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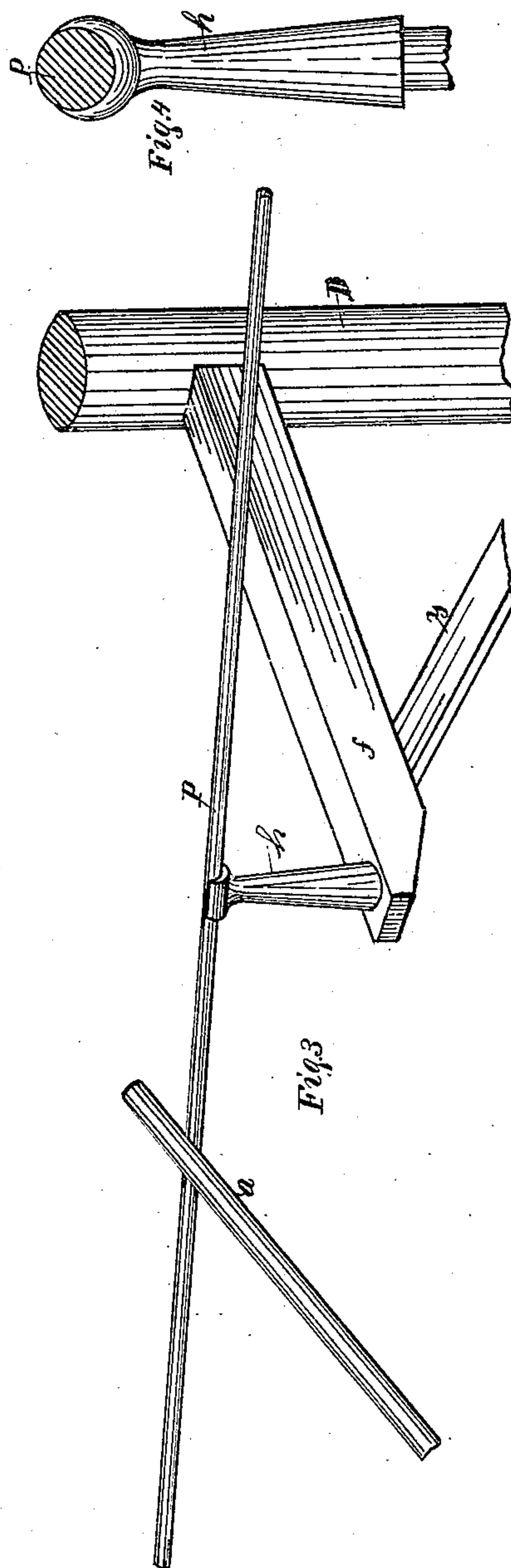
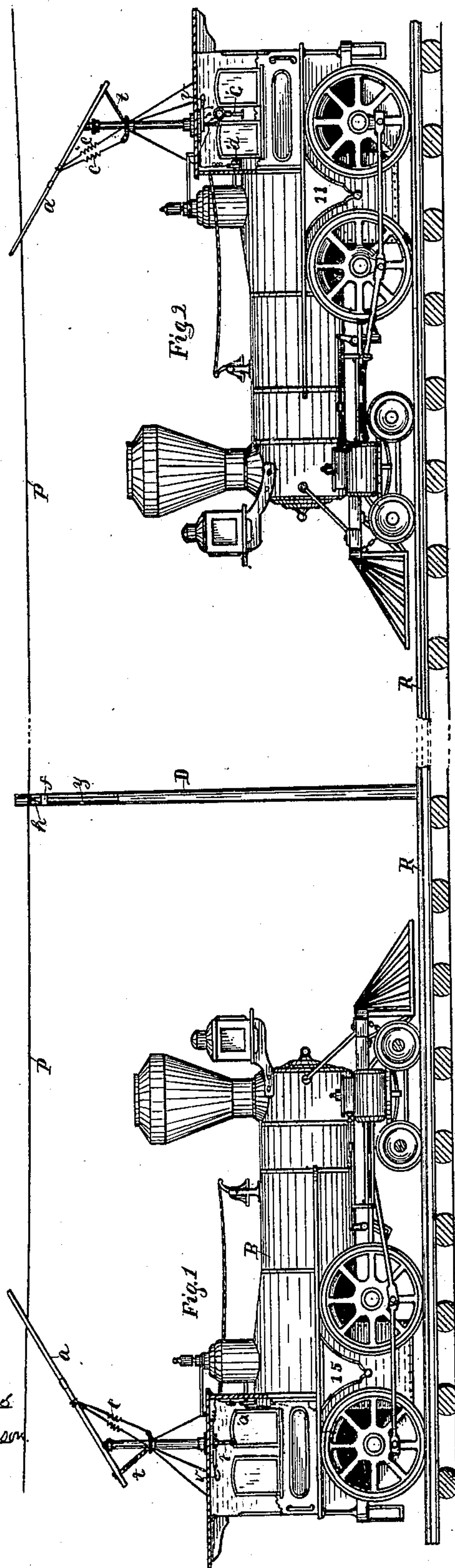
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M. F. PARRISH & S. J. MUNN.

