

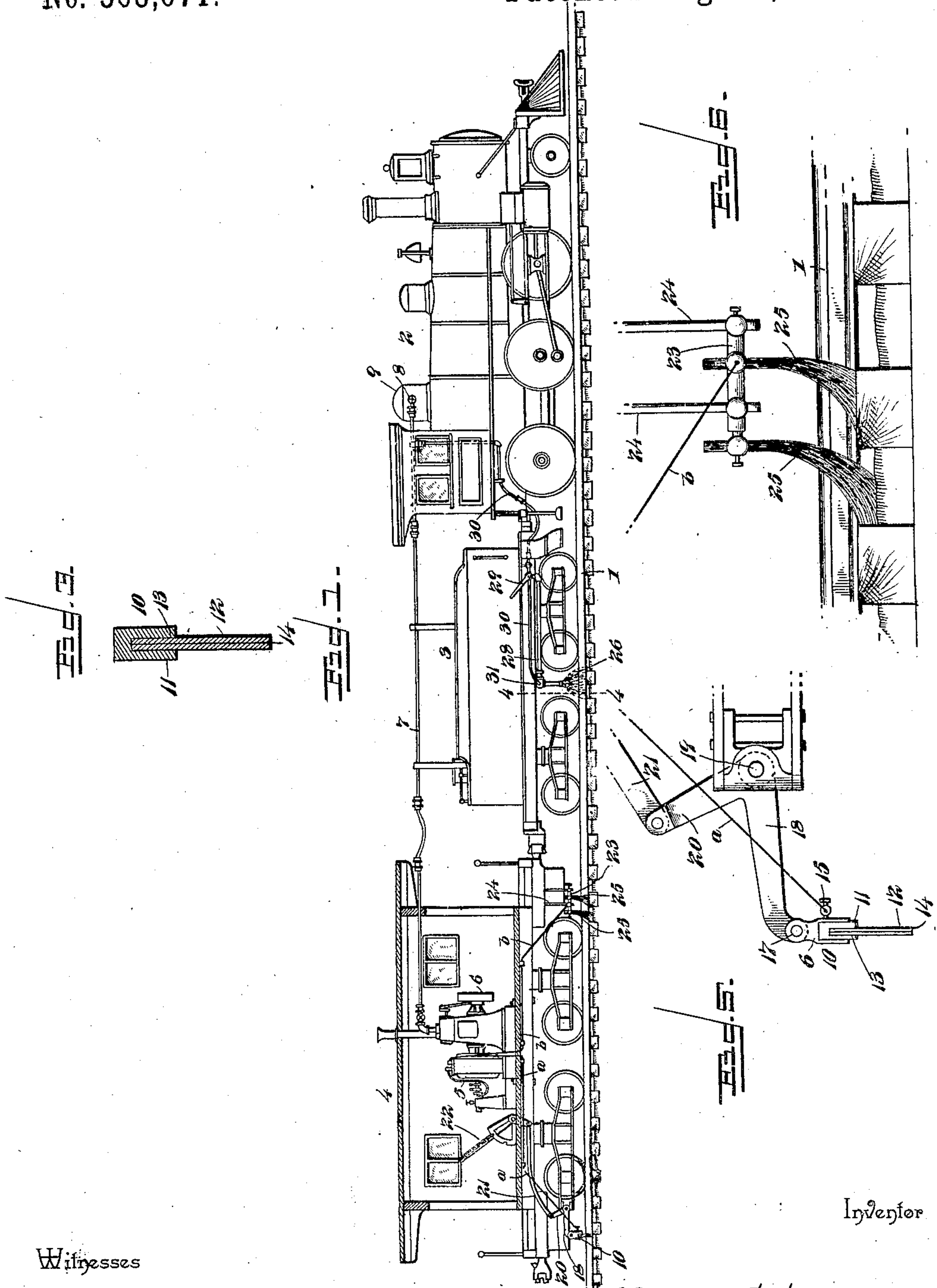
(No Model.)

2 Sheets—Sheet 1.

M. S. CUMMINGS.
ELECTRICAL VEGETATION EXTERMINATOR.

No. 565,671.

Patented Aug. 11, 1896.



Inventor.

