

No. 645,615

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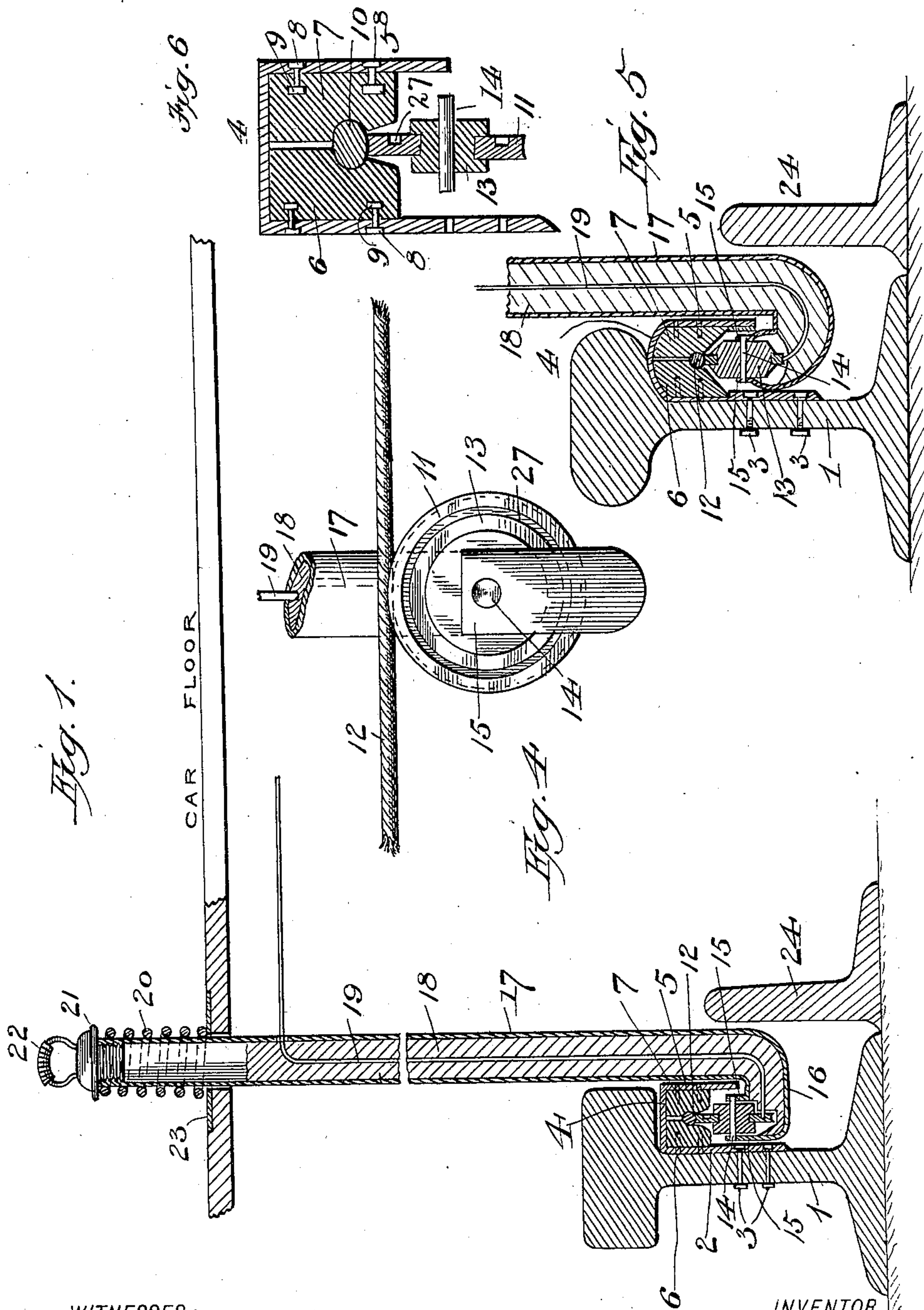
J. E. WRIGHT.

ELECTRIC INSULATION FOR RAILWAYS.

