

No. 764,588.

PATENTED JULY 12, 1904.

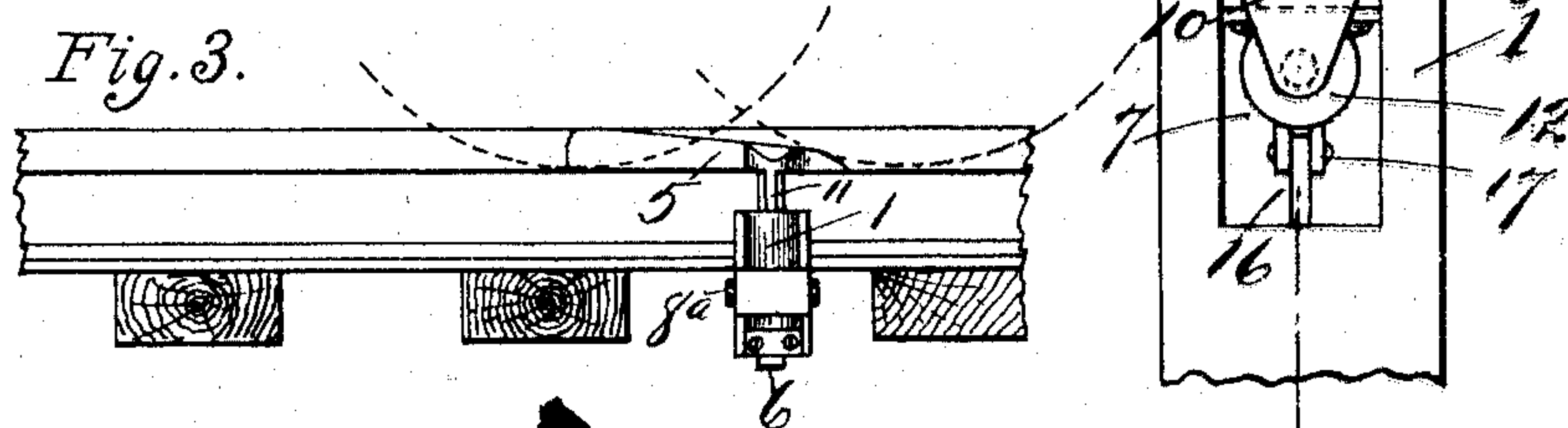
