

(No Model.)

R. A. BUTLER.
TRAIN ALARM.

No. 584,540.

Patented June 15, 1897.

Fig. 1.

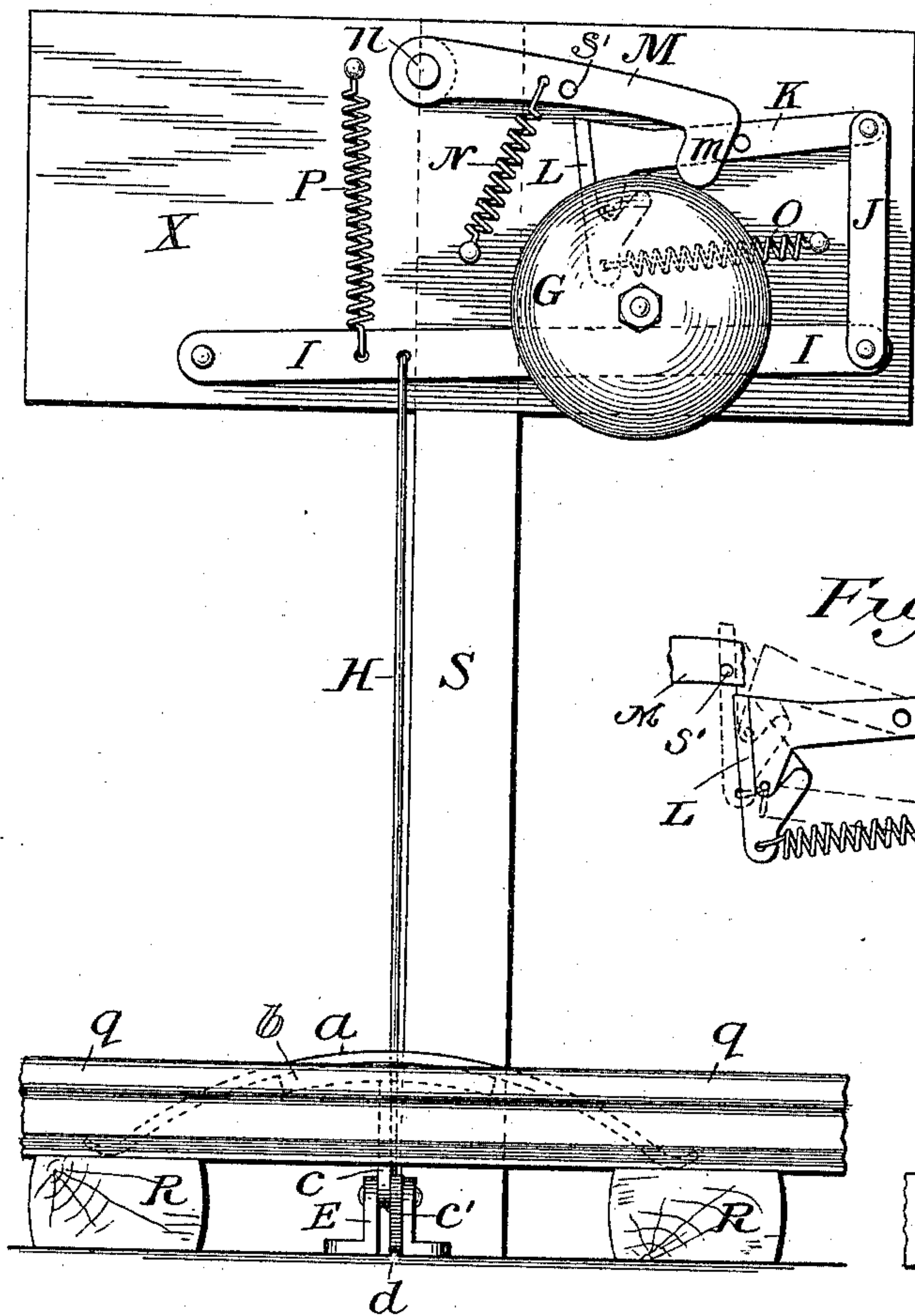


Fig. 2.

