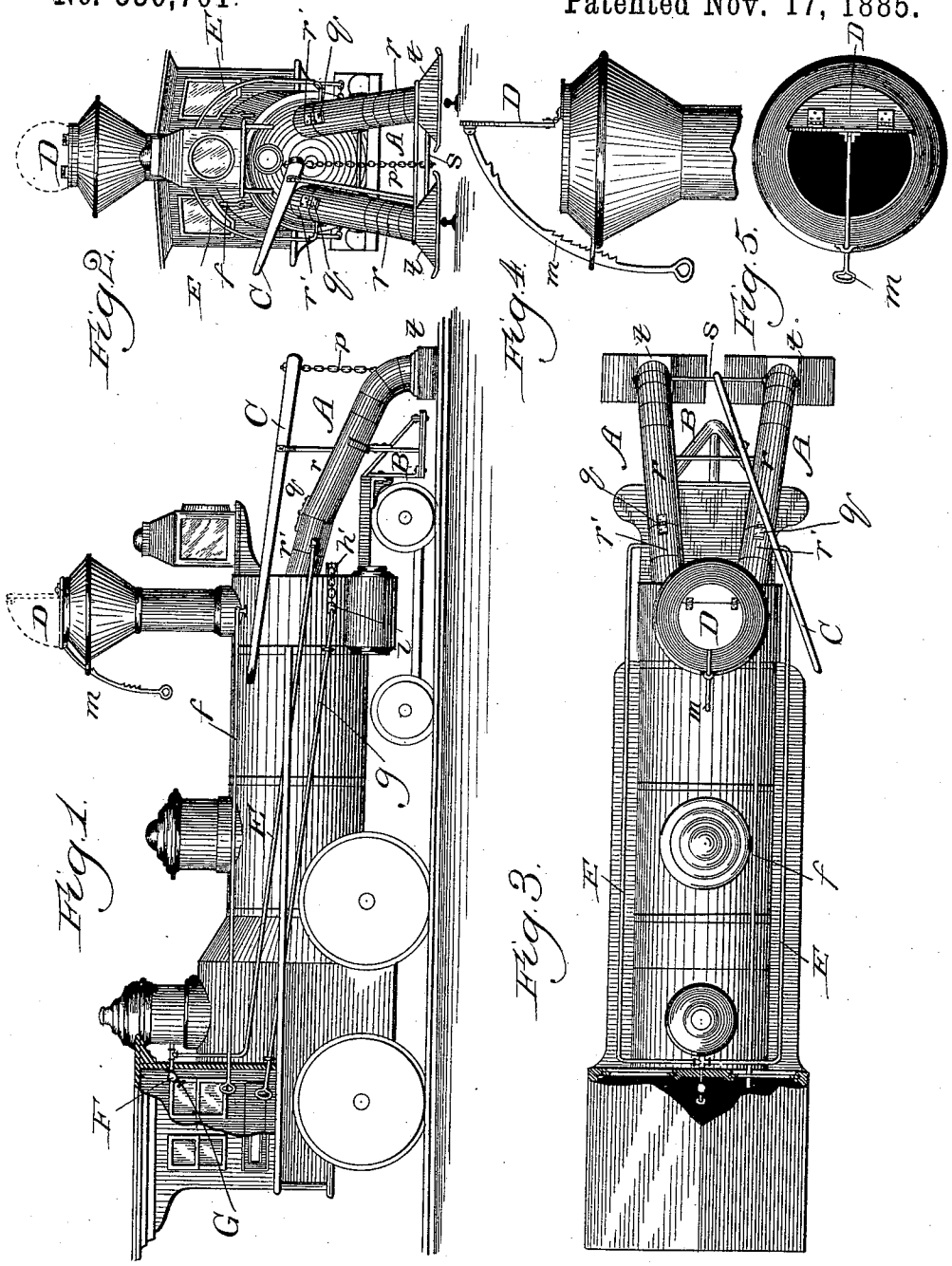
(No Model.) 2 Sheets—Sheet 1.

