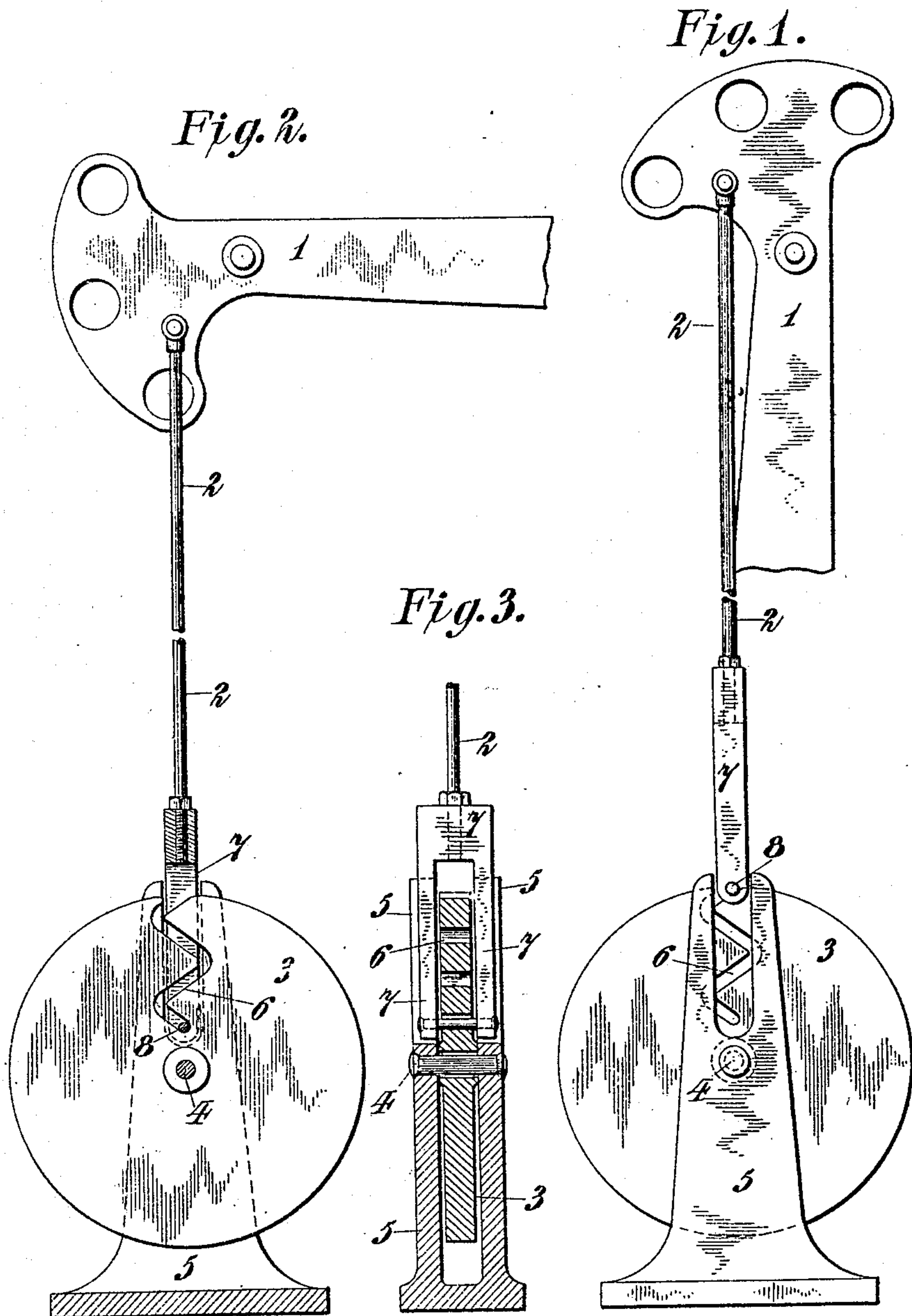


No. 881,226.

PATENTED MAR. 10, 1908.

C. W. COLEMAN.
RAILWAY SIGNAL CHECK.
APPLICATION FILED JULY 18, 1907



Witnesses:
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UNITED STATES PATENT OFFICE.

CLARENCE W. COLEMAN, OF WESTFIELD, NEW JERSEY, ASSIGNOR TO THE HALL SIGNAL COMPANY, A CORPORATION OF MAINE.

RAILWAY-SIGNAL CHECK.

No. 881,226.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed July 18, 1907. Serial No. 384,336.

To all whom it may concern:

Be it known that I, CLARENCE W. COLEMAN, a citizen of the United States, residing at Westfield, in the county of Union and State of New Jersey, have invented a certain new and useful Improvement in Railway-Signal Checks, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.

