

No. 816,526.

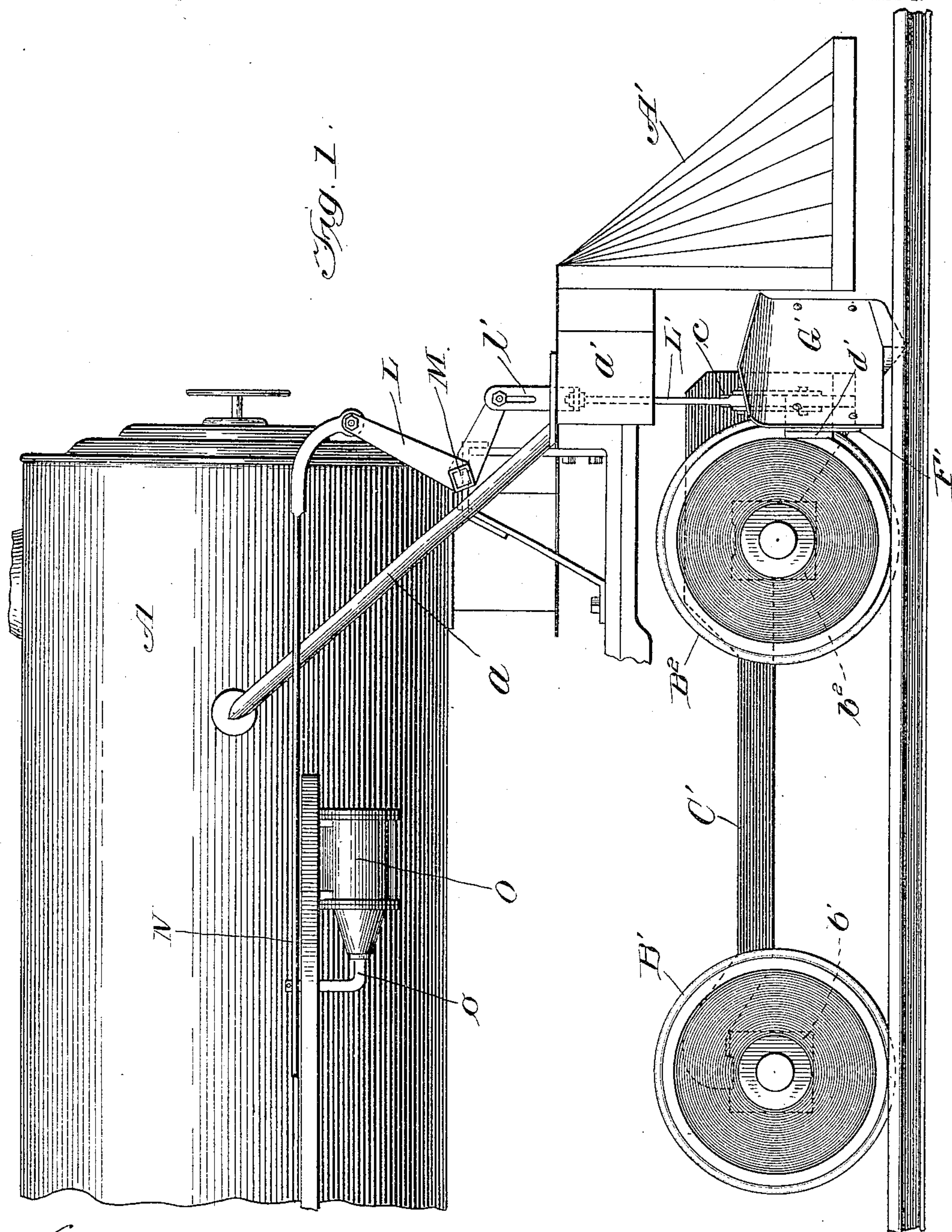
PATENTED MAR. 27, 1906.

F. C. AREY.

LOCOMOTIVE SNOW AND ICE FLANGER.

APPLICATION FILED DEC. 31, 1904.

