

No. 701,283.

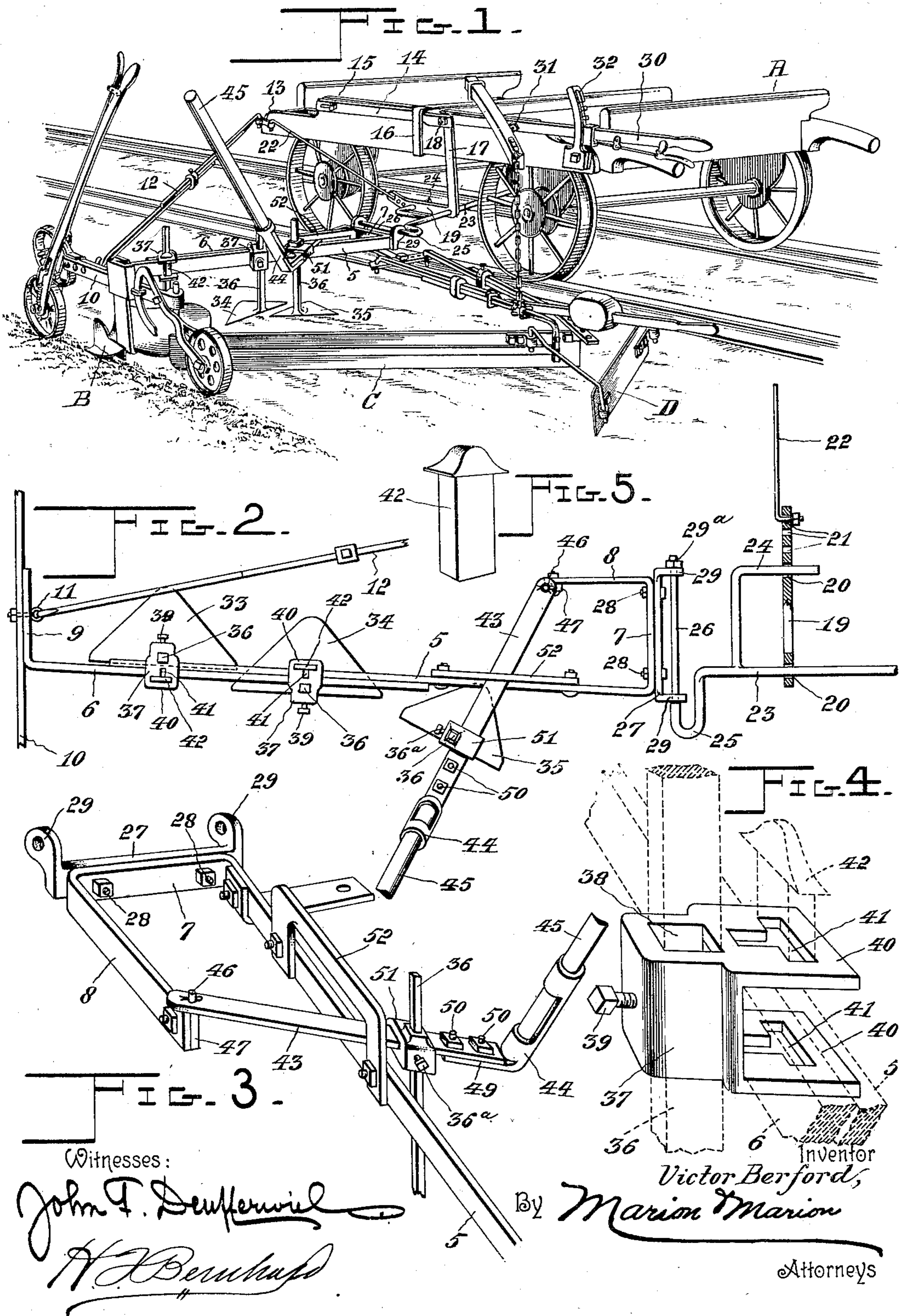
Patented June 3, 1902.

V. BERFORD.

WEED DESTROYING MECHANISM.

(Application filed June 10, 1901.)

(No Model.)



UNITED STATES PATENT OFFICE.

VICTOR BERFORD, OF TARA, CANADA.

WEED-DESTROYING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 701,283, dated June 3, 1902.