My invention relates generally to railway signaling apparatus and particularly to devices for checking the too rapid movement of the signals to the danger position, and the objects of my invention are efficiency of operation with simplicity of construction and economy of construction and maintenance.

Railway signals are commonly so constructed as to have a normal bias to the danger position, so that when released they move of their own accord to the danger position, usually under the influence of gravity, and dashpots are commonly employed to prevent a too rapid movement such as might be damaging to the signal mechanism. In my present invention dashpots are dispensed with and the checking is accomplished in a radically different manner.

My invention includes means for applying inertia and momentum to check the movement of a signal when the signal is impelled by some influence tending to produce rapid movement, as, for example, gravity.

My invention also includes details of construction and combination of parts as will appear from the following description.

In the embodiment of my invention illustrated in the accompanying drawing an oscillating inertia disk is provided to which oscillating movement is communicated by the signal rod, the disk by its change in direction of motion serving to check the movement of the signal rod.

The embodiment of my invention shown will now be described with reference to the drawing, after which I will point out my invention in claims.

Figure 1 is a side elevation of a signal check and signal, with the signal at the clear position, certain portions being omitted. Fig. 2 is a similar view partly in section and with the signal at the danger position. Fig. 3 is a vertical central cross-section, the signal being omitted.

To illustrate the practical application of the invention a well known form of counter-weighted semaphore or signal 1 is shown provided with the usual signal operating rod or up-and-down rod 2 to which power may be applied in any desired manner to move the signal to the clear position (shown at Fig. 1) and to retain it in that position. The signal, by reason of its counterweight, has a normal tendency or bias to the danger position (Fig. 2), and when the signal is left free or released, by any means which may be provided for that purpose, it will of its own accord assume the danger position.

It is common to provide checking means to prevent the signal from moving with injurious rapidity as it moves to the danger position. In my present invention I provide a momentum and inertia device for checking or retarding the signal movement. An oscillatable signal-retarding inertia disk 3 is provided, and is preferably of heavy material, for example, iron. The disk 3 is rotatably supported by a short supporting-shaft 4 mounted in a divided or yoke-shaped frame or base 5. The disk 3 has a zig-zag slot 6 extending inward from its periphery to a point near its axis or pivot. The signal operating rod 2 carries at its lower end a yoke 7 which embraces the disk 3. A pin 8 extends between the extremities of the arms of the yoke and works or engages in the slot 6. The frame 5 has divided or forked upward extensions, as shown, forming guides for the yoke 7, to restrict the movements of the yoke to a rectilinear direction. The slot 6 and the guides or extensions of the frame form non-parallel relatively zig-zag ways. As the signal 1 moves, under the influence of gravity, from the clear position indicated in Fig. 1 to the danger position indicated in Fig. 2, the pin 8 will travel from its peripheral position relatively to the disk 3 (Fig. 1) to the more nearly central position of Fig. 2. By reason of the yoke 7 being guided in a straight line the disk 3 will be rotated first in one direction then in the other as the pin 8 travels along the zig-zag slot 6, the disk thus being given an oscillating or rotary reciprocating movement. The travel of the pin 8 is constantly impeded by the inertia of the disk 3, the momentum of the disk being checked at each turn in the slot 6 and the direction of rotation of the disk being re-

versed as the pin passes each turn of the slot. The resistance thus afforded retards the movement of the signal. This retarding or checking effect will be increased toward
 5 the end of the movement of the signal as it moves to danger, because of the increased leverage of the disk 3 relatively to the pin 8 as the pin 8 approaches the center of the disk 3. This will give a freer movement of the
 10 signal at first with gradually increased retarding or checking effect. The movement of the signal to the clear position is so slow that the disk 3 does not offer any objectionable resistance to this movement.

15 It is obvious that various modifications may be made in the construction shown and above particularly described within the principle and scope of my invention.

I claim:—

20 1. The combination with a signal, of means controlled by the inertia of such means for opposing the momentum of the signal and compelling it to come to rest under diminished momentum.

25 2. The combination with a signal having a normal bias to danger, of a device controlled by its inertia for opposing the momentum of the signal and compelling it to assume its danger position under diminished momen-
 30 tum.

3. The combination with a rectilinearly movable signal actuating part, of a rotary device adapted to act by its inertia to oppose the momentum of the signal and compel it to
 35 come to rest under diminished momentum, such rotary inertia device being actuated by the rectilinearly movable signal actuating part.

4. In a signal check, the combination with
 40 a signal, of a rotary part arranged to be rotated by the signal and adapted to act by inertia of such part to oppose the momentum of the signal and compel it to come to rest under diminished momentum.

