

L. B. SIMPSON.
Apparatus for Destroying Vegetation on Railroads.
No. 213,255. Patented Mar. 11, 1879.

Fig. 1.

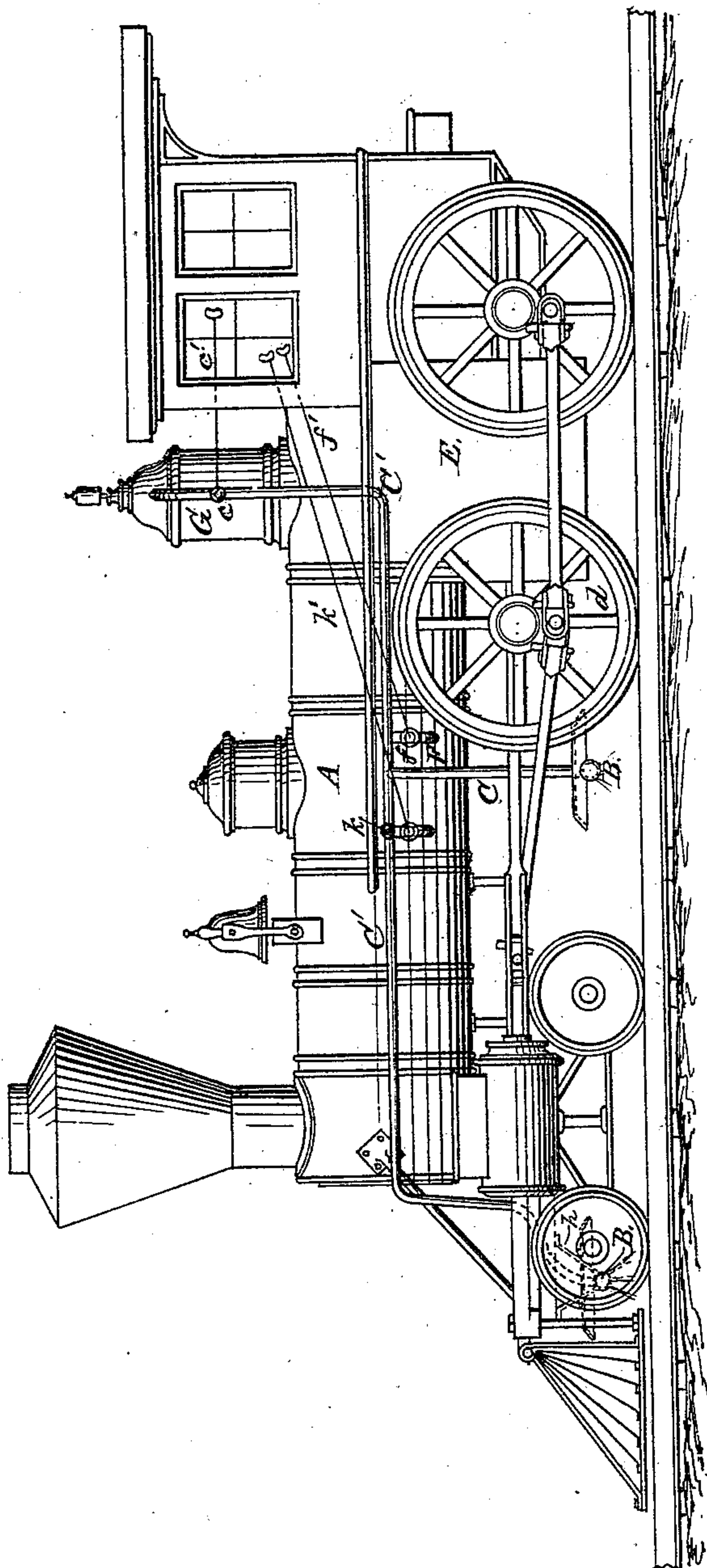


Fig. 3.

