(No Model.) 2 Sheets—Sheet 1.

S. C. PULLMAN.

RAILWAY SIGNAL.

No. 319,023. Patented June 2, 1885.

Fig. 1.

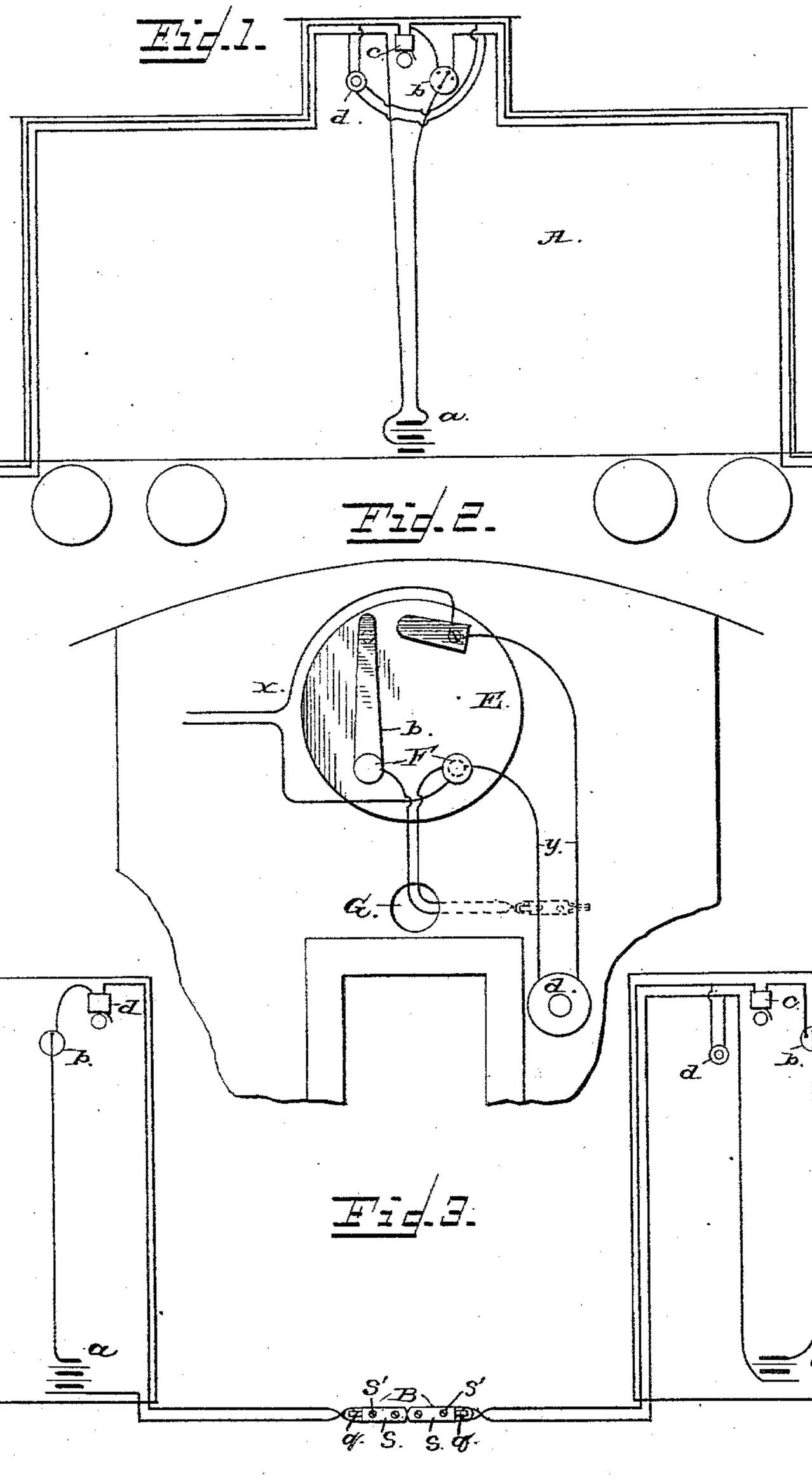

Fig. 2.

Fig. 3.

WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

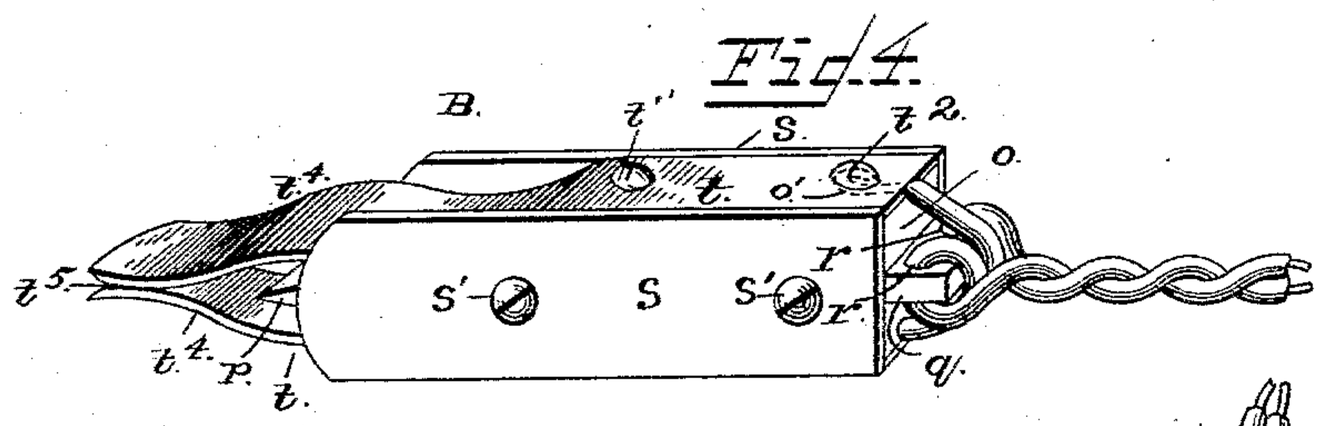