45 5. In a signal check, the combination with a signal, of an oscillatable part arranged to be oscillated by the signal and adapted to act by inertia to oppose the momentum of the signal and compel it to come to rest under
 50 diminished momentum.

6. In a signal check, the combination with a signal, of a reciprocable part arranged to be reciprocated by the signal and adapted to
 55 act by inertia to oppose the momentum of the signal and compel it to come to rest under diminished momentum.

7. In a signal check, the combination of an axially pivoted disk having a radially zig-zag way and a rectilinearly movable
 60 member engaging with the way.

8. In a signal check, the combination with a signal having a normal bias to danger, of an axially pivoted inertia controlled disk having a radially zig-zag way, and a recti-
 65 linearly movable member engaging with the

way and arranged to be actuated by the signal as the signal moves to the danger position.

9. The combination with a signal, of means controlled by the inertia of such
 70 means for opposing the momentum of the signal and compelling it to come to rest under diminished momentum, said means being constructed and arranged to offer increasing
 75 opposition to the momentum of the signal.

10. The combination with a signal having a normal bias to danger, of a device controlled by its inertia for opposing the momentum of the signal and compelling it to assume its danger position under reduced mo-
 80 mentum, said device being constructed and arranged to offer increasing opposition to the momentum of the signal.

11. In a signal check, the combination of an axially pivoted disk having a radially zig-
 85 zag way, and a rectilinearly movable signal actuating part engaging with the way and movable toward the center of the disk in the signal checking operation.

12. In a signal check, the combination
 90 with a signal, of an axially pivoted inertia controlled disk, a frame pivotally supporting the disk, the frame and the disk having non-parallel ways, a movable member engaging with the ways of the frame and the disk, and
 95 connecting means between said member and the signal.

13. In a signal check, the combination with a signal, of an inertia controlled re-
 100 ciprocable part, a stationary frame supporting said part, the frame and said part having non-parallel ways, a movable member engaging with the ways of the frame and said part, and connecting means between
 105 said member and the signal.

14. In a signal check, the combination with a signal, of an axially pivoted inertia controlled disk, a frame pivotally supporting the disk, the frame and the disk having rela-
 110 tively zig-zag ways, a movable member engaging with the ways of the frame and the disk, and connecting means between said member and the signal.

15. In a signal check, the combination with a signal, of an inertia controlled recip-
 115 rocable part, a stationary frame supporting said part, the frame and said part having relatively zig-zag ways, a movable member engaging with the ways of the frame and said part, and connecting means between
 120 said member and the signal.

16. In a signal check, the combination with a signal, of an axially pivoted inertia controlled disk having a radially zig-zag slot, a frame pivotally supporting the disk, a ra-
 125 dially movable member engaging in the slot and guided by the frame, and connecting means between said member and the signal.

17. In a signal check, the combination with a signal, of an axially pivoted inertia
 130

controlled disk having a radially zig-zag slot, a frame pivotally supporting the disk, a yoke embracing the disk and having a pin engaging in the slot, the frame at opposite
5 sides of the disk having guides for the yoke, and connecting means between the yoke and the signal.

18. In a signal check, the combination with a signal, of an inertia controlled disk
10 having a radially zig-zag slot, a yoke-shaped frame embracing the disk, a shaft for pivotally supporting the disk in the frame, a yoke embracing the disk and having a pin engaging in the slot, the frame having divided ex-
15 tensions forming guides for the yoke at opposite sides of the disk, and connecting means between the yoke and the signal.

19. The combination with a signal, of inertia controlled means for opposing the mo-
20 mentum of the signal and compelling it to come to rest under diminished momentum, said means being constructed and arranged to offer increasing opposition to the momentum of the signal without any increase
25 in velocity of movement of the signal.

20. The combination with a signal, of means controlled by the inertia of such means for opposing the momentum of the signal and compelling it to come to rest under

diminished momentum, said means being
30 constructed and arranged to offer increasing opposition to the momentum of the signal without any increase in velocity of movement of the signal.

21. The combination with a signal having
35 a normal bias to danger, of an inertia controlled device for opposing the momentum of the signal and compelling it to assume its danger position under reduced momentum, said device being constructed and arranged
40 to offer increasing opposition to the momentum of the signal without any increase in velocity of movement of the signal.

22. The combination with a signal having
45 a normal bias to danger, of a device controlled by its inertia for opposing the momentum of the signal and compelling it to assume its danger position under reduced momentum, said device being constructed and
50 arranged to offer increasing opposition to the momentum of the signal without any increase in velocity of movement of the signal.

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

CLARENCE W. COLEMAN.

Witnesses:

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BERNARD COWEN.