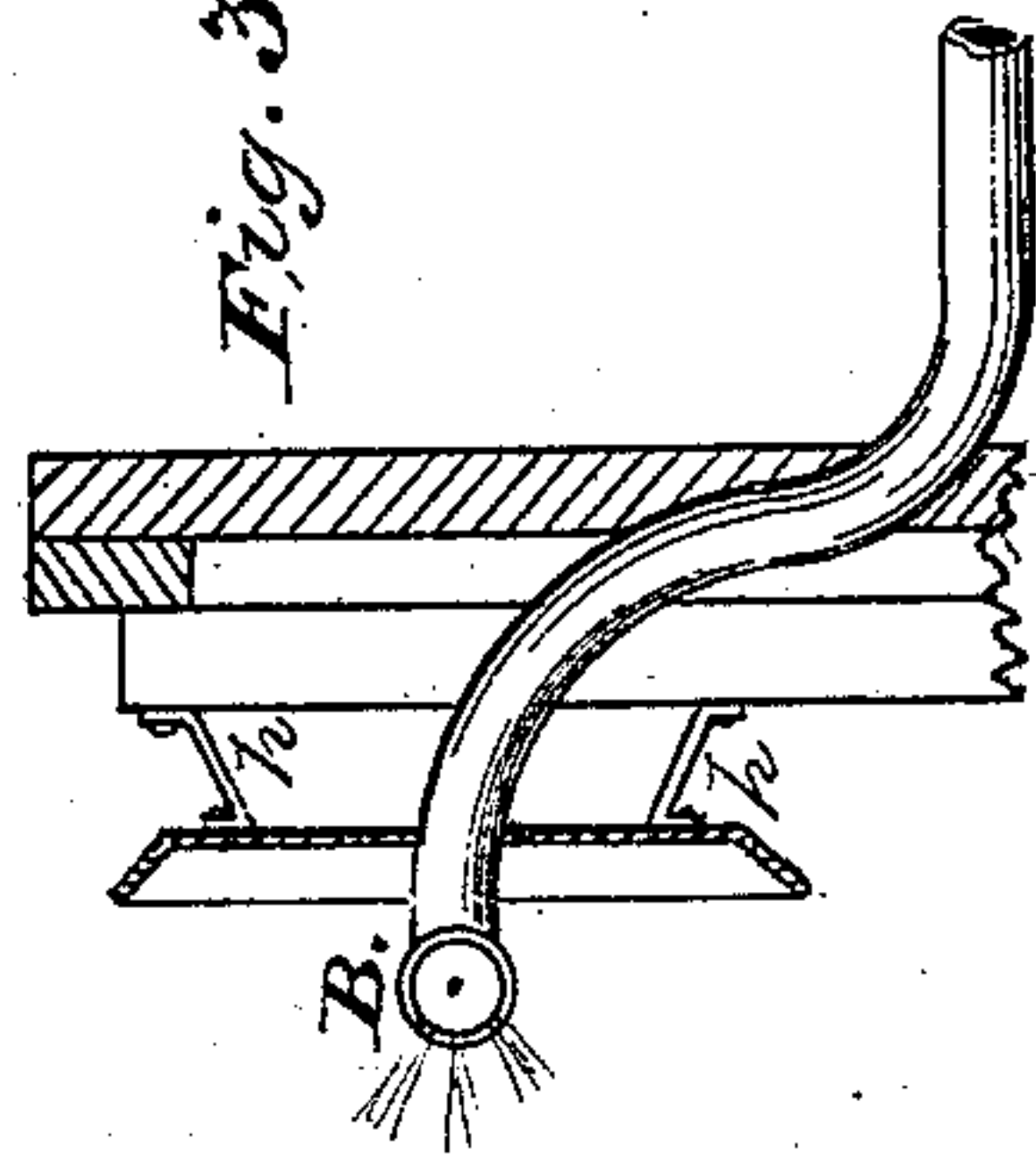
