

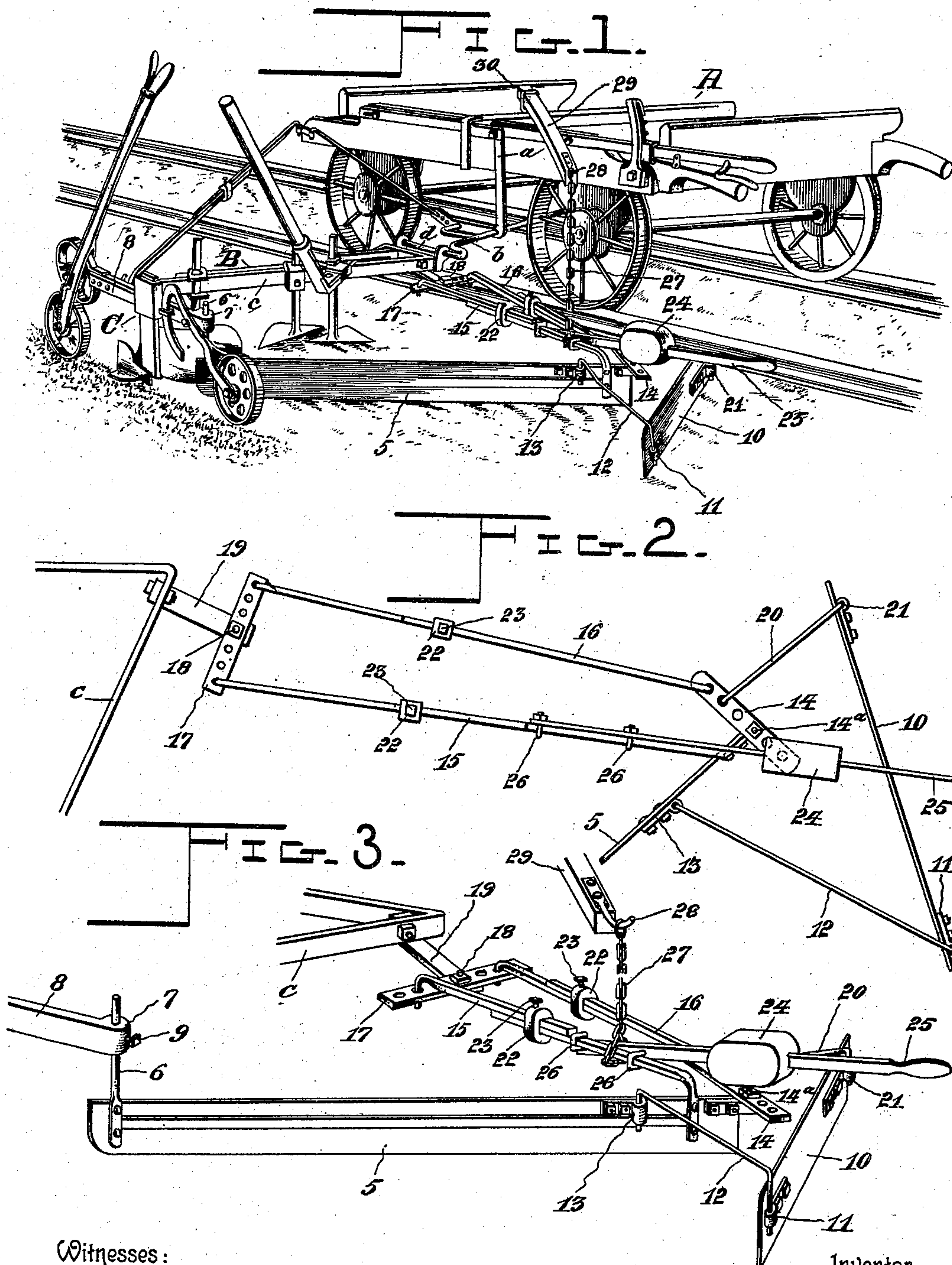
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V. BERFORD.
BALLAST DRESSING MECHANISM.

(Application filed June 10, 1901.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

VICTOR BERFORD, OF TARA, CANADA.

BALLAST-DRESSING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 695,530, dated March 18, 1902.

