No. 654,138. Patented July 24, 1900.

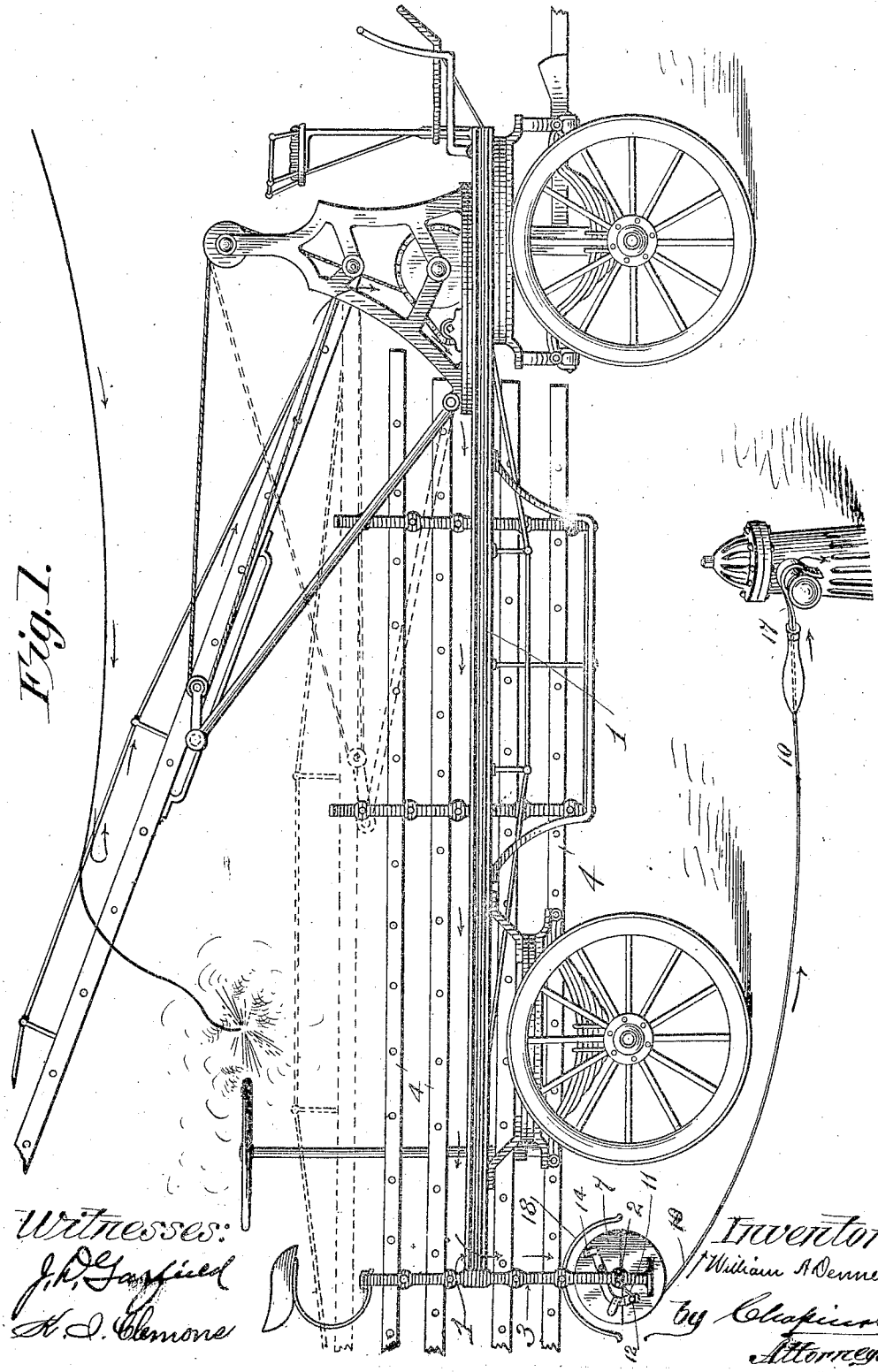
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ELECTRIC CURRENT GROUNDING DEVICE FOR FIRE EXTINGUISHING APPARATUS.

(Application filed Mar. 14, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.




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Fig. 2.

