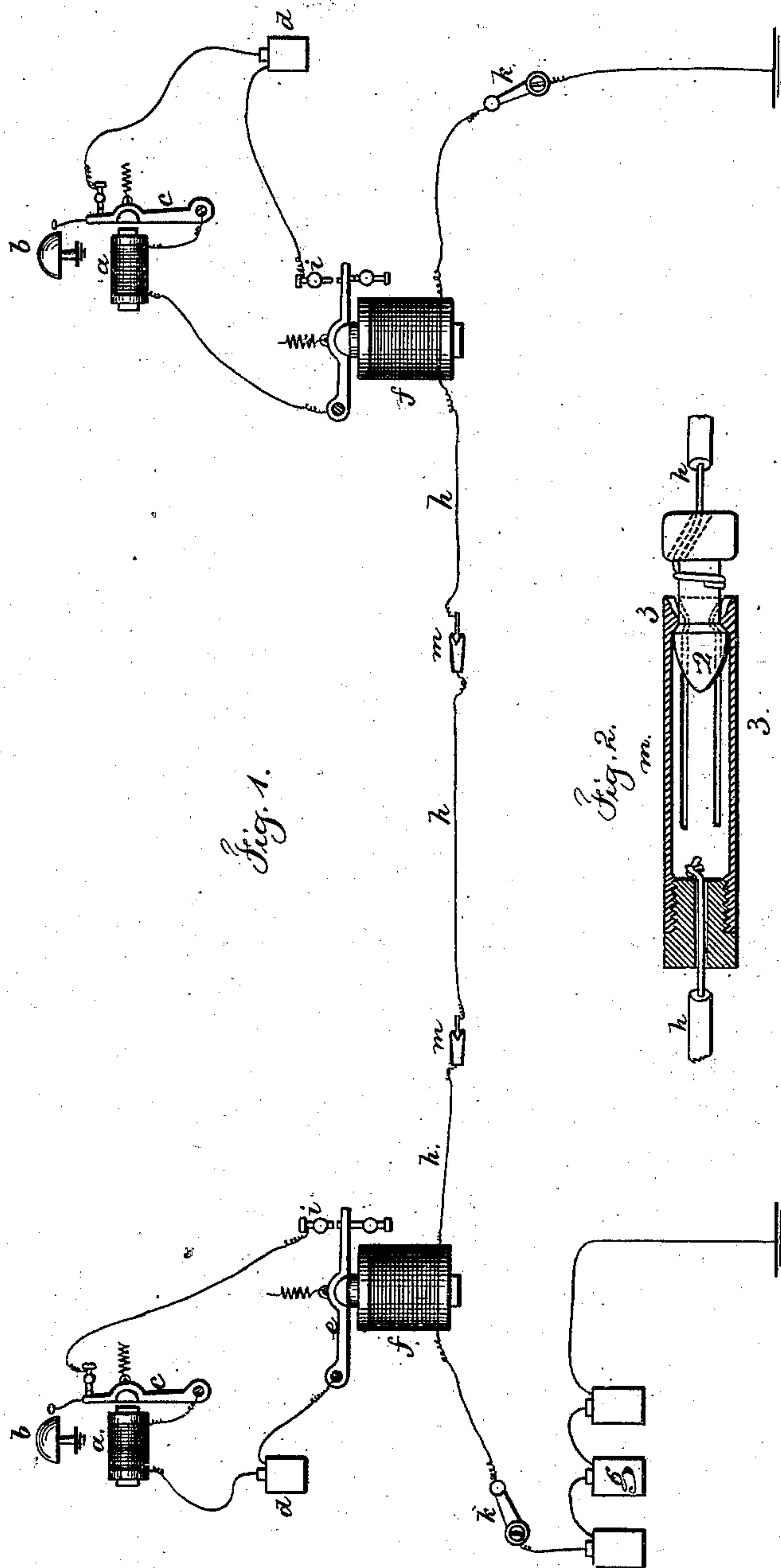


A. H. CATLIN.
Railway Train Signal.

No. 228,034.

Patented May 25, 1880.