Application filed June 10, 1901. Serial No. 63,858. (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 Ballast-Dressing Mechanisms for Railway-Track Appliances; 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 improvements in ballast-dressing mechanisms for railway-track appliances of the class disclosed by my prior application for United States Letters Patent filed November 23, 1900, Serial No. 37,318.

The primary object of the present invention is to provide means for uniformly spreading the ballast on the slope or shoulder of a railway-track following the operation of destroying weeds and other vegetable growths thereon.

A further object is to provide means for scraping or removing from the track-ties any of the ballast which may escape from the primary rake device of the ballast-dresser.

A further object is to provide means by which the tie scraper or rake is held yieldably in place by the resistance of the work, so that it may automatically give when it encounters an extra long tie of the track, thus minimizing injury to the appliance and insuring the automatic return of the parts to their normal working positions.

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

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view of a railway-track appliance, including as one of the features thereof a ballast-dressing mechanism embodying my invention. Fig. 2 is a detail plan view of the ballast-dressing mechanism on an enlarged scale and showing a part of the slope-dresser rake broken away. Fig. 3 is a detail perspective view of the ballast-dressing mechanism and arranged to more clearly illustrate the equalizer mechanism which connects the

slope-dresser rake and the tie-dresser rake operatively together.

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

A designates the wheeled carriage, which supports the hanger *a*, adapted to support the beam or carrier *b*. The weed-destroying mechanism B has a suitable framework *c*, connected hingedly at *d* to the carrier, whereby the framework has foldable connection with the carriage A, so that the operating devices may be adjusted out of position or said framework may be lowered to a substantially horizontal position in order to place the operating devices in condition for service. The sod-line cutter mechanism C is disposed beyond the weed-destroying mechanism B; but as these two mechanisms are not claimed in this application I do not consider that it is necessary to more fully describe them, because they constitute the subjects-matter of other applications filed by me of even date herewith.

The weed-destroying mechanism B includes a gang of subsoil hoes or blades, which are arranged to operate beneath the surface of the ballast forming the shoulder or slope of the railway-track. This subsoil operation of the gang of weeding-hoes serves to thoroughly destroy the weeds and the roots that may grow on the slope of the track; but of course the passage of the weeding mechanism disturbs the condition of the ballast. To overcome this objection and to restore the ballast to a smoothly-dressed condition, I have devised the slope-dresser rake 5, which is arranged to follow in rear of the weed-cutter mechanism. Said rake 5 is disposed at an angle to the track, and the outer front end of this rake is provided with an upstanding shank 6, the same being received slidably in an eye 7, that is formed at the rear extremity of a carrier-bar 8. This shank is adapted to be fastened adjustably to the carrier-bar by means of the set-screw 9, the latter adapted to be slackened, so as to permit the shank to be raised or lowered, and thereby adjust the outer end of the slope-dresser rake 5 vertically. The inner rear portion of the inclined rake 5 is suitably connected with the general framework of the railway appliance; but in

the present invention I prefer to employ a tie-dresser rake 10 and an equalizer mechanism which serves to operatively connect the tie-dresser rake with the slope-dresser rake 5, whereby the pressure or resistance of the ballast against said rake 5 serves to hold the tie-dresser rake 10 in its operative relation to the inner end of said rake 5.

The operation of the rake 5 on the ballast at the slope or shoulder of a track quite frequently carries a surplus loose charge of ballast in front of the same, which gradually works upwardly and inwardly toward the track, so that it is finally left upon the ties, because it escapes beyond the inner rear end of said rake 5. To overcome this objection, to effectually remove the surplus ballast from the ties, and to spread this surplus ballast uniformly over the inclined slope or shoulder, I have devised the rake 10 and the equalizer mechanism. Said rake 10 is short as compared with the slope-dresser rake 5, which is arranged in rear of said rake 5 at the inner end thereof, and is preferably inclined in an opposite direction to the rake 5, so that one rake will have an overlapping relation to the other rake. The outer end of the tie-dresser rake is provided with a socket-plate 11, to which is loosely connected one end of the bent link 12, the other end of which is fastened to a socket-plate 13, that is secured to the rear face of the slope-dresser rake 5.