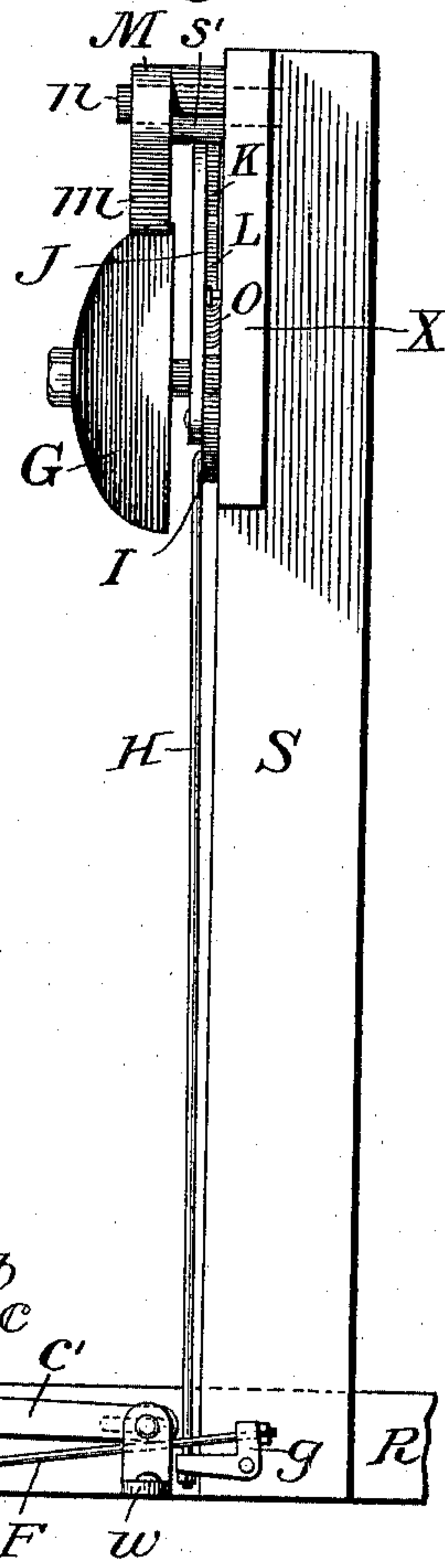
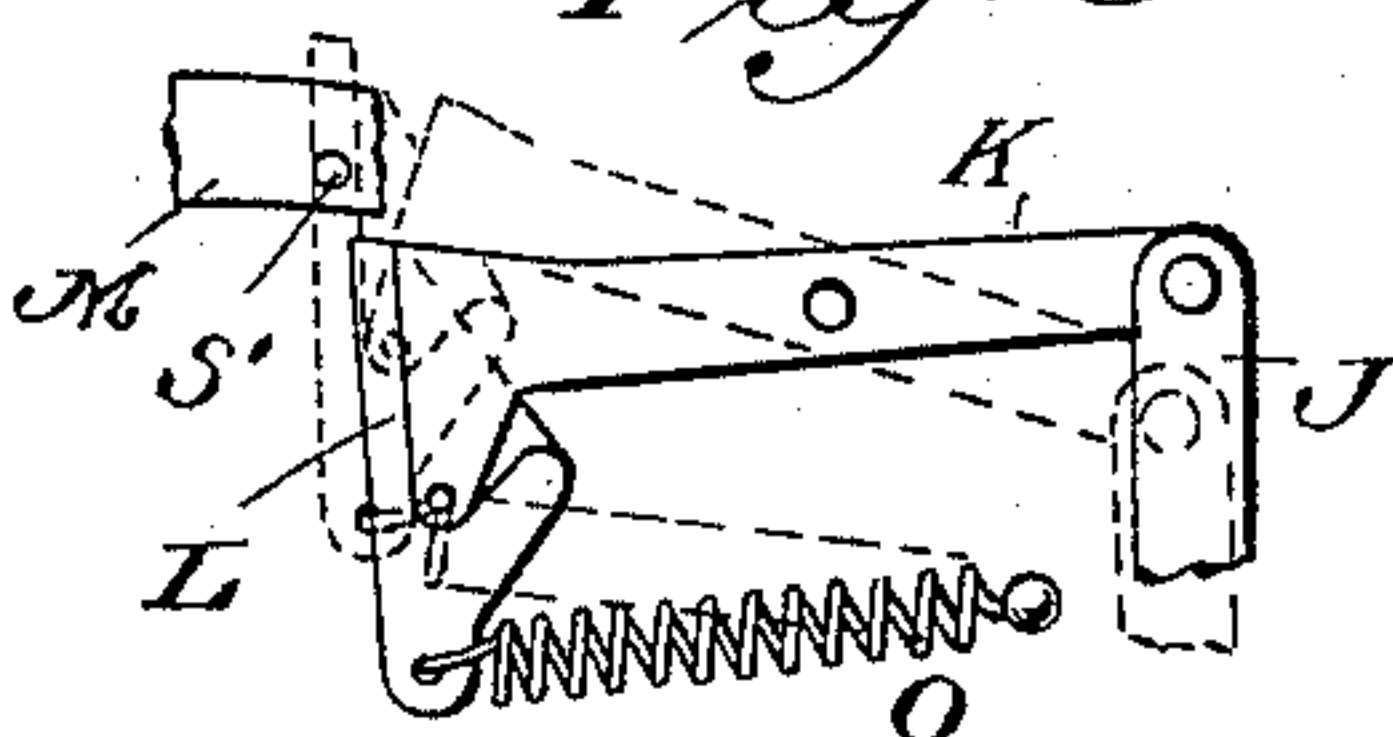


Fig. 3.



Witnesses.

Geo. H. Remington
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UNITED STATES PATENT OFFICE.

RICHARD A. BUTLER, OF PAWTUCKET, RHODE ISLAND.

