

(No Model.)

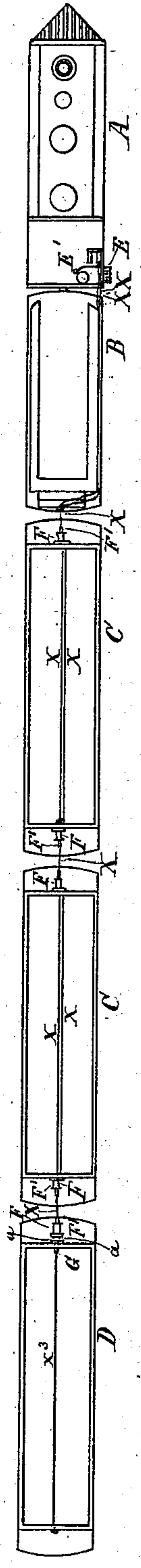
J. R. DE MIER.

ELECTRIC TRAIN SIGNALING APPARATUS.

No. 381,344.

Patented Apr. 17, 1888.

Fig1.



Witnesses:
E. J. Fenwick.
J. C. Tiffany.

Fig2.

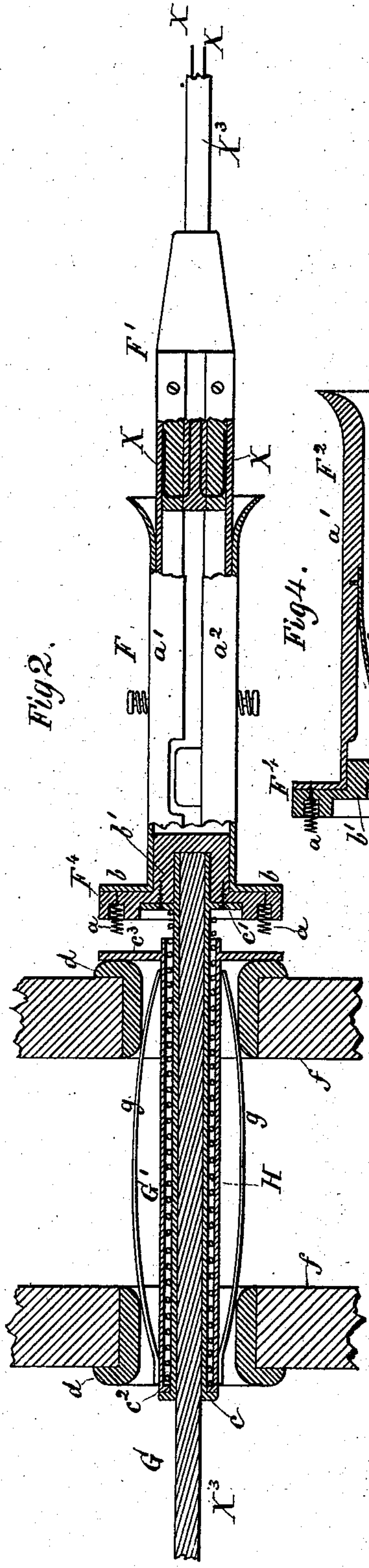


Fig4.

