the ends of said frame sliding upon the bases of the rails, and said frame consists of two parallel channel irons 3 spaced apart and connected adjacent their ends by plates 4. L-shaped bars 5 are bolted upon the upper inner edges of the channel irons, the upright portions of the bars 5 being toothed. These parts form a rack frame movable along the track and extending from rail to rail and adapted to be brought into position along the longitudinal axis of any particular tie. Sliding longitudinally in the channel irons are two blocks 6 connected by a bolt 7. An operating handle 8 is provided at its lower end with a bifurcated head 9, which extends between the blocks 6 and the bolt 7 passes loosely through said head. Pivoted upon said bolt in the bifurcation of the head is the shank 10 of a gripping member which shank is also bifurcated and in the bifurcation of the shank is pivoted a tooth 11 which tooth is provided with a laterally extending arm 12 provided at its free end with a spur 13. A collar 14 slides upon the shank 10. Upon opposite sides of the head 9 and above the parts immediately above described are locking pawls 15 which respectively engage the teeth of the bars 5 and which pawls may be of any length.

In use, the frame is brought into the proper position above a tie, and the collar 14 is moved along the shank 10 toward the tooth 11, and encircles the bifurcated portion of the said shank and also the arm 12, thus holding said arm parallel to the shank with the tooth at right angles to the shank, the spur 13 preventing the collar dropping back out of locking position. The tooth 11 being thus rigidly connected with the shank, the operation of the handle 8 back and forth will cause the tooth 11, which has been driven into the tie, to draw the tie in one direction, as movement of the blocks along the channel irons in more than one direction is prevented by the pawls 15. As the tie is moved into or out of position the handle can be shifted along the channel irons by disengaging the pawls and sliding the blocks 6, thus accommodating the position of the handle to the position into which the tie has been shifted, when such adjustment is necessary. It will be understood that such readjustment of the handle would only be necessary when it was desired to secure a new grip upon the tie, and usually the gripping of the tie adjacent one end will be found sufficient.

The pawls 15 may be of any length which it may be found advisable to employ in order to secure the desired grip or the rapidity and extent of movement desired with movement of the handle.

What I claim is:

1. In a device of the kind described, a frame slidable along rail bases, said frame comprising rack bars, blocks sliding in said frame, a handle having a head portion pivoted between said blocks, pawls carried by said head and engaging the rack bars, and a tie-gripping device pivotally connected to said head.

2. A device of the kind described comprising a frame, said frame comprising rack bars, blocks slidable longitudinally in said frame, a bifurcated head pivotally mounted between said blocks, an operating handle connected to said head, a bifurcated shank pivoted in the bifurcation of the head, a tooth pivoted in the bifurcation of the

shank, and means for locking said tooth at right angles to the shank.

3. A device of the kind described comprising a rack frame, blocks movable along said rack frame, a head pivoted between said blocks, a handle connected to said head, a bifurcated shank pivotally connected to the head, a tooth pivotally mounted in the bifurcation of the shank, an arm carried by and at right angles to the tooth, a collar sliding on the shank for the purpose of engaging said arm and locking the tooth at right angles to the shank, and pawls carried by the head and engaging the rack frame.

4. A device of the kind described consisting of two parallel channel irons, said irons being spaced apart, plates connecting said irons together, angled toothed bars carried by the irons, blocks sliding in the irons, a bolt connecting said blocks, a bifurcated head mounted on said bolt, a handle connected to the head, pawls connected to the head and engaging the toothed bars, a shank pivoted upon said bolt within the bifurcation of the head, a tooth pivoted to said shank, and means for locking said tooth at a right angle to the shank, as and for the purpose described.

ALLEN P. STEPHENS.

Witnesses:
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