G. W. WHITEMAN.

CUSHIONING DEVICE FOR LOOSE RAILS OF SPRING FROGS.

APPLICATION FILED MAY 22, 1909.

930,709. **Patented Aug. 10, 1909.**

Fig. 1.

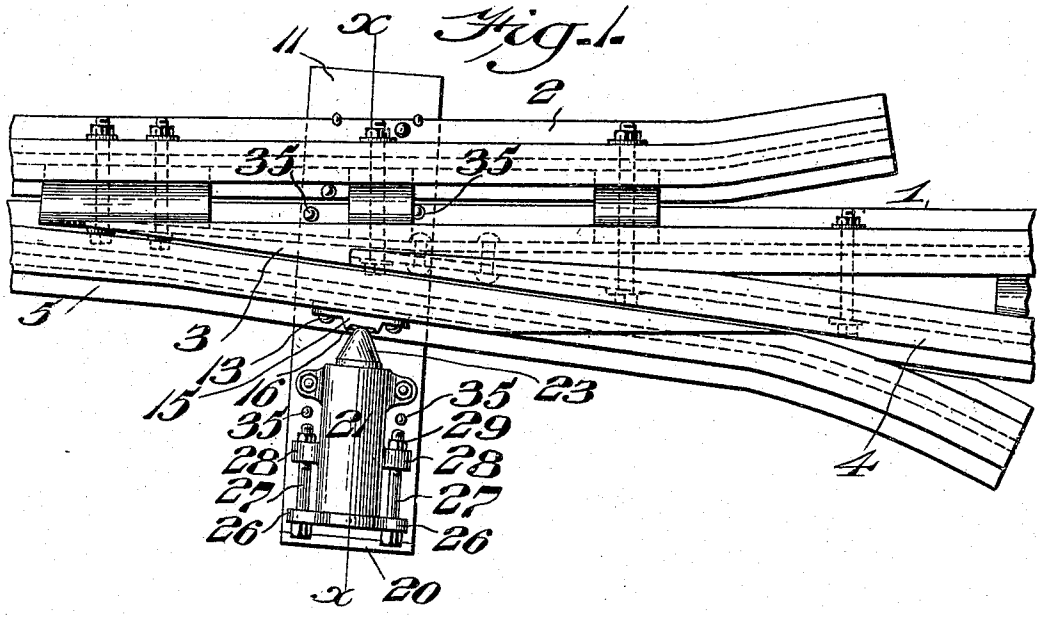


Fig. 2.

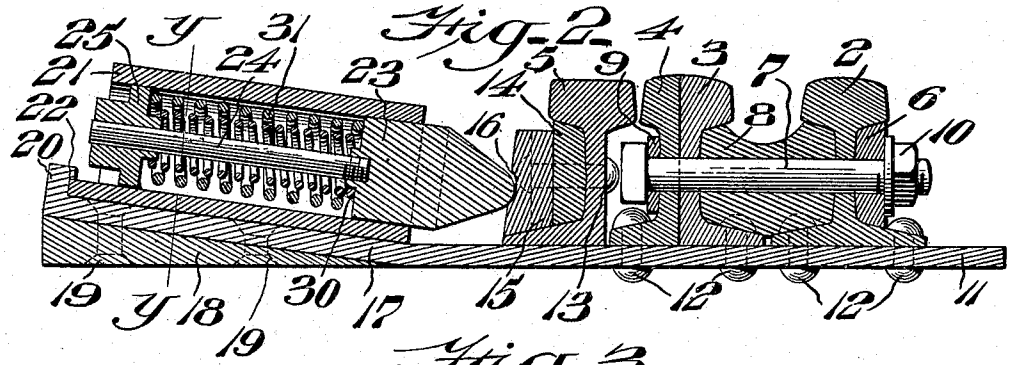
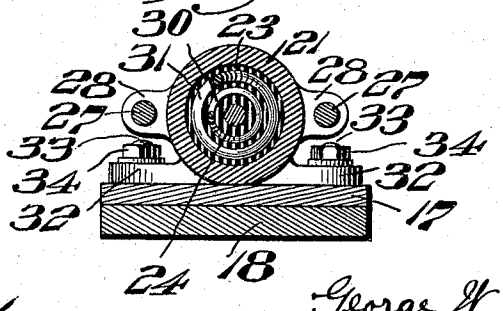


Fig. 3.



WITNESSES

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CUSHIONING DEVICE FOR LOOSE RAILS OF SPRING-FROGS.

No. 930,709. Specification of Letters Patent. Patented Aug. 10, 1909.

Application filed May 22, 1909. Serial No. 497,603.

To all whom it may concern:

Be it known that I, GEORGE W. WHITEMAN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Cushioning Device for Loose Rails of Spring-Frogs, of which the following is a specification.