TRAIN SIGNAL.

No. 297,438.

Patented Apr. 22, 1884.



Ans.  
John E. Perkins  
Samuel H. Benson

Inventors,  
Marcus F. Parrish  
Schuyler J. Munro  
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Atty-

(No Model.)

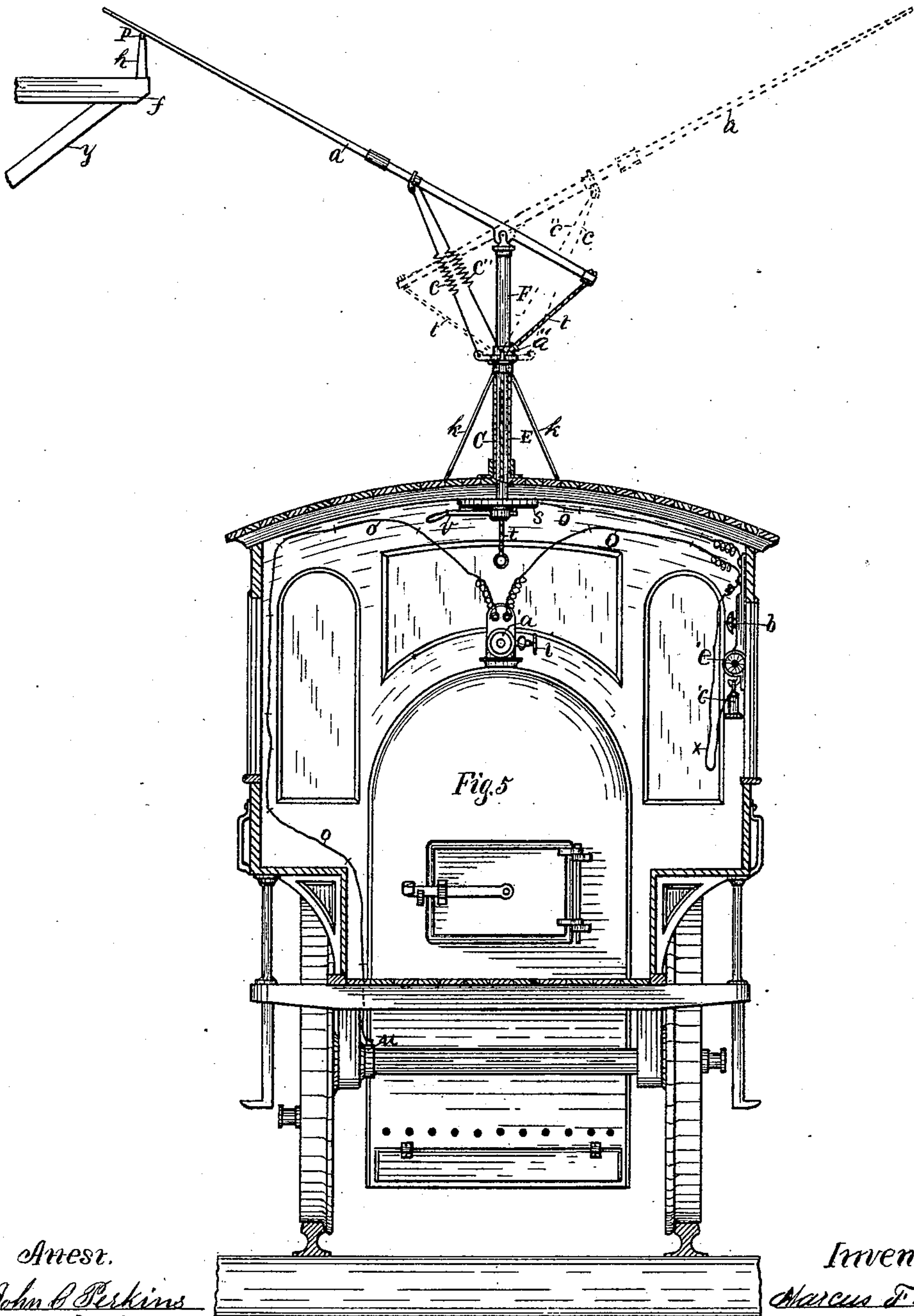
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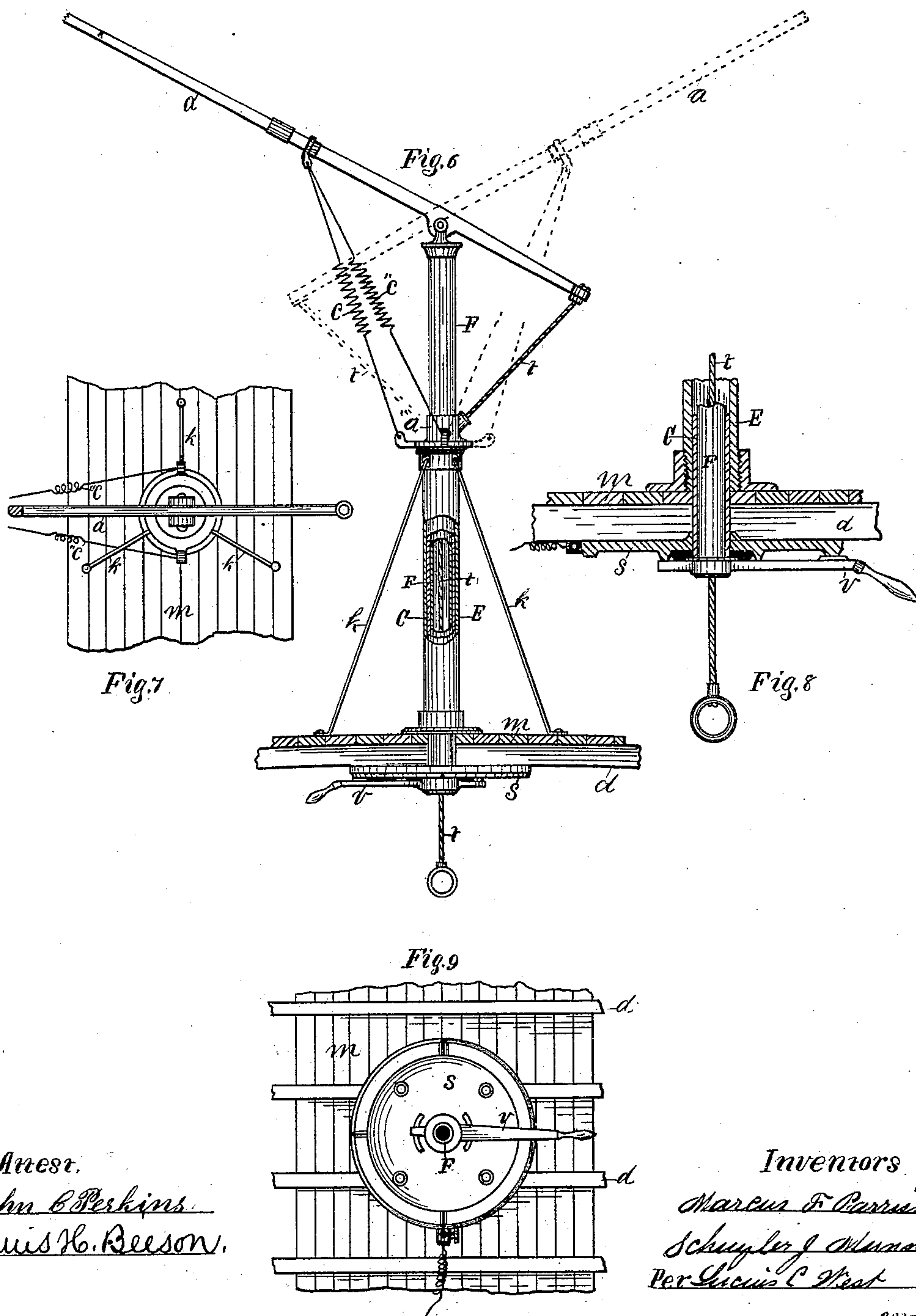