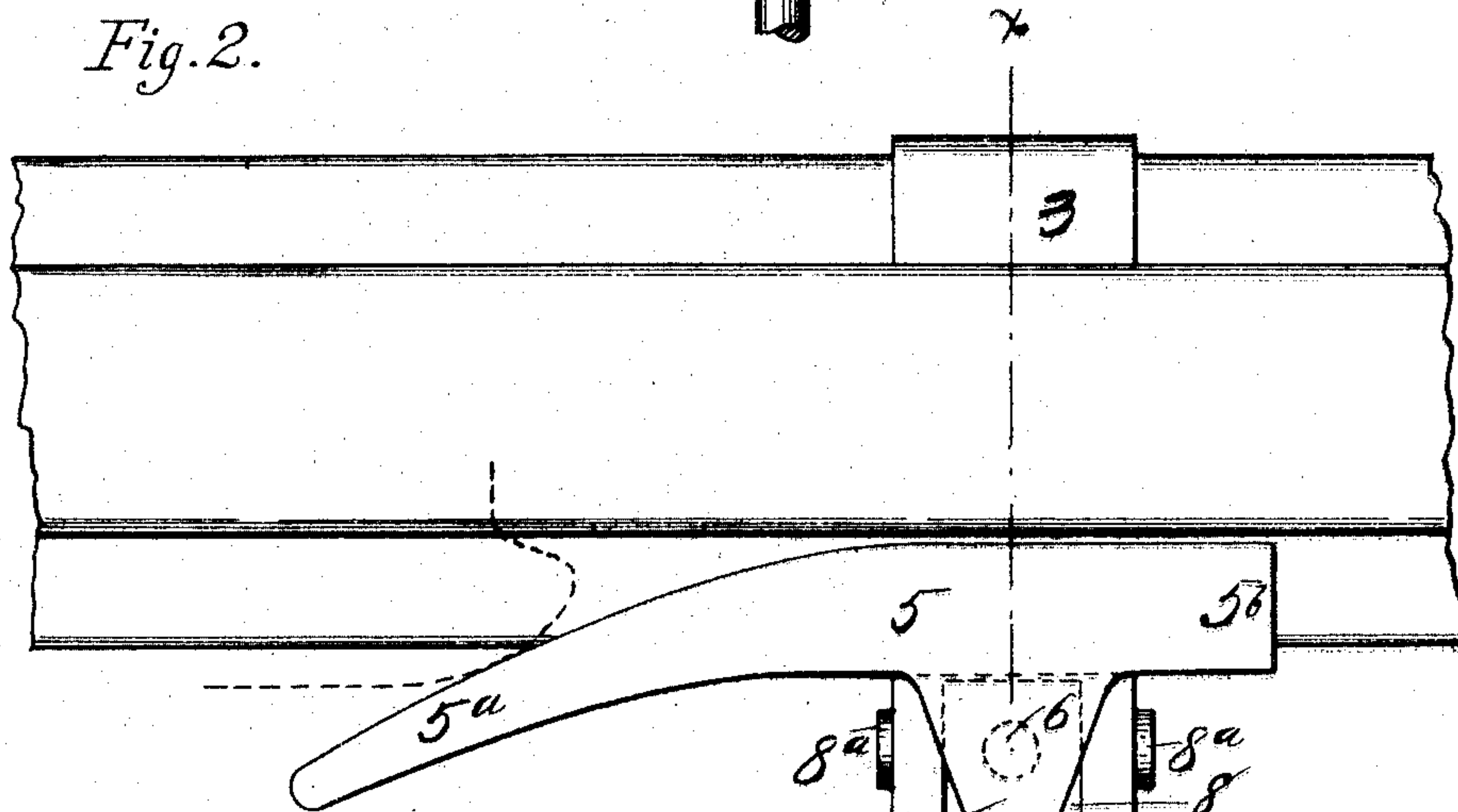
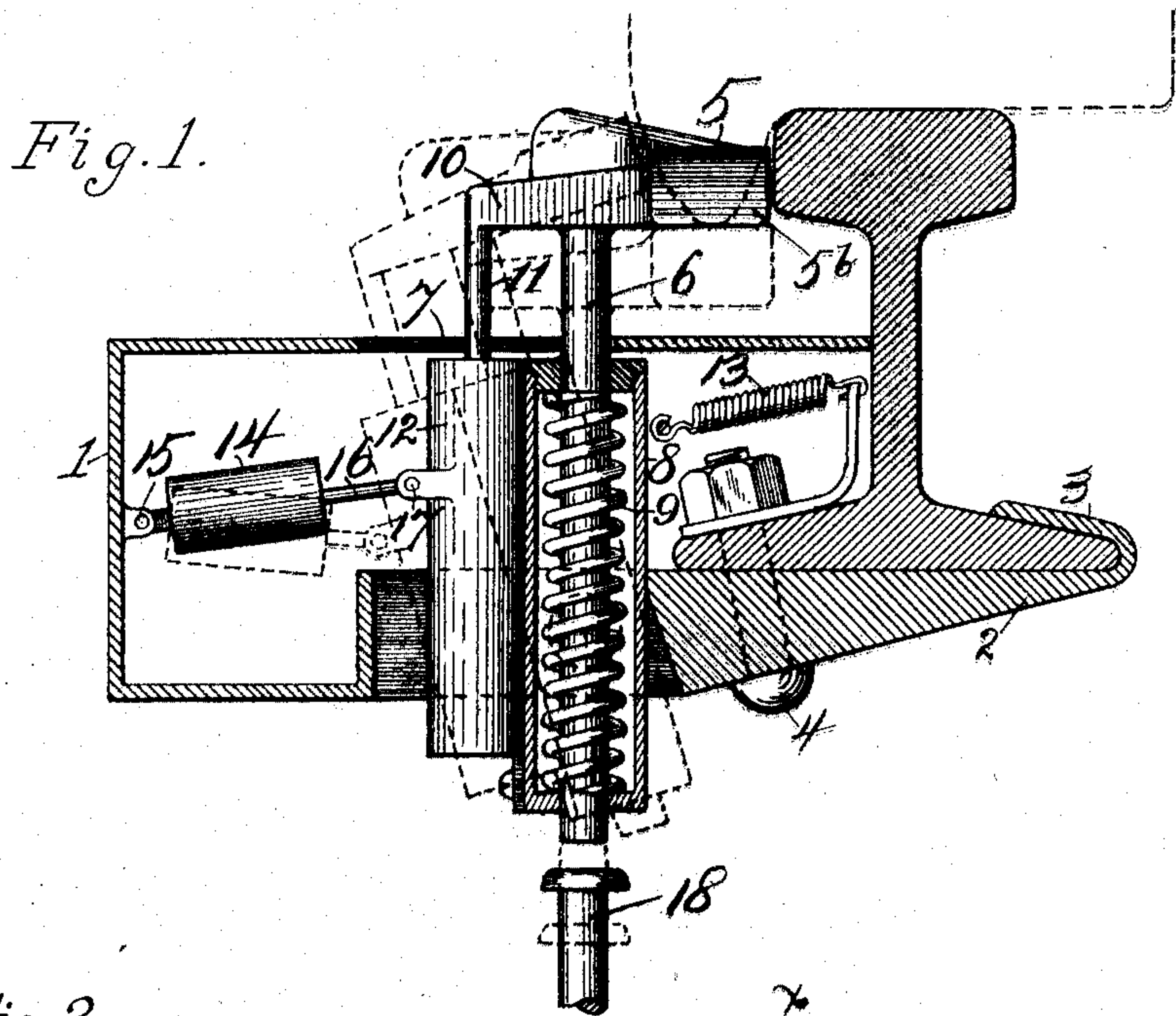
C. R. HILL.

