

(No Model.)

I. F. PHARO.

APPARATUS FOR REMOVING GRASS, &c., FROM THE SURFACE OF THE  
GROUND.

No. 304,024.

Patented Aug. 26, 1884.

Fig. 1.

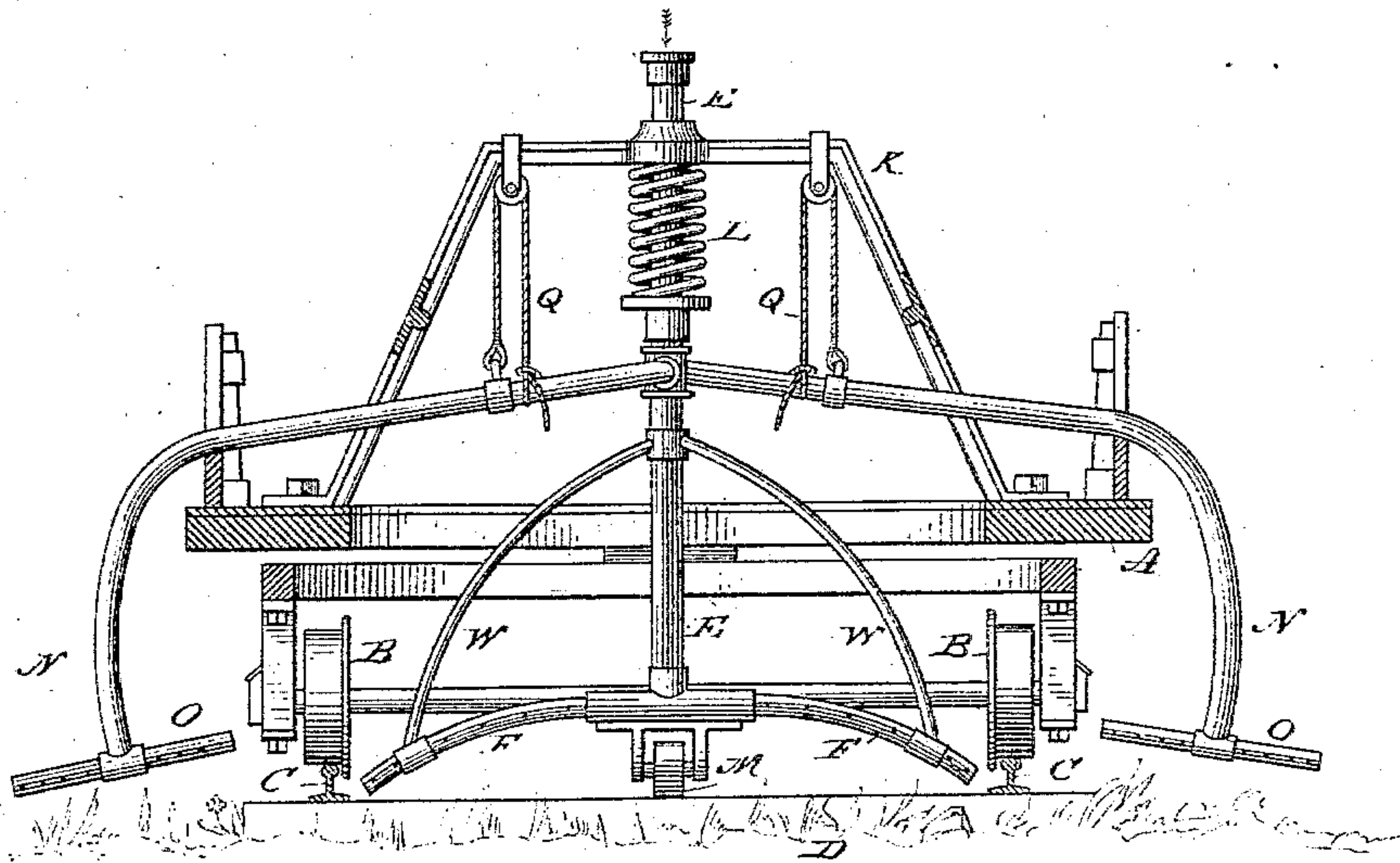


Fig. 2.

