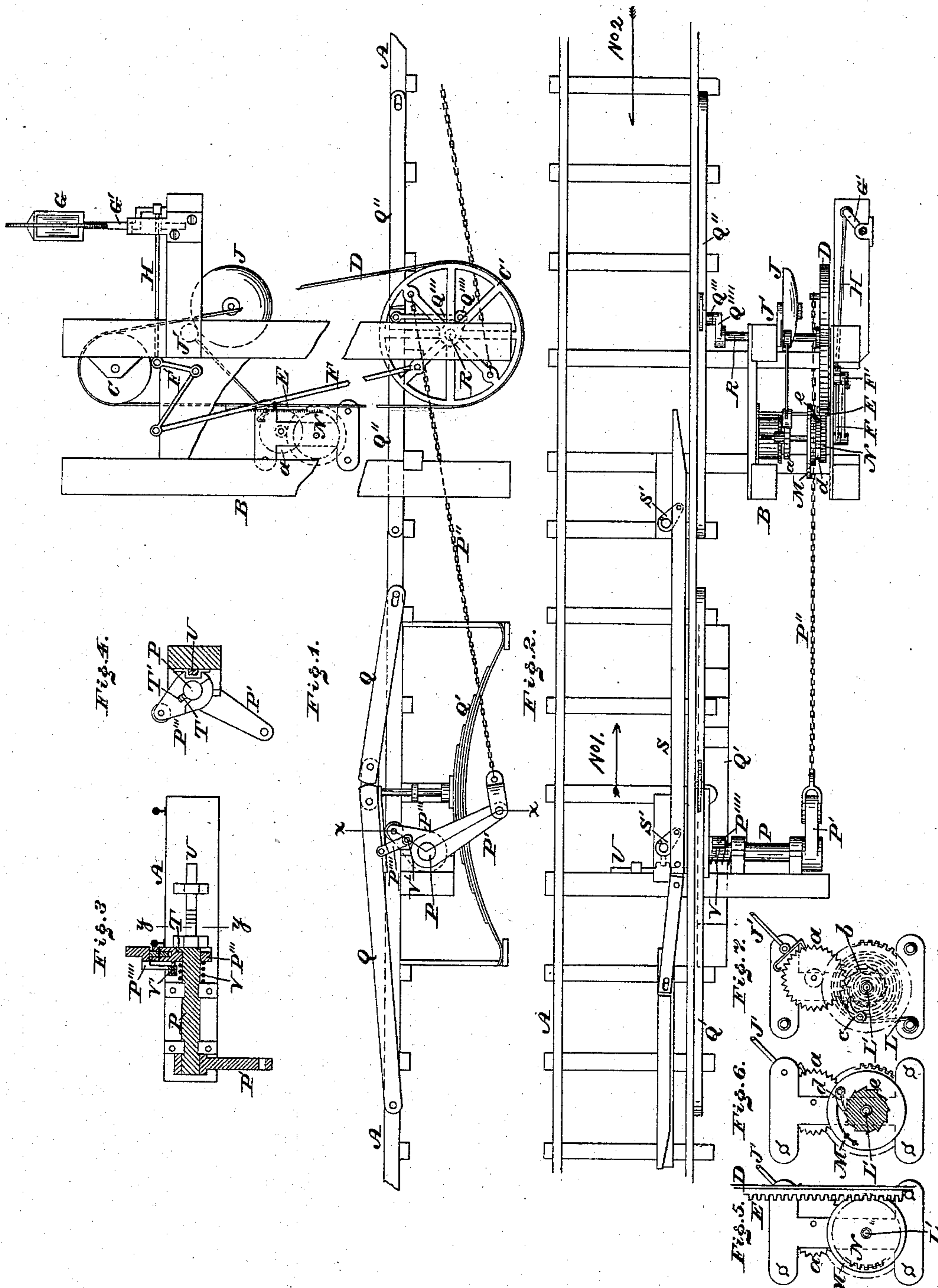


(No Model.)

C. M. RISLEY.  
RAILROAD SIGNAL.

No. 283,281.

Patented Aug. 14, 1883.



WITNESSES:

*A. P. Grant,*  
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INVENTOR:

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# UNITED STATES PATENT OFFICE.