(Application filed Feb. 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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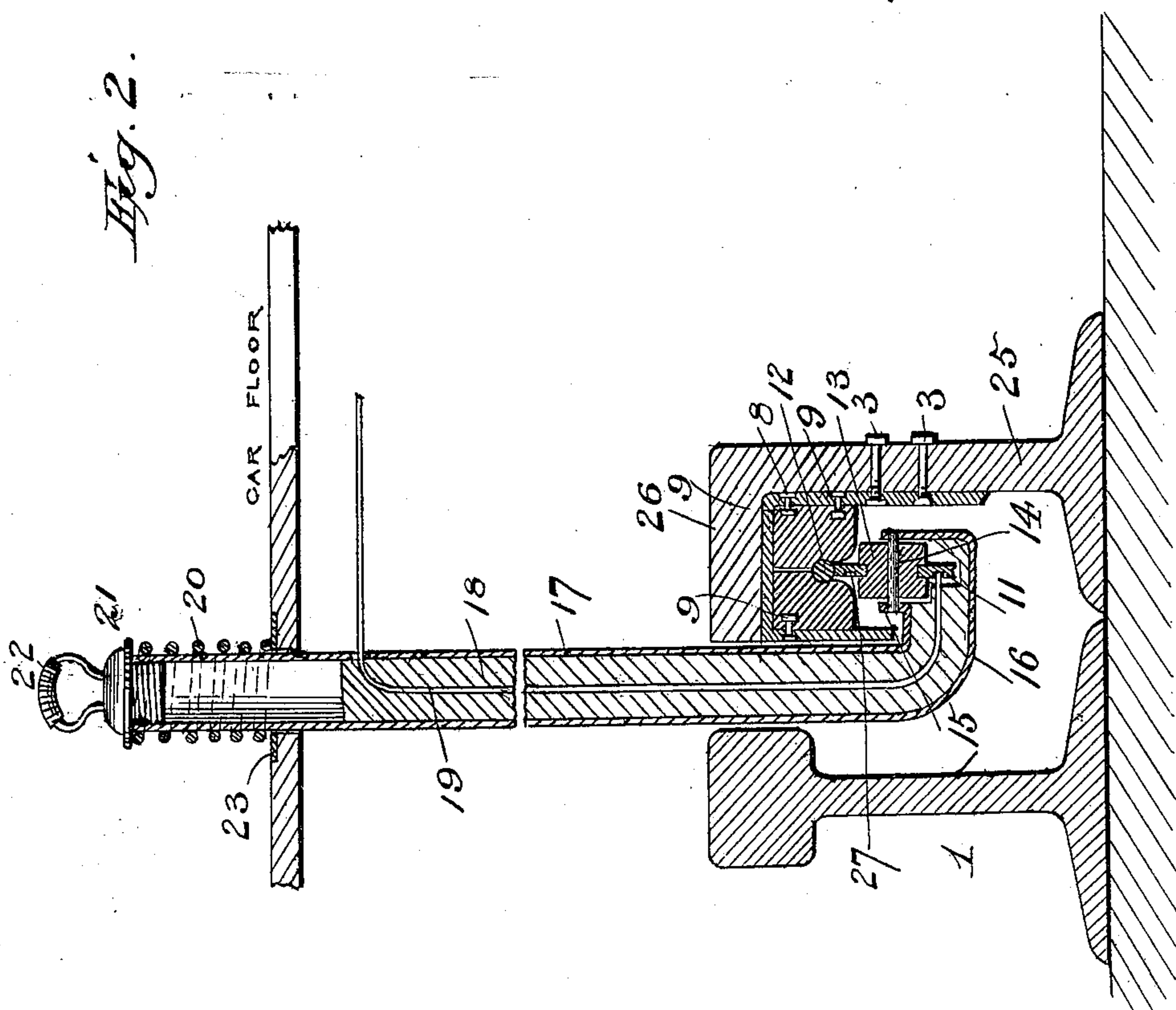
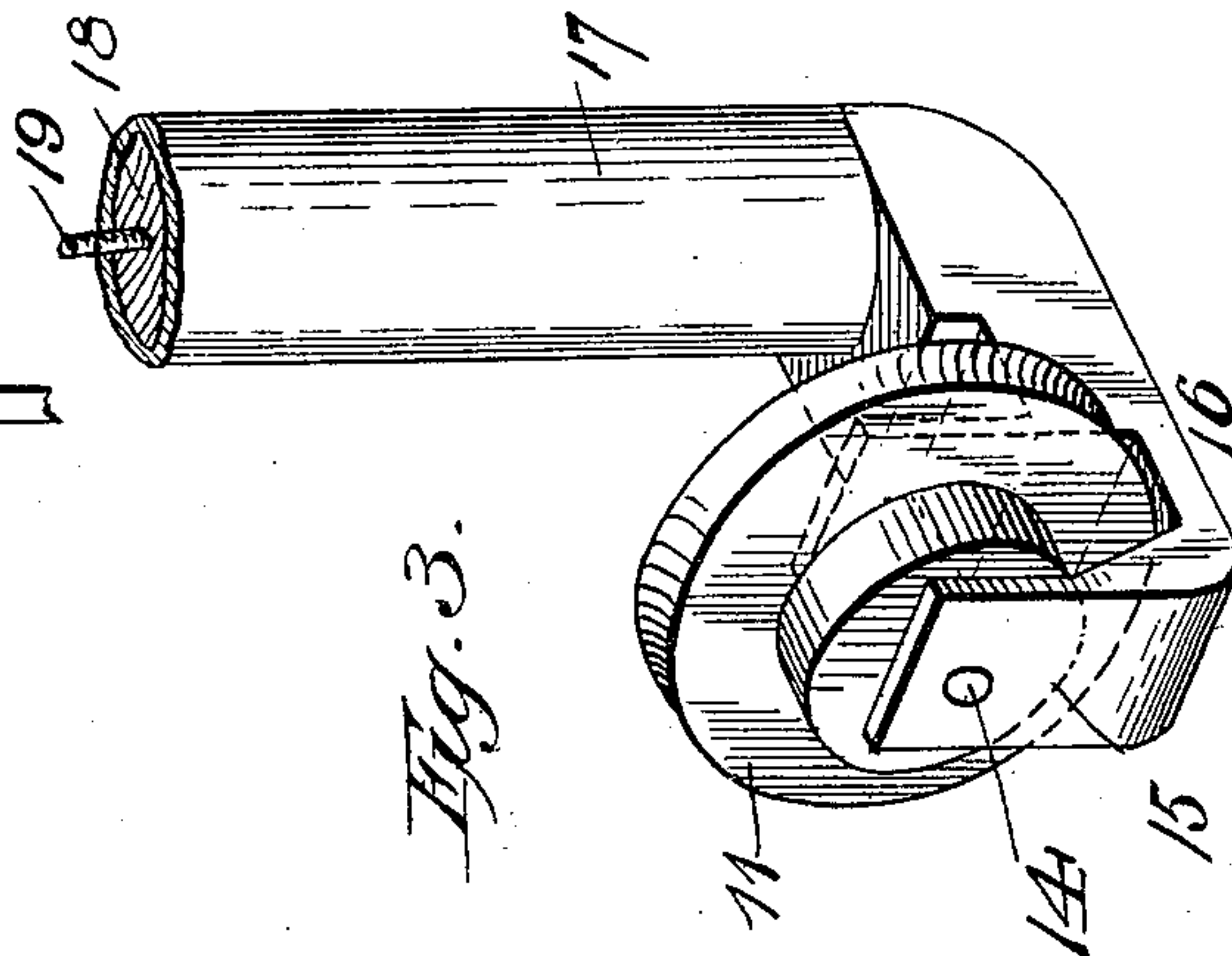
