No. 637,843. Patented Nov. 28, 1899.

A. ZETTER.

DEVICE FOR USE IN EXTRACTING RAILROAD TIES, &c.

(Application filed June 13, 1899.)

(No Model.)

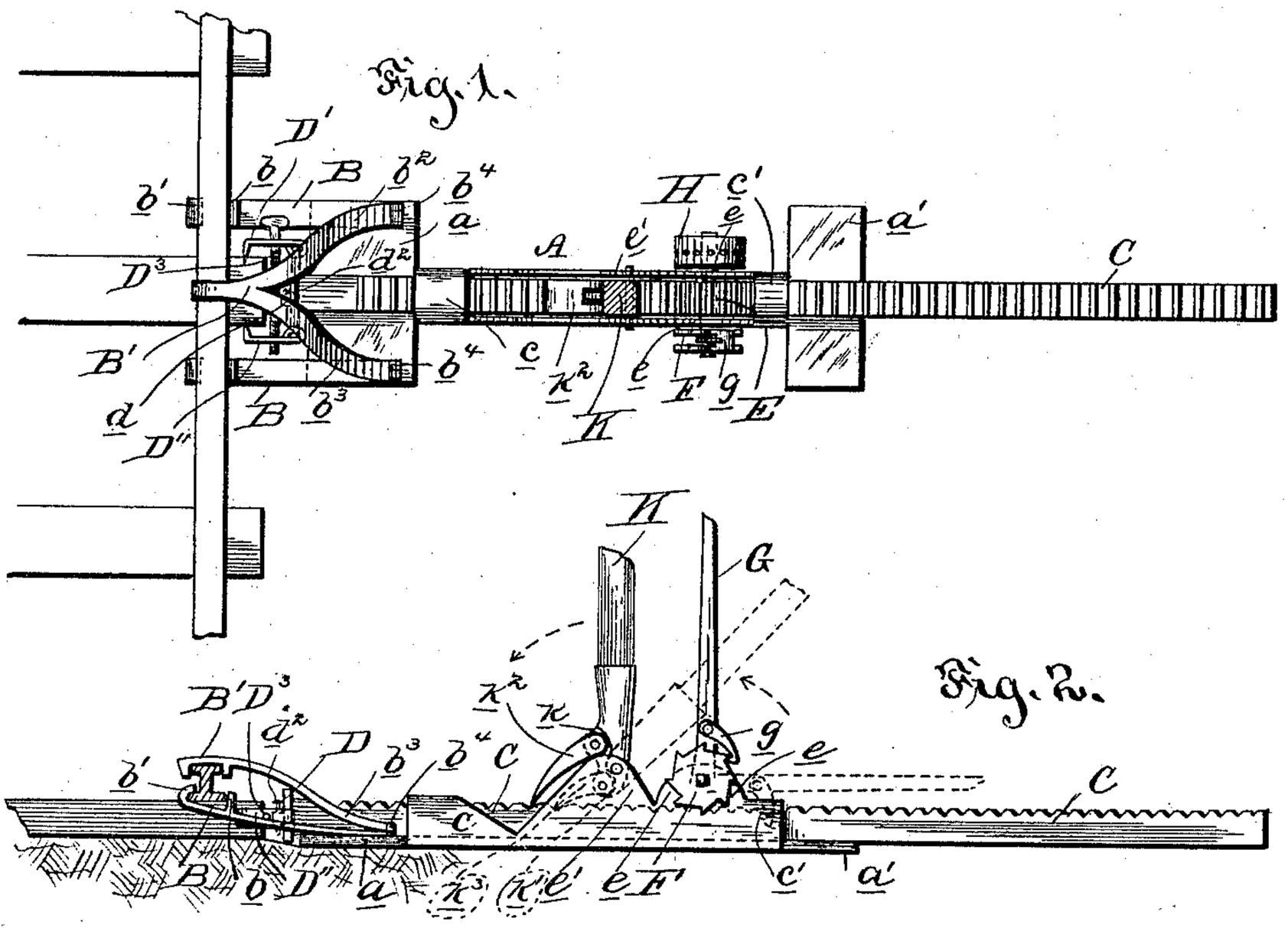

Fig. 1.

Fig. 2.

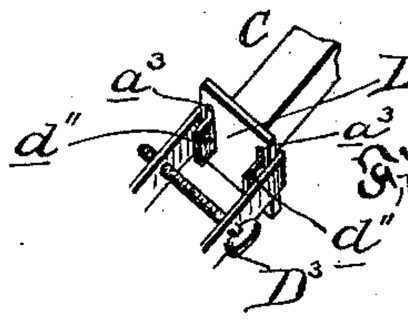

Fig. 3.