Fig. 5.

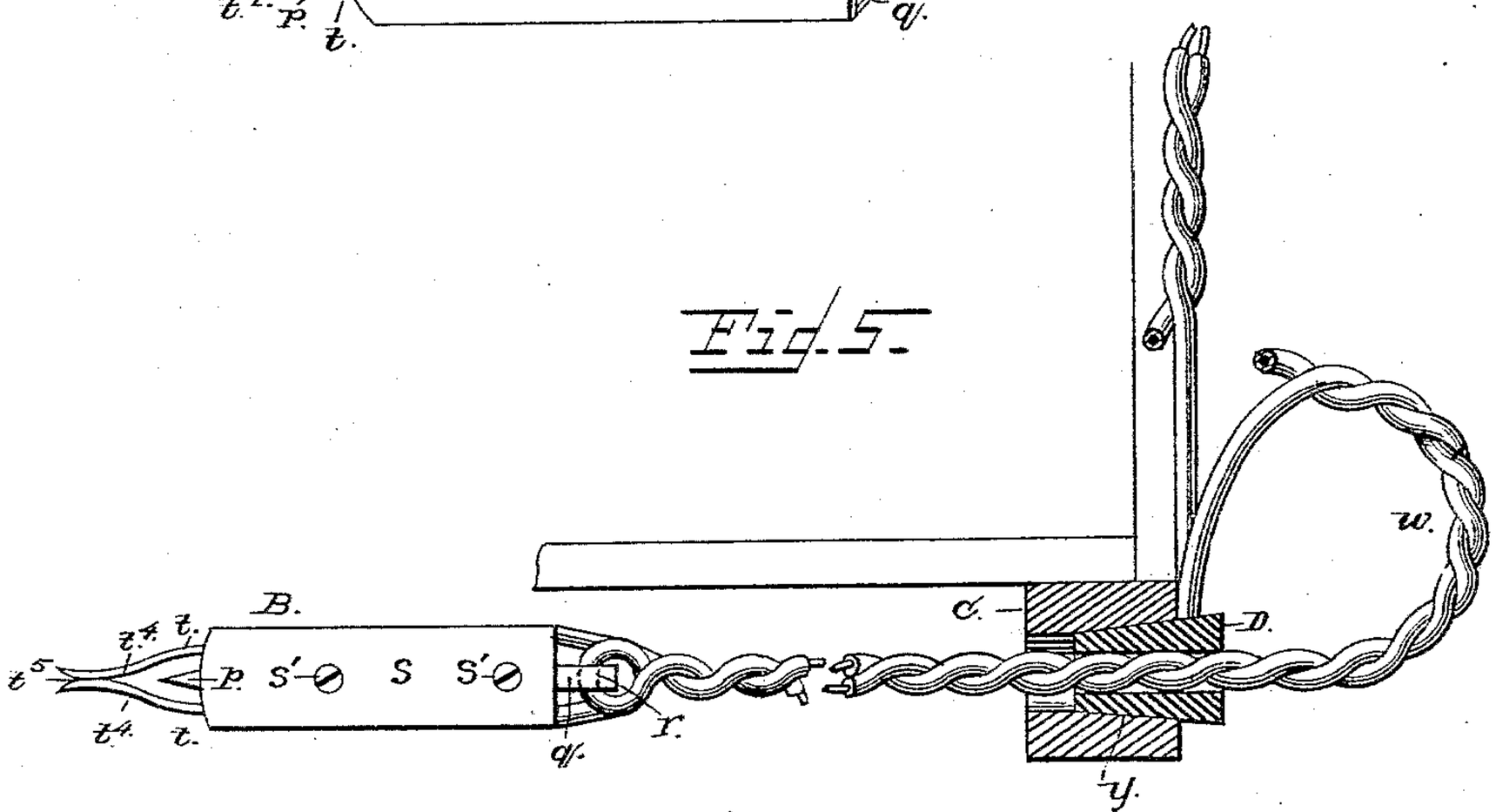
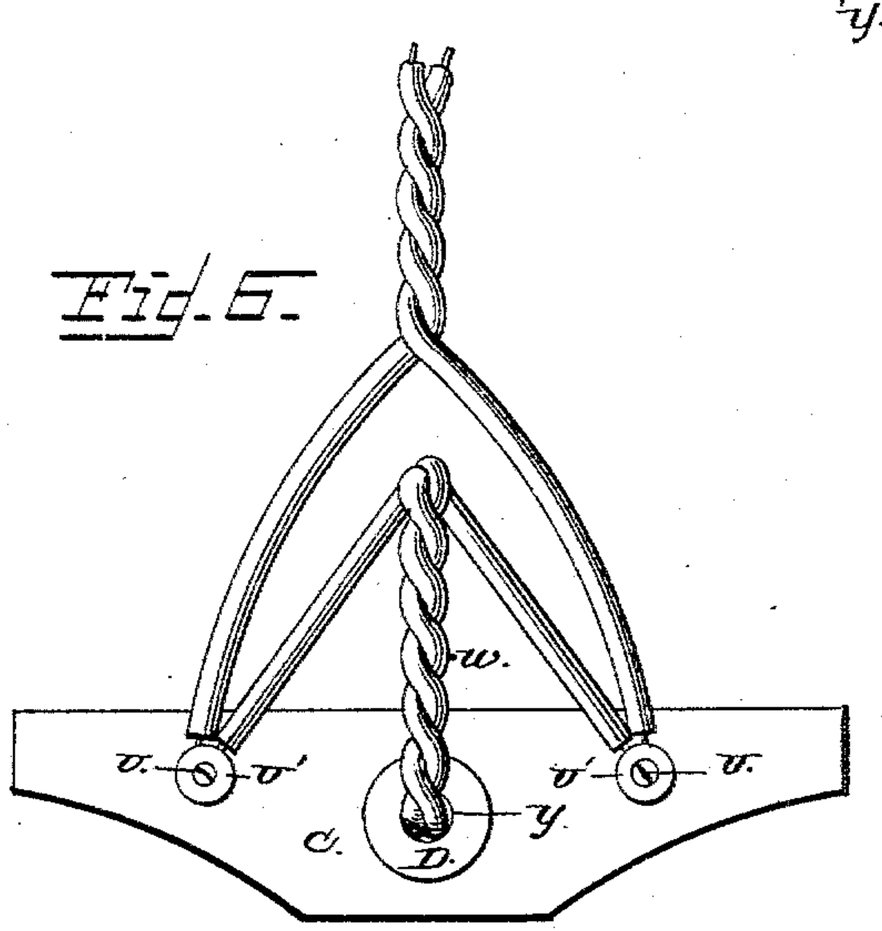