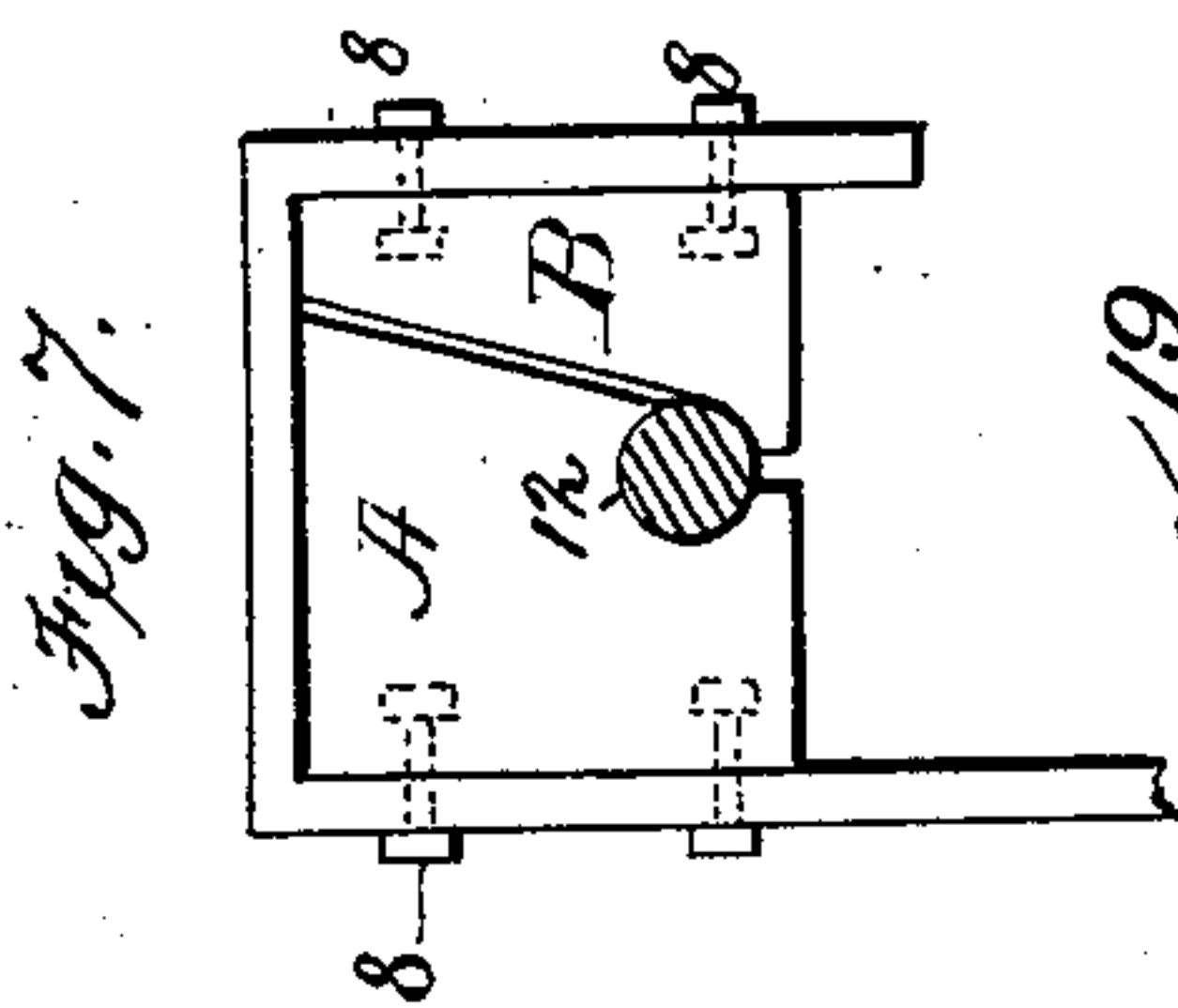
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# UNITED STATES PATENT OFFICE.

