

No. 647,596.

Patented Apr. 17, 1900.

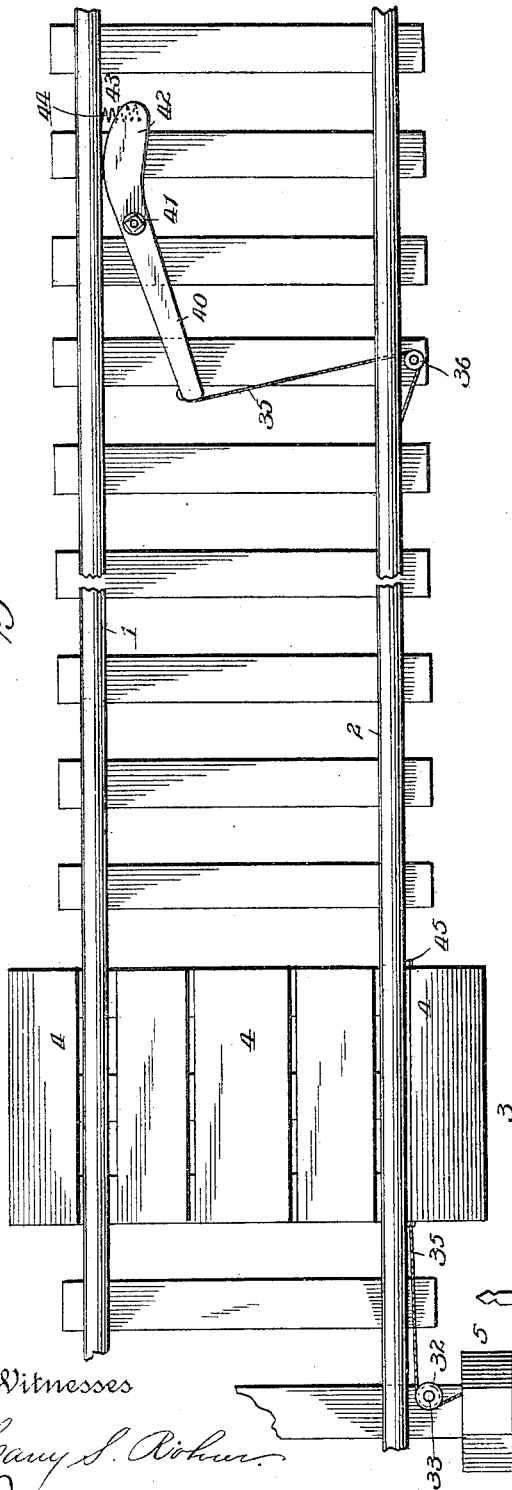
M. J. CORCORAN.
RAILWAY SIGNAL.

(Application filed Oct. 19, 1898.)

(No Model.)

2 Sheets—Sheet 1.

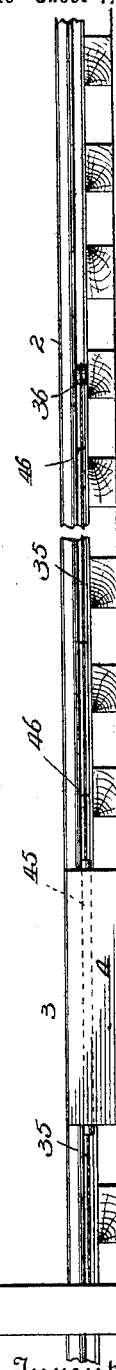
Fig. 1.



Witnesses

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Fig. 2.