Application filed June 10, 1901. Serial No. 63,857. (No model.)

To all whom it may concern:

Be it known that I, VICTOR BERFORD, a subject of His Majesty the King of Great Britain, residing at Tara, county of Bruce, Province of Ontario, Canada, have invented certain new and useful Improvements in Weed-Destroying Mechanism for Use on a Railway-Track Appliance; and I do hereby declare that the following is 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.

My invention relates to a weed-destroying mechanism for use on a railway-track appliance of the character disclosed by my application for United States Letters Patent, filed November 23, 1900, Serial No. 37,318.

The primary object of this invention is to provide an improved construction in which a gang of blades are adapted to operate below the surface of the ballast on the slope or shoulder of a railway-track, whereby the cutters are adapted to effectually destroy weeds and the roots thereof and prevent the same from encroaching upon the ballast and the ties of a railway-track.

Further objects of the invention are to arrange the gang of weeding-hoes on an element of the appliance so as to secure maximum efficiency in the operation of cutting the weeds and at the same time make said weeding-hoes adjustable in horizontal and perpendicular planes, so that they will operate at different depths and in various positions, to provide means operatively connected with the weeding-hoe that lies next to the track for easily and quickly throwing the latter out of its working position, and thereby enable said readily-adjustable weeding-hoe to work close to the average width of track or to be quickly shifted away from an extra long tie which may lie in its path, and to provide for the ready disconnection of either of said weeding-hoes, so that they may be used individually or they may be employed collectively, as may be desired.

To the accomplishment of these ends the invention consists in the novel construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, I have illustrated a preferred embodi-

ment of the invention in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a railway-track appliance equipped with a weed-destroying mechanism of my invention. Fig. 2 is a plan view of the weed-destroying devices, showing a part of the adjustable beam-hanger in section. Fig. 3 is a perspective view, on an enlarged scale, of a portion of the framework for the weed-destroying devices. Fig. 4 is another perspective view of an adjustable clamp, showing certain parts in dotted lines. Fig. 5 is a detail view of the key for use in connection with the clamp.

The same numerals and letters of reference denote like parts in each of the figures of the drawings.

A designates the wheeled car or carriage of a railway-track appliance which is similar in its general features to the corresponding part disclosed in my prior application. This car is adapted to support a foldable frame that extends outwardly from the car when it is adjusted to its operative position, and this frame has connected therewith a sod-line cutter mechanism, (indicated generally by the reference-letter B in Fig. 1,) said frame also having the ballast-dressers C and D connected therewith, also as shown by Fig. 1.

As no claim is made in this application to the sod-line cutter mechanism B nor to the ballast-dressing devices C and D it is not necessary for me to describe the same more generally in this specification, because said mechanisms constitute the subject-matters of other applications, which are filed of even date herewith.

I will now proceed to describe the weed-destroying mechanism, which is shown more particularly by Figs. 2, 3, and 4 of the drawings. The frame which carries the gang of weeding-hoes consists principally of an extensible bar, formed by the members 5 6, which are arranged to overlap one another for a considerable portion of their length, as shown by Fig. 2, and the member 5 of said extensible bar is bent, as at 7, in a direction at right angles to the bar, and this bent portion is again bent to form the short arm 8, which lies in front of the extensible bar and near one end thereof. The member 6 of the

extensible bar is bent at its outer end to form the short arm 9, that is disposed in overlapping relation to a supporting-bar 10 of the sod-line cutter mechanism, and these bars 5 are united together by means of an eyebolt 11, to which is connected the outer end of an extensible brace-rod 12, the latter having its inner end portion connected to a bracket 13 on the wheeled carriage.

10 14 designates a metallic strap or plate which is fastened at 15 to a side rail of the carriage-frame, and the free end of this bar is embraced by a loop 16. To said bar 14 is pivoted the upper end of a hanger 17, the 15 pivot being indicated at 18, and this hanger extends downwardly from the frame of the wheeled carriage and at the side of the latter, as shown by Fig. 1. The lower end of the hanger is formed with an angular foot 19, in 20 which are provided the apertures 20 21. A stay-rod 22 has one end connected to the bracket 13, which is arranged at the front end of the wheeled carriage, and the rear end of this stay-rod is adapted to be adjustably fitted in either of the apertures 21, provided at 25 the front extremity of the hanger-foot, as clearly shown by Figs. 1 and 2.