JAMES E. WRIGHT, OF OMAHA, NEBRASKA.

## ELECTRIC INSULATION FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 645,615, dated March 20, 1900.

Application filed February 25, 1899. Serial No. 706,830. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES E. WRIGHT, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Electric Insulation for Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to means for insulating an electric current contiguous to a railway-track and so disposed that said current and the appliance necessary to conduct it will be safely disposed below or adjacent to the track and out of the way of passing vehicles and pedestrians, and yet conveniently accessible to the motor of the car which said current is designed to actuate.

The object of my invention, among others, is to safely insulate an electric current of the required volume and dispose the same beneath the surface of the street or below the level of the top of the tracks in such a way that said current may be conducted to the motor of a passing car by means of any suitable connecting-link extending between said motor and the feed-wire carrying the current, said connecting-link being preferably that herein shown and hereinafter described in detail.

In the accompanying drawings, made a part of this application, Figure 1 is a transverse section of one of the rails forming a railway-track and also showing in longitudinal section the preferred means of conducting the current to the motor in the car and the way the electric feed-wire is inserted and held in position. Fig. 2 is a similar view to that shown in Fig. 1, except that the feed-wire and its insulating devices are supported by an auxiliary rail instead of being secured to the main or traction rail. Fig. 3 is an enlarged perspective detail of the means employed to take the current from the wire and convey it to the motor. Fig. 4 is a side view of Fig. 3, showing a portion of the feed-wire in engagement with the rotary conveyer. Fig. 5 shows a modified construction from that shown in Figs. 1 and 2 for certain parts of my invention. Fig. 6 is a transverse section of the

means employed to hold the electric wire in its operative position upon a larger scale from that adopted in the other views. Fig. 7 is another form thereof.

I am aware that various appliances have been adopted for enabling the electric current to be insulated and disposed; but I have provided different means, as will be hereinafter made fully apparent.

In carrying out my invention I prefer to secure to one of the traction-rails 1, preferably of the usual T form of construction and preferably upon the inner side thereof, an angular plate or housing, which, as will be seen by reference to the drawings, consists of the vertical section 2, adapted to lie adjacent to the web of the rail and be secured thereto, as by the bolts 3 and the horizontal extension and depending sections 4 and 5, respectively, though said horizontal section may be curved, as shown in Fig. 5, in order to better accommodate the same to the shape of the rail of other form. It will be seen that by means of said parts of the housing provision is made to accommodate the insulating members 6 and 7, formed of any suitable material which will not be a conductor of electricity, as rubber, glass, porcelain, or the like, said members being held in the housing thus provided for its reception by suitable nuts or screws 8. In case the construction shown in Fig. 2 is adapted for retaining the insulated members in position, I prefer to embed the nuts 9 in the glass, rubber, or other material during the formation thereof and locate the same at proper intervals, as by such means the threaded bolts employed may be seated in said nuts, and thereby insure that the parts will be reliably held in an adjusted position.

I prefer that the members 6 and 7 shall lie slightly separated from each other upon their respective sides of the housing, while upon their approximate faces I provide a semicircular recess 10 in each member so located that they will register with each other and provide a seat or bed for the reception of the electric wire, which will require no other means to hold it in place, inasmuch as it cannot drop out of said recesses. I cut away the members 6 and 7 upon their approximate faces below the recesses 10 in order that the electric conveyer consisting of the metallic



band 11 may loosely enter between said members into contact with the electric wire 12.

The band or tire 11 is properly seated in a groove formed in the hub-section 13, or said band may be otherwise secured to said part so that it will rotate with said hub, which should be formed of some insulating material, as rubber, glass, or the like, and provided with the journals 14, adapted to be received by suitable bearings provided in the ears 15, the latter being carried by the lateral extension 16 of the insulated conveyer-tube 17, which is packed with any suitable insulating material 18, in the center of which is disposed the conveyer-wire 19, which is in direct communication at its upper end with the motor upon the car, while the lower end of said conveyer-wire is so disposed that it will extend closely in contact with the side of the metallic band or tire 11, which band forms the connecting-link between the feed-wire 12 and the conveyer-wire 19. By thus taking the electric current from the feed-wire by means of the metallic band or tire 11 I am enabled to avoid the necessity of sending the current directly through the journals 14, as is now common.

In order that the peripheral face of the metallic band or tire 11 may be held normally in contact with the feed-wire, I provide the spring 20, which is preferably disposed, as shown, around the end of the conveyer-tube 17, which extends upward through the floor of the car, the upper end of said tube being provided with the cap 21 and the controlling-handle 22, said spring 20 being disposed between the projecting edge of the cap 21 and the metallic collar 23, secured to the floor of the car around said tube in order that undue wear of the parts may be prevented.