Witnesses

E. H. Stewart,
S. P. Hall and W. T.

By *his* Attorneys, *Marshal S. Cummings*

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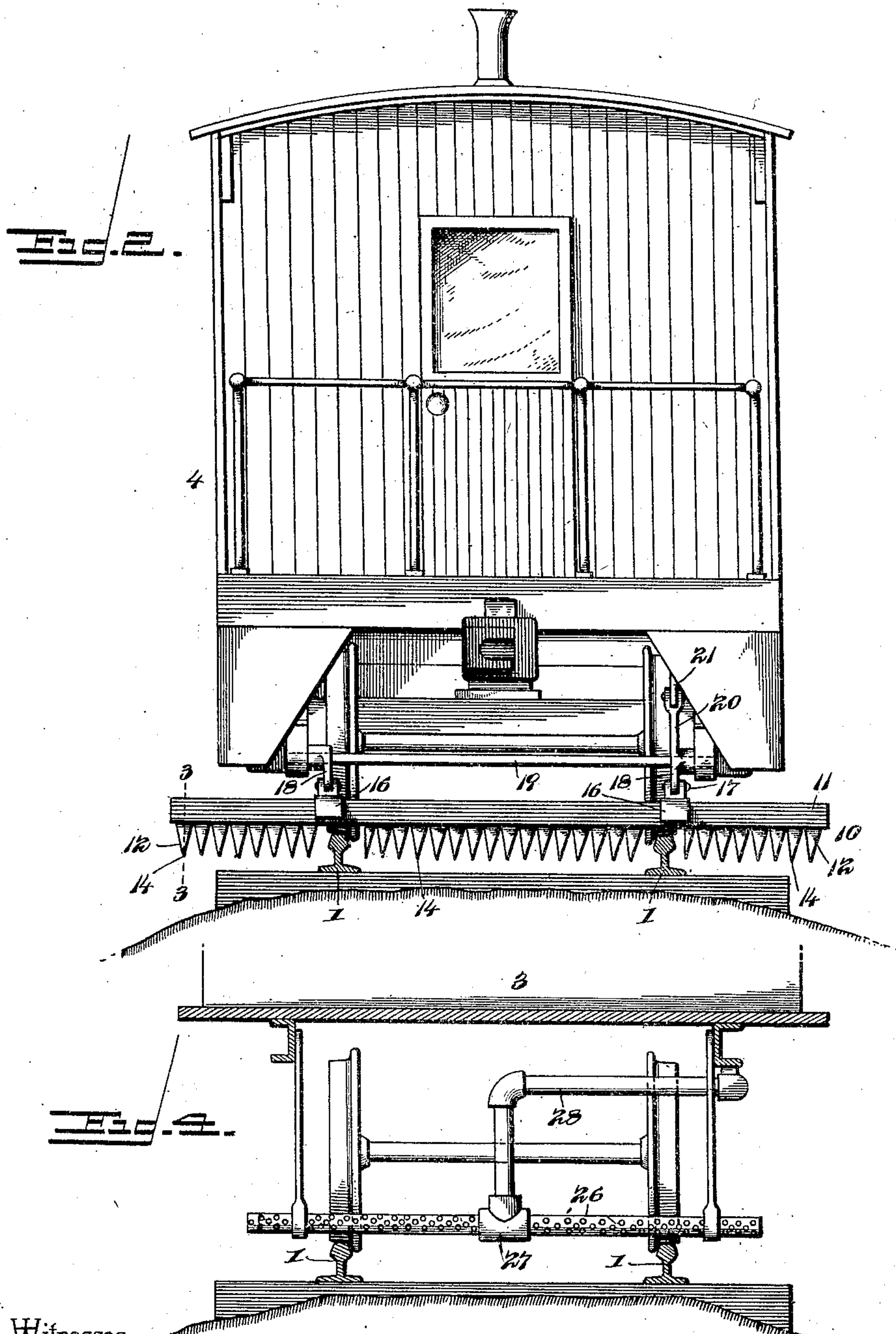
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C. A. Snow & Co.

Inventor

UNITED STATES PATENT OFFICE.

MARSHAL S. CUMMINGS, OF THOMASVILLE, GEORGIA.