2 SHEETS—SHEET 1.



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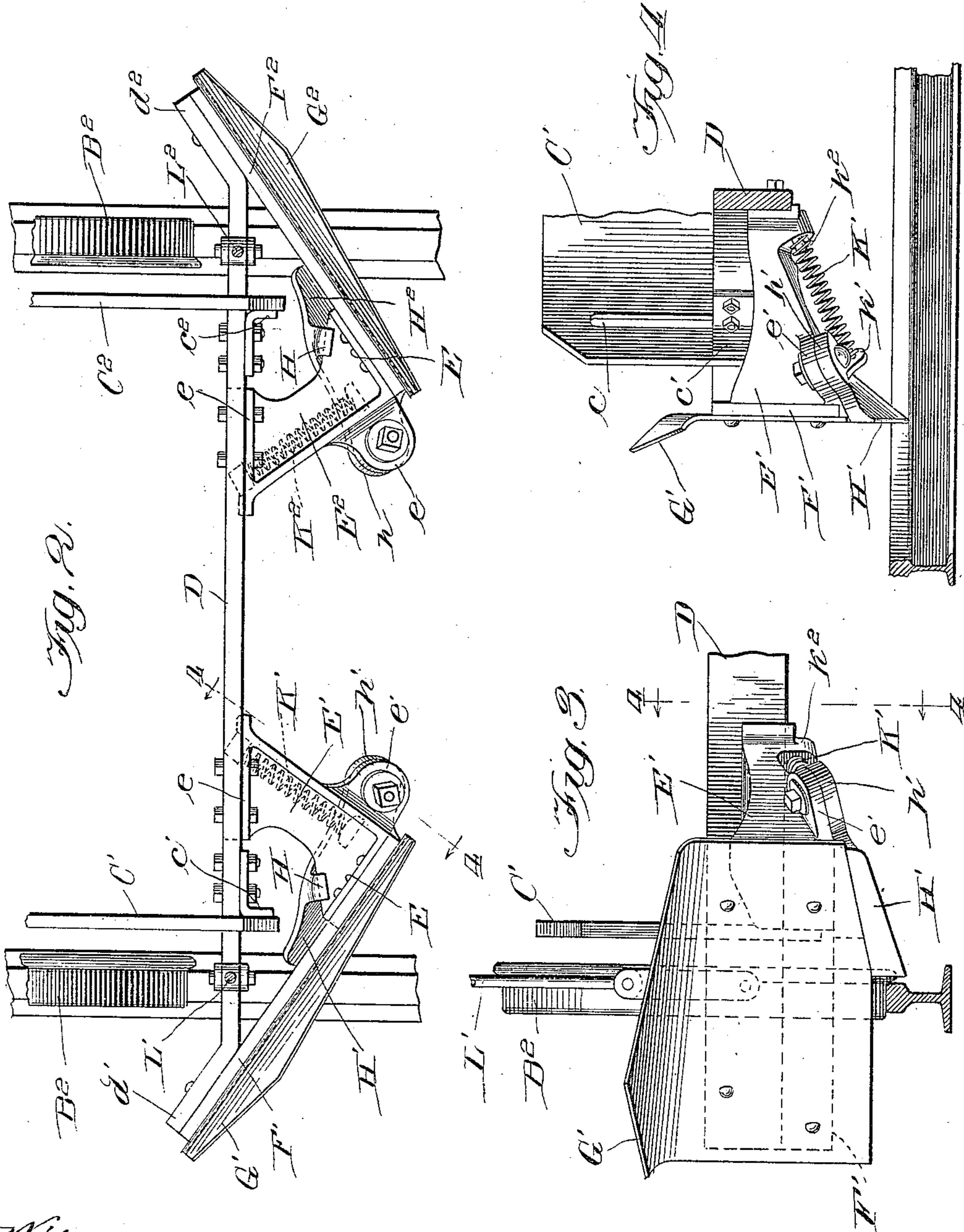
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## LOCOMOTIVE SNOW AND ICE FLANGER.

No. 816,526.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed December 31, 1904. Serial No. 239,094.

*To all whom it may concern:*

Be it known that I, FRED C. AREY, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Locomotive Snow and Ice Flangers; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates in general to apparatus for cleaning railroad-tracks, and more particularly to locomotive snow and ice flangers of the type covered by United States Letters Patent No. 444,120 granted on August 6, 1895, to Augustus F. Priest.

In the operation of snow and ice flangers constructed according to the patent referred to the cleaning-blades must be elevated when guard-rails, crossings, switches, &c., are approached to prevent the flanging-points being broken by contact with fixed objects such as those mentioned. It frequently occurs in actual use that the engineer fails to elevate the cleaning apparatus prior to reaching a fixed obstruction, with the result that the apparatus is disabled by the breaking of the flanging-points.

