(No Model.)

D. M. FIKE & J. HUFFMAN.

DEVICE FOR MAINTAINING ELECTRICAL CONNECTION BETWEEN SEPARATE RAILWAY TRAINS.

No. 428,748. Patented May 27, 1890.

Fig. 1

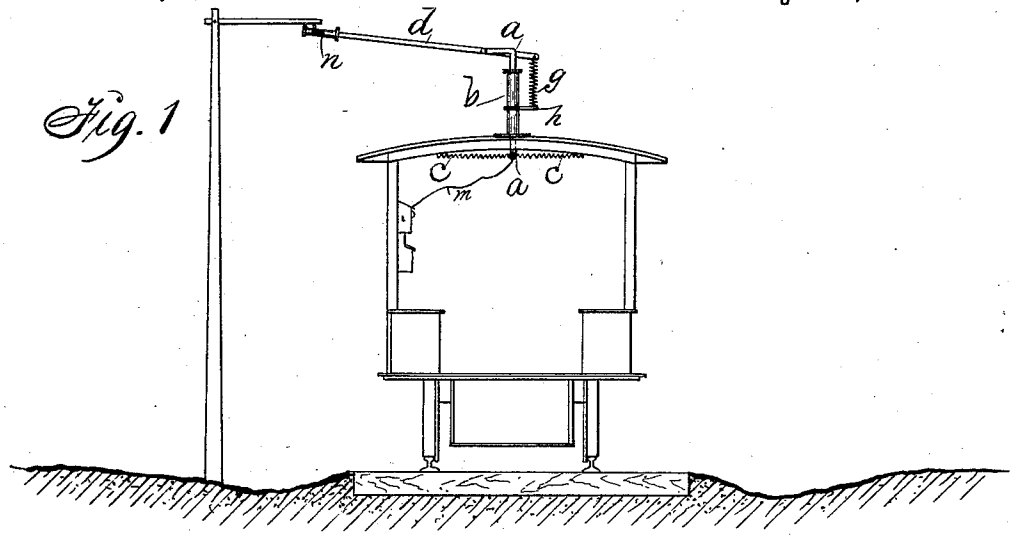
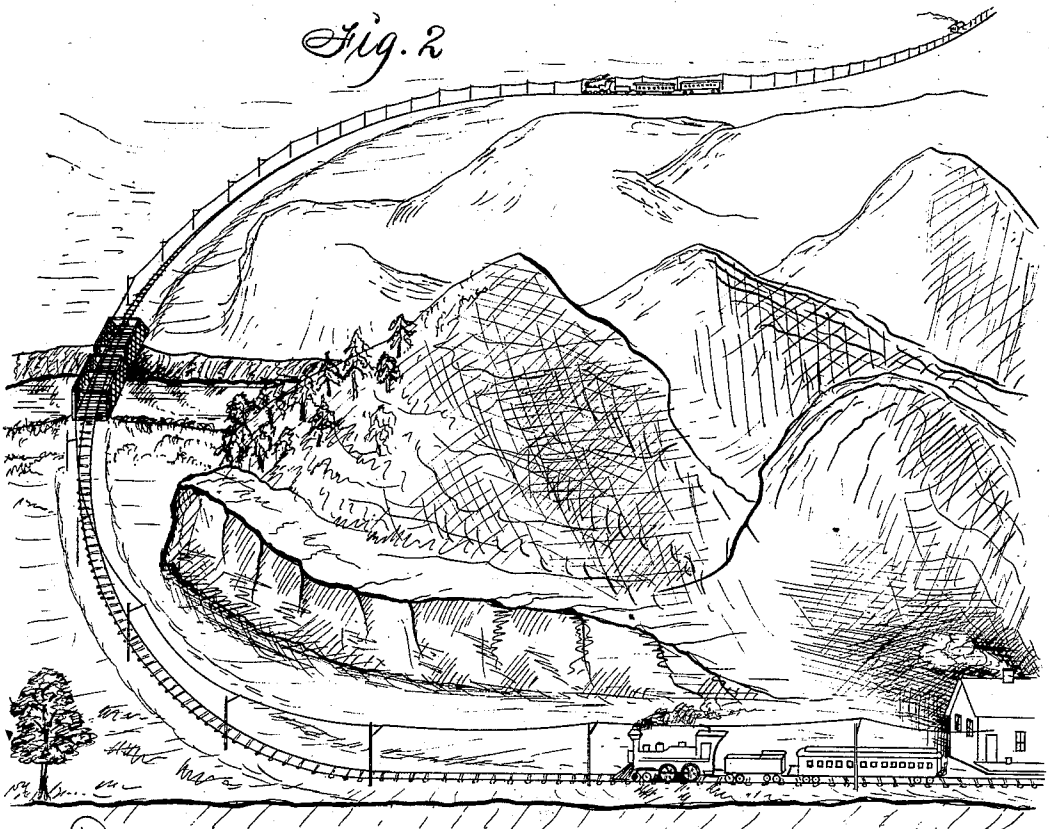


Fig. 2



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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DONOPHAN M. FIKE AND JOSEPH HUFFMAN, OF DES MOINES, IOWA, ASSIGNORS OF THREE-FIFTHS TO J. A. T. HULL, R. B. TAYLOR, E. J. FAIRALL, R. M. DEWITT, W. W. FINK, AND A. J. BAKER, OF SAME PLACE.

