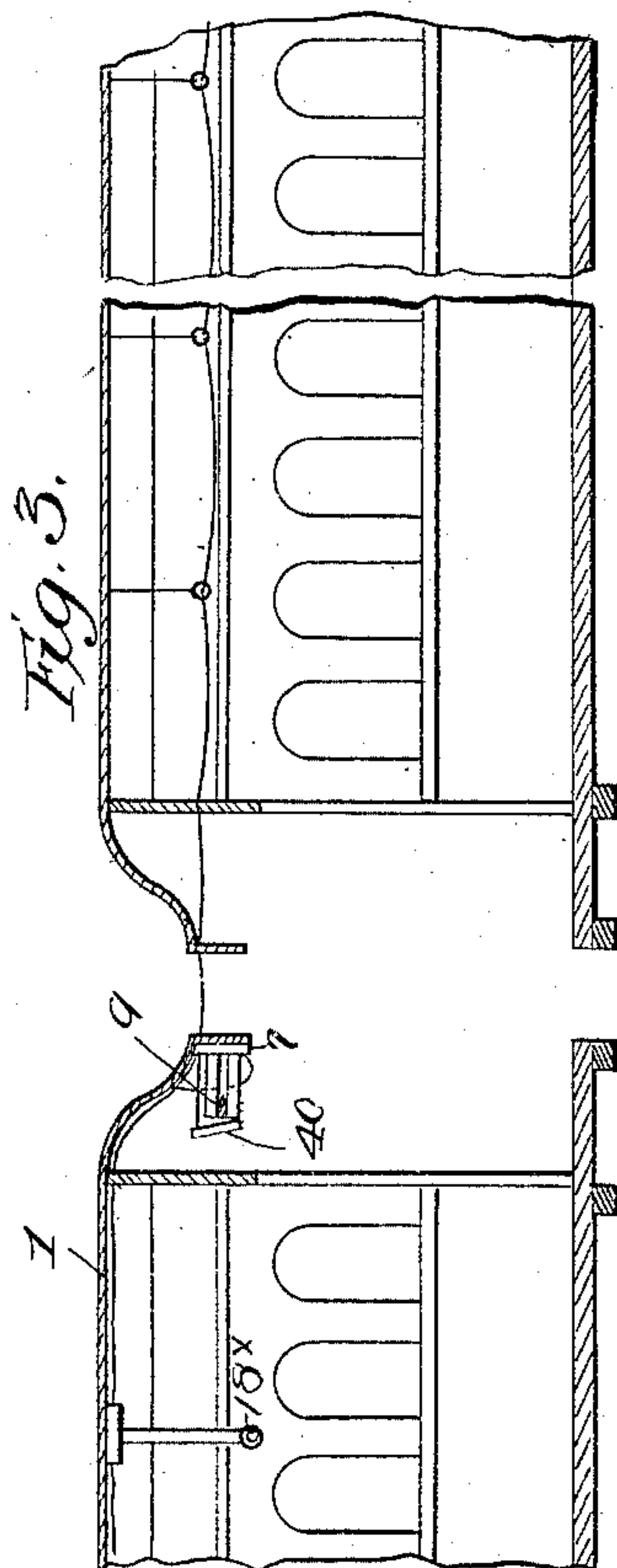
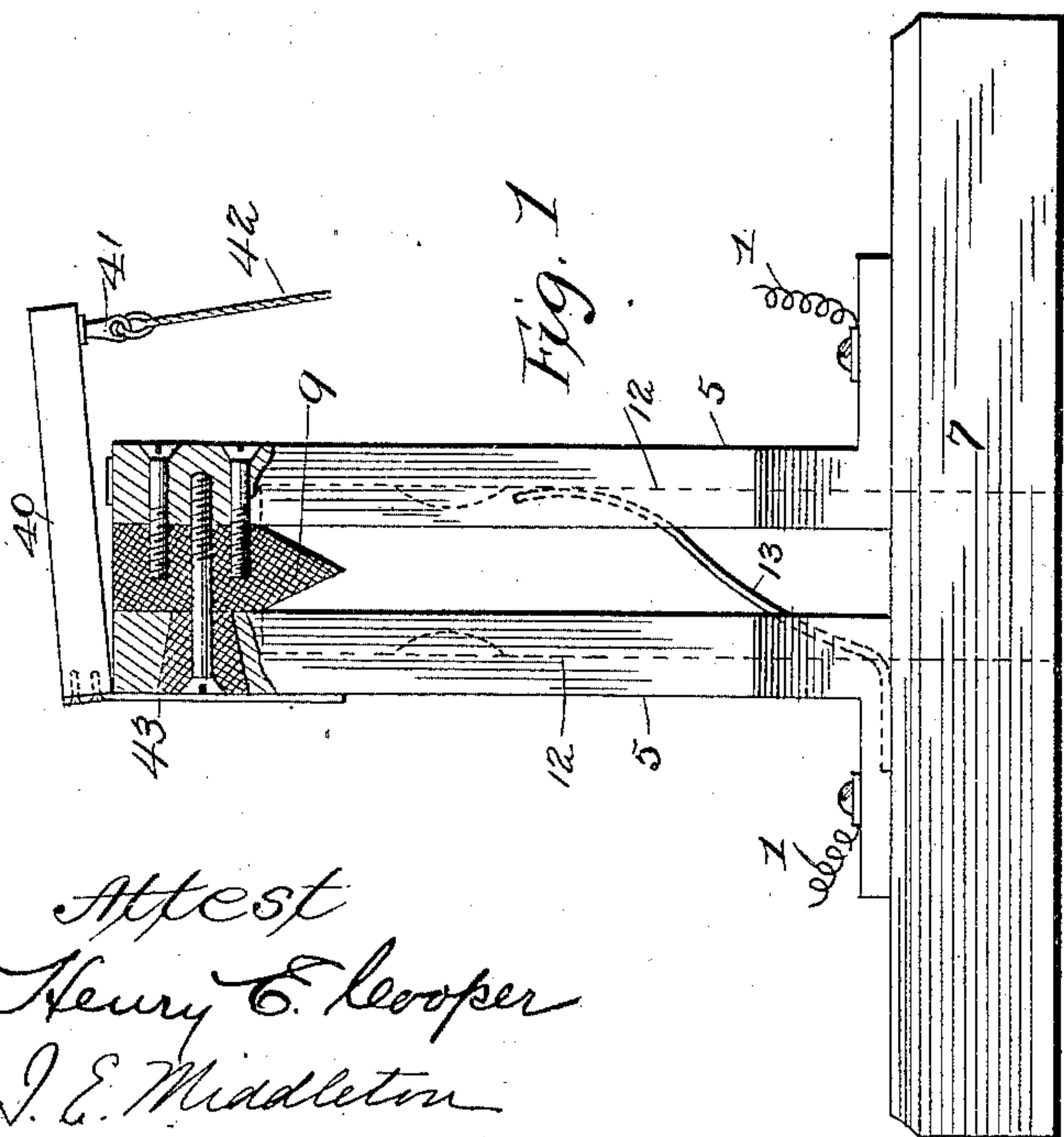