I will now proceed to describe the equalizer mechanism, which is formed by a train of connections in order to transmit the pressure or resistance of the ballast against the slope-dresser rake 5 to the tie-dresser rake 10, so as to maintain the latter normally and yieldably in operative relation. A short prime lever 14 is fulcrumed, as at 14^a, to the inner end of the slope-dresser rake 5, (see Fig. 2,) and to one end portion of this prime lever is pivoted one end of the connecting-rod 16, the other connecting-rod, 15, being fastened to the rake 5. These rods 15 16 have adjustable connection with a secondary lever 17, that is fulcrumed, as at 18, on a short arm 19, adapted to be made fast with the bar *c* of the hinged framework that is associated with the wheeled carriage A. It will be observed by reference to Fig. 2 that the prime lever 14 is mounted directly upon the rake 5, that one end of this rake 5 is connected by the rod 15 to one end of the secondary lever 17, and that the other end of this secondary lever is connected by the rod 16 to the other end of the prime lever 14, and that any movement of the slope-dresser rake due to the pressure or resistance of the ballast will be transmitted through the rods and the secondary lever, so as to move the prime lever 14 on its fulcrum 14^a. This motion of the prime lever is transmitted by the link 20 to the inner end of the tie-dresser rake 10, because said link has a loose connection with the prime lever 14 at a point between its fulcrum 14^a and the attachment of the connecting-rod 16, the other end of said

link 20 having a pivotal connection with a socket-plate 21, that is secured firmly to the inner portion of the rake 10.

Each connecting-rod 15 or 16 of the equalizer mechanism is made extensible—that is to say, each rod consists of two members disposed in overlapping relation and clamped together by a coupling band or sleeve 22, the same having a clamping-screw 23, which is adapted to impinge one of the rod members and which serves in connection with the sleeve to unite said rod members adjustably together. It is evident that the rod 15 may be lengthened or shortened in order to vary the angle of the slope-dresser rake 5 to the track; furthermore, that the connecting-rod 16 may be lengthened or shortened, so as to change the angle of the tie-dresser rake 10 to the other rake 5, and that the adjustment of these rods 15 16 may take place independently, so as to make the rakes 5 10 assume their proper positions.

Each rake is shown by the drawings as consisting of a metallic bar or plate having a straight continuous lower edge; but the style of the rake may be modified as desired by the skilled constructor.

The rakes of the dresser mechanism are held in place by the inertia of a pressure-weight 24, the same being secured to an arm 25, that is attached by the clips 26 to one of the connecting-rods, preferably the rod 15. This weighted dresser mechanism has a suspension-chain 27 connected to the rod 15, and the upper portion of this chain is connected to a finger 28, that is firmly secured to the rear end of a suspension-bar 29, the latter being fitted in the swiveled yoke 30, which is provided on the carriage A and is free to turn in a horizontal plane.

The arrangement of the dresser-rake 10 at and in rear of the inner end of the slope-dresser rake 5 makes the first-named rake 10 operate over the ends of the ties, which project beyond one of the track-rails, and this rake 10 is held to its working condition by the equalizer mechanism, which transmits the resistance or pressure that is exerted by the ballast against the front face of the slope-dresser rake 5, whereby said rake 10 is adapted to sweep the ballast away from the ties of the track and to discharge the same upon the slope or shoulder of the track. It sometimes happens, however, that this dresser-rake 10 encounters the projecting end of a long tie; but the pivotal connection of the rake 10 by means of the links 11 20 with the rake 5 and with the equalizer mechanism serves to yieldably retain said rake 10 in its operative position, thus allowing the rake 10 when it strikes an obstruction to move outward and in rear of the rake 5 and generally in a direction away from the track. This outward movement of the rake 10 takes place in opposition to the pressure of the ballast against the rake 5, and immediately after the rake 10 clears the obstruction it is automatically

returned to its working position by the equalizer mechanism, owing to the pressure of the ballast against the rake 5.

The entire group of operating mechanisms 5 which are connected to the framework is adapted to have a foldable relation to the carriage A, because the framework has a hinged connection *d* with said carriage, and thus the ballast-dressing mechanisms of this applica- 10 tion may be withdrawn from service when the framework is folded to an upright position or over upon the carriage.

Changes within the scope of the appended claims may be made in the form and propor- 15 tion 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 the parts as shown, reserving the right to vary 20 therefrom.

