No. 772,671. PATENTED OCT. 18, 1904.

R. H. REID.

RAIL LOCK.

APPLICATION FILED JULY 22, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

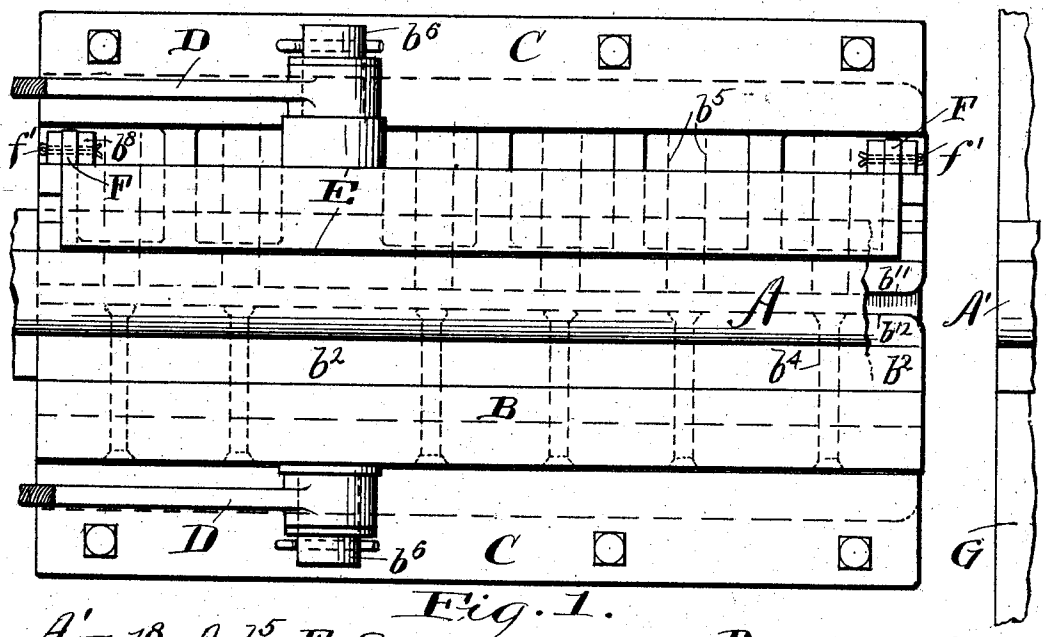


Fig. 1.

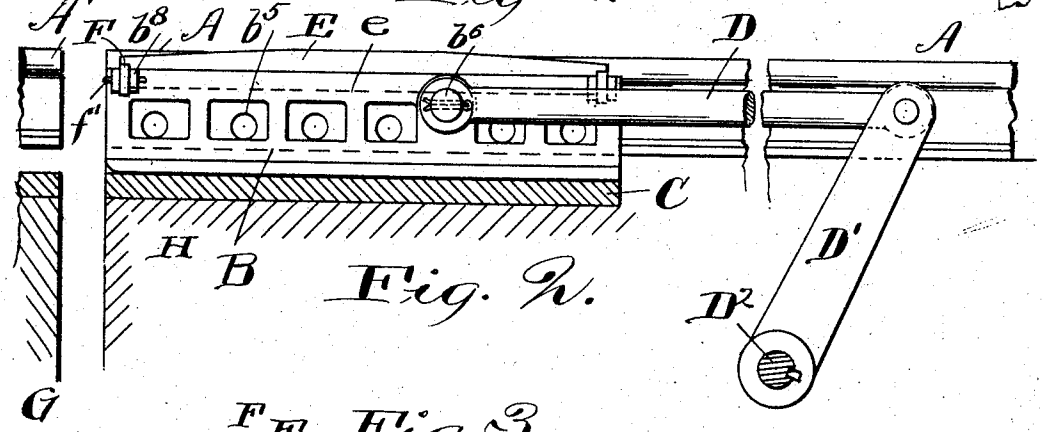


Fig. 2.

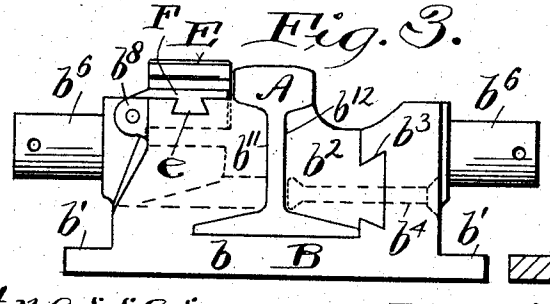


Fig. 3.