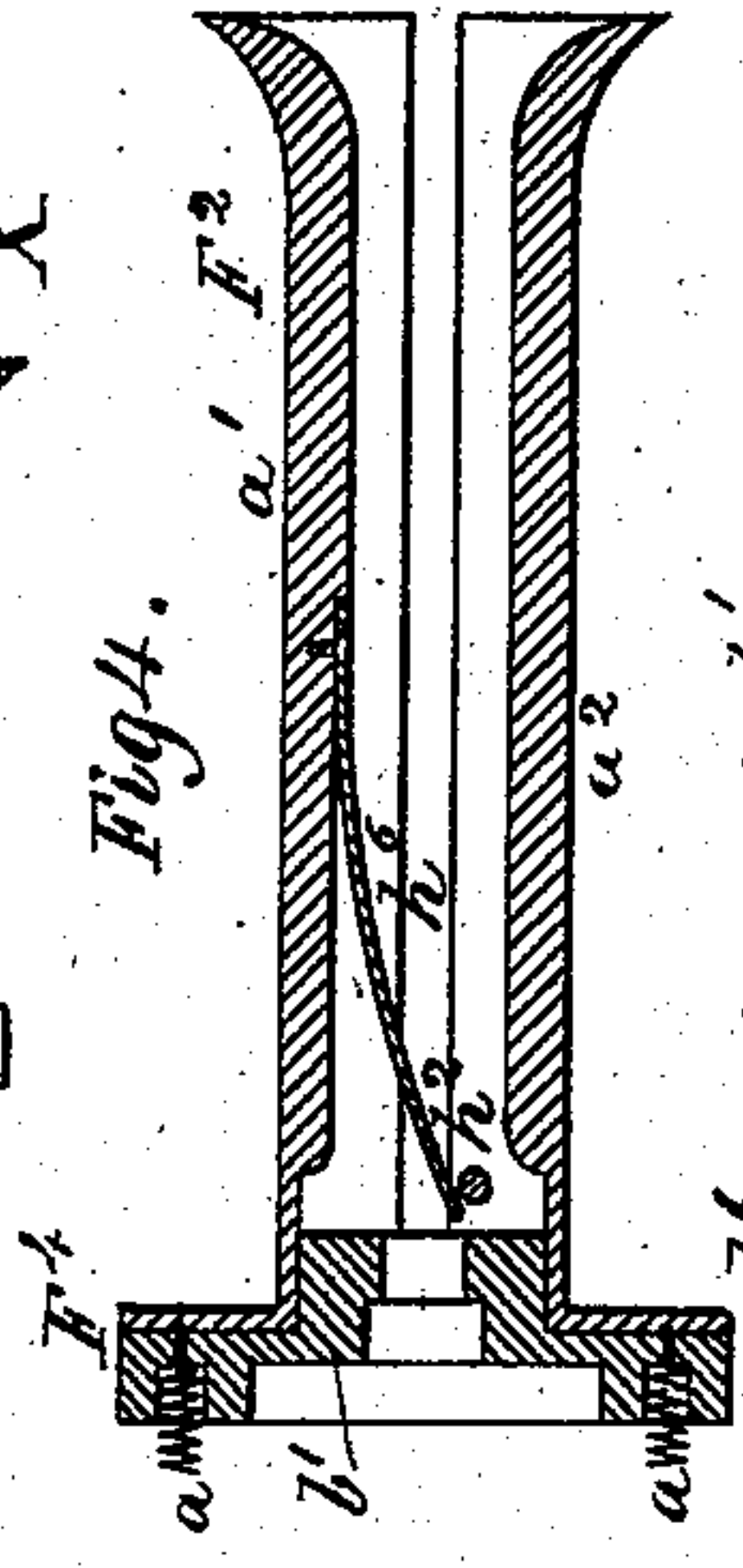


Fig3.

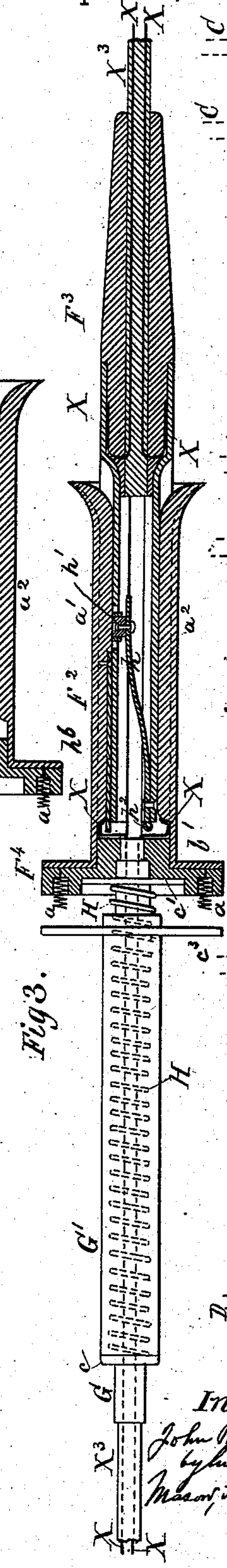
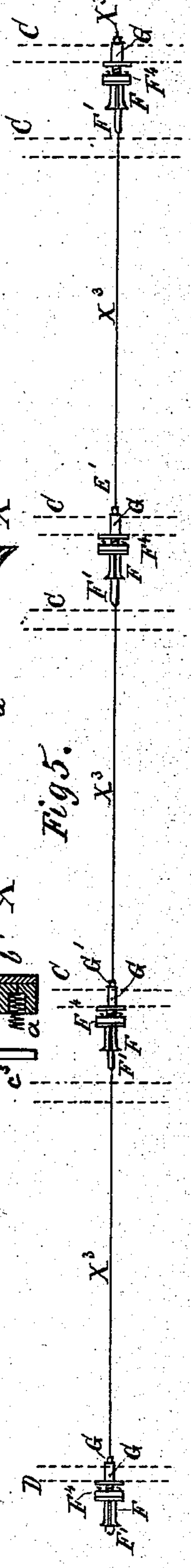