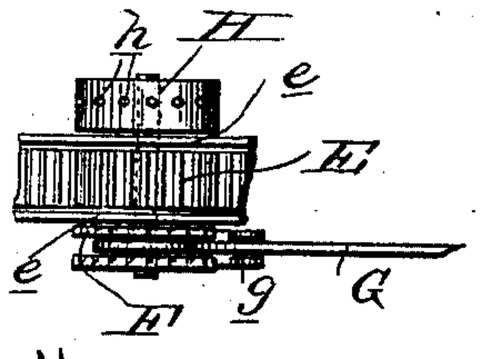

Fig. 4.

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DEVICE FOR USE IN EXTRACTING RAILROAD-TIES, &c.

SPECIFICATION forming part of Letters Patent No. 637,843, dated November 28, 1899.

Application filed June 13, 1899. Serial No. 720,364. (No model.)

To all whom it may concern:

Be it known that I, ALBERT ZETTER, a citizen of the United States, residing at Freeburg, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Devices for Use in Extracting Railroad-Ties and the Like; 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 relates to an improvement in devices for use in extracting railroad-ties and the like of that general class clearly illustrated in the Patent No. 623,300, just issued to myself and bearing date April 18, 1899.

An object of the invention is to make a construction that will be capable of either pulling or shoving out a tie without any change of position of the device, and a further object is to so construct the device as to afford the greatest possible simplicity, strength, and efficiency in operation.

The invention contemplates the peculiar arrangement and combinations of parts hereinafter to be fully described, and definitely pointed out in the claims.

In the accompanying drawings, wherein for the mere sake of illustration an embodiment of the invention is delineated, like letters of reference designate corresponding parts in the several views.

Figure 1 is a plan view of the device in operative position, a section of track being shown in dotted lines. Fig. 2 is a side view of the same, the track being shown in cross-section. Fig. 3 is a detail view of a modified form of grip; and Fig. 4 is a detail view of the double ratchet, the end of the bracket being broken off.

Referring to the drawings, A designates a bracket or framework to which the different parts of the device are secured and within which they work. This bracket has a forward flattened extension a, to the edge of which are securely attached a pair of lower brace-rods B, each of which is provided with a stop b and hook b', adapted to engage the under face of a track-rail. An upper brace-rod B', adapted to engage over a track-rail, has a bifurcated rear portion, the arms b^2 b^3 of which are pivotally secured at b^4 to the extension a. This brace-rod has a notched portion at its forward end corresponding in contour with the tread-surface of a rail.

The forward extension a and a corresponding rear extension a' constitute lateral supporting means for the device when in operation.

As a means for withdrawing or shoving out a tie a rack-bar C is provided, the same being adapted to slide within and be guided by the inclosed portions c c' of the bracket. The grip at the forward end of the rack-bar is of peculiar style to enable the same bar to be readily used either to grip or shove the tie. In the form shown in Figs. 1 and 2 of the drawings the bar has an extension d, angular in cross-section, having an aperture in which a locking-pin d^2 fits when the grip is attached. The grip comprises a substantially rectangular plate D, having a central aperture of a size to fit over the extension d, and the gripping-arms D' D'', pivoted at the opposite sides of the plate. To lock the arms to the end of a tie when the same is to be withdrawn, an adjusting-screw D^3 connects the same and is designed to spread or tighten them. When it is desired to shove out a tie, all that is necessary is to remove the locking-pin d^2 and the grip, when the extension d will be used as a plunger, though in many instances the grip need not be disturbed at all.

In the modified form of grip illustrated in Fig. 3 the plate D is formed of flanges integral with the draw-bar, and itself serves as a plunger when shoving out a tie. The opposite flanges in this form have elongated slots a^3, in which hooked ends d'' of the gripping-arms loosely engage and are readily detachable therefrom.

Pivotally secured in ears e upon the bracket is a pinion E, which engages the toothed upper surface of the rack-bar. This pinion is to be used when the device is being used to withdraw a tie, and to operate the same the following mechanism is employed: The shaft upon which the pinion is mounted extends at its respective ends outward slightly beyond the plane of the ears. Rigidly attached to one of the extension portions of this shaft is a double ratchet-wheel F, in the center of which is pivoted an actuating-lever G, which in turn is provided with a relatively broad

pawl *g*, adapted to engage the teeth of both sections of the ratchet-wheel. It will thus be seen that by actuating the lever G, the grip having first been secured to the tie, the ratchet-wheel will be revolved in the direction of the arrow, Fig. 2, and consequently the pinion will turn in the same direction through the medium of its shaft, thereby operating upon the rack-bar so as to force the same rearward. In this manner a tie is withdrawn. At the opposite end of the axle to which the ratchet-wheel is located I mount a wheel H, having pockets *h* in its periphery designed to receive the end of a bar or lever to revolve the pinion in case the operating-lever and ratchet-wheel, just above described, become inoperative from damage or otherwise.