DEVICE FOR MAINTAINING ELECTRICAL CONNECTION BETWEEN SEPARATE RAILWAY-TRAINS.

SPECIFICATION forming part of Letters Patent No. 428,748, dated May 27, 1890.

Application filed February 14, 1890. Serial No. 340,488. (No model.)

To all whom it may concern:

Be it known that we, DONOPHAN M. FIKE and JOSEPH HUFFMAN, citizens of the United States of America, and residents of Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Device for Maintaining Electric Communication between Persons on Railway-Trains at Different Points on the Same Track or Parallel Tracks or Stations at the Side of the Track, of which the following is a specification.

Our object is to prevent railway collisions by providing means for telegraphing or telephoning from one train to another while they are approaching each other, standing still, or moving in opposite directions between railway-stations.

Our invention consists in the construction and combination of a flexible electric conductor with a car and an instrument for transmitting messages in such a manner that the conductor will adjust itself vertically and horizontally as required to retain it in contact with a wire supported by poles at the side of a track, and also in such a manner that it will yield and move out of the way of any obstruction with which it may come in contact as the locomotive or car upon which it is located is advancing over the track.

Figure 1 of the accompanying drawings is a sectional view of a railway track and carriage, showing our invention applied. Fig. 2 is a perspective view showing two trains on the same track and a bridge intervening and one of our devices carried on each train as required for communication between them.

a is a metal post bent at right angles at its top end and extending down through a tubular post *b*, fixed on top of a locomotive or car in such a manner that the rod can be rotated.

c c are insulated springs fixed to the lower portion of the post to extend in opposite directions and to be fastened at their outer ends to some stationary object, so that they will in their normal condition balance each other and restrict the rotary motion of the post *a*.

d is a straight metal rod pivoted to the horizontal portion of the post *a*.

g is a spring fixed to the inner end of the rod *d* and to a bar *h*, swiveled to the post *b*, and in such a manner that the spring will in its normal condition retain the outer end of the rod elevated and in contact with a telegraph-wire that extends over it, as clearly shown in Fig. 1.

m is a wire connected with the lower end of the rotating post *a* in such a manner that it can be readily extended therefrom and connected with a battery, telegraph-instrument, an electric signal-bell, or a telephone carried on the same locomotive, car, or train, as required to produce a circuit for transmitting and receiving messages.

n is an elongated friction roller or trolley on the end of the rod *d* to engage the wire supported alongside of the track.

In the practical use of our flexible device thus connected with an instrument on a locomotive the free end of the straight rod *d* will be constantly pressed upward against the wire supported alongside of the track, and will lower or rise at all points where the wire droops or rises relative to the track upon which the train is advancing, and when the rod comes in contact with a post or building at the side of the track that it cannot pass by being lowered it will move horizontally and turn with the rotating post *a*, as required to slip past such an obstruction, and then instantly resume its normal position under the action of the springs *c c* and *g*.

To change the position of the rod *d* relative to the car and track as required to engage the telegraph-wire when it is on the opposite side of the track, we detach the wires *c* from the bottom of the rotating post *a* and reverse the position of the rod, and then connect them with the post again.

We claim as our invention—

1. A flexible electric conductor for connecting an instrument on a train of cars with a wire extended at the side of the track, comprising a rotating metal post, a tubular post

or bearing for the rotating post fixed to a carriage, springs fixed to the rotating post and the carriage to extend in reverse directions, a rod pivoted to the top of the rotating post to extend horizontally, and a spring fixed to the pivoted rod and to an object on the carriage to control the vertical motion of the free end of the rod, arranged and combined to operate in the manner set forth.

2. The post *a*, having an elbow at its top, the fixed tubular post *b*, the springs *c*, fixed to the post *a*, the arm *d*, having a roller or trolley on its free end pivoted to the horizontal portion of the post *a*, and the spring *g*, fixed to the end of the rod *d* and connected with the post *b* by means of a horizontally-rotating bar *h*, arranged and combined with a locomotive, car, or carriage, to operate in the manner set forth, for the purposes stated.

3. An electric conductor for connecting a car or train on a railway-track with another car or train at some distance therefrom on the same track or station at the side of the track, composed of a post journaled to a fixed bearing on the car or train, a rod or arm pivoted to said post to project horizontally and to vibrate horizontally and vertically, springs fixed to the rotating post to restrict the horizontal vibratory motions of the pivoted rod, and a spring fixed to the end of the rod to retain the free end of the rod in contact with a wire extended parallel with the track in an elevated position, to operate in the manner set forth.

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