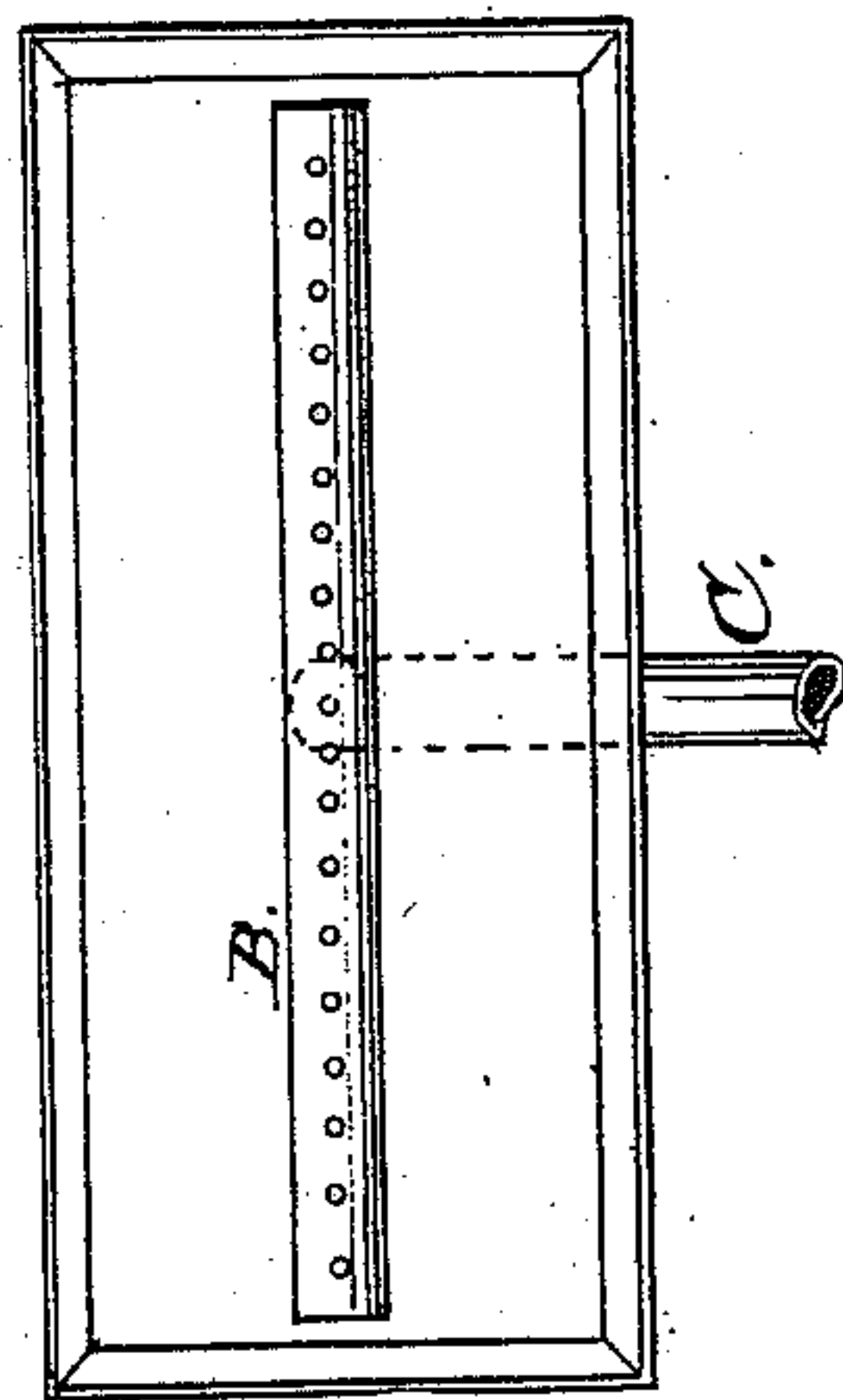