One of the main objects of my present invention is to devise a novel construction of a spring box by the employment of which the vertical movement and vibration of the loose rail are reduced to a minimum when a train is passing thereover, thereby eliminating in a great measure the rattle and noise which occur in the construction of spring boxes usually employed.

Another object of my invention is to produce a device which will resist the tendency of the loose rail to lift when the loose side of the frog is run through.

With the above objects in view my invention consists of a novel construction of a spring box, wherein a downward and lateral pressure is exerted against the loose rail.

It further consists of a novel construction of a cushioning device for loose rails, wherein a spring actuated plunger is mounted at an angle to the base of the loose rail, said plunger having its contact portion adapted to coact with the filler block on the loose rail in such a manner that a downward and lateral pressure will be imparted thereto.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

For the purpose of illustrating my invention I have shown in the accompanying drawings one form thereof, since this embodiment will give in practice satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the exact arrangement and organization of these instrumentalities as here set forth.

Figure 1 represents a plan view of a spring frog having a loose rail in conjunction with which a spring box embodying my invention is employed. Fig. 2 represents a section on line *x*—*x*, Fig. 1. Fig. 3 represents a section on line *y*—*y*, Fig. 2.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—In a co-pending application Serial No. 497,603, filed on even date with this I have described and broadly claimed a novel construction of an anti-creeping device for spring frogs, wherein the loose rail is provided with a cushioning device and my present invention relates to a cushioning device, such as is shown in said application.

1 designates a frog consisting of the fixed rail 2, the rails 3 and 4 and a loose rail 5.

6 designates an outer filler block through which passes a suitable fastening device such as the bolt 7, the latter also passing through the intermediate filler block 8, the inner filler block 9 and the rails 2, 3 and 4, said bolt being provided with a suitable nut 10, in the usual manner.

11 designates a base plate suitably fixed in position and to which the rails 2, 3 and 4 are rigidly secured by means of the fastening devices 12.

The loose rail 5 has secured thereto by means of a suitable fastening device such as, for example, the rivet 13, the filler block 14 and also a block 15, the lower portion of which engages the base flange of the rail, it being best understood by reference to Fig. 2 that the block 15 is provided with a suitable recess 16, which is shown in the drawings as being concave.

In the present instance, for purposes of illustration, I have shown the base plate 11 upwardly deflected, as is indicated at 17 and having secured to its under face an angular shaped block 18, by means of rivets or equivalent fastening devices 19. The outer end of the base plate 11 extends upwardly to form a flange 20 against which abuts the lower end of the spring box 21, it being seen that the flange 20, if desired, may be slightly recessed as indicated at 22, in order that the lower portion of the spring box 21 may extend thereinto.

23 designates a plunger mounted in the spring box 21, said plunger having its forward end reduced to a preferably blunt point in order that the contact portion thereof may engage with the recess 16 in the block 15. The plunger 23 has secured thereto, in any suitable manner, a rod 24, the rearward end of which extends into or through an apertured closure 25 which is mounted within the spring block 21, said closure being provided with the lugs 26, through which pass the bolts 27, the latter also passing through the lugs 28, carried by the spring

box 21, said bolts 27 being provided with suitable nuts 29, whereby the closure 25 is suitably secured with respect to the spring box.

30 designates a spring, one end of which abuts against the plunger 23, the other end thereof abutting against the closure 25.

31 designates a second spring, which in the present instance, is shown as being stronger than the spring 30, one end of said spring 31 abutting against the plunger 23, the other end thereof abutting against the closure 25, it being understood that the tendency of the spring 30 is to maintain the plunger 23 in its forward position, while the tendency of the spring 31 is to resist the rearward movement of the plunger toward the left of the position seen in Fig. 2. The spring box 21 is provided with flanges 32 through which pass the bolts 33, said bolts also passing through the base plate 11 and the plate 18, and being provided with suitable nuts 34, whereby the outward portion of the box 21 is rigidly secured in position.

35 designates suitable fastening devices, whereby the base plate 11 is rigidly secured in position.

It will now be apparent to those skilled in this art that the plunger 23 exerts a yielding pressure against the loose rail 5 at an angle to the base thereof, or in other words, it exerts a downward and a lateral pressure against the loose rail 5, so that the vertical lift of the rail 5, when run over, is reduced to a minimum and the rattle and noise when the rail is run over are practically eliminated and a suitable resistance to the lifting action of the rail is also provided when the loose side of the frog is run through, as will be readily apparent to those skilled in the art, to which this invention appertains.

In the operation, when the frog is run through, the outward movement of the loose rail 5 is suitably cushioned by the tension of the spring 31 against the plunger 23 and owing to the angle at which the plunger 23 exerts its pressure on the block 15, the tendency of the loose rail 5 to lift is practically eliminated, since the conical end of the plunger 23 engages the recess 16 in the block 15 in such a manner that while the loose rail 5 is permitted to move laterally on the base plate 11, its vertical movement is positively prevented in a very reliable and advantageous manner.

