G. DRAPER.

Railroad Signal.

No. 111,824. Patented Feb. 14, 1871.

Fig. 1.

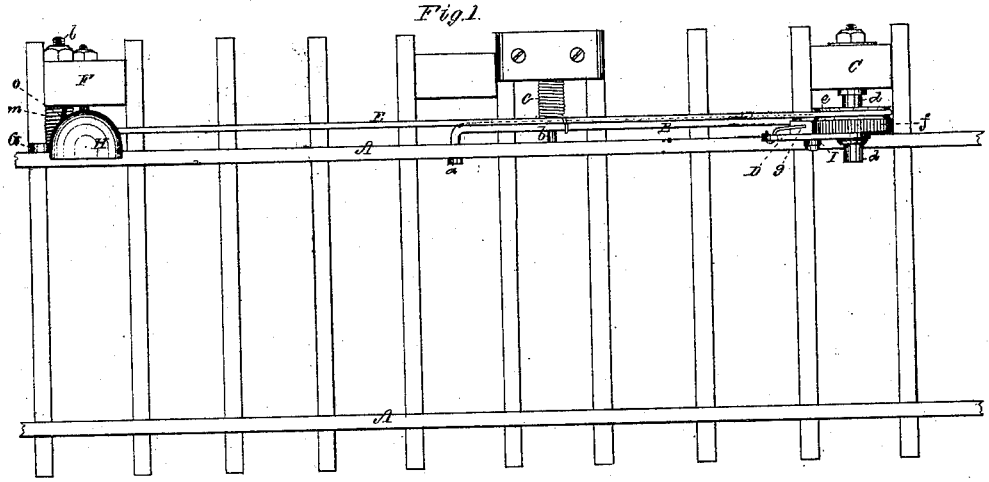


Fig. 2.

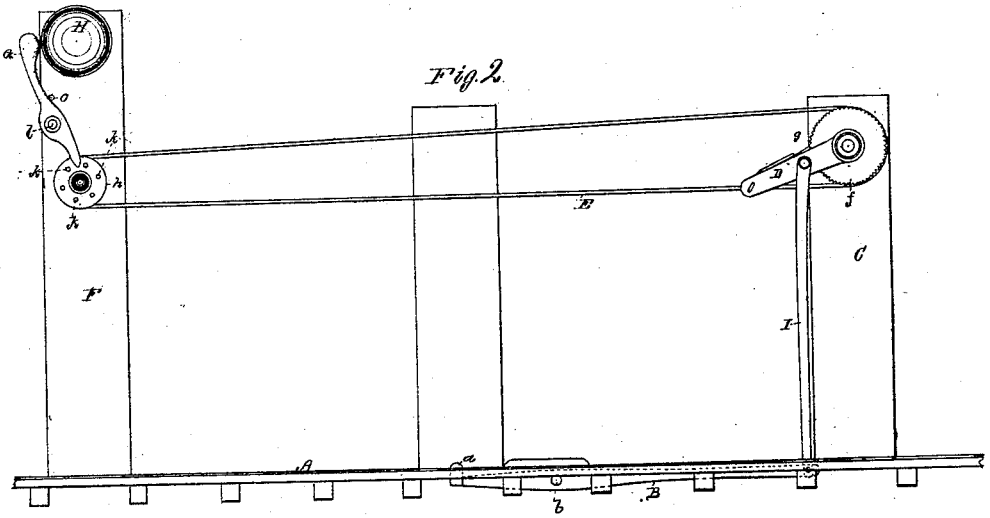
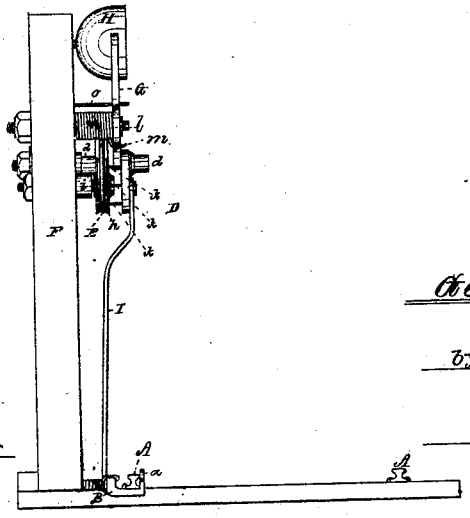


Fig. 3.



Witnesses.

S. N. Piper.

L. N. Möller

George Draper

by his attorney

N. Wright

United States Patent Office.

GEORGE DRAPER, OF HOPEDALE, MASSACHUSETTS.

