No. 719,412. PATENTED JAN. 27, 1903.

Z. FREI.

RAILWAY CROSSING.

APPLICATION FILED NOV. 7, 1902.

NO MODEL.

Fig. 1.

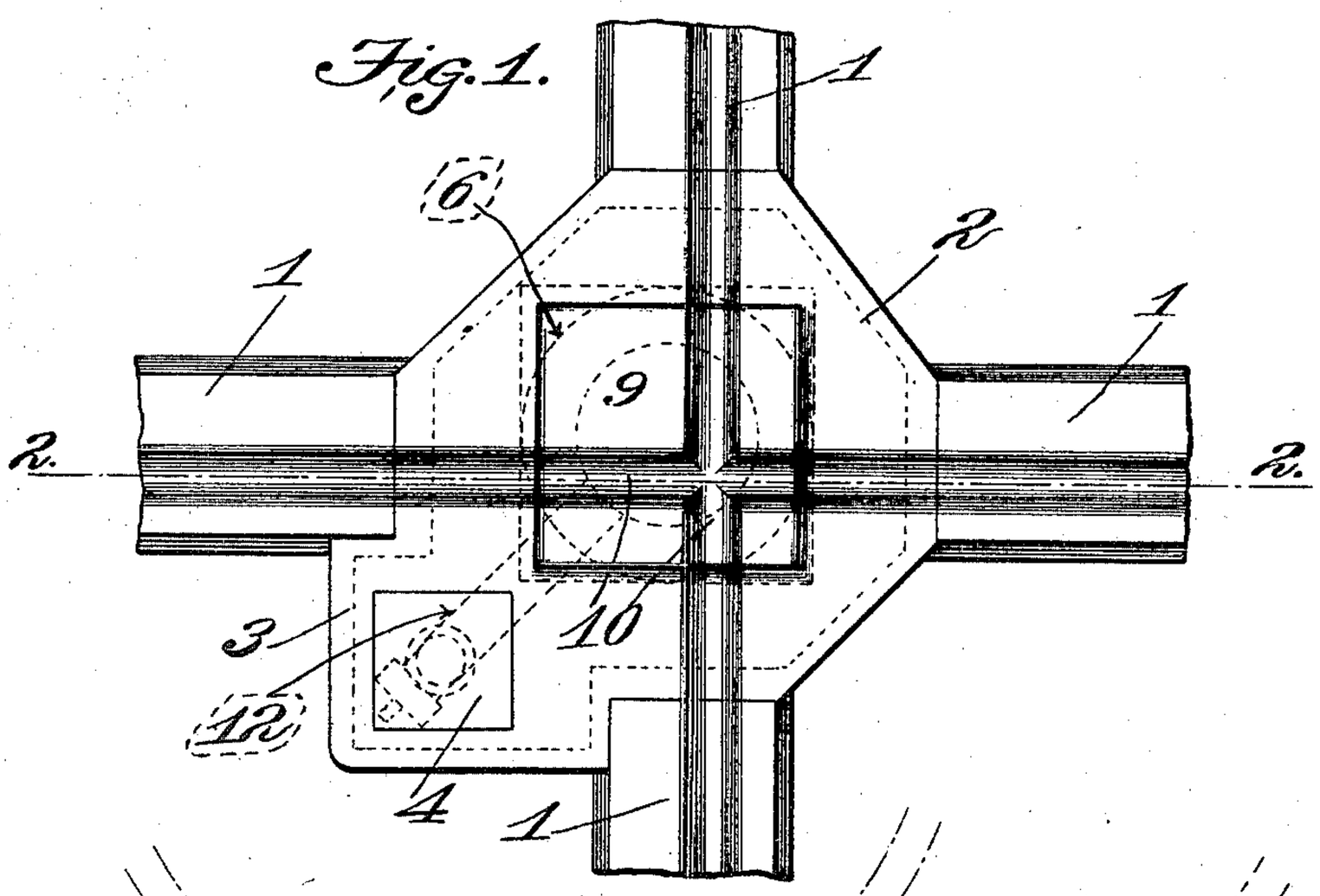


Fig. 2.