In so far as I am aware I am the first in the art to employ in a device of this character, a spring actuated plunger which exerts a yielding pressure against the loose rail of a spring frog at an angle to the base of the frog, and while in the present instance I have shown the base plate 11 as being deflected in order to elevate the rearward end of the spring box, it is to be understood that this is only one means of accomplishing the purpose and is only shown in this manner to illustrate a practical form of my invention, it being only essential that the spring box be rigidly supported so that the spring actuated plunger carried thereby will exert a lateral and a downward pressure against the loose rail of the frog.

It is of course to be understood that any suitable type or construction of filler block, against which the spring actuated plunger abuts, may be employed with the loose rail, although, if desired, in some cases such filler block may be dispensed with and the plunger abut directly against the loose rail.

It will now be apparent that I have devised a novel and useful construction of a cushioning device for loose rails which embodies the features of advantage enumerated as desirable in the foregoing and while I have in the present instance shown and described a preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

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

1. In a cushioning device for loose rails, the combination with the loose rail, of means for imparting a yielding downward pressure thereto at an angle to the base of the rail.

2. In a cushioning device for loose rails, the combination with the loose rail, of yielding means co-acting therewith for imparting a downward and a lateral pressure thereto.

3. In a cushioning device for spring frogs, in combination with the fixed rails and the loose rail thereof, a base plate fixedly supported and to which the fixed rails of the frog are secured, and yielding means for imparting a downward and a lateral pressure to the loose rail.

4. In a cushioning device for spring frogs, in combination with the fixed rails and the loose rail thereof, a base plate fixedly supported and to which the fixed rails of the frog are secured and on which the loose rail is movable, and yielding means for imparting a downward and a lateral pressure to the loose rail.

5. In a cushioning device for spring frogs, the combination with the fixed rails thereof and a loose rail, of a base plate to which the fixed rails are rigidly secured and on which the loose rail is laterally movable, a casing on said plate, and a spring actuated plunger within said casing and adapted to impart a downward and lateral tension against the loose rail.

6. In a cushioning device for spring frogs, the combination with the fixed rails and the loose rail thereof, of a base plate suitably

supported and to which the fixed rails are rigidly secured and on which the loose rail is laterally movable, a casing secured to said plate and having its rearward end elevated, and a spring actuated plunger within said casing and co-acting with the loose rail to impart a downward and lateral pressure thereagainst.

7. In a device of the character described, the combination with the fixed rail and the loose rail of a spring frog, of a plate to which the fixed rails are secured, said plate having one end thereof elevated, a casing secured to said elevated end, a spring actuated plunger within the casing and movable at an angle to the base of the rails, and a filler block secured to the loose rail and with which said plunger co-acts.

8. In a device of the character described, the combination with the fixed rail and the loose rail of a spring frog, of a plate to which the fixed rails are secured, said plate having one end thereof elevated, a casing secured to said elevated end, a spring actuated plunger within the casing and movable at an angle to the base of the rails, and a filler block secured to the loose rail and provided with a recess with which said plunger co-acts.

9. In a device of the character described, the combination with the fixed rail and the loose rail of a spring frog, of a plate to which the fixed rails are secured, said plate having one end thereof elevated, a casing secured to said elevated end, a spring actuated plunger within the casing provided with a reduced end and movable at an angle to the base of the rails, and a filler block secured to the loose rail and provided with a concave recess with which said plunger co-acts.

10. In a device of the character described, the combination with the fixed rails and the loose rail of a spring frog, of a plate rigidly supported and on which the loose rail is movable, the upper face of one end of the plate being inclined, a casing mounted on such inclined portion, a plunger within the casing and movable at an angle to the base of the rails, a closure removably secured to one end of the casing, a spring between the closure and the plunger, and means secured to the loose rail with which the plunger co-acts.

11. In a device of the character described, the combination with the fixed rails and the loose rail of a spring frog, of a plate rigidly supported and on which the loose rail is movable, the upper face of one end of the plate being inclined, a casing mounted on such inclined portion, said plate having a flange against which said casing abuts, a plunger within the casing and movable at an angle to the base of the rails, a closure removably secured to one end of the casing, a spring between the closure and the plunger, and means secured to the loose rail with which the plunger co-acts.

12. In a device of the character described, the combination with the fixed rails and the loose rail of a spring frog, of a plate suitably supported and to which the fixed rails are secured and on which the loose rail is movable, the upper face of said plate being downwardly inclined at one end toward the loose rail, a casing secured on said inclined end and having lugs, a closure for one end of the casing, fastening devices engaging the closure and said lugs, a plunger within the casing, a rod secured to the plunger and guided by said closure, a plurality of springs intermediate the closure and plunger, and a filler block secured to the loose rail and against which the plunger abuts.

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Witnesses:
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