Witnesses

Chas. H. Smith
Geo. S. Pinckney

Inventor

Austin H. Catlin.
per Lemuel W. Perrell atty.

UNITED STATES PATENT OFFICE.

AUSTIN H. CATLIN, OF PEEKSKILL, NEW YORK.

RAILWAY-TRAIN SIGNAL.

SPECIFICATION forming part of Letters Patent No. 228,034, dated May 25, 1880.

Application filed December 5, 1879.

To all whom it may concern:

Be it known that I, AUSTIN H. CATLIN, of Peekskill, in the county of Westchester and State of New York, have invented an Improvement in Railway-Train Signals, of which the following is a specification.

Railway-signals have been arranged so that the engineer could be communicated with from either car by closing one electric circuit; and I have also made use of an alarm at both ends, especially adapted to freight-trains, the same being operated by the train separating into two parts.

My present invention is made for simplifying the train-connections and causing the signal to ring at both ends of the train if the conductor that runs along the train is separated.

In the drawings, Figure 1 is a diagram of the circuit connections and instruments, and Fig. 2 is a section of the coupling for the train-conductor.

The instruments at the engine and at the caboose or last car are similar—that is to say, there is a repeating-alarm, composed of an electro-magnet, *a*, bell *b*, armature-lever *c*, and hammer, and a circuit-closer operated by the armature, the circuit passing from the battery *d* through the armature *e* and contact-point *i* of the magnet *f*. This magnet *f* is in a closed circuit passing from a constant battery, (such as the Eagle battery,) *g*, through the conductor *h*, to the distant electro-magnet *f*, and both ends of this circuit are to the ground through a metallic conductor to one of the wheels or axles of the caboose and of the engine. In this circuit there is a key or closed switch, *k*, at each end.

The conductor *h* is an insulated wire passing along the entire train and provided with one or more slip-couplings, *m*, formed of an acorn-shaped end, 2, passing in between a group of latch-ended springs, 3, as shown in Fig. 2. This coupling pulls apart if the train separates, and in so doing the circuit to the magnets *f* is broken and their spring-armatures fall back, closing the local circuits from the batteries *d d* and ringing the alarm at both ends of the train.

If the brakeman wishes to signal the engineer, or the reverse, it can be easily done by operating the key or switch *k*, and thereby breaking the circuit, through the magnets *f f*, and allowing the armatures to fly back and

close the local circuits, and either the brakeman or engineer can ascertain whether the line is in working order, because the alarm will be rung simply by breaking the train-circuit.

A switch can be placed in the local circuit, if desired, to stop the automatic bell.

If desired, more than two alarm-instruments may be used on the train, and one might be placed in each car, because the train-circuit that passes through the electro-magnet of each instrument, if broken at any point, demagnetizes the train-magnets and closes each local alarm-circuit to the alarms.

I am aware that train-signals have been operated by a single conducting-wire running along the train, with a magnet placed in the main circuit, so that its armature will fly back and strike a bell if the circuit is broken. I am also aware that local circuits in telegraphs have been closed by the breaking of the normally-closed main-line circuit. By my improvement I combine the instrumentalities so as to ring a continuous alarm at both the engine and last car when the main-circuit conductor separates, which is very important in calling attention to the separation of the train into two parts, particularly at night, and by my apparatus the two ends of the train are put into communication whenever desired.

I claim as my invention—

The combination, in a train-signal, of a metallic circuit extending from the engine to the rear of the train, a return circuit-connection to the track, slip-couplings at one or more places in the circuit, an electro-magnet and a switch or key at the engine and at the last car, a local circuit and a continuously-ringing alarm-instrument at each end of the train, brought into action by the circuit-closing armatures of the electro-magnets in the main circuit, whereby a continuously-operating alarm is given at both ends if the train separates, and signals can also be sent from either end of the train to the other when the main circuit remains unbroken, substantially as set forth.

Signed by me this 28th day of November, A. D. 1879.

A. H. CATLIN.

Witnesses:

GEO. T. PINCKNEY,
WILLIAM G. MOTT.