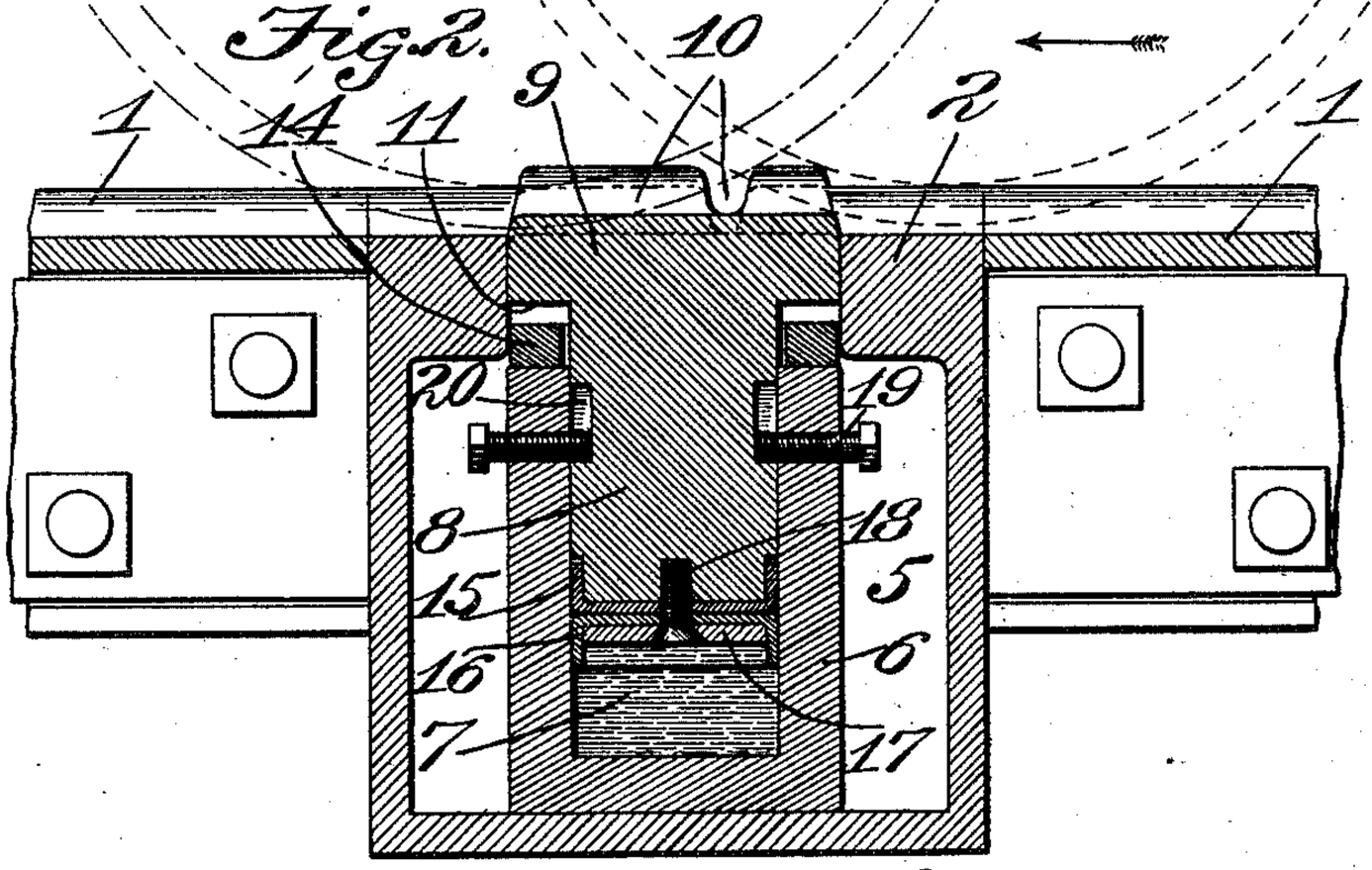
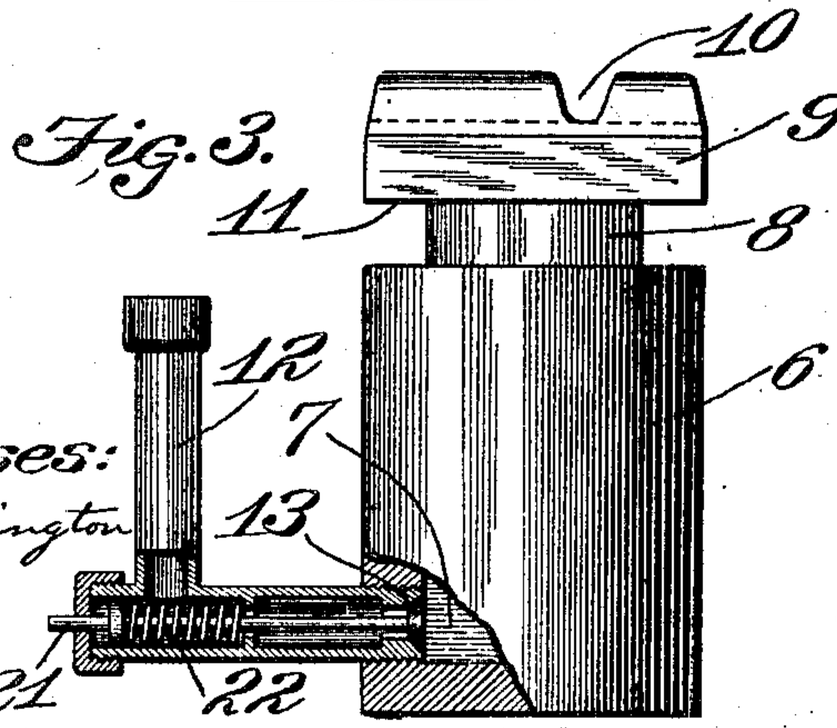