CALEB M. RISLEY, OF WOODBURY, NEW JERSEY, ASSIGNOR OF ONE-HALF  
TO JOSEPH A. GREEN, OF SAME PLACE.

## RAILROAD-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 283,281, dated August 14, 1883.

Application filed February 24, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, CALEB M. RISLEY, a citizen of the United States, residing at Woodbury, in the county of Gloucester, State of New Jersey, have invented a new and useful Improvement in Railroad-Signals, which improvement is fully set forth in the following specification and accompanying drawings, in which—

10 Figure 1 is a side elevation of the railroad-signal embodying my invention. Fig. 2 is a top view thereof. Fig. 3 is a transverse vertical section of a portion in line *x x*, Fig. 1. Fig. 4 is a longitudinal vertical section in line  
15 *y y*, Fig. 3. Figs. 5, 6, and 7 are views of detached parts of the mechanism of the signal enlarged.

Similar letters of reference indicate corresponding parts in the several figures.

20 My invention consists of means for operating a railroad-signal and restoring the parts to their normal position.

It also consists of means for automatically winding the spring of the signal or alarm mechanism.

It also consists of means for preventing the repetition of the operation of the signal.

Referring to the drawings, A represents the track of a railroad, which is of usual construction.

30 B represents a frame, which is located adjacent to a road which crosses the track, and supports on horizontal axes at top and bottom pulleys or wheels C C', around which passes  
35 an endless band, D.

E represents a vertically-arranged rack-bar, which is secured to the endless band D, or constitutes part thereof, and occupies a position within the frame B.

40 To a wrist-pin on the wheel C' is attached a rod, F, whose upper end is connected to a crank, F', which is mounted on the top of the frame B. A signal-lamp, G, is fixed to a crank-shaft, G', which is supported on the top  
45 of the frame B, the crank of said shaft having attached to it one end of an arm, H, whose other end is attached to the crank F', whereby by the operation of the wheel C' rotation is imparted to the signal-lamp.

50 J represents a bell, which is mounted on the

frame B, the hammer J' whereof is operated by the pallet-wheel *a*, to which power is communicated by a spring, L, the barrel of which is provided with a ratchet, *b*, and pawl *c*, as in clock-winding mechanism. The arbor L' 55 of the barrel has fixed to it a wheel, M, which is provided with a pawl, *d*, operating in reverse order to the pawl *c*, said pawl *d* engaging with a ratchet, *e*, on a spur-wheel, N, loosely fitted on the arbor L', said wheel N 60 meshing with the rack-bar E. Consequently when the rack-bar is lowered by the motion of the band D the wheel N is rotated. This causes the ratchet *e* to engage with the pawl *d* and rotate the wheel M, whereby the spring 65 L is wound. When the rack-bar is raised or returned to its normal position, the wheel N rotates without imparting motion to the wheel M and arbor L'.

P represents a crank-shaft which extends 70 horizontally and transversely, and is properly mounted on the road-bed a proper distance from the road or crossing where the signal lamp and bell are located. One arm or crank, P', of the shaft is connected by a chain or cord, 75 P'', with the wheel C', and another arm or crank, P''', of said shaft is attached by a strap, P''', to the under side of jointed levers Q, which are connected to the track, the place of junction of the levers Q projecting above the track, 80 so as to be depressed by the wheels of passing trains, said levers and connected parts being restored to their normal position by the action of a spring, Q', suitably applied.

It will be seen that when the levers Q are 85 depressed the weight is transmitted to the arm or crank P''', whereby the shaft P is rotated. The crank P' is likewise rotated with said shaft, and thus draws the chain or connection P'' and operates the wheel C'. The band D is moved 90 and lowers the rack-bar E, whereby the spring L is wound, and as said bar is lowered clear of the wheel N the train of gearing of the clock mechanism is free to operate, whereby the bell is rung and the alarm is sounded. Simulta- 95 neously therewith the signal-lamp is rotated to show "danger" to those coming in the direction of the crossing.