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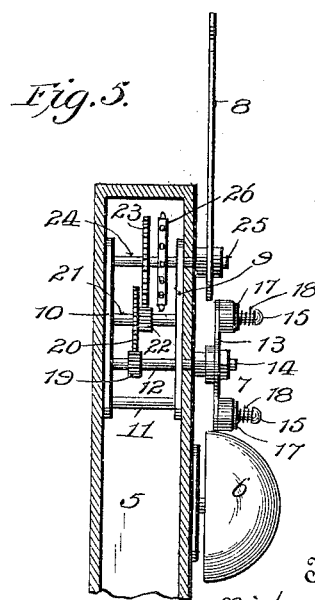
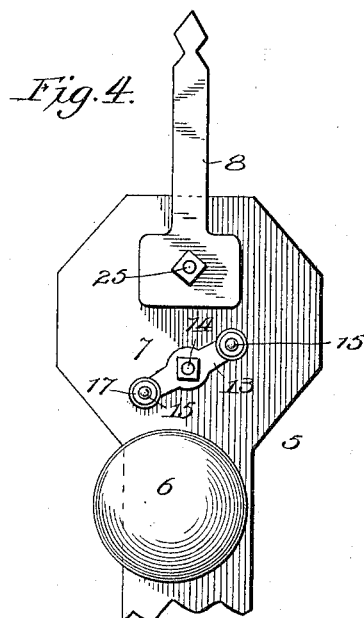
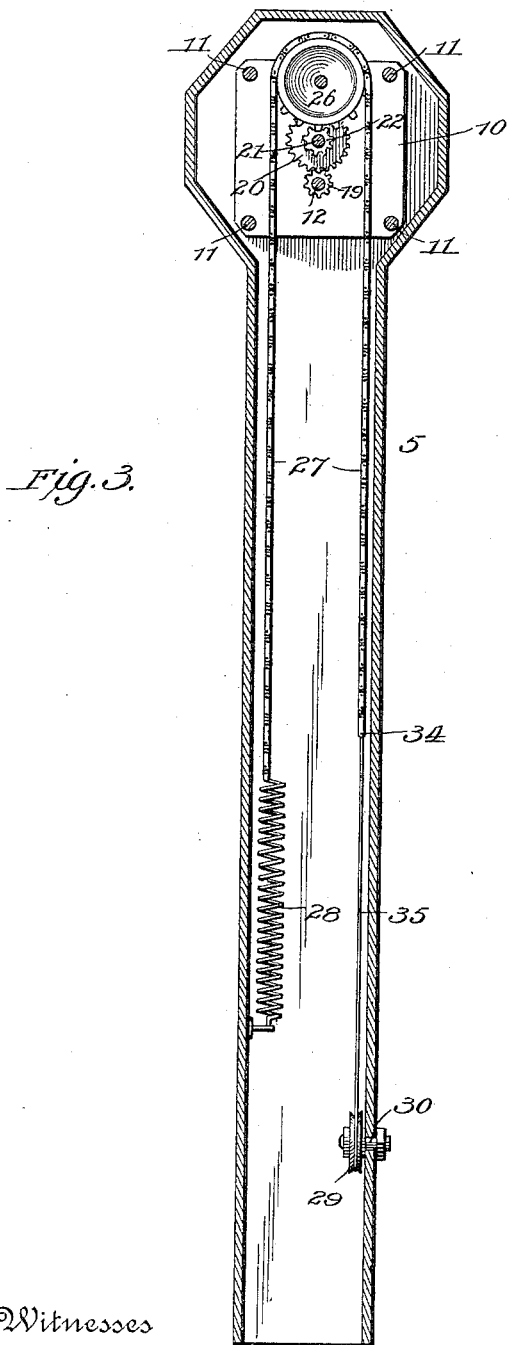
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2 Sheets—Sheet 2.



Witnesses

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UNITED STATES PATENT OFFICE.

MICHAEL J. CORCORAN, OF YORK, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO JOSEPH HOWARD MANIFOLD, OF SAME PLACE.

RAILWAY-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 647,596, dated April 17, 1900.

Application filed October 19, 1898. Serial No. 693,986. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL J. CORCORAN, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Railway-Signals, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to railway-signals adapted especially for use at grade-crossings; and the object of the invention is to provide signal mechanism of simple and inexpensive construction which will be effective in operation and durable in use.

One of the main characteristic features of the invention is to employ a lever adjacent to the inner side of a railroad-rail to be operated by the flange of a car-wheel and so constructed that the contact of the wheel-flange will be against an inclined surface on the lever, whereby a sliding contact of the wheel-flange will be effected, thus avoiding the injurious and wearing pounding action incident to the use of track-bars which project above the tread-surface of the rail.

Another important feature of the improvement is the employment of a bell-hammer of special construction in combination with mechanism for sounding the bell at such frequent intervals as to make the sound practically continuous for an appreciable length of time as distinguished from a gong which sounds only at intervals.

The invention also contemplates the simultaneous operation of both a bell and a visual signal and various other detail features, which will be fully described hereinafter and defined in the appended claims.

In the accompanying drawings, Figure 1 is a plan view of a section of a railway track and crossing with my improved signaling mechanism applied thereto. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section through the signal stand or casing, and Figs. 4 and 5 illustrate parts in detail.

The reference-numerals 1 and 2 designate the rails of a railway-track, and 3 a crossing for vehicles, built up in the usual manner from parallel strips or boards 4.

5 designates the box or hollow casing of the

signal, located at one side of the crossing and provided at its upper end with a bell 6, a bell striker or hammer 7, and a semaphore-arm or visual-signal blade 8. Within the upper end of the casing are arranged the shafts and gearing which support and control the bell-hammer and semaphore-arm. These parts are shown best in Figs. 4 and 5 and are supported between parallel brackets or plates 9 and 10, secured to the opposite sides of the casing 5 and connected by cross-bars 11. A shaft 12, having bearing in the plates 9 and 10 and extending through the plate 9 and the adjacent side of the casing 5, carries the bell-hammer, which consists of an arm 13, secured at its center to the projecting end 14 of the shaft 12 and provided at each of its ends with a laterally-projecting headed pin 15, upon which is loosely mounted a roller 16. These rollers 16 are secured upon their pins 15 by washers 17 and coil-springs 18, the latter bearing at their inner ends against the washers and at their outer ends against the heads of the pins 15.