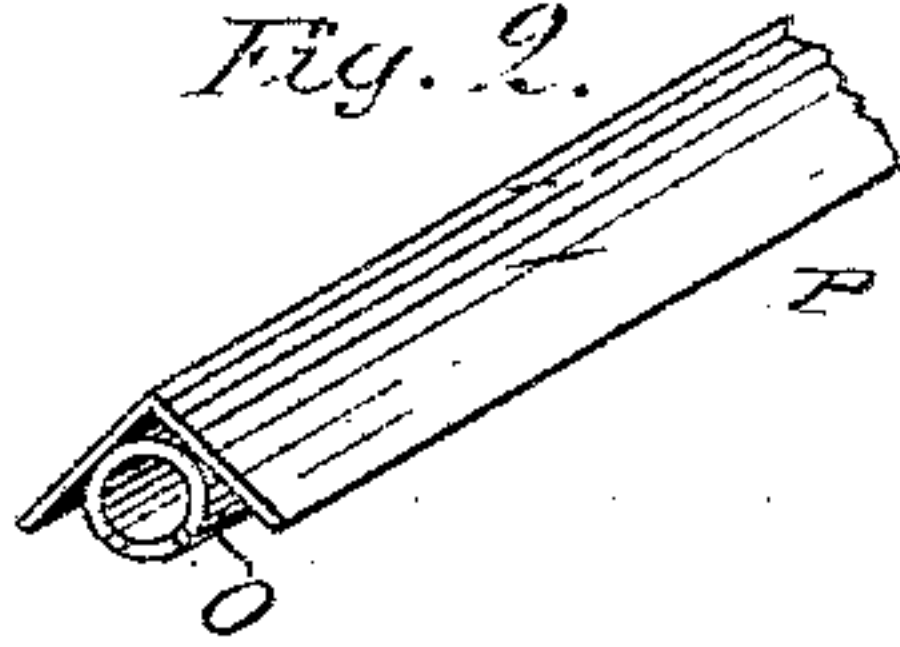
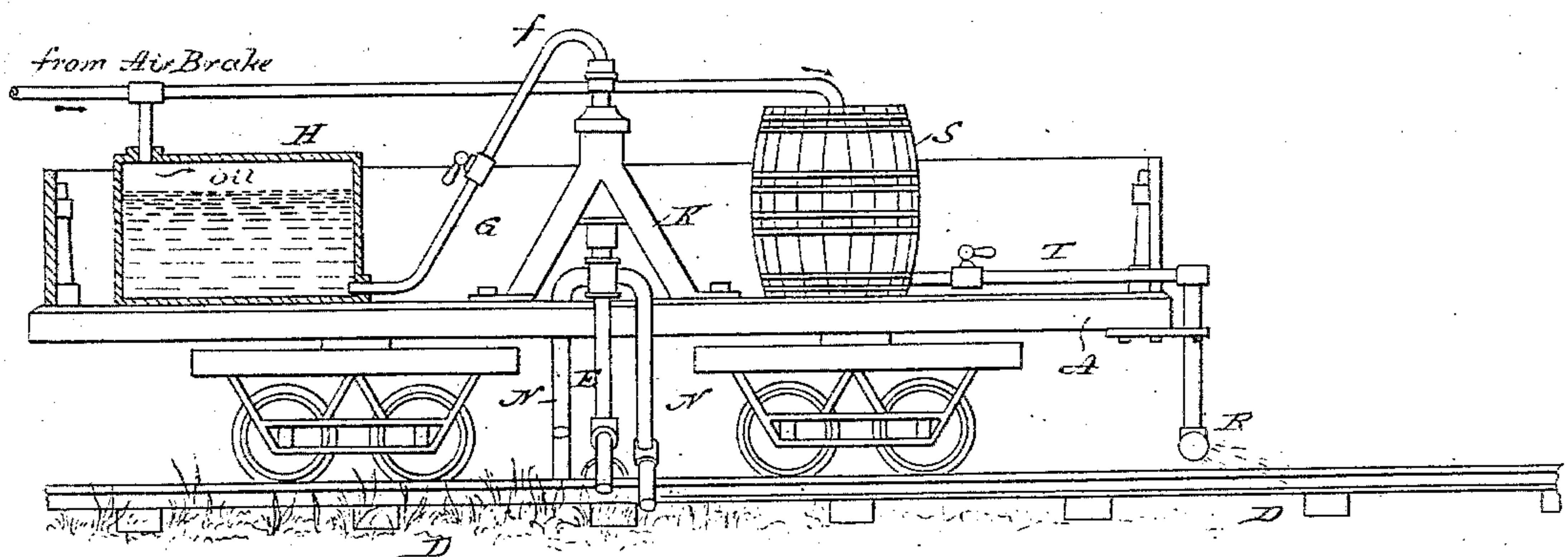