Fig. 2.



Witnesses:

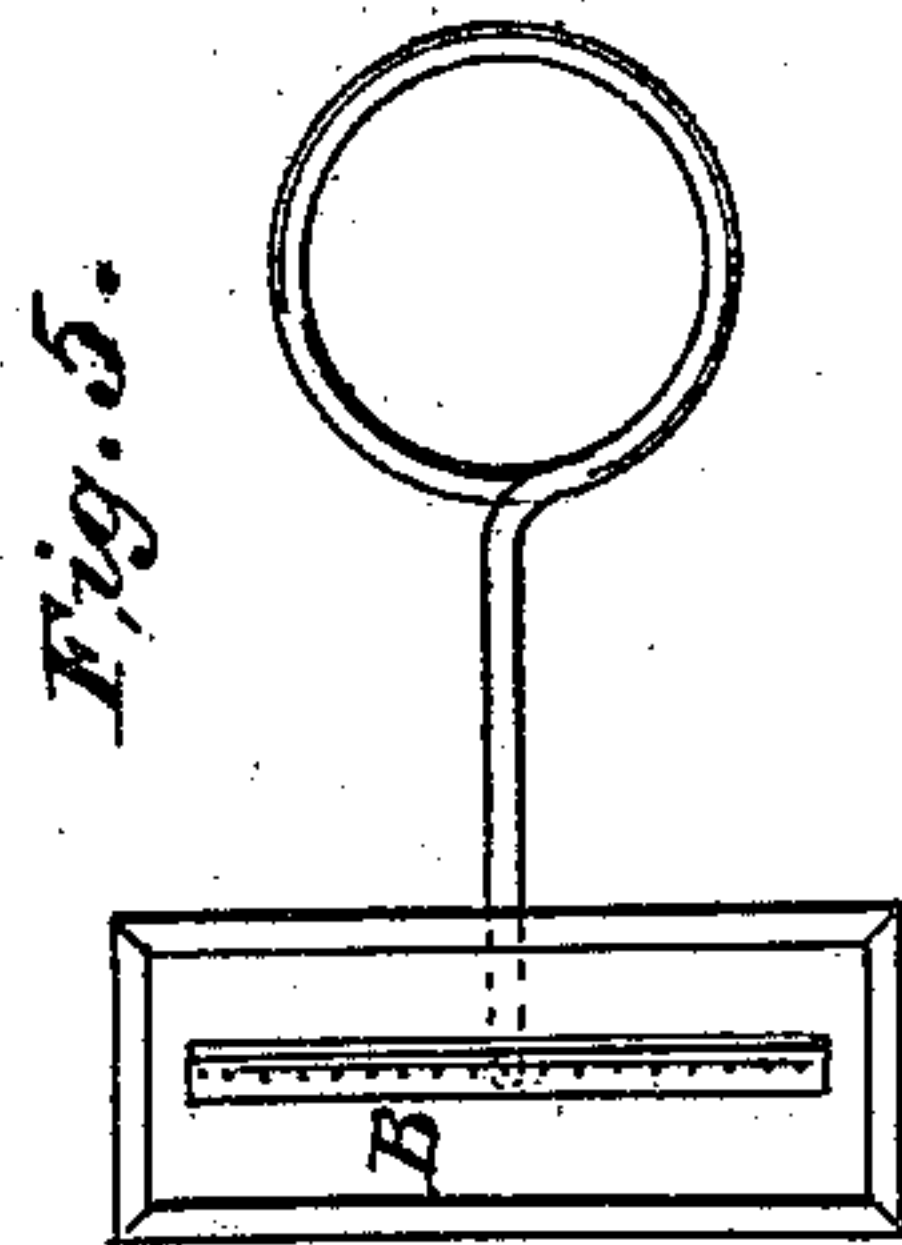
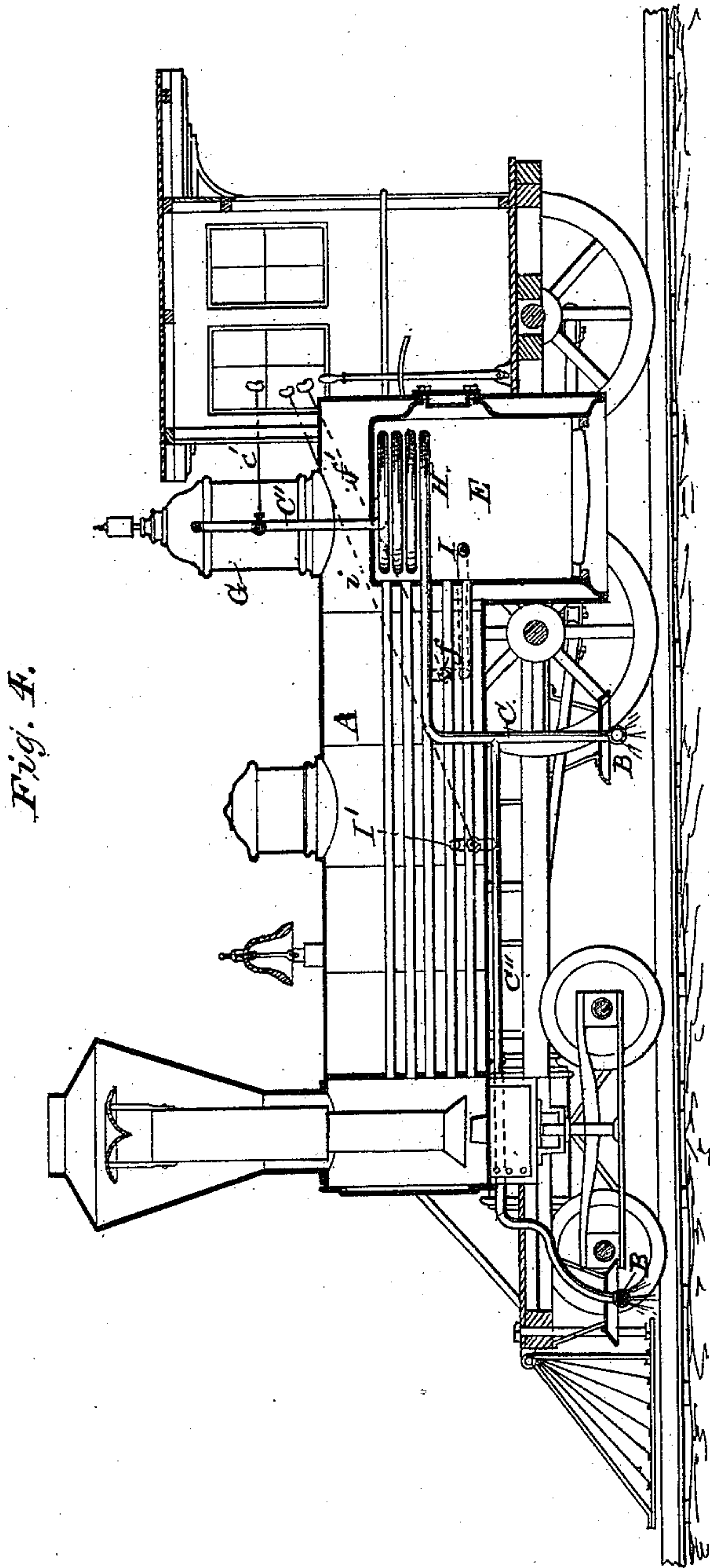
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UNITED STATES PATENT OFFICE.