# CROSSING SIGNAL FOR RAILWAYS.

APPLICATION FILED AUG. 12, 1901.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

David C. Walter  
L E. Brown

INVENTOR:

INVENTOR:  
Charles R. Hill  
By his Atty,  
Sharon Hall.

No. 764,588.

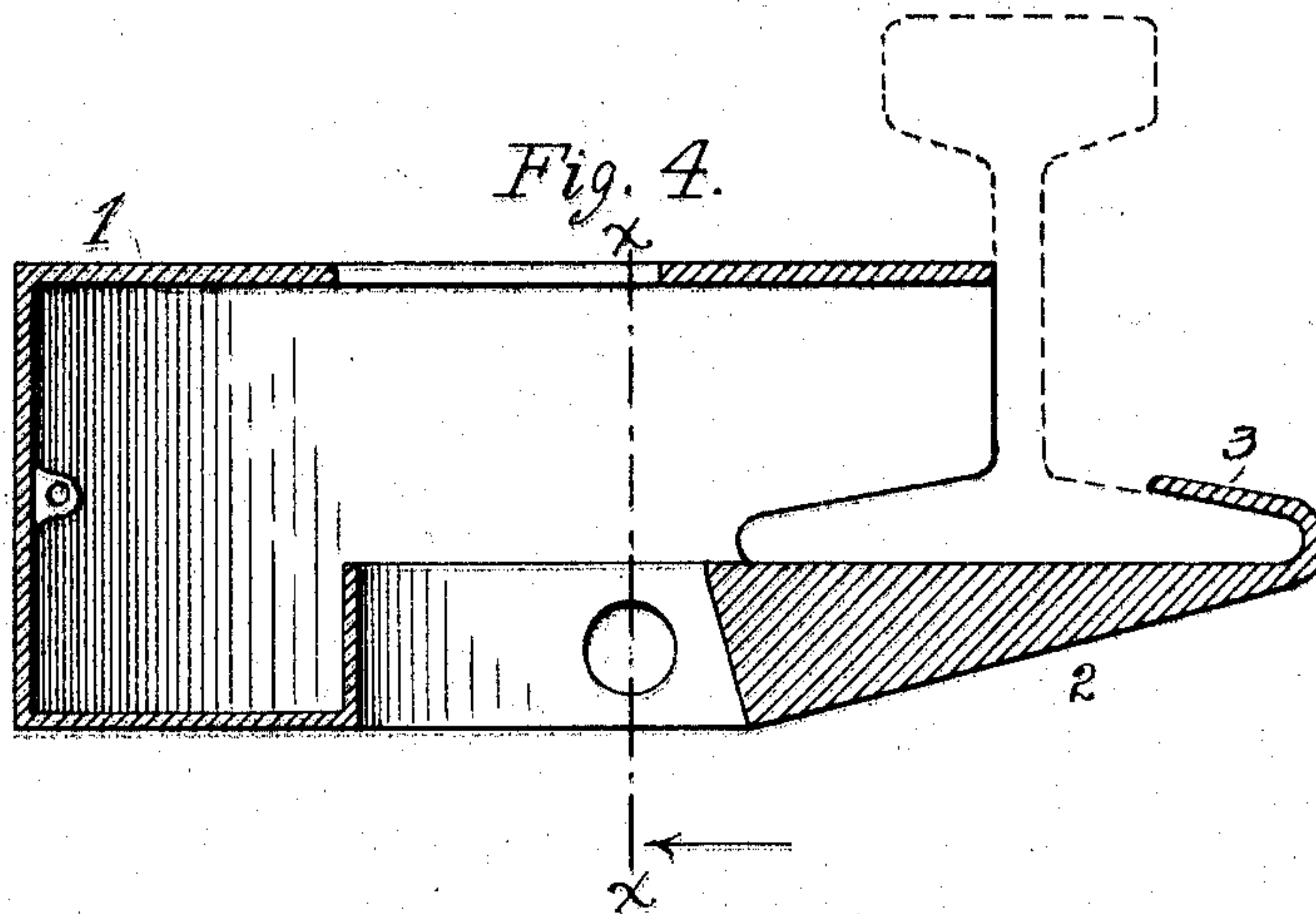
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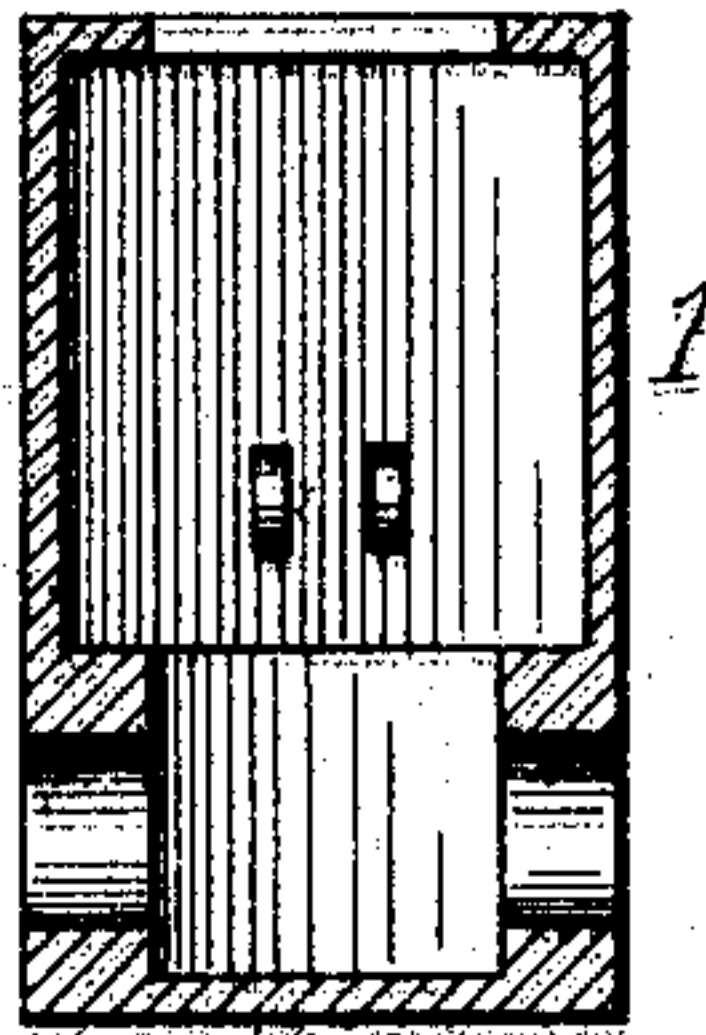
APPLICATION FILED AUG. 12, 1901.