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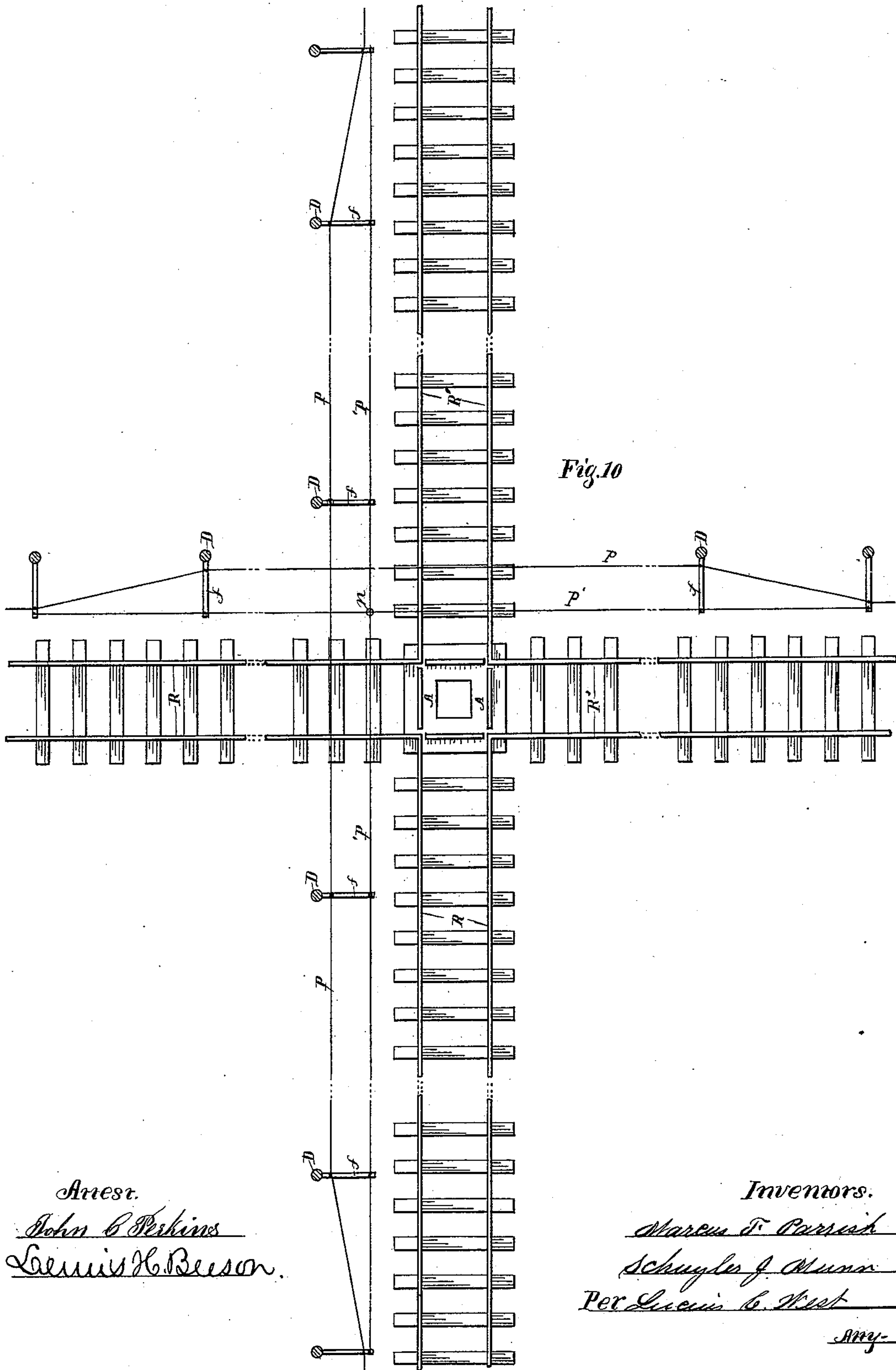
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# UNITED STATES PATENT OFFICE.