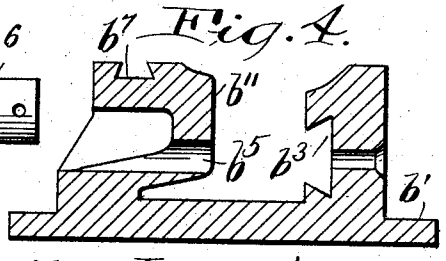


Fig. 4.

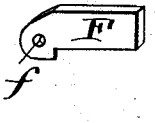


Fig. 5.

Witnesses.
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B. W. Brockett.

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RAIL LOCK.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 6.

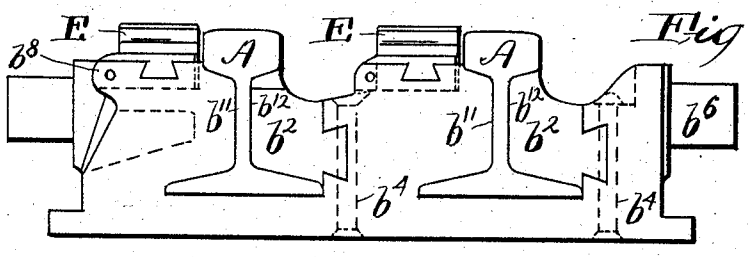


Fig. 7.

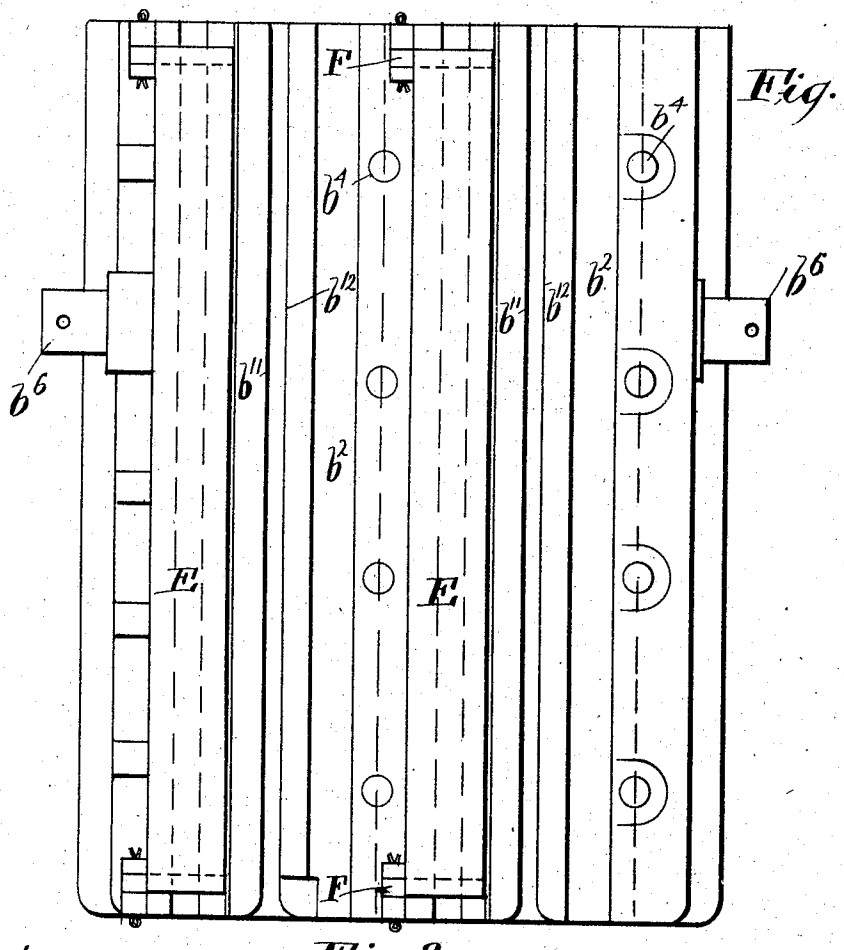
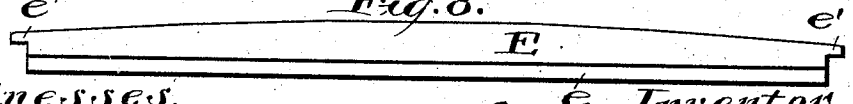


Fig. 8.



Witnesses.
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Fig. 9.



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PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 772,671. Patented October 18, 1904.

UNITED STATES PATENT OFFICE.

ROBERT H. REID, OF CLEVELAND, OHIO, ASSIGNOR TO THE LAKE SHORE AND MICHIGAN SOUTHERN RAILWAY COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

RAIL-LOCK.

SPECIFICATION forming part of Letters Patent No. 772,671, dated October 18, 1904.

Application filed July 22, 1904. Serial No. 217,674. (No model.)