23 designates a metallic carrier bar or beam, which is provided with a short arm 24, where- 30 by the carrier-bar and its arm may be slidably fitted in the apertures 20 of the hanger-foot. (See Fig. 2.) This hanger-bar is bent into a loop 25 and terminates in the arbor 26, the same being supported by the carrier-bar 35 in a horizontal position and at a suitable distance above the track. The provision of the arm 24 on the carrier-bar restrains the latter against any tendency to turn in the hanger, and thus the pivotal arbor 26 is held at all 40 times in its proper working position. The bent portion 7 of the member 5 forming a part of the extensible bar is provided with a hinge-plate 27, which is firmly secured thereto by the bolts 28 and which is provided with 45 the upstanding perforated ears 29, said ears adapted to receive the pivotal arbor 26, whereby the extensible bar has a hinged connection with the carrier-bar. The hinge-plate and the pivotal arbor are prevented from disengagement by the loop 25 and by the provision 50 of a nut 29^a at the free end of the arbor.

The hanger 17 is adapted to be raised or lowered within certain limits by means of the lever 30, the same being fulcrumed, as at 31, 55 to a side rail of the wheeled carriage and having its free end connected by the pivot 18 to the hanger 17 and the pivotal bar 14. (See Fig. 1.) This lever is equipped with a suitable latch mechanism that is arranged to engage with a notched arm or segment 32, which 60 is secured to the side rail of the wheeled carriage, and thus the hanger and the carrier-bar 23 may be raised or lowered within certain limits.

65 The hinged connection of the frame-bar to the carrier-bar 23 permits the framework of the weed-destroying mechanism to have an

oscillatory or yieldable movement on the horizontal axis afforded by the pivotal arbor 26, and at the same time the frame may be turned 70 upwardly to a folded position and lie partially over the wheeled carriage whenever it is desired to withdraw the weed-destroying mechanism from its operative position.

33 34 35 designate the gang of weeding- 75 hoes, each of which is shown as consisting of a flat triangular blade united to an upstanding shank 36, although the particular shape of each hoe may be modified at pleasure. Each hoe 33 and 34 has its shank clamped 80 adjustably to the extensible bar by means of the clamping-brackets 37, the latter being indicated more clearly by Fig. 4. This bracket is cast in a single piece of metal with a vertical passage 38, that forms a socket for the 85 hoe-shank 36, said shank being fastened adjustably in the socketed bracket by the employment of the binding-screw 39, whereby the hoe-shank may be raised or lowered in the bracket for the purpose of adjusting the hoe- 90 blade to work at different depths below the surface of the ballast on the slope or shoulder of a railway-track. The clamping-bracket 37 is provided with the outwardly-extending plates or ears 40, the same arranged at the up- 95 per and lower portions of the bracket and lying parallel one with the other, so as to leave an intermediate space, the depth of which is equal to the width of the extensible bar members 5 6, as indicated by dotted lines in Fig. 100 4. Said plates or ears of the clamping-bracket are provided with the T-shaped slots 41, that are disposed in registering positions and are adapted to receive the wedge or key 42. It will be understood that the members 5 6 of 105 the extensible bar are arranged to fit between the slotted ears 40 of the clamping-bracket, and the key 42 is arranged to pass through the heads of the T-shaped slots, as indicated by dotted lines in Fig. 4, in order to confine 110 the bars 5 6 between one side of the clamping-bracket and the key, whereby the two members of the extensible bar may be clamped together by the series of brackets 37, which are employed to furnish the supports for the 115 shanks of certain of the weeding-hoes of the gang. The keys serve to fasten the brackets detachably to the members of the extensible frame-bar, and when the key is withdrawn 120 from either of the brackets the latter may be moved in a substantially horizontal direction and lengthwise on said extensible frame-bar in order to bring the weeding-hoes 33 34 close 125 together or to separate them apart. It is evident that the weeding-hoe 33 may have its bracket 37 adjusted toward the arm 9 at the outer end of the member 6 of the frame-bar in order to position said weeding-hoe 33 nearly at the end of the frame. Under these conditions the member 6 of the frame-bar is 130 the only part of said bar that is fitted in the space between the slotted ears 40 of the clamping-bracket, and under these conditions it is my practice to fit the key 42 into the slot 41,

so that one edge of the key will enter the shank of the slot and extend across the head of the latter in a manner which will be readily understood.