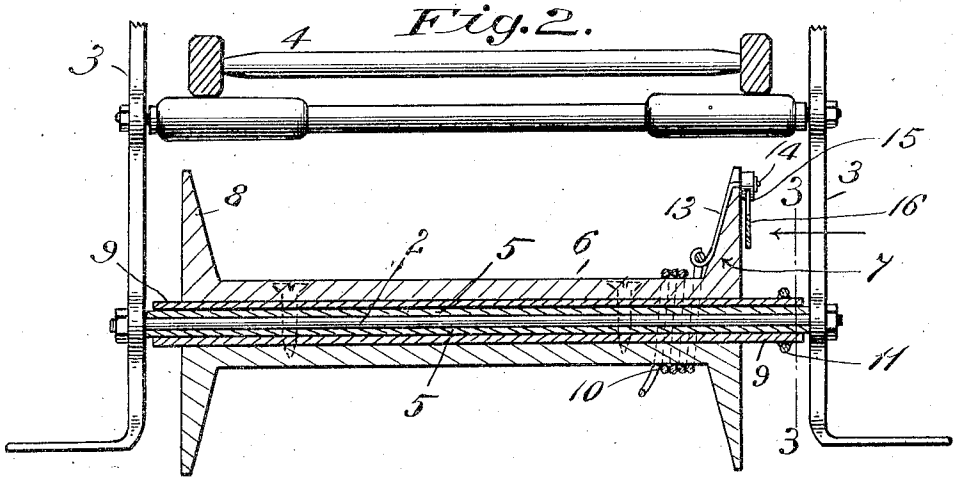



Fig. 3.

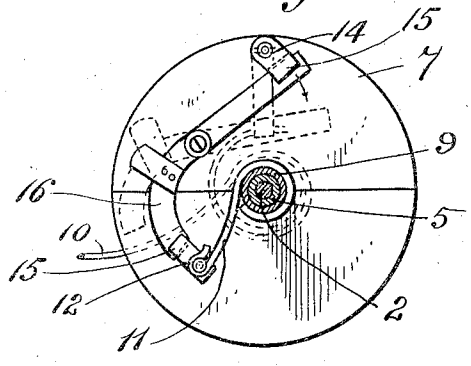
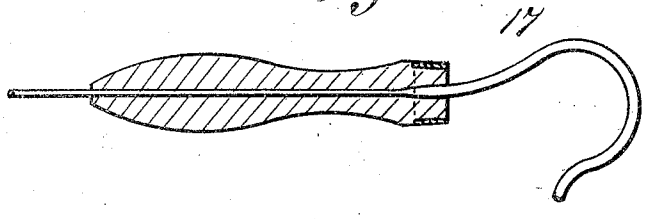



Fig. 4.




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# UNITED STATES PATENT OFFICE.

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## ELECTRIC-CURRENT-GROUNDING DEVICE FOR FIRE-EXTINGUISHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 654,138, dated July 24, 1900.

Application filed March 14, 1900. Serial No. 8,868. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. DENNETT, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Electric-Current-Grounding Devices for Fire-Extinguishing Apparatus, of which the following is a specification.

This invention relates to devices for protecting firemen from the effects of contact of live electric wires with their apparatus; and it consists in the construction and arrangement described in the following specification, and particularly pointed out in the claims.

This invention is particularly adapted to aerial ladders, which from the nature of their service are frequently brought into contact with live wires of the electric traction or electric-light service, whereby the ladders and body of the vehicle may become a part of the electric circuit of the said systems, whereby a shock, oftentimes dangerous to life, may be given to a fireman coming in contact with any part of the truck-body, or, the fire apparatus being charged with electricity and insulated, or partially so, by the wooden wheels on which it runs, a fireman on the apparatus might not have knowledge of the electric contact thereof with a live wire, and thus might step down from the apparatus to the ground, thus completing the circuit and receiving a dangerous shock.

One object of this invention is to provide means whereby the fire apparatus to which it is attached may be quickly connected by a metallic circuit with a hydrant or some similar ground connection, which by reason of its superior conductivity would render it impossible for a person coming in contact with a fire apparatus so connected to divert the electric current from said metallic connection should the apparatus at the time of such contact form part of an electric circuit.

Another object of the invention is to provide means for permitting the free movement of the fire apparatus within certain limits relative to the point at which the circuit is grounded.

In the drawings forming part of this specification, Figure 1 is a side elevation of an aerial-ladder truck, showing my invention applied thereto. Fig. 2 is a detailed view, partly in section, of a reel adapted to be supported on a fire apparatus for holding a quantity of insulated wire cable. Fig. 3 is an end elevation of the reel, partly in section. Fig. 4 is a longitudinal sectional view of a hook adapted to be applied to a hydrant and to be connected to the wire cable on the reel.