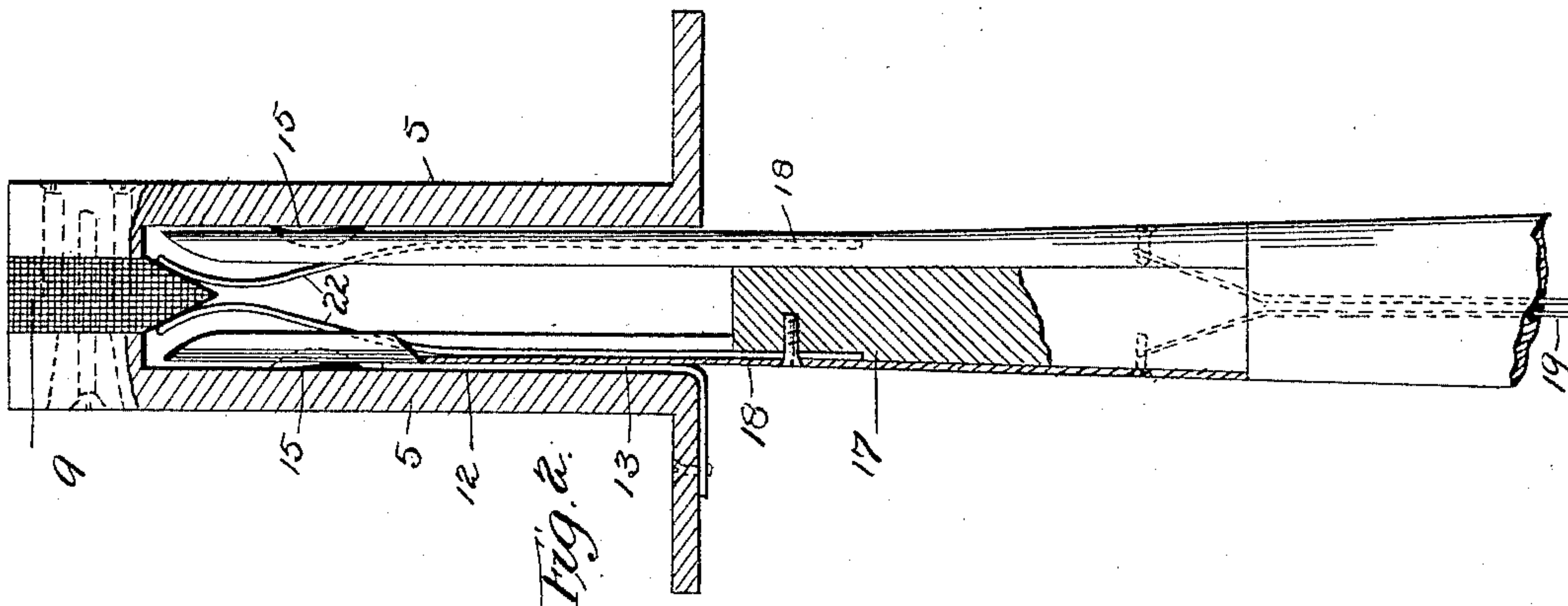