Letters Patent No. 111,824, dated February 14, 1871.

IMPROVEMENT IN RAILWAY ALARMS.

The Schedule referred to in these Letters Patent and making part of the same.

To all persons to whom these presents may come:

Be it known that I, GEORGE DRAPER, of Hopedale, of the county of Worcester and State of Massachusetts, have invented a new and useful Railway Alarm or Signal Apparatus for a road, crossing, or other part of a railway; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, of which—

Figure 1 is a top view;

Figure 2, a front elevation; and

Figure 3, a front-end elevation of it.

The object of the invention is to enable a moving carriage or train of carriages to sound an alarm to indicate, whether to a person in the carriage or train at a distance therefrom, the position of such carriage or train or its approach.

In the drawing—

A A denote the rails of a railway track, there being arranged alongside of one of them a lever, B, whose shorter arm is bent so as to extend through an opening in or underneath one of the rails, and is provided with a projection or head, *a*, so arranged as to be impinged against and passed over by either the treads or the flanges of the wheels of one side of a carriage or train of carriages while such may be in the act of passing the alarm apparatus.

Each wheel, as it may roll over the said projection or head, is to depress it so as to tilt the lever on its fulcrum *b*, which is to be provided with a spring, *c*, to impart to the lever a reversed motion instantly after the passage of each wheel by the projection.

From a post, C, arranged near the outer end of the longer arm of the lever B an arbor, *d*, is extended.

On the said arbor is a grooved wheel, *e*, provided with a ratchet, *f*, the two being fastened together and so applied to the arbor as to be capable of freely revolving on it.

There is also on the arbor a rocker-arm, D, carrying a pawl, *g*, to act on the peripery of the ratchet.

An endless wire rope, E, is to go around the wheel *e*, and another such wheel, *h*, placed on an arbor, *i*, projected from another post, F.

This wheel *h* I term the "escapement-wheel," because it has a row of pins, *k*, extending at equal distances apart from its side, and arranged in a circle about the wheel.

They are intended to actuate the tail or lower arm of a lever-hammer, G, such hammer being pivoted upon another arbor, *l*, and furnished with a spring, *m*, for forcing it against a bell, H, extended from the post F.

A counter-spring, *o*, projecting from the post F serves to keep the hammer-head out of contact with the belt after each blow of the hammer, the same being in order that the bell may be free to vibrate without interruption from the hammer.

If desirable, there may be a row of pins fixed in the wheel *e*, and to such there may be a hammer and bell to operate like those hereinbefore described, the hammer being furnished with a spring to force it against the bell.

In making my said "alarm apparatus," I have endeavored to devise one of a practical character; one not liable to derangement and capable of operating under usual atmospheric changes.

For this reason I employ an endless wire rope to transfer the power from the wheel *e* to the escapement-wheel *h*.

It matters not how much such rope may sag or how long it may be, it will generally, by its weight, produce sufficient friction to effect the rotation of the the wheel *h* or transfer motion from the wheel *e* to such wheel *h*.

The longer arm of the tripping-lever B is jointed to the rocker-arm D by a connecting-rod or pitman, I, pivoted to the two.

From the above it will be seen that while a carriage or train of cars may be passing over the head *a* of the tripping-lever B, such lever will be put in oscillation on its fulcrum in consequence of the wheels moving on and off the said head.

This movement of the lever will create corresponding movements of the rocker-arm, whereby an intermittent rotary motion will be imparted to the ratchet and its wheel *e*.

This motion, by means of the wire-rope endless belt, will be transferred to the escapement-wheel, whereby the alarm will be sounded, or the hammer be caused to repeatedly strike the bell.

I make no claim to the employment of a tripping-lever, a bell, and an apparatus connected with the lever, and a hammer to the bell, and to operate such hammer by the wheels of a carriage or train by successively passing over and depressing the lever, as I am aware that there are various kinds of railway alarm apparatus having their general features but which generally, owing to their peculiar or faulty construction, are liable soon to become deranged or get out of order, and have to such extent that it is rare to meet with a good alarm apparatus of the kind in use.

What I claim as my invention is—

My special railway-alarm apparatus, as composed of the lever B, its retractive spring *c*, the connecting-rod I, the rocker-arm D, the pawl *g*, the ratchet *f*, the grooved wheel *e*, the endless wire-rope E, the escapement-wheel *h*, the hammer G, its spring *m*, and the belt H, all arranged substantially in manner and to operate as described.

GEORGE DRAPER.

Witnesses:

R. H. EDDY,

J. R. SNOW.