D. HAWKSWORTH.

DEVICE FOR DESTROYING VEGETATION ALONG RAILROAD TRACKS.

No. 330,701. Patented Nov. 17, 1885.



Witnesses:
Chas. E. Gaylord.
Mason Bros.

Inventor:
David Hawksworth,
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 6.

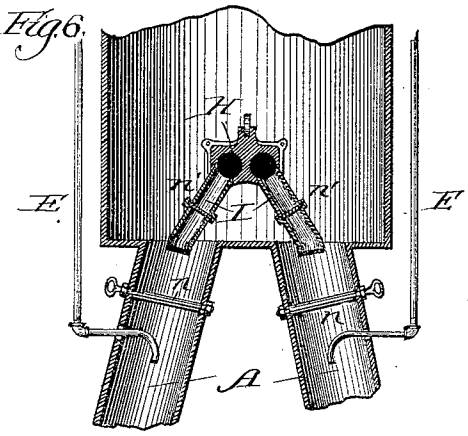


Fig. 9.

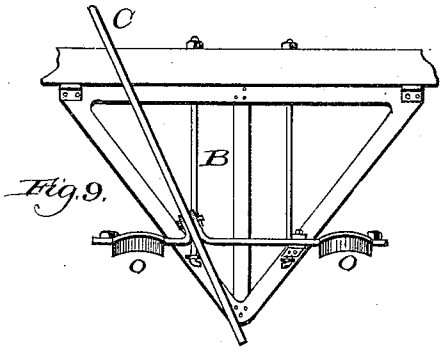


Fig. 10.

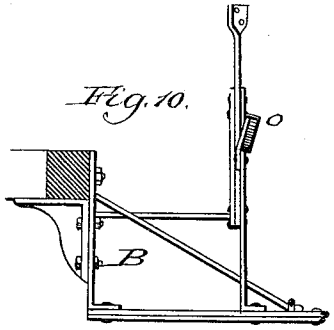


Fig. 7.

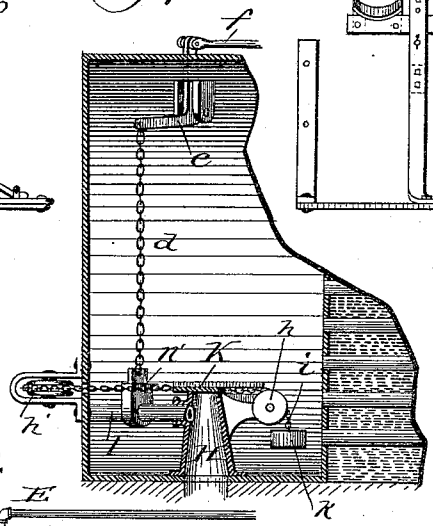


Fig. 11.

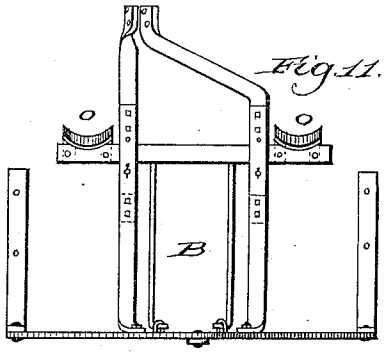
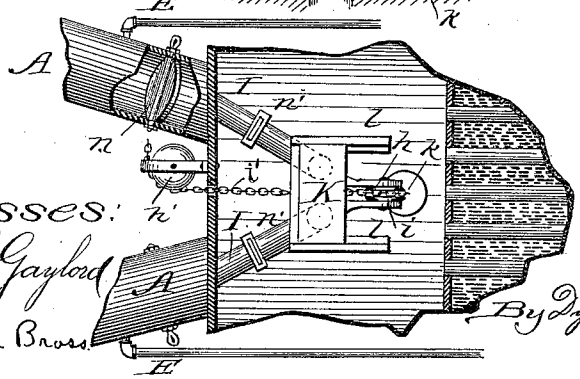


Fig. 8.



Witnesses:
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UNITED STATES PATENT OFFICE.

DAVID HAWKSWORTH, OF PLATTSMOUTH, NEBRASKA.