Fig. 6.



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UNITED STATES PATENT OFFICE.

SMITH CHARLES PULLMAN, OF CATSKILL, NEW YORK.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 319,023, dated June 2, 1885.

Application filed March 28, 1885. (No model.)

To all whom it may concern:

Be it known that I, SMITH C. PULLMAN, a citizen of the United States, residing at Catskill, in the county of Greene and State of New York, have invented new and useful Improvements in Electric Alarms for Railroad-Trains, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in electric alarms for railroad-trains; and it consists in the peculiar construction and combination of devices that will be more fully described hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in section of a caboose-car for freight-trains with my improved signaling apparatus attached thereto. Fig. 2 is a front elevation of a portion of a passenger-car with my signaling apparatus attached thereto. Fig. 3 is a view in section of a portion of a locomotive and caboose coupled together. Fig. 4 is a detailed perspective view of one of my electric couplings. Fig. 5 is a detailed section of a device for holding the slack of the coupling-wire and preventing strain thereon should the train break apart. Fig. 6 is a detailed rear elevation of the same.

A represents a caboose-car for freight-trains, in which is located a battery, *a*, switch *b*, electric bell *c*, and push-button *d*, all of which are of the ordinary construction. Insulated wires connect the battery with the switch, bell, and push-button, and extend along the inner side of the car, as shown, being secured in place by the staples that are commonly employed for this purpose. The extremities of the wires pass down through the bottom of the car at the ends thereof, and are attached to the couplings B. These couplings consist each of a gutta-percha body, *o*, which is cut away so as to form a wedge-shaped forward projection, *p*, and a rearwardly-extending shoulder, *q*, which is provided with two openings, *r*. The sides of the coupling are formed of gutta-percha strips *s*, which are secured to the body by screws *s'*, and extend forwardly to near the point of the projection *p*. To the upper and lower side of the body are secured brass spring-plates *t* by means of screws *t'* and *t²*. A recess, *o'*, is formed around each of the holes in the body that are adapted to receive the screws *t²*. The springs *t* are provided at their front portions with wave-like curves *t⁴*, and come in contact with each other at their front ends, as at *t⁵*, thus forming an electrical connection at this point when the couplings are disconnected. The wires are attached to the couplings by being passed through the openings *r*, and then their extremities are bent around over the projecting shoulder *q*, the insulation cut from their ends for a suitable distance, and the bared ends bent so as to fit into the recesses *o'*. When the screws *t²* are inserted, they clamp the bared ends of the wires against brass spring-plates, and thus form an electrical connection of the wires with the spring-plates. By passing the wires through the openings in the shoulders, and then bending them over around said shoulders before connecting their ends with the spring-plates, the strain upon the wires will be resisted by the shoulders, and the contact of the ends of the wires with the spring-plates constantly maintained.

C represents a cleat, which is adapted to be be bolted to the under side of the car, near the end thereof. The wires which pass down through the bottom of the car are attached to the rear side of this cleat by having their ends bared and bent around the screws *v*, which pass through clamp-buttons *v'*, that are made of copper, and between which the bent ends of the wires are clamped. From this point the wires which are connected to the couplings are twisted together, so as to form a cable. The diverging ends of the wires of the cable are connected to the wires of the car by the buttons *v'* and screws *v*. The cable is then bent into a loop, *w*, which forms a slack, and is passed through a rubber plug, D, that is placed in an opening, *y*, that is made in the cleat. Should the cars become uncoupled while in motion, the wire couplings B will become detached; but the spring-plates of said couplings are powerful enough to offer a considerable resistance to the wires before permitting the couplings to be detached, and were no provision made to avoid it this might result in breaking the wire cable or disconnecting

it from the wires at the points *v'*. By forming the loop *w* in the wire cable, and by passing the cable through the rubber plug, the plug allows the cable to slip through it for a slight distance under a strain and while the couplings B are becoming detached, and thus prevents the before-mentioned breakage of the wires or their disconnection.

In Fig. 3 I have shown an engine attached to a car. The engine is likewise provided with a battery, switch, and bell, and has its wires provided with a coupling, B. The coupling of the wires is made so as to connect the battery of the engine with the battery in the car, pole to pole—*i. e.*, the copper pole of one battery to the copper pole of the other battery, and similarly with the zinc poles, as indicated in the drawings, in which — represents the copper and — the zinc. When the batteries are thus connected, there is no electrical current in the wires, and the bells both of the engine and the car are silent. By pressing in the push-button *d* the connection between the batteries will be broken, and each bell will be rung by its own battery, and thus the conductor will be enabled to signal to the engineer. By hearing his own bell he will know that the bell on the engine is also sounded. Should the train become detached when in motion, the couplings B will be disconnected, as before stated, the spring-plates of these couplings will come together, and thus the circuit of each battery will be closed and the bell upon the engine and the bell in the car will each be caused to ring continuously, and thus notify both the engineer and the conductor that the train has parted.

In Fig. 2 I illustrate the mode of attaching my signaling apparatus to a passenger-car.

E represents a block, which is secured to the end of the car above the door. To this block is pivoted the switch *b*. Binding-posts F are secured to the block, and the push-button *d* is secured to the car on one side of the door. The wires from the binding-posts pass out through the hole G, that is made for the bell-rope under the present system, and are attached to the coupling B. The portions *x* of the wires extend along the car to a similar device at its opposite end, and the portions *y* extend to the push-button, as shown. A train of cars being thus provided and connected together, the conductor can signal to the engineer to stop or start the train by pushing in the push-button at either end of the car in which he happens to be. The switch on the rear end of the last car will be left open, in the position shown in dotted lines at Fig. 2, as the spring-plates of the last coupling B close the circuit at this point.

Having thus described my invention, I claim—

1. The coupling B, having the projection *p*, rearwardly-extending shoulder *q*, having openings *r*, and the spring-plates *t*, that are secured to the body of the coupling, substantially as described.

2. The coupling B, consisting of the non-conducting body having the projection *p* and the rearwardly-extending shoulder *q*, having openings *r*, and the spring-plates *t*, that are formed of conducting material and secured to the body of the coupling, said spring-plates being curved, as at t^1, and adapted to come in contact with each other at their front ends when the couplings are disconnected, substantially as described.

3. The combination of the coupling, the wires, the rubber plug through which the wires are passed, and the cleat that is adapted to receive the plug, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

SMITH CHARLES PULLMAN.

Witnesses:
GEO. F. TOLLEY,
WM. SHUFELT.