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

1. In an apparatus of the class described, the combination with a car, of a suitable frame- 25 work extending outwardly from the car, weed-destroying devices mounted on the frame-work, and a ballast-dresser mechanism trailing after the weed-destroying devices and connected with said framework, substantially as 30 set forth.

2. In an apparatus of the class described, the combination with a car, of a suitable frame- work connected therewith, a gang of weed- 35 destroying devices supported by the frame-work, and a dresser-rake arranged to trail in rear of said weed-destroying devices and of the framework and disposed in a rearwardly and inwardly inclined position with relation to said car, substantially as set forth.

3. In an apparatus of the class described, the combination with a car, and a suitable framework connected therewith, of weed-de- 40 destroying devices supported by the framework, an inclined rake arranged to traverse the face of the slope or shoulder of a track and to trail 45 after said weed-destroying devices, means adjustably connecting the outer end of said rake to the framework, and independent devices connecting the inner end of said rake to the 50 framework, substantially as set forth.

4. In an apparatus of the class described, the combination with a carriage and a suitable framework connected therewith, of a bal- 55 last-dressing rake arranged to traverse the slope or shoulder of a track, a shank adjustably connecting said rake and said frame-work, and an extensible rod connecting the inner portion of the rake and the framework, 60 substantially as set forth.

5. In an apparatus of the class described, the combination with a carriage and a suitable framework connected therewith, of a 65 slope-dresser rake, a tie-dresser rake disposed in rear of the slope-dresser rake, and suitable means for holding said rakes in operative positions, substantially as set forth.

6. In an apparatus of the class described,

the combination with a slope-dresser rake, of a tie-dresser rake disposed in rear thereof, 70 and means for yieldably holding said tie-dresser rake in its operative relation to the slope-dresser rake, substantially as set forth.

7. In an apparatus of the class described, the combination with a slope-dresser rake, of a tie-dresser rake disposed in a reversely-in- 75 clined position to the slope-dresser rake, and an equalizer mechanism between the two rakes, whereby the tie-dresser rake is held yieldably in its operative position by pressure against the slope-dresser rake, substantially as set 80 forth.

8. In an apparatus of the class described, the combination with a slope-dresser rake and a suitable framework, of a tie-dresser rake 85 disposed in rear of and in inclined relation to the slope-dresser rake, and an equalizer mechanism having operative connection with the framework and the two rakes, for the purposes 90 described, substantially as set forth.

9. In an apparatus of the class described, 90 the combination with a framework, of a slope-dresser rake attached at one end to the frame-work, an equalizer mechanism connecting the other end of said slope-dresser rake with the 95 framework, and a tie-dresser rake having its end portions connected with the slope-dresser rake and an element of the equalizer mechanism respectively, substantially as set forth.

10. In an apparatus of the class described, the combination with a suitable framework, 100 of a dresser-rake connected at one end thereto, the prime and secondary levers connected to the dresser-rake and the framework respectively, rods connecting said levers, and a tie- 105 dresser rake yieldably connected to the slope-dresser rake and to said prime lever, substantially as set forth.

11. In an apparatus of the class described, the combination with a carriage and a suitable framework, of a slope-dresser rake con- 110 nected with the framework, a tie-dresser rake in rear of the slope-dresser rake, connections between the two rakes to hold one in place by the resistance encountered by the other, and a suspension-bar mounted on the carriage and 115 having an operative connection with a part of the ballast-dressing mechanism, substantially as set forth.

12. In an apparatus of the class described, the combination with a suitable framework 120 and a carriage, of a ballast-dressing mechanism connected with said carriage, a weighted arm attached to a part of said ballast-dressing mechanism, a yoke on the carriage, a sus- 125 pension-bar fitted to the yoke, and a chain connected to the bar and to a part of said ballast-dressing mechanism, substantially as set forth.

13. In an apparatus of the class described, the combination with a suitable framework, 130 of a slope-dresser rake connected at one end with the framework, a prime lever fulcrumed at the other end of the dresser-rake; a secondary lever fulcrumed on the framework, an ex-

tensible rod between said slope-dresser rake
and said secondary lever, another extensible
rod between the prime and secondary levers,
a tie-dresser rake having a yieldable connec-
5 tion with the slope-dresser rake, and a link
connecting said tie - dresser rake with the
prime lever, substantially as set forth.

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

VICTOR BERFORD.

Witnesses:

T. F. SMITH,
C. E. START.