DEVICE FOR DESTROYING VEGETATION ALONG RAILROAD-TRACKS.

SPECIFICATION forming part of Letters Patent No. 330,701, dated November 17, 1885.

Application filed May 7, 1885. Serial No. 164,730. (No model.)

To all whom it may concern:

Be it known that I, DAVID HAWKSWORTH, a citizen of the United States, residing at Plattsmouth, in the county of Cass and State of Nebraska, have invented a new and Improved Device for Destroying Vegetation along Railway-Tracks; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain attachments to a locomotive for the purpose of carrying into effect the method of destroying grass, weeds, and similar vegetation, described and claimed in a separate application for a patent, and which contemplates the destruction of such vegetation by the impelling upon the surface of the ground of the hot products of combustion from a furnace, commingled with steam.

The method described and claimed in my said other application relates to the destruction of ground vegetation not only along railways, but also along roadways, and when applied to railways, whether by means of a locomotive fitted up for the purpose or by a specially-constructed engine; but my present invention is confined to certain appliances to be attached to an ordinary locomotive-engine, whereby it may be employed to carry out the method referred to when occasion requires, and also readily and quickly converted to the condition of an ordinary locomotive, either to do light hauling on branch lines or to get out of the way of trains.

In the drawings, Figure 1 is a side elevation of a railway-locomotive provided with my improvement; Fig. 2, a front elevation, and Fig. 3 a plan view, of the same; Fig. 4, an enlarged view in elevation of the upper portion of the smoke-stack, showing the construction of the damper for opening and closing the smoke-stack at will; Fig. 5, a plan view of the same; Fig. 6, a sectional plan view enlarged of the forward interior portion of the locomotive, showing a special form of nozzle for conveying exhaust-steam either into the smoke-arch or into the tubes which lead to the track, as shall be required; Fig. 7, a central vertical section of the same with the valve and means for regulating it; Fig. 8, a plan view of the same; Fig. 9, a plan view of the frame for supporting the tubes which direct the products of combustion to the ground; and Fig. 10 a side view, and Fig. 11 a front view, of the same.

A A are two tubes projecting obliquely downward from the front of the smoke-arch of the locomotive, and terminating in flaring outlets *t*, spreading over the inside and outside of the track. These may be extended laterally, if desired, or branch tubes or additional tubes may be employed to include a broader swath than that indicated. The lower ends of the tubes are connected together by a bar, *s*, above the flaring outlets, and are each formed in two sections, *r* and *r'*, hinged together, as shown at *q*, in order that when it is desired to use the locomotive for purposes other than that of destroying weeds and the like the tubes A may be turned up out of the way. To permit this to be easily effected, the engine is provided with a frame, B, in which a lever, C, is pivoted above the tubes A, and the lever is connected at its forward end by a chain, *p*, to the bar *s*. The tubes A rest when down in curved bearings *o* at the sides of the frame, and any suitable means may be provided in the way of a catch or analogous mechanism for retaining the lever when the tubes are lifted. The tubes A are further provided with dampers *n* in the sections *r'*, to permit them to be wholly or partly closed when required. The smoke-stack is provided with a damper, D, operated and held in position when open or closed by a handle, *m*, with a saw-tooth rack, as shown.

E E are steam-pipes leading from the dome to the interior of the tubes A forward of the dampers *n*, and connected with a globe-valve, F, at the cab, operated from the cab by the knuckle-jointed handle G. It will thus be seen that these steam-pipes serve as blowers to impel the products of combustion from the smoke-arch through the tubes A to the surface of the ground.

Figs. 6, 7, and 8 show the construction of a double nozzle, H, leading from the steam-chests into the smoke-arch, and having branches I I, provided with dampers *n'*, and leading to the tubes A. The top of the double nozzle H is provided with a damper or valve, K, sliding in guides *l*, and normally open by reason of the

weight *k*, connected to the sliding damper by a chain, *i*, passing over a sheave-pulley, *h*. A chain, *i'*, connected to the opposite side of the sliding valve, and passing over an exterior sheave-pulley, *h'*, permits this damper to be operated from the cab by means of a rod, *g*. A rod, *f*, extending from the cab and connecting with a bell-crank lever, *e*, connected in turn by a rod or chain, *d*, to the valves *n'* in the branch nozzles I, permits these valves to be opened and closed at will by hand, and the remaining dampers may likewise be operated from the cab, if desired, by means of suitable connections.