Fig. 3.



Witnesses:
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J. H. Gibbs

Inventor:
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UNITED STATES PATENT OFFICE.

ZÖLESTIN FREI, OF ST. LOUIS, MISSOURI.

RAILWAY-CROSSING.

SPECIFICATION forming part of Letters Patent No. 719,412, dated January 27, 1903.

Application filed November 7, 1902. Serial No. 130,407. (No model.)

To all whom it may concern:

Be it known that I, ZÖLESTIN FREI, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented a certain new and useful Improvement in Railway-Crossings, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view of the invention. Fig. 2 is a sectional view of Fig. 1 on line 2 2, Fig. 1; and Fig. 3 is a detached view of the compression-cylinder and its correlated parts.

This invention relates to improvements in railway-crossings; and it consists in certain new and useful improvements in the detail construction and combination of operative parts thereof, all as hereinafter more fully described, and specifically pointed out in the claims.

The invention contemplates the inclusion in a crossing of all the advantages incident to hydraulic and pneumatic cushions for the movable element thereof, whereby the same is rendered substantially noiseless in practical railway operation, and to that end means are provided whereby such advantages are secured in my device.

Referring to the drawings, 1 represents the tracks leading to the crossing, 2 is a casting open at its upper side, and 3 is an angular offset integral with said casting and communicating therewith at its interior.

4 is a cover-plate for the opening in the upper face of the offset adapted to close the same and removable therefrom at will. Within the chamber 5, formed by the casting 2, is a hollow cylinder 6, open at its upper end, the inner wall of which is finished to a smooth surface and may be circular or angular at will.

Within the cylinder 6 is a column of oil 7, and resting upon the said oil column 7 is a post 8, the exterior contour of which corresponds closely to the contour of the inner face of the cylinder 6, so as to form a close contact therebetween. Securely embracing the lower end portion of said post is a leather cap 15, with the flanges thereof turned upwardly, and beneath said cap 15 is a similarly-shaped member 16, the two being secured to the lower portion of the post 8 by means of the disk 17 and the screw 18 passing through said disk and the members 15 and 16 and into said post 8, thereby providing additional cushioning means through said members 15 and 16. Slightly above the middle portion of the post 8 are formed therein channels or grooves 20, and set-screws 19 extend through the wall of the cylinder 6, the ends of which screws ride in said channels and serve as stops to limit the upward thrust of said post 8 and its superimposed block 9. The upper portion of the post 8 is provided with a substantially square-surfaced block 9, adapted to fit snugly between the adjacent ends of the rails 1, the channels 10 therein forming guides or trackways for the flanges of car-wheels passing over said portion 9, while shoulders 11 are provided thereon, so that if by accident the oil should escape said shoulders will rest upon a rubber collar 14 upon the upper end of said cylinder and afford yielding supporting means for said block 9.