TRAIN-ALARM.

SPECIFICATION forming part of Letters Patent No. 584,540, dated June 15, 1897.

Application filed May 25, 1894. Serial No. 512,476. (No model.)

To all whom it may concern:

Be it known that I, RICHARD A. BUTLER, a citizen of the United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Train-Alarms; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to provide an alarm-signal for the benefit of trainmen when approaching an overhead bridge, and I accomplish this by the means illustrated in the accompanying mechanism in the drawings, of which—

Figure 1 designates a front elevation of the post and signal system, and Fig. 2 designates a side view in elevation of the same. Fig. 3 is a detail view showing the construction of the trip-toe and its operation in conjunction with the shaft *s'*.

Similar letters refer to similar parts throughout.

In Fig. 1, *a* designates a strip of spring-steel secured upon a metal cushion *b*, which rests upon a plunger *c*. The plunger *c* is loosely secured and pivoted to the bell-crank lever *d*. The free ends of this spring *a* rest on the lower part of the rail or sleepers and is so shaped that the top part of the same rises above the top of the rail and upon the outside thereof in such a manner that the tread of the passing wheels of the car will impinge upon the strip and force the same down upon the lever *d*. This lever *d*, as above described, is a bell-crank lever fulcrumed in the top of the double post *E* and having an arm *c'*. This arm *c'* extends to a similar double post *w* and works back and forth on the axis of said post by means of a slot in the end thereof.

To the lower arm of the bell-crank lever *d* is secured a wire *F*, extending at right angles to the rail *q* in any suitable box or casing for the same to the foot of the post *S*. At the base of this post *S* is pivoted the bell-crank lever *g*, to the end of the upper arm of which is secured the end of the wire *F*. From the lower arm of this bell-crank lever the wire *H* extends up the post *S* by means of any proper guides to the lower arm *I*. This arm *I* is se-

cured by a pin to the frame *X*, erected upon the post *S*. *P* designates a spiral spring secured at one end to this lower arm *I* and at the other end by a pin in the frame. This arm *I* is pivoted to a perpendicular arm *J*, which in turn is pivoted to the outer arm of the lever *K*. In the end of the lever *K* is loosely secured a trip-toe *L*, the use of which will hereinafter appear. Upon a post *n*, extending at right angles from the frame *X*, is loosely secured lever *M*, terminating in a hammer *m*.

N designates a spiral spring secured to the frame *X* and the arm *M* of the hammer in such a manner that when the hammer is raised it will be brought down upon the gong *G* and sound the alarm.

o designates a spiral spring secured to the frame *X* and the trip-toe *L*, its purpose being to bring the trip-toe back to its position.

s' designates a shaft extending from about midway of the hammer-shaft *M* and on the inside thereof between said shaft and the frame to said frame *X*. The trip-toe *L* when raised by the lever *K* catches against and lifts this shaft *s'*, thus raising the hammer. When the hammer is released, it is forced by the spring *N* against the gong *G*.

The manner of using my invention is as follows: As the wheels of the passing train depress the spring *a* through the system of wires and levers as constructed and described, the motion is transmitted to the hammer, which is in turn forced against the gong. My idea is to place this gong upon a post raised to about the height of the top of a freight-car and so near the top of the car as to convey an immediate warning to any trainmen upon the top of the same.

I am aware that several devices have been employed for this purpose—viz., warning trainmen of the approach to an overhead bridge—but none that I am aware of similar to mine. The great advantage which I claim for it is its simplicity of structure and certainty.

What I claim, and desire to secure by Letters Patent, is—

1. In a train-alarm, the combination of a spring-shoe normally extending above the tread of the rail, a plunger supporting said shoe, an alarm-gong, a post for suitably sup-

porting the same, an operative connection from said plunger to said gong, and a reciprocating rod *c'*, one end of which is secured to the train of operative mechanism so as to be reciprocated thereby, and the other end is provided with means for limiting its movement of reciprocation, substantially as described.

2. In a device for train-alarms, the combination of the curved spring *a* extending above the rail, secured to the plunger *c* by means of the cushion *b* the bell-crank lever *d*, the wire *F* extending from lever *d* to the base of the post *S*, the elbow *g* secured to the base of the post *S*, the rod *H* extending up said post from the elbow *g* to the arm *I* pivoted in frame *X* and provided with a spiral spring *p*,

the arm *J* pivoted to said arm *I*, the arm *K* pivoted to said arm *J*, the trip-toe *L* secured in the end of the said arm *K* and provided with a spiral spring *O*, the lever *M* pivoted to the projection from the frame *X* and provided with a spiral spring *N*, the shaft *s'* adjusted to be engaged by the trip-toe *L*, the hammer *m* and the gong *G*, all substantially as and for the purpose described.

In testimony whereof I have hereunto set my hand in the presence of subscribing witnesses.

RICHARD A. BUTLER.

In presence of—

EDWARD W. BLODGETT,
WILLIAM W. BLODGETT.