Fig. 3.



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# UNITED STATES PATENT OFFICE.

ISAAC F. PHARO, OF MOBERLY, MISSOURI.

APPARATUS FOR REMOVING GRASS, &c., FROM THE SURFACE OF THE GROUND.

SPECIFICATION forming part of Letters Patent No. 304,024, dated August 26, 1884.

Application filed August 6, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, ISAAC F. PHARO, a citizen of the United States, and a resident of Moberly, in the county of Randolph and State of Missouri, have invented certain new and useful Improvements in Apparatus for Removing Grass, Weeds, &c., from the Surface of the Ground, of which the following is a specification.

10 The object of my invention is to provide a simple and effective means for removing grass, weeds, and other forms of vegetation from the surface of the ground.

15 My invention is designed more particularly for use on railroads for destroying vegetation growing between or beside the rails; but the invention is not limited to such use, and may be employed under other conditions where it is desired to remove or destroy vegetation upon the earth's surface.

20 My invention consists in certain novel combinations of devices upon a moving car or vehicle, whereby heat, flame, or other destroying agent may be applied to the vegetation upon the surface over which the vehicle moves. The nature of the combination will be hereinafter described, and then pointed out in the claims.

25 My invention consists, also, in the combination, with a moving car or vehicle, of a series of burners, the flame from which may be directed against the vegetation upon the surface over which the vehicle moves, and a tank or receptacle upon the vehicle for supplying to said burners an inflammable material. In the latter case I employ, in conjunction with the apparatus, a fire-extinguisher arranged to direct or apply a fire-extinguishing liquid upon the surface traversed by the series of burners.

30 40 In the accompanying drawings I have illustrated the application of my invention to a railroad-car.

45 Figure 1 is a vertical cross-section of a car and apparatus arranged according to my invention. Fig. 2 is a perspective view of a detail of construction. Fig. 3 is a side view of the car, showing the vegetation-destroying apparatus and the fire-extinguisher arranged to follow and traverse the surface over which the apparatus for applying the fire has passed.