In order that the feed-wire may be further guarded, I prefer to dispose alongside of the traction-rail to which said wire is secured the auxiliary rail or guard 24, which, as in the case of non-urban roads, need not extend upward to the full height of the traction-rail, as its office will merely be to prevent leaves or other foreign matter from accumulating in the path of the trolley-wheel constituted by the metallic band 11 and other parts above referred to, said guard also preventing casualties which otherwise might result, inasmuch as but a small space need be left between the upper end of the guard and the housing containing the electric wire.

When it is desired to disengage the trolley-wheel for the purpose of replacement or repair or other reasons, the operator will grasp the handle 22 and force the same downward, when the lateral extension 16 may be turned one-quarter way around, which will bring said extension parallel with the track, when an upward pull from the handle will withdraw the trolley-wheel from between the guard and main rail, as will be readily apparent.

In Fig. 5 the insulating members 6 and 7

are shown to be of slightly-modified construction, inasmuch as their lower ends are inwardly and upwardly tapered to provide accommodation for a larger hub 13, in which case the metallic band or tire 11 should be of less extent and may be of greater width, and if deemed desirable it may be provided with a concave face.

In Fig. 2 it will be observed that a modified form of guard 24 is shown, which extends upward the full height of the traction-rail 1 and is provided with the lateral extension 26, which extends from near the traction-rail, thus leaving only a continuous slot of sufficient width to loosely receive the conveyer-tube 17, which, as will be obvious, may be flattened in order to make the slot of the desired width, said tube being filled with the insulating material 18, carrying the conveyer-wire 19, as shown in Fig. 1. By this construction, wherein the auxiliary rail 25 is extended upward to the full height of the main or traction rail, the street may be completely paved, so that the surface thereof will be coincident with the upper surface of the main rail and the lateral extension 26, there being only the slot between said rail and extension for receiving the conveyer 17 and also the flange of the wheels of the car, thus enabling the construction to be adopted for use upon city streets.

Inasmuch as the remaining parts shown in Fig. 2 are substantially the same as the parts above described, the same designating-numerals will be employed to indicate them. Any preferred means may be adopted to hold the free end of the conveying-wire 19 in contact with the metallic band or tire 11—as, for instance, the end of the wire may be bent to one side, so that its own tensile properties will always hold the extreme end thereof in contact with said band, and if deemed a preferable construction said band may be provided with the annular groove 27, in which the end may be seated.

In Fig. 7 I have shown the preferred manner by which the electric wire may be removably held in position, since the insulating-sections, which for distinction are indicated by the letters A and B, are so formed that the section B may be removed without disturbing the section A, although said section B adds materially to the support of the electric wire when in its operative position.

While I have described the preferred construction to be adopted in the formation of the various elements of my invention and their cooperating accessories, it will be understood that I desire to comprehend in this application the substantial equivalent thereof, thereby permitting a reasonable departure to be made from the plans herein set forth without departing from the spirit of my invention.

Having thus fully described the details of construction and arrangement of parts necessary to materialize my invention, further



reference to the same is deemed unnecessary.

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

5 1. In electric insulation for railways, the combination of the tread-rail provided with a housing in contact with the lower side of the tread, insulating members disposed within said housing, each member being provided  
10 with a registering recess, an electric feed-wire fitting said recess and supported thereby in combination with a trolley-wheel carried by a conveyer-tube, said tube being provided with means for keeping the trolley in contact  
15 with the electric wire, as set forth.

2. In electric insulation for railways, a housing attached to the web of the tread carrying an insulated electric feed-wire with its

lower side exposed, a guard for the feed-wire and a conveyer having a trolley on its lower end normally in contact with said wire and extending between said guard and the tread of the wheel, all combined as set forth. 20

3. In electric insulation for railways, a trolley-wheel consisting of a hub of insulating material having a groove in its periphery, a metallic band or collar fitting said groove, said collar having a groove in its side near its periphery, as set forth. 25

In testimony whereof I affix my signature 30 in presence of two witnesses.

JAMES E. WRIGHT.

Witnesses:

J. H. PARROTTE,  
HOLGER NIELSEN.