Fig5.



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by his atty
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UNITED STATES PATENT OFFICE.

JOHN R. DE MIER, OF LAS CRUCES, TERRITORY OF NEW MEXICO.

ELECTRIC TRAIN-SIGNALING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 381,344, dated April 17, 1888.

Application filed March 10, 1888. Serial No. 266,786. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. DE MIER, a citizen of the United States, residing at Las Cruces, in the county of Doña Ana and Territory of New Mexico, have invented certain new and useful Improvements in Electric Train-Signaling Apparatus; 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.

This invention relates to a novel circuit opening and closing device applied on the conductor's pull-rope, and combined with the electric coupling devices between cars, the same being for special use on cars which may incidentally form part of a signaling-train and are not themselves provided with any signaling apparatus, but not confined to such use, as it can be adopted when desirable on all the cars of a train which are provided with suitable electric coupling signaling appliances.

In the accompanying drawings, Figure 1 is a diagrammatical plan view of a train of cars, showing ordinary electric signaling mechanism—viz., battery, alarm-bells, and circuit opening and closing couplings provided in the usual manner upon different portions of the train—and also showing the rear or special car provided with the improved pull-rope circuit-closing device and an ordinary circuit opening and closing coupling, with an end contact portion added to it. Fig. 2 is a longitudinal section of a portion of a special car and the pull-rope circuit-closing device, showing also an ordinary circuit opening and closing coupling, partly in section, furnished with an end contact portion adapted for use with the pull-rope circuit opener and closer. Fig. 3 is a plan view of the pull-rope circuit opener and closer with the sustaining spring-bars left off, and showing also a horizontal longitudinal section of another ordinary circuit opening and closing electric coupling provided with the rear end contact portion. Fig. 4 is a section of one part of the electric coupling shown in Fig. 3; and Fig. 5 is another diagrammatical plan illustrating the way in which all the passenger-cars of a train might be furnished with the improved pull-rope circuit opening and closing device, while all of said cars are furnished

with the ordinary electric circuit opening and closing couplings.

A in the accompanying drawings represents a locomotive; B, a tender, and C C passenger-cars equipped with electric signaling apparatus; and D is a special car not so equipped. An electric battery, E, connected with an alarm-bell, E', by electric-circuit wires X X, is applied on the locomotive in the engineer's cab. The cars C C are electrically coupled by means of couplings such as F F', (shown in Fig. 2,) or by couplings such as F² F³. (Shown in Figs. 3 and 4.) The coupling F F' is the same in construction and operation as that described and shown in my application filed on the 9th day of June, 1887, No. 240,780, and on which a patent was allowed November 12, 1887, excepting the addition thereto of the rear end contact portion, F⁴, and the coupling shown in Figs. 3 and 4 is substantially the same, excepting the addition thereto of the said rear end contact portion, F⁴, as that shown in Letters Patent No. 373,160, dated November 15, 1887, granted to Joseph O. Tiffany and myself, and therefore no very particular description of the same here will be required.

