P. E. Le BOULENGE.

Torpedo Signal for Railways.

No. 208,616. Patented Oct. 1, 1878.

Fig. 1.

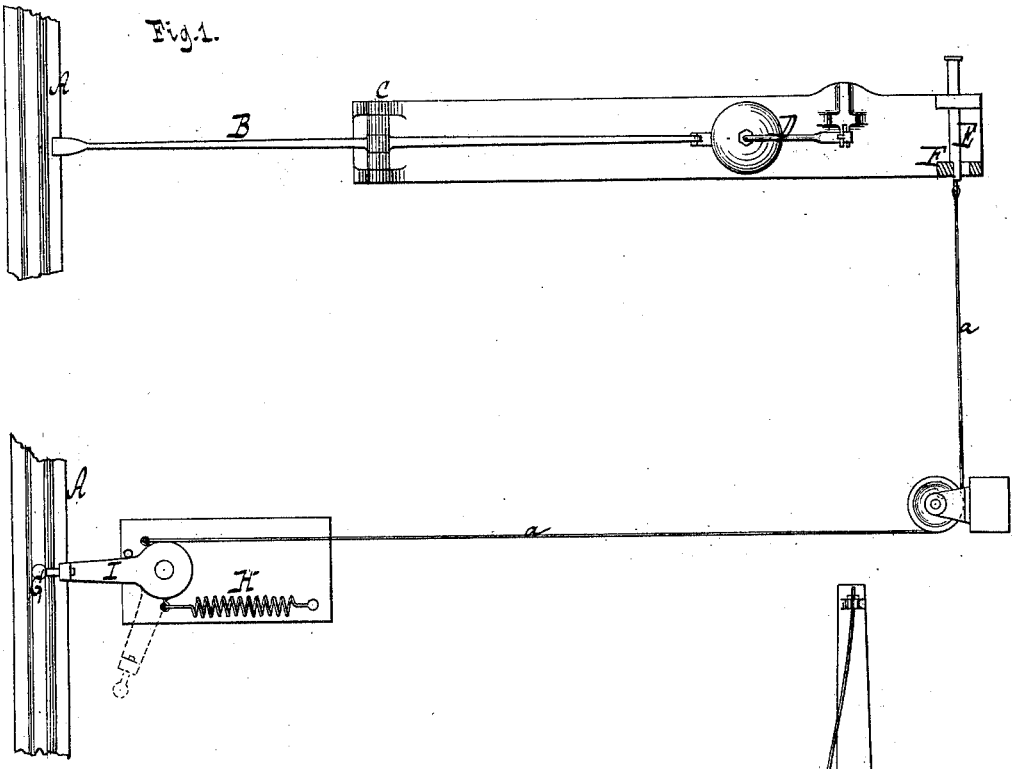
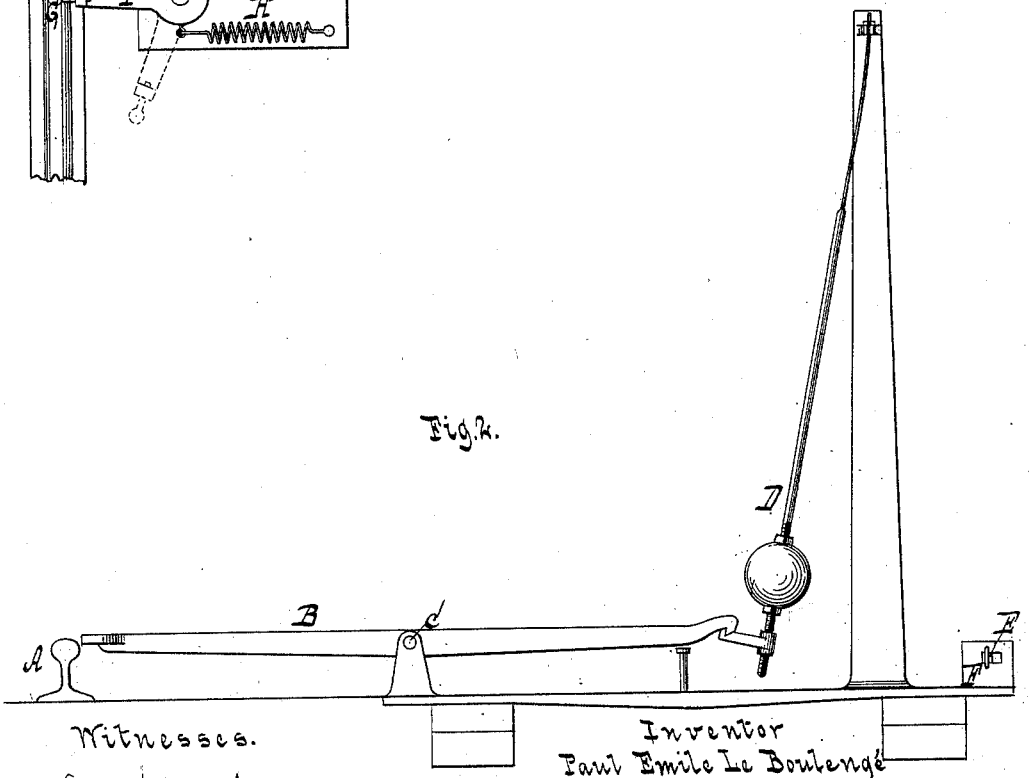