To all whom it may concern:

Be it known that I, ROBERT H. REID, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Rail-Locks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to the mechanism adapted to be located on a drawbridge or in a similar position adjacent to the rail end and by being shifted lengthwise to lock the rail end to the alined rail on the abutment when the bridge is closed. To form a continuous support for the car-wheels across the gap between such alined rails, I provide a wear-strip on the upper surface of the rail-lock. This wear-strip is made of hardened steel to reduce the wear, and it is further made removable, so that when worn it can be easily replaced. The rail-lock is so designed that it may be very easily and simply machined to fit the rail with the required snugness without undue binding. The means by which these results are attained constitute the present invention, which may be most conveniently summarized as consisting of the combination of parts hereinafter more fully described, and definitely set out in the claims.

In the drawings, which fully illustrate my invention, Figure 1 is a plan of the rail-lock in place on a rail. Fig. 2 is a side elevation of the rail-lock on a reduced scale. Fig. 3 is an end view of the lock with the rail in place. Fig. 4 is a cross-section of the main frame of the lock by itself. Fig. 5 is a perspective view of the key for holding the wear-strip in position. Fig. 6 is an end view, and Fig. 7 is a plan, of my rail-lock adapted for use with two rails side by side employed when the track forms a guantlet on the bridge. Fig. 8 is a side elevation, and Fig. 9 is an end view, of the wear-strip alone.

Referring to the drawings by letters, A represents a rail suitably carried on a drawbridge or similar structure H. A′ (shown in Figs. 1 and 2) represents the rail on the abutment G, with which the drawbridge-rail is adapted to aline and be locked. Embracing the rail A on the drawbridge, near the end thereof, is the lock B. This lock has a main frame in the form of a casting b, extending beneath the rail and up onto each side thereof. It rests on a plate C, bolted to the drawbridge and having undercut ways in which projecting edge ribs b' of the frame slide.

The rail-lock is made to embrace the rail with considerable snugness, but still loose enough so that the lock may be shifted longitudinally. In order that the lock may be conveniently machined to accomplish this desired fit, I make its main frame with a large opening in it, as indicated in Fig. 4, allowing the necessary room for tools which do the machining, and I take up as much of this space as is necessary for the rail by a block b^2, which is machined to fit the rail and is slid lengthwise into the frame b, having a dovetailed connection therewith, as indicated at b^3. When in place, this block b^2 is held by rivets b^4, passing across it and the frame. In the construction shown in Figs. 1 to 4 these rivets are located horizontally, and an opening b^5 is made through the opposite wall of the frame to allow the insertion and upsetting of the rivets. In the form shown in Figs. 6 and 7 the rivets are placed vertically, passing across the frame and the members b^2 at the dovetailed junction thereof.

The construction above described allows the surfaces b^{11} and b^{12} of the frame and filling-block which bear against the rail to be conveniently machined to give just the desired fit. This constitutes one of the features of the present invention.

Projecting laterally from the frame b are a pair of studs b^6, on which take a pair of links D, which extend backward along the drawbridge to the operating mechanism. This operating mechanism is indicated in Fig. 2 by rocker-arms D′, connecting to the links D and keyed to a shaft D^2, located upon the drawbridge. It will be seen that the rocking of

the shaft D^2 will result in shifting the rail-lock longitudinal of the rail A, so that it may pass over the end of the alined rail A′, securely locking the two together.

In order to bridge the gap between the rails which the lock connects, so that the car-wheels will have a smooth surface to run over, I provide a wear-strip E, carried by the lock adjacent to the ball of the rail. This wear-strip at its middle portion is somewhat higher than the rail and then inclines downward gradually in each direction to a point below the surface of the rail, as shown in Fig. 2. When the lock is in active position, this wear-strip bridges the gap, and by forming a surface upon which the outer portion of the tread of the wheels may run prevents the jar to the train and the hammering down of the ends of the rails, which would otherwise result. The wear-strip is made higher at its center than the rails, so that it may be considerably worn and still be effective. It tapers down below the surface of the rail, so that the outermost portion of the wheel (which sometimes projects downward beyond the more worn tread, producing what is known as an "outside flange") may easily run onto the wear-strip.

The wear-strip E is made of hardened steel to reduce the wear as much as possible; but since it wears out more rapidly than the rest of the structure I make the wear-strip removable, though securely held when in place. I accomplish this by having on the under side of the wear-strip a dovetailed rib *e*, which seats in a dovetail groove b^7 in the frame, the wear-strip being slid into place longitudinally. To prevent its shifting lengthwise, I provide a pair of keys F, which slide into transverse ways in the frame across the opposite ends of the wear-strip.