(No Model.)

L. DUNN.
ELECTRIC SIGNAL FOR RAILWAY TRAINS.

No. 473,832.

Patented Apr. 26, 1892.



Attest
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UNITED STATES PATENT OFFICE.

LAWRENCE DUNN, OF FORT SMITH, ARKANSAS.

ELECTRIC SIGNAL FOR RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 473,832, dated April 26, 1892.

Application filed November 30, 1891. Serial No. 413,533. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE DUNN, a citizen of the United States of America, residing at Fort Smith, in the county of Sebastian and State of Arkansas, have invented certain new and useful Improvements in Electric Signals for Railway-Trains, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to railway-car telegraphy, and particularly to the form of devices disclosed in Patent No. 460,958, granted me on the 13th day of October 1891. In that patent jacks are described as provided at each end of each car, which jacks carry the terminals of a pair of electrical conductors and are adapted to receive plugs carrying the terminals of the coupling-wires adapted to extend between the cars, which coupling-wires are connected electrically with the conductors in the cars and supported mechanically by inserting the plugs in the jacks. The jacks and plugs carry automatically-acting spring-contacts, and when the plugs are in place the circuit through the train is open and may be closed to give the signal by various push-buttons arranged along the conductors, and upon the withdrawal of any plug from its jack, whether from rupture, accident of any kind, or manual operation, the spring-contacts close the circuit and cause the signal to be rung on the engine or other place.

My present invention consists in the particular arrangement of parts whereby the liability of non-working of the system by reason of imperfect electrical connections being made is avoided, and in making this arrangement I aim to keep the contacts clean and bright and render the device dust-proof without complication of parts. In making up trains of cars it often happens that a special car is attached or a car from another road, and should this car not be provided with my devices the perfect working of the system would be interfered with in that this car of the train would be without signal connections. In order to avoid this, I have provided special means in connection with the jacks by which a special car can be easily brought into the system notwithstanding the fact that it lacks my devices, all that is necessary being the mere addition of a cord or rope extending from the

special car to the first jack on the next car, which rope is attached to the special means mentioned.