The operation of the various parts described is as follows: Steam being up, it will be seen that by having the damper in the smoke-stack and the sliding damper of the nozzle H closed, and the dampers in the tubes A and also those in the branches I I of the nozzle H open, and opening the globe-valve F, thus permitting steam from the dome to rush forcibly into the tubes A, the hot products of combustion from the furnace of the locomotive, commingled with live steam, and when the locomotive is in motion, with exhaust-steam also, will be impelled forcibly upon the ground, the obvious effect being to blight any vegetation within the path of these agents. The hot steam from the dome serves to impel the hot products of combustion to the ground, affording sufficient draft to counteract the effect of closing the smoke-stack, and it also lends its own blighting influence to that of the hot products of combustion, being commingled with them, thus performing a twofold function. The diverting of the exhaust-steam also into the tube through which the other agents are conveyed to the ground adds to the whole effect.

By opening the damper in the smoke-stack and the sliding damper in the nozzle H, closing the dampers in the tubes A and branch tubes I, the locomotive may very quickly be put into condition for ordinary running, either to get out of the way of trains or to do light hauling on branch lines or elsewhere. When thus used, it will often be found convenient to lift the tubes A out of the way by means of the lever provided for that purpose.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a railway-locomotive, one or more tubes, A, leading from the interior of the smoke-arch nearly to the ground, and provided with dampers for opening and closing them at will, a damper for opening and closing the smoke-stack at will, and one or more pipes leading from the steam-dome into the upper parts of the tubes A, and provided with means for shutting off and regulating the flow of steam through them from the dome, substantially as described.

2. In combination with a railway-locomotive, one or more tubes, A, leading from the interior of the smoke-arch nearly to the ground, and provided with dampers for opening and closing them, a damper for opening and closing the smoke-stack, one or more pipes leading from the steam-dome to the upper portions of the tubes A, means for shutting off and regulating the flow of steam from the dome through these pipes, an exhaust-nozzle within the smoke-arch, provided with branches leading into the tubes A, and valve mechanism, substantially as described, for directing the exhaust-steam either into the smoke-arch or the tubes A, as shall be required.

3. The device for directing the exhaust-steam either into the smoke-arch or the tubes A, as shall be required, comprising, in combination, the double nozzle H, having the branch nozzles I, provided with valves *n'*, and means, substantially as described, for regulating the valves from the exterior of the locomotive, a valve for shutting off and regulating the direct flow of exhaust-steam to the smoke-arch, and means, substantially as described, for operating the same from the exterior of the locomotive, as set forth.

4. The device for directing the exhaust-steam either into the smoke-arch or the tubes A, as shall be required, comprising, in combination, the double nozzle H, having the branch nozzles I, provided with valves *n'*, and means, substantially as described, for regulating the valves from the exterior of the locomotive, a sliding valve, K, within guides *l* upon the nozzle, weight *k*, connected to the valve K by a chain passing over a pulley, *h*, whereby the valve is held normally open, and means, substantially as described, for closing the valve at will from the exterior of the locomotive, as set forth.

5. In combination with a railway-locomotive, the tubes A, leading from the smoke-arch, and provided at their lower ends with flaring outlets *t*, and formed in sections *r r'*, hinged together, and connected toward their lower ends by a bar, *s*, a frame, B, fixed to the front of the locomotive, and having bearings *o* to support the tubes when down, and a lever, C, pivoted to the frame B above the tubes, and connected to the bar *s* by a chain, *p*, whereby the outer sections of the tubes may be raised and lowered on their hinges, substantially as described.

DAVID HAWKSWORTH.

In presence of—
GEORGE BALLANCE,
WASH SMITH.