The upper portion of the wear-strip continues at *e′* across the top of the keys F. These keys being shoved laterally into place beyond the ends of the wear-strip and below the portion *e′* hold the wear-strip against longitudinal movement and are themselves held against vertical displacement by the overhanging portions *e′* of the wear-strip. The keys slide between the ears b^8, formed on the frame, and when in place are locked by cotter-pins *f′*, passing through such ears and through holes *f* in the keys. This arrangement securely holds the wear-strip in place, while the removal of the cotter-pin allows the removal of the keys and the removal of the keys allows the removal of the wear-strip. This wear-strip so arranged as to bridge the gap when in use, being securely locked to the rail-lock, but being easily removable for replacement, is an important feature of the present invention.

I claim—

1. A rail-lock adapted to be located adjacent to a rail end, mechanism for shifting the rail-lock to lock alined rails, and a wear-strip carried by said lock to bridge the gap between such rails.

2. A rail-lock adapted to be located adjacent to a rail end, mechanism for shifting the rail-lock to lock alined rails, and a rub-plate carried by said lock to bridge the gap between such rails, said wear-strip being removably held to the lock.

3. The combination of a rail-lock adapted to embrace a rail near to its end and be slid longitudinally to lock with an alined rail, and a wear-strip removably carried by said lock and adjacent to the ball of the rail.

4. The combination of a lock adapted to embrace a rail near its end and lock with an alined rail, and a wear-strip removably carried by said lock, said wear-strip being on the outer side of the rail and rising at its center above the rail and tapering downward at its ends to points below the rail.

5. The combination of a rail-lock, a wear-strip longitudinally dovetailed thereto, and a cross-key for preventing longitudinal movement of the wear-strip.

6. The combination of a rail-lock adapted to embrace a rail, said lock having on its upper surface a longitudinal undercut groove, a wear-strip having on its under surface a flaring rib adapted to engage in said groove, and a cross-key seating in said lock and engaging the wear-strip.

7. The combination of a rail-lock adapted to embrace a rail, a wear-strip seating on said lock and longitudinally dovetailed thereto, a cross-key seating in said lock and engaging the wear-strip, a pair of ears on the lock between which said key lies, and a locking-pin passing through said ears and key.

8. The combination of a frame, a wear-strip seating thereon and having a longitudinally-dovetailed engagement therewith, keys seating in the frame near the opposite ends of the wear-strip for preventing its longitudinal movement, said wear-strip overhanging the keys to prevent their vertical displacement.

9. The combination of a frame having an undercut groove on its upper surface, a wear-strip having a flaring rib on its under surface seating in said groove, keys seating in the frame at the opposite ends of the wear-strip for preventing its longitudinal movement, said wear-strip overhanging the keys to prevent their vertical displacement, pins for locking said keys to said frame, and mechanism for shifting said frame and wear-strip as a whole.

10. In a rail-lock, in combination, a frame having an opening in it, one wall of which presents a surface of contour corresponding to one side of the rail and the other wall of which is some distance away, and a filling-block occupying said opening and secured to

the other wall of the frame and having its free side of a contour corresponding to the rail.

11. In a rail-lock, in combination, a frame having an opening in it between upright walls, a filling-block occupying said opening and secured to one of the walls of the frame and having its free side of a contour corresponding to the rail, said filling-block having a dovetailed connection with such wall of the frame, and means for preventing longitudinal movement of the filling-block.

12. In a rail-lock, in combination, an integral casting having an opening in it, one wall of which has a contour corresponding to one side of the rail and the other wall of which is some distance away, a filling-block occupying said opening and secured to the other wall of the frame and having its free side of a contour corresponding to the rail, said filling-block having a dovetailed connection with said frame, and rivets located partly in the filling-block and partly in the frame for holding said two parts rigidly together.

13. In a rail-lock, in combination, a frame adapted to extend beneath a rail and having walls extending up onto opposite sides thereof, one of said walls carrying a surface of contour corresponding to one side of the rail, the other wall rising substantially from the far edge of the base of the rail and having an undercut groove along its inner surface, and a filling-block having a flaring rib adapted to fit said groove and having a vertical and lower surface adapted to engage the web and base of the rail, and means for holding said filling-block in place.

14. In a rail-lock, in combination, a frame adapted to extend beneath a rail and having walls extending up onto opposite sides thereof, one of said walls being formed of a contour corresponding to one side of the rail, the other wall rising substantially from the far edge of the base of the rail, a filling-block having a dovetailed engagement with the last-mentioned wall and having a vertical and lower surface adapted to engage the web and base of the rail, means for holding said filling-block in place, projecting ribs on the outer sides of said frame at the base, a slideway in which such ribs take, projecting studs on the outer sides of the frame above the ribs, and operating-links engaging said studs.

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

ROBERT H. REID.

Witnesses:
E. B. GILCHRIST,
E. L. THURSTON.