ELECTRICAL VEGETATION-EXTERMINATOR.

SPECIFICATION forming part of Letters Patent No. 565,671, dated August 11, 1896.

Application filed April 30, 1896. Serial No. 589,712. (No model.)

To all whom it may concern:

Be it known that I, MARSHAL S. CUMMINGS, a citizen of the United States, residing at Thomasville, in the county of Thomas and State of Georgia, have invented a new and useful Electrical Vegetation-Exterminator, of which the following is a specification.

This invention relates to electrical vegetation-extinguishers; and it has for its object to provide a new and useful apparatus of this character designed especially for use in connection with railways and providing simple and efficient means for positively exterminating all vegetation on or adjacent to the track, but it will of course be obvious that the apparatus may be used in connection with a vehicle on any road-bed to provide for freeing such road-bed of obnoxious and undesirable vegetable growth.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the drawings, Figure 1 is a side elevation of a complete electrical apparatus for exterminating vegetation constructed in accordance with this invention. Fig. 2 is an end view of the apparatus-car, illustrating in side elevation the current-distributor of the apparatus. Fig. 3 is a detail sectional view of the current-distributor on the line 3 3 of Fig. 2. Fig. 4 is a detail sectional view on the line 4 4 of Fig. 1, illustrating in elevation the advance dampening device or sprinkler of the apparatus. Fig. 5 is an enlarged detail end view of the current-distributor part of the apparatus. Fig. 6 is an enlarged detail elevation of the return-circuit brushes and the mountings therefor.

Referring to the accompanying drawings, 1 designates an ordinary railroad-track, on which is illustrated a train of cars comprising an ordinary locomotive 2, a tender 3, and an apparatus car 4, which is especially adapted for carrying the principal part of the exterminating apparatus. The apparatus-car 4 may be of any suitable construction and is designed to carry therein an ordinary dynamo or electrical generator 5, directly geared with

an engine 6, mounted within the car 4, and receiving its supply of steam from a steam-supply pipe 7, leading from the car 4 to the locomotive 2, and preferably having a suitable connection 8 with the steam-dome 9 of the locomotive-boiler, whereby steam can be conducted directly from the locomotive-boiler to the engine 6, to provide means for operating said engine and transmitting motion to the electrical generator 5, which in turn creates a powerful current of electricity adapted to be conducted to the vegetation to be destroyed, and in connection with the electrical generator is employed a current-distributor 10.

The current-distributor 10 is designed to be arranged transversely of the track 1, below the car 4, at a convenient point, and said distributor essentially comprises a straight continuous wood or other insulated holder-bar 11, and a laminated copper or other suitable metallic distributing-plate 12, fitted at its upper edge in a longitudinal groove or kerf 13, formed in the lower side of the said holder-bar 11.

The laminated copper or other metallic distributing-plate 12 preferably consists of a plurality of copper plates arranged side by side to insure a proper distribution or discharge of the electric current to the vegetation, and said distributing-plate 12 is cut so as to be provided with a series of depending V-shaped or triangular brush-points 14, which are designed to directly contact with and trail over the vegetation on and surrounding the track, in order to directly conduct the electricity through such vegetation into the ground. The pointed distributing-plate 12 has a binding-screw connection 15 therewith, to which binding-screw connection is connected one terminal of the conductor-wire a, leading from the electrical generator 5 within the car 4, to provide for conducting the current of electricity directly to the distributing-plate.

The current-distributor 10 is of a greater length than the width of the track, so as to project beyond both sides of the track, whereby the vegetation on and directly adjacent to the track will be reached, and the holder-bar 11 of said distributor has fitted thereto a pair

of clips 16, which are pivotally jointed at 17 to the outer extremities of the adjusting-links 18, which links are connected at their inner ends to a transverse rock-shaft 19, mounted in suitable bearings below the car 4. The rock-shaft 19 also has connected therewith at a suitable point a rock-arm 20, to the swinging end of which arm is pivotally connected one end of a connecting-rod 21, the other end of which connecting-rod 21 has a suitable connection with an adjusting-lever 22, mounted within the car 4 and providing means for raising and lowering the current-distributor, so that the same may be made to clear obstructions—such as switches, frogs, cattle-guards, and the like—and at this point it will be noted that the pivotal support 17 for the current-distributor allows such distributor a free swinging movement, so that the same may readily trail over the vegetation and small obstructions.