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

PAUL E. LE BOULENGÉ, OF LIEGE, BELGIUM.

IMPROVEMENT IN TORPEDO-SIGNALS FOR RAILWAYS.

Specification forming part of Letters Patent No. **208,616**, dated October 1, 1878; application filed September 4, 1878.

To all whom it may concern:

Be it known that I, PAUL EMILE LE BOULENGÉ, of Liege, in the Kingdom of Belgium, have invented a new and Improved Apparatus for Controlling the Speed of Locomotives and Trains, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 is a plan view. Fig. 2 is a side elevation.

Similar letters indicate corresponding parts.

This invention consists in the combination, in an apparatus for controlling the speed of railroad-trains, of a suitable torpedo, mechanism for holding said torpedo on a railway-rail and automatically removing it therefrom, and a trip adapted to stand in the way of a train or car, and connected with the said automatic mechanism in such manner that when the said trip is struck the torpedo will be carried upon the rail, and after a given time will be removed therefrom. The trip is located at a certain distance from the point where the torpedo is placed on the rail, and this distance the train should occupy a certain time in traveling, which time is just a little more than the time required by the automatic mechanism in operating to remove the torpedo from the rail, so that if the train travel too fast after striking the trip it will reach the torpedo and explode it, thus giving notice of its too great speed, as will be hereinafter more particularly explained.

It consists, also, in the combination, in an apparatus for controlling the speed of trains, of a lever acted upon by the locomotive or cars, a pendulum which is caused to oscillate by the action of the cars on the lever, a detent freed by the oscillation of the pendulum, and a torpedo held on the track by said detent, and which is withdrawn by the action of a spring or weight, as will be hereinafter described.

In the drawing, the letter A represents a portion of a rail. B is a lever which has its fulcrum at C. One end of this lever lies close to the rail A and a little above it, so that when a train passes this end of the lever will be depressed by the wheels. The other end of this lever is provided with a hook, by means of which it holds the bob of a pendulum, D, to one side, out of the perpendicular, as seen in Fig. 2. E is a detent or slide, which is held back by means of a shoulder which strikes against the block F. This detent E connects, by a cord or chain, *a*, with a swinging arm, I, to which is attached a torpedo, G, and holds said torpedo over the track in the position shown in full lines in Fig. 1. When the pendulum D strikes the detent E the torpedo G is caused to swing back to the position shown in dotted lines by the action of a spring or weight, H. The pendulum D is of a certain length, so as to perform one oscillation in a previously-ascertained interval, as one second. Thus, one second elapses from the time when the pendulum is released and the time when the torpedo is swung back. If, now, the train goes too fast, it passes over the distance from the lever B to the torpedo G in less than a second, thus reaching the torpedo before it is swung back and exploding it, thereby giving the alarm. If the train does not go too fast, the torpedo is swung out of the way, and no alarm is given. Of course, the distance between the lever B and the torpedo G must be carefully calculated, as must also the swing of the pendulum. The distance from the lever B to the torpedo depends on the limit of speed which is allowed on the road—for a rate of about twenty miles an hour, for instance—and if the pendulum is a seconds-pendulum the distance would be about eight yards and one inch from the lever to the torpedo, this being the distance traversed by a train at that rate in a second.

To replace the apparatus in its original position, the pendulum is hooked onto the lever B and the detent E is pulled back till its shoulder abuts against the block F.

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

1. The combination, in an apparatus for controlling the speed of railroad-trains, of a torpedo, mechanism for holding said torpedo on a rail and automatically removing it therefrom, and a trip-lever adapted to stand in the way of a train or car and be moved thereby

for the purpose of permitting said mechanism to act, substantially as and for the purpose set forth.

2. The combination, in an apparatus for controlling the speed of trains, of a lever acted upon by the locomotive or cars, a pendulum which is caused to oscillate by the action of the cars on the lever, a detent freed by the oscillation of the pendulum, and a torpedo held on the track by said detent, and which is withdrawn by the action of a spring or weight, substantially as described.

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Witnesses:

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