The rear end contact portion, F⁴, is provided with two cylindrical spiral-spring contact devices, *a*, suitably connected with the metal plates *a'* *a''*, as shown. A tube, G, containing the conductor's pull-rope X³, is, by means of a flange, *c*, fastened to a non-conducting plug, *b'*, of the rear contact end portion, F⁴. If the circuit-wires X X should be carried through the conductor's pull-rope of the car D, the ends of said wires are turned toward the plates *a'* *a''*, respectively, as shown in Fig. 3, thus making electrical connection with the coupling between the cars.

The tube G is provided with another flange, *c'*, and is placed within another tube, G', also provided with flanges *c''* *c'''*, and between these tubes; bearing against the flange *c''* and the flange *c'*, by which the tube G is confined to the contact end portion, F⁴, a spiral spring, H, is fitted loosely. The tube G slides freely in the tube G', and is kept by means of the spring with its flange *c* bearing against flange *c''*, while said spring, by pressing against the flange *c'*, screws to end contact portion, F⁴, keeps the spiral-spring contact *a* at the proper distance

from the flange c^3 , while the flange c^2 prevents the tube G from being moved too far forward.

The tube G is fitted in the ordinary bell-rope eyes, $d d$, secured in the end walls, $f f$, of the cars, as illustrated in Fig. 2, and may be steadied or firmly sustained in a central position by means of flat longitudinal springs $g g$, as shown in said figure.

In the drawings, Figs. 3 and 4, the circuit opening and closing spring h has its non-conducting button sheathed with metal, h' , in order to keep it from wearing down too rapidly, and the other circuit opening and closing spring, h^6 , has a rest-pin, h^2 , provided for its free end to bear upon when the circuit is closed. I simply mention these particulars, as they are slight mechanical differences (immaterial, however) from the construction shown in the aforesaid patent of Tiffany and De Mier.

In operating with my present invention it will be understood that the conductor can signal from the special car D to the engineer by pulling the rope X^3 in said special car, as by this act the tube G and coupling $F' F'$ or $F^2 F^3$, accordingly as one or the other is adopted, between the special car and a regular car, are moved toward the special car until the spiral-spring contact devices a come in contact with the metallic conducting-flange c^3 , thereby closing the circuit and giving the signal. As soon as the rope is released the parts, by the action of the spiral spring H, are returned to their normal positions and the circuit opened.

Operation: The operation of couplings for opening and closing the circuit is the same as ordinary, the circuit being opened by the act of inserting the part F' into the part F, or by inserting part F^2 into part F^3 the circuit is opened, and by separating said parts the circuit is closed and a continuous alarm sounded in the engineer's cab. The instrumentalities by which the opening and closing of the cir-

cuit by coupling and uncoupling of cars, as herein mentioned, are effected may be of any ordinary suitable construction, or the same as shown and described in my aforesaid application and the aforesaid patent of Tiffany and De Mier, and they form no part of my present claim, and therefore those shown may have others substituted for them without changing the principle of my invention.

What I claim as my invention is—

1. In an electric train-signaling apparatus, the combination, with an electric coupling between cars, of the end contact portion, F^4 , provided with the spring-contact device a and attached to the portion F of said coupling, the conductor's pull-rope, the flanged tubes G G', and the tension spring H, said tubes and spring being supported by the car and one of the tubes connected to the coupling between the cars, substantially as and for the purpose described.

2. In an electric train-signaling apparatus, the combination, with the electric coupling between the cars, of a contact end portion, F^4 , provided with contact-springs a , and having an electrical conducting pull-rope and a flanged tube, G, attached to it, the flanged tube G', and spiral spring H, substantially as and for the purpose described.

3. The combination of the curved flat spring-bars, the eyes $d d$ of car-walls, the stationary flanged tube G', sliding flanged tube G, tension-spring H, conductor's pull-rope X^3 , and coupling between cars provided with contact end portion, F^4 , having spring-contacts, substantially as and for the purpose described.

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

JOHN R. DE MIER.

Witnesses:

EDWARD T. FENWICK,
W. P. BELL.