Upon the shaft 12 is mounted a gear-wheel 19, which meshes with a spur-wheel 20, fixed upon a shaft 21, supported in bearings of the plates 9 and 10. Concentric with the spur-wheel 20 upon the shaft 21 is a pinion 22, which meshes with a gear-wheel 23, mounted upon a shaft 24, parallel to but above the shaft 21. This shaft 24, like the shaft 12, extends through the plate 9 and the side of the casing 5, and upon its projecting end 25 the signal arm or blade 8 is secured.

Upon the shaft 24, concentric with the gear-wheel 23, is fixed a sprocket-wheel 26, around which passes a sprocket-chain 27, one end of which is secured to the upper end of a retracting-spring 28, the lower end of which is secured to the inner side of the casing, as shown in Fig. 3. The other end of the sprocket-chain passes down within the casing 5 and around a sprocket-wheel 29 at the base of said casing, the wheel 29 being mounted upon a suitable shaft 30, as shown. The chain then passes around another sprocket-wheel 32, mounted at right angles to the wheel 29 upon a stud or pin 33, projecting from one of the railway-ties, and the end 34 of said chain

is connected to a wire 35, which extends across the crossing 3 and along the adjacent rail of the track to a pulley 36, horizontally mounted upon a stud or pin 37, projecting from the end of one of the ties 38. After passing around the pulley 36 the wire 35 is passed through an opening 39 in the rail and is connected to the end of a lever 40. This lever is fulcrumed between the rails 1 and 2 upon a pivotal support 41, and its arm 42 is curved or deflected to leave a triangular space 43 between it and the rail 1, into which the flange of the wheel passes to force the lever away from the rail. A spring 44, connected at one end to the arm 42 of the lever and at its opposite end to the under side of the rail 1, serves to retract the lever after the passage of the wheel. The wire 35 passes through a tube or protecting-pipe 45, located between the rail 2 and the crossing-platform, said tube extending the width of the crossing.

It will be noted that the wire 35 lies within the hollow of the rail 2 and is protected by the base and head of the rail. Suitable eyes or keepers 46 are preferably arranged at intervals along the outer side of the rail to guide the wire in its movements.

The operation of the mechanism thus described is as follows: When the flange of the wheel of a passing train enters the space 46 between the lever and rail 1, it throws the end 42 of the lever away from the rail and the opposite end of said lever toward the rail, the result being that the wire 35 is pulled rearward, which pulls the chain and effects a revolution of the shafts through the sprocket-wheel 26 and the train of gearing described. As soon as one wheel passes the lever 40 the spring 44 retracts the lever and the spring 28 within the casing 5 retracts the chain. This results in an oscillation of the hammer, and the contact of the next and succeeding wheels insures the ringing of the bell with great rapidity and for a length of time sufficient to give an amply-prolonged signal.

It will be obvious that the signal-blade is lowered to the danger position by the same means which ring the bell, thus giving both

an audible and a visual signal at the same time.

While the above description and the accompanying illustration are confined to a single-track road and a single signal, it will be understood that my invention comprehends such a duplication of the signal and connections as will adapt them for double-track roads or for the passage of trains in either direction over a single track. I therefore desire to reserve the right to make all such changes and modifications as to details as may properly fall within the scope of the following claims.

I claim—

1. In a railway-signal the combination with a casing, of a pair of shafts, a rotary striker and an oscillatory visual signal carried directly by said shafts upon the exterior of the casing, a bell in operative proximity to the striker, and actuating mechanism common to said shafts for effecting the oscillation of the signal-shaft and the rotation of the striker-shaft, substantially as specified.

2. In a railway-signal the combination with a casing, of a pair of shafts journaled therein, an oscillatory signal-blade, and a rotary striker directly carried respectively at the ends of said shafts outside of the casing, a bell in proximity to the striker.

3. A sprocket-wheel mounted on the signal-shaft, a sprocket-chain passed over said wheel, a spring secured within the casing and connected to one end of the chain, an actuating-lever mounted upon a vertical pivot and having a horizontally-deflected end, a spring opposing resistance to the movement of the deflected end of the lever, a flexible piece connecting the opposite end of the lever with the chain, and means for effecting the rotation of the striker-shaft through the oscillation of the signal-shaft.

In testimony whereof I affix my signature in presence of two witnesses.

MICHAEL J. CORCORAN.

Witnesses:

C. B. PROCTOR,
R. D. HOPKINS.