The primary object of my invention is to provide a snow and ice flanger of the character described which will not be injured should the engineer fail to elevate the apparatus prior to passing over fixed obstructions.

A further object of my invention is to provide a snow and ice flanger which will be simple in construction, efficient in operation, and durable in use.

The embodiment of my invention herein disclosed may be generally described as consisting in equalizer-bars mounted upon the locomotive-truck, a vertically-movable frame guided by the equalizer-bars located in front of the car-truck and back of the pilot, cleaning-blades carried above the rails by the ends of said frame, yielding flanging-points normally projecting adjacent the inner surfaces of the heads of the rails, and means for permitting the flanging-points to yield in a backward and upward direction when a fixed obstruction is engaged and for returning said

points to their operative positions when the obstruction has been passed.

My invention will be more fully described hereinafter with reference to the accompanying drawings, in which the same is illustrated in a convenient and practical form, and in which—

Figure 1 is a side elevational view of the front of a locomotive, showing my improvement applied thereto; Fig. 2, a plan view; Fig. 3, a front elevational view of the apparatus for cleaning one rail, and Fig. 4 a sectional view on line 4 4, Figs. 2 and 3.

The same reference characters are used to designate the same parts in the several figures of the drawings.

Reference character A indicates the front portion of a locomotive of any usual construction.

*a'* indicates the bumper-beam of the locomotive upon which is supported the pilot *A'*.

*a* designates one of the braces for supporting the boiler upon the bumper-beam.

*B'* and *B*<sup>2</sup> designate the wheels of the engine-truck, which are united in pairs by axles.

*C'* and *C*<sup>2</sup> designate equalizer-bars supported above the journal-bearings *b'* *b*<sup>2</sup> of the axles of the front truck of the locomotive. The equalizer-bars project in front of the truck and are provided with vertical portions lying between the locomotive-truck and the pilot, in which are formed vertical guide-channels *c*.

*D* designates a bar the ends of which extend through and are guided by the channels *c* in the equalizer-bars. The ends of the bar *D* are deflected rearwardly, as shown at *d'* *d*<sup>2</sup>. Secured to the bar *D* are brackets *E'* *E*<sup>2</sup>, provided with vertical flanges *e*, which engage the front surface of the bar *D* and are secured thereto in any suitable manner—such, for instance, as by bolts passing through such flanges and the bar *D*. Each of the brackets *E'* and *E*<sup>2</sup> is provided at its outer end with an inclined vertical flange *E*, which, together with the adjacent deflected end of the bar *D*, serves to support a plate extending above one of the rails of the track.

*F'* designates the plate supported in an inclined position by the end *d'* of the bar *D* and by the flange *E* at the front of the bracket *E'*. A similar plate *F*<sup>2</sup> is supported by the in-



clined end  $d^2$  of the bar D and the inclined flange E of the bracket  $E^2$ . Deflecting-blades  $G'$  and  $G^2$  are supported by the respective plates  $F'$  and  $F^2$  and are located a slight distance above the heads of the rails when the apparatus is in operative position.

$H'$  designates a flanging-blade, the point of which lies adjacent the inner face of the head of the rail over which extends the deflecting-blade  $G'$ . The flanging-blade  $H'$  is provided with an ear  $h'$ , which underlies an ear  $e'$ , carried by the bracket  $E'$ . The under surface of the ear  $e'$  and bracket  $E'$  is inclined in an upward direction from the adjacent rail and also upwardly toward the bar D. A spring  $K'$  is interposed between a lug  $k^2$ , projecting downwardly from the bracket  $E'$  adjacent the bar D, and a lug  $k'$ , depending from the flanging-blade adjacent its point of pivotal connection with the ear  $e'$ . A lug  $H$  projects upwardly from the flanging-blade  $H'$  and extends over the edge of the bracket  $E'$ , thereby serving as an additional connection between the flanging-blade and its supporting-bracket. A similar flanging-blade  $H^2$  is carried beneath the bracket  $E^2$  and is provided with a point normally lying adjacent the inner surface of the head of the rail over which the deflecting-plate  $G^2$  extends. The blade  $H^2$  is connected to the bracket  $E^2$  in a manner similar to that above described relative to the connection between the flanging-blade  $H'$  and its supporting-bracket  $E'$ . A spring is also provided for normally maintaining the flanging-blade  $H^2$  in operative position with respect to the rail.