In practical use my improved device forming a cushion may be used at any point where a crossover occurs or where two or more meeting rails are brought together, and I do not wish to limit myself to a point where two tracks cross each other at right angles; but such crossing is illustrated as being the most common point of application thereof, though it will be understood that it may be used wherever a substantially noiseless crossing joint or point may be desired.

To provide a noiseless crossing-block, the cylinder 6 is provided with any suitable or convenient means for introducing into the interior thereof liquid and air under slight pressure, and in the drawings I have shown the T-shaped feed-pipe 12 provided with an upwardly-bent portion to provide more ready access thereto, which section terminates just below the cover-plate 4, while the valve 13 is provided to permit of the introduction of a suitable supply of oil and air into the said cylinder 6, after which the valve 13 is closed automatically by means of the spring 22 to lock the cushioning material therein, whereby the post 8 and block 9 are yieldingly supported upon the cushion thereby provided.

If upon testing the device it is found that there is not sufficient elasticity thereto because of an excess of air or liquid, the valve 13 may be pressed inwardly against the pressure of cushioning material and the spring 22 and a sufficient leakage provided to permit the surplus to escape, after which if the stem 21 is released the said valve 13 will be properly seated, thereby confining said cushioning material within the lower portion of the cylinder 6, where it will support the post 8 and block 9. With the block 9 so supported the upper surface thereof is normally slightly elevated above the surface of the rails 1, and when a car rides over the same the oil and air in the cylinder 6 will be slightly compressed by the load thrown thereon, thereby permitting the said block to be depressed gradually, so that its upper face will ride flush with the rails and the wheels will ride over it without causing any of the pounding noise commonly incident to railway-crossings. When the wheel has passed over the block 9, the pressure below said block will quickly restore it to its normal position as the car-wheel passes onto the main track, and the block will be reset for the next wheel or set of wheels.

It will be apparent that if the post 8 is of buoyant material and the block 9 is of hardened steel the buoyancy of the post will support the block in the same manner as if a cushion of liquid and air is provided, as at 7, and said block will present a surface which will not readily yield to abrasion. By making these two parts separately and uniting them for use the block 9 will be readily renewable when desired.

I am aware that minor changes in the construction, arrangement, and combination of the several parts of my crossing may be made and substituted for those herein shown and described without in the least departing from the nature and principle of my invention.

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

1. In a railway-crossing or the like, a casting arranged between a plurality of contiguous rail ends, a vertically-movable filler-block supported therein, and a non-metallic cushion coöperating therewith; substantially as described.

2. In a railway-crossing or the like, a casting having a chamber, a hollow member therein, and a vertically-movable member yieldingly supported therein; substantially as described.

3. In a railway-crossing or the like, a casting having a chamber, a hollow member therein, and a vertically-movable member yieldingly supported therein, the exterior surface of said movable member forming a substantially air-tight joint with the interior face of said cylinder; substantially as described.

4. In a railway-crossing or the like, a casting having an interior chamber, a member supporting a track-surface, a portion of which member is vertically movable within said chamber, and a combined hydraulic and pneumatic cushion for said movable member; substantially as described.

5. In a railway-crossing or the like, a vertically-movable member with flange-channels formed in its upper face, a yielding support therefor, and means for supplying a greater or less quantity of such supporting means without removal of said block; substantially as described.

6. In a railway-crossing or the like, a cylindrical shell, a cushion therein, a post resting on said cushion, a crossing-block supported by said post, and means whereby the cushioning material may be renewed; substantially as described.

7. In a railway-crossing or the like, a housing, a cushion-containing chamber therein, a cushion in said chamber, a movable member supported by said cushion, and means for renewing the cushioning material without removing said removable member; substantially as described.

8. In a railway-crossing or the like, a housing, a chamber suitably supported within said housing, a spring-operated valve in the lower portion of said chamber, a feed-pipe leading thereto, a vertically-movable member suitably supported in said chamber, and carrying a track-surface at its upper face, and means for limiting the upward movement of said movable member; substantially as described.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 4th day of November, 1902.

ZÖLESTIN FREI.

Witnesses:
GEORGE BAKEWELL,
G. A. PENNINGTON.