In the accompanying drawings, Figure 1 is a view of the jack. Fig. 2 is a view of the jack in section with the plug in place. Fig. 3 is a view of the train, showing the manner of attaching a special car and completing the system therein.

As in my former patent, the jacks which are attached to each end of the car comprise a base 7 of non-conducting material, formed with an opening in its center, and the plates 5, secured thereto and formed of conducting material, the said plates having between them at their outer ends the insulating-piece 9. The insulating-conductors 1, which extend in pairs throughout the cars, are connected to the plates 5 of the jack. The plugs 17, which carry the coupling-wires 19, have the conducting-plates 18, to which said wires are attached, and carry, also, springs 22, adapted to meet centrally of the plug and form electrical contact. I aim to utilize the insulating-plug 9 as a means for breaking the connection between the contacts of the plug and also to form a rubbing-surface, which will keep the contacts bright and clean and prevent them from being affected by the presence of dust. For this purpose the plug 9 has a conical end. When the plug 17 is inserted into the jack, this conical end goes between the flaring ends of the spring-contacts 22 and separates them. At the same time the contacts have a sliding movement over the insulating-piece, and thus are kept clean. The jack is provided with a spring contact-plate 13, which when in normal position closes the circuit between the plates 5 of the jack. This spring, however, is pressed back by the insertion of the plug, and the electrical connection between the conducting-plates 18 of the plug and the plates 5 of the jack is formed by the projections 15 in the recesses 12, fitting into notches or depressions in the plates 18.

It will be understood that the plug in the last car of the train and at the end thereof is a dead-plug, and when all the plugs are inserted in their jacks an open circuit is provided. This circuit is closed upon the operation of any suitable closing devices, as push-buttons 18^x, located at various places through-

out the train, or in case of rupture of the coupling or accident of any kind which will withdraw the plug or plugs from the jacks the spring 13 will automatically close the circuit, or in case the plug on the front of any car is withdrawn the circuit will be closed by the spring-contacts 22 and the signal thus be given to the engineer.

In order that the system may be completed when a special car is attached not having my devices, I provide a contact-plate 40 on the jacks, extending across the ends of the plates 5 and attached to one of them electrically and mechanically by a spring 43. The spring is strong enough to hold the plate at an angle and slightly away from the other plate 5, and in order that contact may be made between the two plates I have provided a hook 41 on the contact-plate 40, to which is attached a rope 42. When the special car not having my device is attached to the train, this rope extends therefrom to the first jack on the next car and is connected with the contact-plate 40 thereof, and it will be readily seen that by pulling upon this rope electrical connection between the two plates 5 is made and the circuit thus closed. The upper ends of the plates 5 are held together by means of a screw 11, which passes through an insulating-plug 10, extending laterally of the plates. It will be noticed that by the arrangement of the two spring-contacts 22 attachment of the plugs to the jacks is rendered more certain and secure, for the springs when under tension by reason of bearing upon the insulating-piece 9 tend to force the plates 18 outward, and thus keep them firmly against the plates 5 and in engagement with the projections 15 thereon.

I claim as my invention—

1. In combination, the jacks comprising the plates 5, to which the electrical conductors are attached, an insulating-plug between the connected ends of said plates having a conical point, and a plug having contact-pieces connected to the coupling-wires 19, which pieces are adapted to form electrical connections with the plates 5, and the spring contact-plates 22, arranged to be separated by the conical point of the insulating-piece, substantially as described.

2. In combination, the jacks comprising the plates 5, having the projections 15, insulating-pieces between the connected ends of the plates 5, having a conical point, the plug having the contact-plates 18, connected to the coupling-wires 19 and having openings fitted to the projections 15 on the jacks, and spring-contacts 22, arranged to be separated by the conical ends or the insulating-piece, whereby the plug will be securely held in place, substantially as described.

3. In combination, the jacks comprising the conducting-plates 5, the spring-contact 13, the contact-plate 40, secured to one plate and extending over the other and normally out of contact therewith, operating connections to said plate 40, and a plug having contacts and carrying coupling-wires 19, said plugs being adapted to the jacks, substantially as described.

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

LAWRENCE DUNN.

Witnesses:

JNO. M. KEITH,
ALLEN KENNEDY.