Now when it is desired to shove out a tie the grip is removed from the end of the rack-bar and the lever G thrown back into the position shown by dotted lines, Fig. 2, with its pawl out of operative position, and the following mechanism then employed: A lever K is pivoted between ears *e'* on the bracket, corresponding to the ears *e*, before referred to, and this lever is provided to both sides of its pivot-point with lugs *k k'*, to which in turn are pivoted what I will term, respectively, an "upper" and a "lower" pawl k^2 k^3, the former being somewhat longer than the latter, as clearly shown by the drawings. The purpose of having these peculiarly-arranged pawls is in order to have a continuous actuating means for the rack-bar during both the forward and rearward movement of the lever K, for it will be obvious that when the said lever is thrown forward the upper pawl *k''* will work upon the rack-bar, and when the lever is thrown rearward the lower pawl *k'''* will operate the rack-bar, the pivot-point of the lever being, as described, intermediate the pawls.

When the device is being used to draw out a tie, the lever K, with its pawls, will of course be thrown back out of operative position.

It will be apparent that many details of the construction and arrangement of parts shown herein may be altered without departing from the nature and principle of the invention, and it is to be understood that while the device has been described as especially adaptable to removing railroad-ties, yet it is not the intention to be necessarily restricted thereto, since the character of the device renders it applicable and efficient for many other analogous uses.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a tie-extractor, the combination with a bar having a portion adapted to engage a tie, of mechanism for moving said bar either forward or backward to withdraw or shove out a tie without changing the position of the extractor, substantially as described.

2. In a tie-extractor, the combination with a bracket, of tie-moving instrumentalities carried by the bracket, and means in engagement therewith for imparting either a forward or reverse movement thereto for withdrawing or shoving out a tie without changing the position of the extractor, substantially as described.

3. In a tie-extractor, the combination with a bracket, an operating-bar carried by the bracket, and means in the bracket for imparting movement to the actuating-bar in alternate directions to withdraw or shove out a tie without changing the position of the extractor, substantially as described.

4. A tie-extractor comprising a support, tie-moving instrumentalities, and means for operating said instrumentalities in alternate directions to withdraw or shove out a tie without changing the position of the extractor, substantially as described.

5. In a tie-extractor, the combination with a horizontally-disposed bar having a portion adapted to engage a tie, means adapted to hook onto the rail of a track means for imparting a forward movement to the bar, and means independent of the former for imparting a rearward movement to the bar, substantially as described.

6. In a tie-extractor, the combination with a bar, means for operating the same, and a grip on said bar comprising a detachable member, an extension on the bar passing through said member, means engaging the extension on the outside of said member for locking the same to the bar, and biting portions on said detachable member adapted to engage a tie, substantially as described.

7. In a tie-extractor, the combination with a bracket, of an operating member having teeth in its edge and a grip for attachment to the end of a tie, a pinion mounted on the bracket in mesh with the said teeth, and means for operating the pinion to give a forward or rearward movement to the operating member without disengaging the same from the tie, substantially as described.

8. In a tie-extractor, the combination with a horizontally-disposed bar having a perforated projection at its end, of means for operating the same, and a detachable grip comprising a plate adapted to fit over the projecting portion of the bar, a pin fitting the perforation therein for holding the plate thereon, and jaws carried by the plate, substantially as described.

9. In a tie-extractor, the combination with a bracket, of an operating toothed bar traversing said bracket, means for imparting a movement to the bar in one direction comprising pawls in engagement with the bar and a lever for actuating the pawls, and means for imparting a movement to the bar in an opposite direction comprising a pinion in engagement therewith, and pawl-and-ratchet mechanism for turning the pinion, substantially as described.

10. In a tie-extractor, the combination with

a bracket, of tie-moving instrumentalities carried thereby, a set of rigid lower stay-rods carried by the bracket, and an upper pivoted stay-rod carried thereby, the former adapted to engage the lower edge of the rail and the latter adapted to engage the upper edge thereof, substantially as described.

11. In a tie-extractor, the combination with a bracket, of tie-moving instrumentalities carried thereby, a series of stay-rods on the bracket adapted to engage the upper and lower edges of a rail, and hooked and shouldered portions on the rods to permit of their retaining the extractor in proper position during either a forward or rearward operation thereof, substantially as described.

12. In a tie-extractor, the combination with a bracket, of tie-moving instrumentalities carried thereby, upper and lower stay-rods on the bracket adapted to respectively overlie and underlie a rail of a track, substantially as described.

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

ALBERT ZETTER.

Witnesses:

MAX BOGNER,

ALFRED BROWNING.