The return-circuit wire *b* of the electrical generator 5 leads from the point of connection with the generator 5 to a vertically-adjustable brush-holder bar 23, mounted for vertical adjustment on a pair of depending supporting-bars 24, mounted at the under side of the car 4 in advance of the current-distributor. The said brush-holder bar 23 has suitably attached thereto a pair of spaced metallic return-circuit brushes 25, arranged one in advance of the other and designed to contact with the ground to provide the necessary ground connection for completing the electrical circuit, and by arranging the said brushes 25 one in advance of the other it will be obvious that if the said brushes trail over the ends of the railroad-ties one of said brushes will always be in direct contact with the ground, as plainly illustrated in Fig. 1 of the drawings, so as not to interrupt the electrical circuit.

In connection with the current-distributor and its electrical connections is employed a dampening device essentially consisting of a perforate distributing-pipe 26, arranged transversely of the track and preferably suspended from beneath the tender 3, so as to travel in advance of the current-distributor. The perforate distributing or sprinkling pipe 26 has connected thereto at an intermediate point, as at 27, a water-supply pipe 28, which pipe also has a connection with the ordinary water-tank of the tender 3, and is provided with a controlling-valve 29, which provides for shutting off the supply of water from the sprinkler or dampening device when the apparatus is used in wet weather.

A steam-jet pipe 30 leads from a point of steam supply in the locomotive, preferably from the pipe 7, to the water-supply pipe 28 at the point 31, and provides means for discharging a jet of steam into the water-pipe so as to force the water out of the perforations of the pipe 26 in a fine spray.

In the operation of the apparatus the dampening device or sprinkler provides for water-

ing or dampening the vegetation in advance of the current-distributor 10, so that such current-distributor will trail directly over wet vegetation and will thereby be much more effective in discharging the current through such vegetation than would be the case if the vegetation were perfectly dry, as will be readily understood by those skilled in the art. The direct contact of the brush-points of the current-distributor with the vegetation provides for the free discharge of the electric current generated by the generator through the vegetation and into the ground, the powerful electric current destroying the life of the vegetation and causing the same to be immediately exterminated, and the trailing return-circuit brushes 25 by contacting with the ground complete the necessary electrical circuit to insure the discharge of the current from the distributor. At this point it will be noted that in wet weather the dampening or sprinkling device need not necessarily be employed.

Changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a vegetation-extermiator, the combination with a vehicle carrying an electrical generator; of a current-distributor adjustably suspended from the vehicle so as to contact with adjacent vegetation and included in the circuit of said generator, and a dampening device supported to travel above the ground in advance of said distributor, substantially as set forth.

2. In a vegetation-extermiator, the combination with a vehicle carrying an electrical generator; of a current-distributor suspended from the vehicle and comprising an insulated holder-bar and a distributor-plate fitted in said bar and provided with a series of depending V-shaped brush-points adapted to trail over adjacent vegetation, adjusting mechanism connected with the distributor, a ground connection suspended from the vehicle in advance of the distributor, and electrical connections between the generator, the current-distributor, and said ground connections, substantially as set forth.

3. In a vegetation-extermiator, the combination with a current-distributing device, of a dampening device arranged to travel in advance of the distributing device and consisting of a horizontal perforate distributing-pipe, a water-supply pipe connected with said distributing-pipe, and a steam-jet pipe connected with said water-supply pipe, substantially as set forth.

4. In a vegetation-extermiator, the combination with a vehicle carrying an electrical generator; of a current-distributor adjustably suspended from the vehicle and in-

cluded within the circuit of said generator,
and a pair of return-circuit brushes adjust-
ably suspended from the vehicle in advance
of said distributor, and also included within
5 the circuit of said generator, substantially as
set forth.

In testimony that I claim the foregoing as

my own I have hereto affixed my signature in
the presence of two witnesses.

MARSHAL S. CUMMINGS.

Witnesses:

B. F. HAWKINS,

S. P. DOSS.