While in the drawings forming part of this application the invention is shown applied to a ladder-truck, it is equally applicable to any other type of vehicle adapted to be operated in the vicinity of live electric wires, whereby a person coming in contact with said vehicle or stepping from the vehicle to the ground might in case of the contact of said vehicle with one of said live wires be liable to receive a current through the body. As stated, however, the invention is particularly applicable to the type of ladder-trucks shown on account of the special service for which the truck is used and on account of the fact that metal enters largely into their construction.

In carrying this invention into practice I attach to the body of the truck (indicated by 1) at any convenient point, but preferably back of the rear axle thereof, a reel adapted to receive such a length of insulated wire as may be thought desirable. This reel is supported in the construction shown herein on a rod 2, extending between two oppositely-located side pieces 3 of the rack in which the ladders 4 are carried and below the latter. On this rod 2 is a sleeve 5, of brass, which is secured between said side pieces 3 in fixed position by means of nuts on the ends of said rod screwed up against the outside of said pieces, through which said rod passes. The reel proper consists of a barrel 6 and suitable heads 7 and 8, preferably made of wood and divided longitudinally, as shown in Fig. 3.

A brass bushing 9 is secured between the two halves of the reel by fastening the latter together with screws or in any other convenient way, the said bushing fitting over the sleeve 5 and adapted to rotate thereon. The only purpose in placing the brass sleeve 5 on said rod 2 and providing the reel with a brass bushing is to insure good electric contact between said parts.

Electrical connection between the bushing

9 and the cable 10 on the reel is made by attaching a short metallic conductor 11 from the end of the bushing which projects beyond the end of the reel to a binding-post 12 on the head 7 of the reel and by attaching the inner end of the cable 10 to another conductor 13, which extends from a second binding-post 14 down to or near to the barrel of the reel. On each binding-post are secured the spring-jaws 15, and a switch 16, pivoted to the head of the reel and adapted to swing into and out of engagement with the jaws on said binding-posts, serves to make or break the circuit between the inner end of the cable on the reel and the body of the vehicle on which it is carried.

On the outer end of the cable is secured a hook 17, (shown in longitudinal section in Fig. 4,) and for convenience of manipulation and to avoid the possibility of receiving a shock in handling it said hook is provided with a handle of wood or some other insulating material.

To protect the reel from water which might fall and freeze thereon or from injury from falling bricks, &c., it may be provided with a protective hood 18, secured in any convenient manner over it.

The above description makes it obvious that if the body of a vehicle be connected by means of a metallic connection with a fire-hydrant or other suitable ground connection a person may come in contact with said vehicle without diverting an electric current passing through said vehicle-body to himself, provided the conductive capacity of said metallic connection is sufficient to carry away from said vehicle-body as much of the electric energy as is received by said vehicle.

The operation of my device is as follows: When it is attached to a ladder-truck, as shown and described herein, as soon as the truck arrives on the field of operation before a ladder is raised the hook 17 is grasped and the cable run off the reel to a sufficient amount to reach the nearest hydrant or other suitable ground connection, the switch on the end of the reel meanwhile being thrown into engagement with the two binding-posts thereon to complete the connection between the ground and the truck-body. While this connection remains closed the truck may be touched with impunity by persons standing on the ground without the slightest danger.

If for any reason it is desired to use the ladders mounted on the truck for reaching live wires which are to be cut, then in case the truck-body is connected by the cable 10 to the ground the switch on the end of the reel is thrown out of contact with the binding-posts, whereby the circuit through the truck-body to the ground is broken, and as the truck is insulated by the wooden wheels on which it runs the wires to be cut may then be handled from a position on the truck without danger.

I do not wish it to be understood that I confine myself to the particular reel construction described herein or to the particular means for making a quick connection with a hydrant; but the substantial equivalents of these devices will clearly come within the scope of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination with the truck-frame of an aerial ladder or analogous vehicle, of a metallic connection, one end of which is in electrical connection with the said frame, and the other end of which i adapted to be placed in electrical connection with the earth, substantially as described.

2. The combination with the frame of an aerial-ladder truck or analogous apparatus, of an extensible metallic connection between said frame and the ground consisting of a wire cable, and a reel on which it is carried, attached to said truck; one end of said cable being in electrical connection with the frame, and the opposite end thereof in connection with the earth, substantially as described.

3. The combination with an aerial-ladder-truck frame or analogous apparatus, of an extensible metallic connection between said frame and the ground consisting of a reel supported on said frame, an insulated wire cable carried on said reel, one end of which cable is in electrical connection with the frame through the reel, and the opposite end in electrical connection with the earth, and a suitable switch between the ends of the cable, whereby an electric circuit established therethrough may be broken, substantially as described.

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