MARCUS F. PARRISH AND SCHUYLER J. MUNN, OF NILES, MICHIGAN, AS-  
SIGNORS OF ONE-THIRD TO CHARLES W. MILLARD, OF SAME PLACE.

## TRAIN-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 297,438, dated April 22, 1884.

Application filed October 30, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, MARCUS F. PARRISH and SCHUYLER J. MUNN, citizens of the United States, residing at Niles, county of Berrien, State of Michigan, have invented a new and useful Train-Signal, of which the following is a specification.

Our invention has for its object to construct an improved apparatus and apply it to an engine or vehicle adapted to traverse a metal track in a manner that two or more moving trains can singal and communicate with each other. A general construction of our invention consists in providing the cab of the engine with an electrical generator or other means of supplying electricity, with an alarm and telephone or equivalent devices for receiving and transmitting signals and communications, and with an adjustable conducting-arm adapted to engage a line of wire located along the line of the track.

In the drawings forming a part of this specification, Figures 1 and 2 are side elevations of two engines, illustrating the operation. Figs. 3 and 4 are detached parts enlarged; Fig. 5, rear view of Figs. 1 and 2, looking into the cab of the engine; Fig. 6, detached parts, enlarged, with portions broken away; Fig. 7, top view of Fig. 6; Fig. 8, a broken portion of Fig. 7, partly in section; Fig. 9, an under view of the cab-roof broken and portions of the device connected therewith, and Fig. 10 shows a plan of arranging the lines of wire where one railroad crosses another.

A line of wire, P, is located along a line of road and connected to posts D. In order to locate the wire P away from the posts D, so that the conducting-arm *a* will not conflict with said post as it passes over the wire, we provide the post with an arm, *f*, having a wire-support, *h*. The upper end of this support *h* terminates in a gripper to receive and hold the wire in a manner that no obstruction extends above said wire, thus admitting the arm *a* to pass over the wire P. The conducting-arm *a* is pivotally connected with a rotative shaft, F. This shaft is located in a tube-support, E, and passes down through the roof *m* of the cab, where a lever, *v*, is connected therewith. The

shaft F is turned by means of this lever in throwing the conducting-arm from one side of the cab to another, as indicated by dotted lines in Figs. 5 and 6. The tube E has brace-rods *k k*, connecting with the cab-roof and the upper end of said tube. Spring-braces *c''*, *c''*, and *c* are connected with arm *a*, and a thimble, *a''*, on tube E, to produce an effectual and yielding engagement of the arm *a* with wire P. A rope, *t*, is connected with the lower end of arm *a*, and located in the hollow center of shaft F, extending through the cab-roof. By pulling on said rope the arm *a* is disengaged from wire P. This rope may pass directly down through the cab-roof without entering the hollow-tube or shaft.

A disk or plate, S, is secured to the roof of the cab on the under side, and surrounds and rests against the lower end of the shaft F, said shaft passing through said plate and turning therein. The disk S is provided with two raised points for the engagement therewith of the lever *v*, Figs. 8 and 9. When thus engaged, the circuit-line between the conducting-arm *a* and the disk S is complete. Throwing lever *v* off from said raised points breaks the connection. Thus whichever side the lever *v* is on it engages said points at the same time arm *a* engages the wire P. The object in throwing arm *a* from one side of the cab to the other is to bring it on the side the wire P is located when the engine is running in the other direction. Thus in Fig. 1 the arm *a* is on the left-hand side of the cab, and in Fig. 2 said arm is on the right-hand side of the cab, the arms of both cabs engaging the same line of wire on one side of the track.

With plate S electric conducting-wire *o* is connected, Figs. 5 and 9. In lieu of this mode of connecting the arm *a* with the wire *o*, said wire may extend directly up through the cab-roof, and connect immediately with said arm *a*. When said wire *o* is connected with the disk S, the tube-support E may be provided with an insulating-lining, of rubber, C, if deemed necessary. This will greatly depend upon the power or strength of the electrical current.

The electrical generator is here shown lo-



cated in the cab at *a'*. The generator may consist of rotating magnets propelled by a small piston-engine of any well-known construction or otherwise. The generator is connected with the boiler by means of a pipe, Figs. 1 and 2, through which steam is conducted to propel the operating mechanism of the generator. As we do not limit our claim to any given style of generator, no specific one is here shown, nor the specific construction of any.