NO MODEL.

2 SHEETS—SHEET 2.



*Fig. 5.*



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# UNITED STATES PATENT OFFICE.

CHARLES R. HILL, OF TOLEDO, OHIO.

## CROSSING-SIGNAL FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 764,588, dated July 12, 1904.

Application filed August 12, 1901. Serial No. 71,742. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES R. HILL, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Crossing-Signals for Railways; and I do declare the following to be a full, clear, and exact description of the invention, 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, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to a device for giving at railway-crossings an audible signal of the approach of railway-trains; and its object is to provide a device which shall be reliable, cheap, simple, and strong, which will not easily get out of repair, and which shall sound a signal only at the approach of trains and not when the train recedes. I attain these objects by means of the devices and arrangement of parts hereinafter described and shown, and illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of my device in transverse section, taken on line *x x*, Fig. 2; Fig. 2, a top plan view of the same; Fig. 3, a side elevation of the same on a reduced scale; Fig. 4, a central longitudinal vertical sectional elevation of the case hereinafter referred to with its interior mechanism removed; and Fig. 5, a vertical transverse section on line *x x*, Fig. 4.

Like numerals of reference represent like parts throughout the drawings.

In the drawings, 1 is a case having a top, bottom, and one side, the remaining side being formed by the inner side of the track-rail, to which the case is secured. The bottom of the case at its open side is provided with a projecting tongue 2, which is turned upwardly and backwardly, as at 3, forming a hook which engages the outer bottom flange of the track-rail. Through the opposite flange of the rail and through the tongue 2 passes a screw-bolt 4, which, in conjunction with the hook 3, rigidly secures the box or case in place.

5 is a shoe the top of which rests normally

a little below the level of the top of the track-rail. One side of the shoe rests near the inner side of the top of the rail. The shoe at its end next the crossing is curved or inclined away from the rail, as at 5<sup>a</sup>, and at its opposite end is curved or inclined downwardly, as at 5<sup>b</sup>. From the under side of the shoe projects downwardly a stem 6, which passes through a slot 7 in the top of the case 1.

8 is a tubular spring-case through which the stem 6 passes axially.

9 is a coiled spring resting on the bottom of the spring-case and at top engaging the stem. An arm 10, projecting horizontally from the shoe, carries at its outer extremity a downwardly-projecting stem 11, which passes through the slot 7 and carries at its lower end a plunger which moves in a dash-pot 12, which is disposed by the side of and is secured to the spring-case 8. This dash-pot is of ordinary construction and is designed to permit the quick downward movement of its plunger, but to retard its upward or return movement. At opposite sides of the spring-case are projecting lugs 8<sup>a</sup>, which are mounted and journaled in the sides of the case 1, forming a pivot upon which the spring-case and the dash-pot 12 swing in a vertical plane.

13 is a spring connected at one end with the rail or case and at its other end to the side of the spring-case 8 in such manner that the stress of the spring is toward the track-rail. Opposed to the stress of the spring 13 is a dash-pot 14, pivotally connected, as at 15, to the side of the case, the stem of which, 16, is connected, as at 17, with the dash-pot 12.

The stem 6 extends downwardly through the bottom of the spring-case 8 and is in vertical alinement with a push-button 18, which is provided with a make-and-break device, in the electric circuit of which is an alarm-bell adapted and arranged to ring whenever the circuit is closed. The electric and bell ringing apparatuses are not shown in the drawings or further referred to here, as they will be fully understood without illustration and as they form no part of this invention.

The operation of my device is as follows: Assume that the parts are assembled and secured in place, as above described, one alarm



device at each side of the crossing. Now the flanges of the wheels of an approaching train will strike the downwardly curved or inclined portion 5<sup>b</sup> of the shoe 5 and, overcoming the resistance of the spring 9 and the dash-pot 12, will force the shoe directly downward, projecting the stem 6 into contact with the push-button 18, thus closing circuit and sounding the alarm. As the first wheel passes away from the shoe the shoe is by the dash-pot 12 restrained from returning suddenly to its original position by the spring 9. The shoe rises so slowly that it is again depressed by the next succeeding wheel before the circuit is broken, and thus the alarm is sounded continuously while the train is passing in the direction of the crossing. Upon reaching the alarm mechanism at the opposite of the crossing as the train recedes the flanges of the wheels enter between the rail and the outwardly-curved portion of the shoe 5<sup>a</sup>, and by the wedge-like action of the wheel pressing against the inclined inner surface of the shoe this part is tilted outwardly on its pivot 8<sup>a</sup> without being depressed and without closing the circuit. The spring 13 tends to restore the shoe to its normal position after the passage of each wheel; but the dash-pot 14 restrains the inner swing of the parts 8 and 12, the inward movement of which is so slow that a slight outward pressure of each passing wheel will hold the shoe away from the track-rail until the retreating train has passed by.

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

1. A railway-crossing signal comprising a shoe, inclined downwardly at one end and outwardly at the other end and disposed by the side of a track-rail in the path of the car-wheel flanges, spring-supports which permit said shoe to move vertically and horizontally, means for opposing said springs and which retard the reverse movements of said shoe, and means controlled by the movement of said shoe for actuating suitable alarm mechanisms.

2. In a railway-crossing signal, a case consisting of a top, bottom, ends and one side, the open side being adapted to engage the side of a track-rail as a closure for the opening, and means for clamping the case to the track-rail, combined with a shoe disposed in the path of the car-wheel flanges, said shoe being inclined outwardly at its end next the crossing and being inclined downwardly at its opposite end, pivotal connections between the shoe and the case which permit the shoe to swing horizontally toward and away from the track-rail, a spring which holds said shoe normally toward the rail, a spring-support which holds the shoe normally elevated, and means for retarding the return of the shoe from its depressed position and from its movements toward the rail.

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

CHARLES R. HILL.

Witnesses:

M. D. MERRICK,  
L. E. BROWN.