50 Referring to Fig. 1, A indicates the platform or floor of a railroad-car of any suitable

construction; B B, the wheels of the car; C C, the rails of the track, and D one of the cross-ties. Supported from the car-platform or floor of the car in any suitable manner is a pipe, E, extending downward toward the road-bed, and terminating in a transverse horizontal pipe or pipes, F F, which latter are provided with suitable perforations, slits, or openings, adapted to direct flame, hot air, steam, or other agent that will destroy vegetation upon the grass, weeds, or herbage growing between the tracks. If flame be employed, it may be produced by gas, oil, or other inflammable substance forced or supplied through the pipe E, the orifices or slits of pipes F F then serving as burners. In the present case I have shown the car as provided with an oil-tank, H, connected by a pipe, G, and flexible connection f, with the pipe E, the desired flow of oil being produced by air-pressure derived from the pipes of the air-brake, or from other suitable source, or otherwise. In order that the pipes F may adapt themselves to the inequalities of the road-bed or other surface over which they travel, and the flame may be thus made to follow the surface closely, the pipe E, supporting said pipes, is made capable of a vertical movement in the supporting or guiding frame K, and is provided also with a traveling supporting-wheel, M, that moves on the ground. A spring, L, holds the parts down and causes the wheels and the pipes F to follow the surface. Arms W W support the ends of the pipes F F.

Burners or heat-directors similar to F F are employed for destroying or removing vegetation outside of the rails, and are shown at O O as connected by pipes N N with the pipe E. The pipes N are jointed or swiveled at the point of connection with pipe E, and suitable ropes or chains, Q, are provided, whereby the burners O O may be lifted or held suspended at any desired height. When direct flame is employed, a second device similar to that already described is used, but is supplied with a fire-extinguishing liquid and is arranged to follow the first. Such a device is indicated in Fig. 3, and consists of a sprinkling-pipe, R, connected by pipe T with a tank, S, filled with a fire-extinguishing fluid forced into the pipe T by gravity, or by pressure derived from air-brake reservoirs or other source.



In practice it has been found desirable to provide the burners or heat-directors F and O with an angle-roofing or deflector, P, Fig. 2, which acts to concentrate and deflect the heat and flame toward the surface of the earth. It also serves to press down the grass or other vegetation when long, so that the flame or heat may strike nearer the roots.

I do not limit myself to any particular construction of the parts herein described, my invention consisting, broadly, in the combination, with a wheeled or other vehicle adapted to travel over the ground or upon a rail or tram way, of suitable devices carried by said vehicle, and constructed to apply heat or flame to the surface of the ground over which the vehicle moves.

What I claim as my invention is--

1. The combination, with a railway car or truck, of suitable means for applying heat or fire to vegetation on the road-bed, and a wheel traveling on the surface of the road-bed, so as to adapt the device to the inequalities of the surface to which it is applied.

2. The combination, with a vehicle carrying suitable means for destroying vegetation by the action of fire, of a fire-extinguisher also carried by said vehicle, and arranged to direct the fire-extinguishing liquid upon the surface of the ground behind the device by which the fire is applied.

3. The combination, with a series of burners moving over and in close proximity to the earth's surface, of a sprinkling device following said burners, and arranged to apply to the surface a fire-extinguishing liquid.

4. The combination of platform A, a pipe, E, carried thereby, and burners F F O O connected with said pipe.

5. The combination, with the gas or liquid supply pipe E and the burners F F, of the traveler-wheel M, as and for the purpose described.

6. The combination, with a moving vehicle or car, of a series of burners, F F O O, arranged to project the flame upon the surface of the ground between the tracks and to the sides thereof, and a supply-pipe connected with said burners and leading from a tank or reservoir containing oil, as and for the purpose described.

7. The combination, with the pipe carried by the car, and supplied with steam, gas, heat, or inflammable fluid, of the intermediate burners or directors, F F, and the outside burners, O O, supported by pipes that are connected with pipe E by a swiveled or jointed connection.

8. The combination, with the burners carried by a wheeled or other vehicle adapted to travel over the surface of the earth, of heater flame deflecting hoods, as and for the purpose described.

9. The combination, substantially as described, of the platform A, a series of burners, O F, carried thereby, and connected with a source of inflammable liquid or gas, and a following sprinkler, R, connected with a reservoir containing fire-extinguishing fluid.

Signed at Moberly, in the county of Randolph and State of Missouri, this 3d day of July, A. D. 1883.

ISAAC F. PHARO.

Witnesses:

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