In order to reset or restore the parts, I provide levers Q'', which are pivoted to the track 100



on the side of the frame B opposite to the levers Q, and so elevated as to be struck by the wheels of the passing train. To said levers Q'' is connected a rod or bar, Q''', which is attached to a crank-arm, Q''', on the end of the shaft R of the wheel C'. Now, after a train has depressed the levers Q, thus elevating the levers Q'', and operated the signal, it reaches and depresses said levers Q''. This causes the rotation of the shaft R and the operation of the wheel C' and band D in the direction the reverse of that before named, whereby the rack-bar E is raised and returned to its normal position, the wheel N rotating freely on the arbor L' without affecting the train of the clock mechanism.

For double tracks the levers Q Q'' and appurtenances or connections are employed for each track, so that the signal is operated from both tracks. For a single track the levers Q and appurtenances or connections are employed on each side of the levers Q''. Consequently after the train has depressed the levers Q of one side and operated the signal or alarm and depressed the lever Q'' so as to reset the parts, it reaches the other levers, Q, which of course are depressed, but should be rendered incapable of operating the signal, which operation would be useless after the train passed the crossing. For this purpose I employ a rail, S, which extends parallel with one of the rails, and mounted so as to be shifted from said rail by the flange of the car-wheels, the operation thereof being gradual and gentle, owing to the construction of the bar S, the end of said bar first reached by the flange being inclined laterally. This inclined part may be a hinged piece, as shown in the drawings. This is caused by a train acting on rail S, after having restored the signal to "safety" in passing from right to left, as indicated by arrow No. 2. If the railroad is a single-track one, the movable rail S is also operated in the opposite direction by a train going from left to right, after the levers Q have been depressed to set the signal to indicate "danger." Rail S extends beyond the right end of jointed levers Q, but not to the left end of the same. The arm or crank P''' of the shaft P has a sliding motion on said shaft, and is secured thereto by a pin, T, which projects from the shaft and enters a groove, T', in the said crank or arm P'''. When the groove is occupied by the pin, the arm and shaft move as one and the signal is sounded, as has been stated; but when the arm is forced back it slides on the shaft so that the groove clears the pin. Said arm is loose on the shaft, and is rotated by the depression of the levers Q without imparting rotation to the shaft and operating the signal.

The sliding motion of the arm is effected by a bar, U, which is properly mounted on the road-bed, and bears against or is connected with the arm or crank P''', and also with a crank-arm, S', which is rotated by the lateral motion of the rail S. The arm or crank P''' is returned to its engaging position with the shaft by means of a spring, V, suitably applied. As the arm P''' has a sliding motion on the shaft P, its connection with the strap P''' is by means of a pin, V', which plays in an opening or boss in said strap.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The levers Q, crank-shaft P, and connection P'', in combination with the wheels C C', band D, rack-bar E, clock mechanism, and bell, substantially as and for the purpose set forth.

2. Levers Q and spring Q', supporting them, in combination with shaft P, having cranks P' and P''', link P''', chain P'', upright rod F, bell-crank lever F', arm H, and signal-lamp G, substantially as set forth.

3. The bell and hammer, in combination with the spring L, the clock mechanism, the barrel-arbor L', fixed wheel M, pawl d, ratchet e, loosely-fitted spur-wheel N, endless band D, and rack-bar E, attached to said band, whereby on one motion of the rack-bar said arbor L' is operated, thereby automatically winding the spring, and on the return motion of the rack-bar said arbor is not operated, substantially as and for the purpose set forth.

4. The bell and the levers Q, the signal-lamp, the wheel C', and connection P'', in combination with the restoring-levers Q'', bar Q'', crank-arm Q''', and shaft R of said wheel C', substantially as and for the purpose set forth.

5. The levers Q and the crank-shaft P, having a grooved arm, P''', and pin T, in combination with laterally-movable bar S, connected to said arm, said arm being adapted to slide on the crank-shaft and rotate independently thereof, thus rendering the signal inoperative, substantially as and for the purpose set forth.

6. The rail S, crank-arms S', bar U, crank-shaft P, with sliding arm P''', spring V, and levers Q, combined and operating substantially as and for the purpose set forth.

7. The rail S, in combination with the crank-shaft P, having the sliding arm P''', the pin V', and the strap P''', substantially as and for the purpose set forth.

CALEB M. RISLEY.

Witnesses:

J. A. WIEDERSHEIM,  
W. F. KIRCHER.