5 It is evident that the clamping-brackets 37 may be adjusted lengthwise of the extensible bar, that the key 42 serves to hold each bracket firmly in position when it receives one or both members of said extensible bar, 10 and that the shank 36 of the weeding-hoe may be raised or lowered to secure the desired vertical adjustment of the hoe-blade irrespective of any adjustment of the clamping-bracket on the frame-bar.

15 The extensible frame-bar is intended to be arranged in an inclined position to the length of the carrier-bar 23, and the gang of weeding-hoes are arranged in staggered order on said frame-bar, so that they will lie one in 20 rear of the other, as shown by Fig. 2. I prefer to employ a series of three weeding-hoes, although the number of hoes is not material, and these hoes may be adjusted in such relation one to the other that the active face of 25 the second hoe will overlap the path of the first hoe, while the third hoe will occupy a like relation to the path of the second hoe, thus disposing all of the blades or hoes in a manner to secure maximum efficiency in the 30 operation of the weed-destroying elements, because under these arrangements, the weeds cannot, by any possibility, pass through gaps of spaces left between the hoes.

The innermost hoe 35 of the gang is carried 35 by a lever, so that said hoe may be shifted at the will of the attendant in a manner to clear an extra long tie or other obstruction which may lie in its path, and this lever comprises an arm 43, a socketed casting 44, and a handle-bar 45. The arm 43 extends across the 40 member 5 of the extensible frame-bar, and the front end portion of this arm is loosely mounted on a pintle 46 of a pivotal plate 47, that is fastened to the free end of the short arm 8 of the extensible frame-bar. (See 45 Figs. 2 and 3.) The socketed casting 44 is formed with an angular plate 49, that is arranged to lap the inner end of the lever-arm 43 in order that the parts may be bolted together, as at 50, and said socketed casting receives the lower end of the handle-bar 45, the latter extending upwardly and rearwardly from the casting. The shank 36 of the shift- 50 able hoe 35 is fitted in a socket of a clamp 51, that is secured on the arm 43 of the lever, said shank 36 being held in place by a set-screw 36^a.

A guide-bar 52 is securely bolted at its ends 60 to the frame-bar 5 in a position to embrace the lever-arm 43 and to permit the latter to have a limited adjustment in a horizontal plane on the axis afforded by the pintle 46, said guide-bar serving to keep the lever-arm in its proper operative relation to the exten- 65 sible frame-bar and relieving in a measure the strain on the pintle 46. The shank 36 of the optionally-shiftable weeding-hoe 35

may be adjusted vertically in the clamp 51, so as to raise or lower the hoe 35 in a manner similar to the adjustment of the hoes 33 34. 70 Although I have shown and described the shank of each hoe-blade as being angular in cross-section and as limited to adjustment in a vertical plane, I would have it understood that the hoe-shank may be made round, so 75 as to permit it to be adjusted on its axis for the purpose of giving to the hoe-blade an adjustment in a plane parallel to the plane of the extensible frame-bar 5, whereby the hoe-blades may be given different positions with 80 respect to the line of draft.

As shown by Figs. 1 and 2, the blade of each hoe is approximately triangular in shape and with the point or apex in front; but of course the shape of the blade may be modified as 85 desired.

One of the important features of my invention resides in the provision of a gang of weeding-hoes especially adapted to cut below 90 the surface of the ballast at the slope or shoulder of a track, thereby making the hoe-blades to sever the roots of the weeds and to effectually destroy the same. The weeding-hoe 35 may be at any time quickly moved in a 95 direction away from the track, so as to clear an extra long tie, because an operator riding on the car can easily grasp the upper end of the handle-bar 45, which extends within reach of the operator, thus permitting the lever to be moved in a direction to give the desired 100 adjustment to the innermost weeding-hoe 35 of the gang. This lever also serves as a convenient means for lifting the cutter appliance bodily when the car is in motion.

Changes within the scope of the appended 105 claims may be made in the form and proportion of some of the parts while their essential features are retained and the spirit of the invention is embodied. Hence I do not desire to be limited to the precise form of all 110 the parts as shown, reserving the right to vary therefrom.