LOUISA B. SIMPSON, OF LAWRENCE, KANSAS.

IMPROVEMENT IN APPARATUS FOR DESTROYING VEGETATION ON RAILROADS.

Specification forming part of Letters Patent No. **213,255**, dated March 11, 1879; application filed September 17, 1878.

To all whom it may concern:

Be it known that I, LOUISA B. SIMPSON, of Lawrence, in the county of Douglas, State of Kansas, have invented a certain new and useful device for improvement in her heretofore patented invention of Apparatus for Destroying Vegetation on Railroads, of which the following is a specification:

This invention has for its object to provide for the use of steam, or of superheated steam, or a mixture of steam and hot water, discharged upon the vegetation, ties, and rails of railroads from a perforated or slotted pipe or pipes, connected at any convenient or desired point with the boiler of a railroad-locomotive. This is effected by means of a pipe or pipes, perforated, slotted, or provided with suitable apertures of any form, for the discharge of steam, water, or both combined, on the vegetation to be killed. These pipes extend crosswise of the rails, of any desired length, or, if of sufficient length to reach from at or near the ends of the cross-ties, it may be divided into any desired number of sections, either by valves or otherwise, as may be most effective and desirable.

The perforated cross-pipe is attached to the locomotive at any point most convenient and effective, and is to be attached to a special engine, to be used for the time being for this purpose, or to a traffic-engine, in either of which cases the crosswise perforated pipe is attached to any desired part of the engine or tender, and as near to the top of the rails as may be practicable. When this pipe is used in short sections, it is placed at different distances on different engines, at either side from the center or middle of the same, and under the boiler, preferably, so that the steam from the perforated pipe or pipes of one engine will cover any portion of the road-bed, and the pipes of other engines cover other portions of the road-bed; and, again, on the return-trips of such engines still other and different portions of the road-bed are covered, and by this means the whole surface of the road-bed is covered by the steam from these different engines as often as may be needed, with but small loss or use of steam.

In winter one of these short perforated or slotted pipes, with one or more perforations, can be placed before the wheels of an engine,

and light snows can be displaced or removed from the rails by the force and heat of the steam, or steam and hot water, discharged therefrom, and the tractive force or power of the rails, by reason of the clearing of the same from snow, is thus largely increased. One of these short perforated or slotted pipes, with one or more perforations, placed before the drivers, and steam or superheated steam discharged therefrom upon the rails, will increase the tractive power of rails to about the same extent as by the use of sand, and at much less first cost, as well as less injury to the locomotive and rails.

The perforated pipes are connected with the boiler of the engine at any suitable or desired part of said boiler; and when desired for use either for destroying vegetation alone, for increasing the tractive power of the rails, or for removing, or displacing, or melting the snow from the rails, or for any or all of these purposes combined, the pipe from the boiler can, if desired, be run through the fire-box in such manner as to superheat the steam, and then pass out at any convenient point to connect with the perforated crosswise pipe or pipes, said pipe from the boiler to be provided with suitable valves or cocks, by which the steam therein can be under the control of the engineer.

In the accompanying drawings, Figure 1 represents a side elevation of a locomotive-engine having my invention applied thereto. Fig. 2 is a bottom view of one of the transverse perforated pipes and its shield. Fig. 3 is a section of the front platform of a locomotive, having a perforated pipe and shield thereunder. Fig. 4 is a longitudinal section of a locomotive-engine, illustrating a mode of applying my invention in order to use superheated steam. Fig. 5 is a detail view of the superheating-coil and shield.

The letter A represents the boiler of a locomotive-engine, and B is a pipe extending transversely under the boiler and directly in front of the drivers *d*. This pipe is provided with a series of perforations or slots on its under side, and is located as near the road-bed as practicable, in order to get the full effect of the steam, superheated steam, or mixed hot water and steam, upon the vegetation. Above said pipe is located a plate or deflector, H,

extending the entire length of the pipe, and of sufficient width to deflect the steam, &c., downward upon the road-bed. This plate is supported by suitable hangers *h*, attached to the side beams of the locomotive-truck, and the pipe B is supported by the pipe C. The pipe C, Fig. 1, extends upward and connects with a horizontal pipe, C', which extends rearward and upward to the top of the steam-dome G, and is provided with a stop-cock or globe-valve, *c*, which is under control of the engineer by means of a rod, *c'*. The pipe C' also extends forward, if so desired, to the front of the boiler, and is bent downward, terminating in a transverse pipe, B, located under the front platform of the engine. This pipe B is provided on its lower side with a longitudinal series of slots or perforations suitable for the discharge of steam and hot water, together or separately. The letter F indicates a pipe leading from the boiler below the water-line and connecting with the pipe C' to the rear of pipe C. This pipe F is provided with a suitable cock, *f*, which is under control of the engineer by means of a rod, *f'*. The letter *k* indicates a stop-cock in the pipe C', in front of the connection with pipe C, and the stop-cock is under the control of the engineer by means of a rod, *k'*.