*e'* is the telephone, *b* the bell, and *c'* the ear-trumpet, Fig. 5. The electric conducting-wire *o* connects the telephone with the generator and the generator with the car-axle at *u*. A band is located around the axle at this point and the wire connected with said band. The axle revolves in said band. The wire *o* may be connected with any other metal portion of the engine, if preferred. Thus, by means of the rail of the track, a complete circuit is established between two trains, as in Figs. 1 and 2. When the conducting-arms *a a* of the engines are both engaged with wire *P*, as in said figures, the bell *b* in each cab rings, letting the engineer of each train know that they are approaching each other on the same line of road. With this arrangement one engineer can communicate with the other by means of the telephone or by telegraph-instruments. (Not here shown.) The trains, after signaling each other, may be stopped, when the telephone can be advantageously employed in communicating information or instructions.

In Fig. 10 the wires *P* on the line of two roads crossing each other are shown located on one side of its regular line for a distance of one mile (more or less) each way from the point of crossing *A*, and short lines of wire *P' P'*, located in the regular position otherwise occupied by the main lines *P P*. These short lines form no connection with the main lines, but are connected together where they cross each other at *n*. The main lines *P P* are not connected where they cross each other, one being located higher than the other, so as not to conflict with each other. With this arrangement of wires, in connection with the apparatus connected with the engine, trains coming on each branch *R' R'* of the road toward the crossing *A* signal each other as soon as the arms *a* of the engines engage the short wires *P' P'*; and, likewise, trains coming on the branches *R R*. At the same time trains a greater distance away, with arms *a a* engaging the main line *P*, can signal and communicate with each other. When the engines reach the crossing *A*, the engineer throws off the conducting-arm *a* to pass the connection of wires at *n*; or the spring-braces *c''* will yield, in allowing the arm to pass, sufficiently to deaden the shock should said arm come in contact with the wires at *n*.

Deeming the operation sufficiently described, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a metal track and a line of wire along said track, of railway-engines or other vehicles, each provided with an alarm, an electric generator, and an electric reversible conducting-arm adapted to engage said line of wire, whereby an alarm is sounded in the engines approaching each other, substantially as set forth.

2. The combination, with a metal track and a line of wire along said track, of separate engines or other vehicles adapted to traverse said track, each provided with an alarm, an electrical generator, conducting-wires, and a reversible conducting-arm adapted to engage said line of wire, substantially as described.

3. The combination, with a metal track and a line of wire along said track, of railway-engines or other vehicles, each provided with means for producing electricity, means for receiving and transmitting signals, alarms, or messages, a reversible conducting-arm adapted to engage said line of wire, and means for causing a yielding engagement of said parts, all substantially as set forth.

4. An engine or other vehicle provided with a tube-support, and a shaft adapted to rotate in said tube-support, in combination with a conducting-arm connected with the top of said shaft, and means for rotating the shaft, for the purpose of throwing the conducting-arm from one position to another, substantially as described and shown.

5. In a train-signaling device, the combination, with a tube-support, a thimble at the top of said tube-support, and adapted to rotate around the latter, of a pivotally-connected conducting-arm and spring-braces connecting said arm and thimble, substantially as specified.

6. In a train-signaling device, the combination, with a metal track and a line of wire along said track, of an engine or other vehicle adapted to traverse said track, and provided with means for communicating signals or messages, means for producing electricity, a reversible conducting-arm, and conducting-wires connecting said means and conducting-arm with the axle, or equivalent metal portion of the vehicle, substantially as set forth.

7. An engine or other vehicle provided with an insulated tube-support, a shaft adapted to rotate in said support, a pivoted conducting-arm, an electrical generator, an alarm, and conducting-wires, in combination with a metal track and a line of wire along said track, substantially as described and shown.

8. In a train-signaling device, the combination, with a vehicle having a shaft adapted to rotate, an operating-lever at the lower end of said shaft, a conducting-arm connecting with the upper end thereof, an alarm, generator, and conducting-wires, of a metal track and a line of wire along the line of said track, substantially as described and shown.

9. The combination, with metal tracks crossing each other and vehicles adapted to trav-



erse said tracks provided with conducting-  
arms, conducting-wires, generators, and means  
for receiving and transmitting signals or mes-  
sages, of the main lines of wire thrown out of  
5 their regular line at the crossing of the tracks,  
and the short lines of wire connecting with  
each other where they cross, all substantially  
as set forth.

In testimony of the foregoing we have here-  
unto subscribed our names in the presence of 10  
two witnesses.

MARCUS F. PARRISH.  
SCHUYLER J. MUNN.

Witnesses:

LEWIS H. BEESON,  
CHARLES W. MILLARD.