In order that the cleaning apparatus may be elevated above the rails when it is not desired to use the same and also when approaching a guard-rail, crossing, or switch, suitable mechanism under the control of the engineer is provided, such mechanism being clearly shown and described in the patent to Priest, previously referred to.  $L'$  and  $L^2$  indicate vertical links, the lower ends of which are connected to the bar D, while their upper ends are connected to plates  $L'$ , the latter being pivotally connected to crank-arms projecting from a shaft M. The shaft M is provided with an arm L, to the upper end of which is connected a rod N. The piston-rod  $o$  of a piston located within a cylinder O is operatively connected to the rod N. In order that the bar D may be guided in its upward and downward movement, angle-plates  $c'$  and  $c^2$  are secured to the bar D and lie adjacent to the surfaces of the equalizer-bars  $C'$  and  $C^2$ , as clearly shown in Fig. 2.

The operation of my invention is as follows: When it is desired to clean the rails, the bar D is lowered until it rests at its lower edge at the lower ends of the slots  $c$  in the equalizer-bars  $C'$  and  $C^2$ . The flanging-points then occupy positions adjacent the inner surfaces of the heads of the rails, so as to remove from

the same snow and ice while the deflecting-blades  $G'$  and  $G^2$  remove snow and ice from above the rails and force the same to the outside of the rails. The tension of the springs  $K'$  and  $K^2$  is such as to maintain the flanging-points in proper relation to the rails, and thereby insure the removal of the snow and ice from that portion of the rails which is engaged by the flanges of the wheels. Should, however, the engineer fail to elevate the cleaning apparatus when approaching a fixed obstruction, such as a guard-rail, the contact of the flanging-point therewith would merely result in the spring of such flanging-point being compressed and the flanging-blade swinging in an upwardly and rearwardly inclined path. Immediately upon the flanging-blade passing over the obstruction the tension of the spring returns the same to its operative position relatively to the rail.

From the foregoing description it will be observed that I have invented an improved snow and ice flanger the flanging-points of which will not be broken should the engineer fail to elevate the cleaning apparatus upon approaching guard-rails, crossings, switches, or other fixed obstructions.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form, the proportion of parts, and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit of my invention.

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

1. In a flanger for cleaning railroad-tracks, the combination with a supporting-frame, of deflecting-blades carried by said frame above the rails, laterally-movable flanging-blades carried by said frame, and means for permitting said flanging-blades to yield relatively to said frame when a fixed object is engaged.

2. In a flanger for cleaning railroad-rails, the combination with a supporting-frame, of deflecting-blades carried by said frame above the rails, laterally-movable flanging-blades carried by said frame and yielding means movably retaining said blades in operative relation to the rails.

3. In a flanger for cleaning railroad-rails, the combination with a supporting-frame, of deflecting-blades carried by said frame above the rails, laterally-movable flanging-blades carried by said frame, and springs interposed between said flanging-blades and said support for normally retaining said blades in operative relation to the rails.

4. In a flanger for cleaning railroad-rails, the combination with a supporting-bar, of brackets projecting from said bar, and laterally-movable flanging-blades yieldingly secured beneath said brackets.



5. In a flanger for cleaning railroad-rails, the combination with a supporting-bar, of brackets projecting from said bar flanging-blades pivotally connected to said brackets, and springs interposed between said flanging-blades and said brackets to normally retain the points of said blades in operative relation to the rails.

6. In a flanger for cleaning railroad-rails, the combination with a supporting-bar, of brackets projecting from said bar, plates supported above the rails by the ends of said bar and by said brackets, deflecting-blades carried by said plates above the rails, and flanging-blades yieldingly mounted beneath said brackets.

7. In a flanger for cleaning railroad-rails, the combination with a supporting-bar, of brackets projecting from said bar, flanging-blades pivotally connected to said brackets, springs interposed between said flanging-blades and said brackets to normally retain the points of said blades in operative relation to the rails, and guide-lugs on the flanging-blades in sliding engagement with said brackets.

In testimony whereof I sign this specification in the presence of two witnesses.

FRED C. AREY.

Witnesses:

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C. A. MULLEN.