In Fig. 4 the pipe C is represented as extending upward and rearward to the fire-box E, which it enters, and terminates in a coil, H, located in the top thereof. From the other end of this coil a pipe, C', leads out of the fire-box to the top of the steam-dome, and is provided with a stop-cock or valve under control of the engineer. From the pipe C a pipe, C'', leads forward to the transverse perforated or slotted pipe B, which is located under the front platform, as heretofore described.

A pipe, I', leads from the boiler, below the water-line, into the pipe C'', and is provided with a stop-cock, which is under control of the engineer through the rod *i*; and another pipe, I, leads from the boiler, below the water-line, to pipe C, and is provided with a stop-cock, under control of the engineer through the rod *j'*.

The operation of my invention is as follows: For killing vegetation by an engine used for this purpose, the locomotive is run to the desired part of the road, where the steam, or superheated steam, or a mixture of steam and water, is discharged upon the vegetation through the perforated or slotted pipe or pipes while the engine is run at such speed as may be most effective in killing the vegetation.

For destroying the vegetation by a traffic-engine, the steam, or superheated steam, or a mixture of steam and water, is discharged through the perforated or slotted pipes while making its regular trips.

For increasing the tractive power of the rails, the steam, or superheated steam, or a mixture of steam and water, or water alone is discharged upon the track from the perforated pipes in front of the drivers at such times

as it may be needed, unless steam or superheated steam is already being so discharged for destroying vegetation, in which case it will secure both objects at the same time.

For displacing or melting snow from the rails, the steam, or superheated steam, or a mixture of steam and water, is discharged upon the snow on the rails in front of the wheels of the engine.

Referring to Fig. 1, if it is desired to discharge steam only from the pipe B upon the road-bed for the purpose of destroying vegetation, the engineer opens the cock *c*, when steam will flow from the boiler through pipe C to pipe C' and transverse pipe B, from which it is discharged through the perforations or slots thereof upon the vegetation upon the road-bed, and kills it.

If it is desired to discharge from pipe B a mixture of steam and water, the engineer also opens the cock *f* by means of rod *f'*.

If it is desired to discharge steam from pipe B in front of the truck, the engineer opens cock *k* by means of rod *k'*, when steam will be discharged from both transverse pipes, presuming cock *c* to be also open. By opening also the cock *f*, it will be seen that a mixture of steam and hot water will be discharged upon the road-bed from both these pipes; or hot water only may be discharged from both by opening cocks *f* and *k* and closing cock *c*.

In Fig. 2, when the cock *c* is opened, steam flows from the boiler through pipe C', passing through the coil H, in which it becomes superheated, and thence flows through pipe C' to transverse pipe B, and is discharged upon the road-bed.

By opening the cock in the pipe I', steam and hot water will be discharged from the pipe B in front of the truck, and superheated steam alone will be discharged from pipe B.

In order to discharge a mixture of steam and hot water from both pipes B, the cocks *c* and *f* and the cock in pipe I' must all be opened; and hot water alone may be discharged from pipe B by simply opening cock *f*.

What I claim is—

1. The method herein described of destroying vegetation on railroad-tracks by discharging steam or hot water, or both combined, through a transverse perforated pipe, B, arranged under the boiler of a locomotive-engine, and connected therewith by a suitable pipe, substantially as described.

2. The combination, with a locomotive-boiler, of the pipes C C', with or without the intermediate superheating-coil, pipe F, and cocks *f*, *k*, and *c*, arranged substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of the subscribing witnesses.

LOUISA B. SIMPSON.

Witnesses:

S. B. PRENTISS,
W. A. SIMMONS.