Having thus described my invention, what I claim as new is—

1. In an apparatus for destroying weeds on 115 railway-tracks, the combination with a wheeled car, of a frame extending in its operative position outwardly from one side of said car, means whereby said frame is sustained in foldable and operative relation to 120 said car, and a gang of subsoil weed-cutters mounted on said frame, each weed-cutter having a blade which is disposed approximately in a position parallel to the plane of the frame, as and for the purposes described. 125

2. In an apparatus for destroying weeds on 130 railway-tracks, the combination with a wheeled car, of a frame-bar extending outwardly from one side of said car, means connecting said frame-bar foldably with the car and supporting the same in its extended operative position, and a gang of subsoil-cutters on the frame-bar, each cutter having a shank and a blade which is disposed on

the shank in a position approximately parallel to the frame upon which the cutter-shank is clamped, as and for the purposes described.

3. An apparatus of the class described comprising a suitable frame, a pivoted bar having a handle and adapted to turn on a vertical axis, means carried by the frame in operative relation to the pivoted bar for limiting the latter to movement in a horizontal plane, and a gang of subsoil-hoes, one of which is mounted on the pivoted bar and is shiftable therewith, substantially as described.

4. An apparatus of the class described comprising a suitable frame, a bar united by a vertical pivot to said frame and having an upwardly-extending handle, means for limiting said bar to movement in a horizontal plane, and a gang of subsoil-hoes, one of which is mounted on said bar and is shiftable therewith, substantially as described.

5. In an apparatus of the class described, the combination with a wheeled frame, of a hanger pivoted to said frame, means whereby the hanger may be adjusted with relation to the wheeled frame, a stay-rod attached to said hanger and to the frame, a frame-bar having a hinged connection with said hanger and extending outwardly therefrom, and a gang of subsoil weeding-hoes mounted on said frame-bar, substantially as set forth.

6. An apparatus of the class described comprising a suitable frame, a bar pivoted to said frame and having a handle, a keeper for limiting the bar to movement in a horizontal plane, and a gang of subsoil-hoes each having an upwardly-extending shank, one of said hoes having its shank attached to said bar, substantially as described.

7. In an apparatus of the class described, the combination with a wheeled frame, of a weed-destroying mechanism comprising a frame-bar, an arm pivoted to said frame-bar and extending rearwardly therefrom, a guide-bar attached to the frame-bar and embracing said pivoted arm, means for shifting the arm on its pivot, and a gang of hoes one of which is attached to the pivoted arm and the other hoes secured to the frame-bar, substantially as set forth.

8. In an apparatus of the class described,

the combination with a wheeled frame, of a weed-destroying mechanism connected therewith and comprising a frame-bar extending outwardly from said wheeled frame, an extensible stay-rod attached to said outwardly-extending frame-bar and to the wheeled frame, and a gang of subsoil weeding-hoes mounted on the frame-bar, substantially as set forth.

9. In an apparatus of the class described, the combination with a wheeled frame, of a hanger supported thereon, means for adjusting said hanger vertically, a frame-bar having a hinged connection with the hanger and extending outwardly from the wheeled frame, an extensible stay-bar connected with the frame-bar and with the wheeled frame, another stay-rod attached to the hanger and to the wheeled frame, and a gang of weeding-hoes mounted on the frame-bar, substantially as set forth.

10. In an apparatus of the class described, the combination with a wheeled frame, of a weed-destroying mechanism connected therewith and comprising an extensible frame-bar, means for clamping the members of said frame-bar adjustably together, means for foldably connecting the frame-bar to the wheeled frame and to support said frame-bar thereon when it is extended outwardly therefrom to assume an operative position, and a gang of weeding-hoes secured to the frame-bar, substantially as set forth.

11. In an apparatus of the class described, the combination with a wheeled frame, of a weed-destroying mechanism connected therewith and comprising a two-part frame-bar, clamping-brackets having the slotted plates arranged to receive the members of said frame-bar, means for clamping the frame-bar and the brackets adjustably together, and a gang of weeding-hoes each having a shank which is fastened in one of the clamping-brackets, substantially as set forth.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

VICTOR BERFORD.

Witnesses:

J. F. SMITH,
C. E. START.