Jan. 27, 1925.

M. GRUNHUT

1,524,549

LOCOMOTIVE LATCH BOX AND LIFTER

Filed April 25, 1924

2 Sheets-Sheet 1

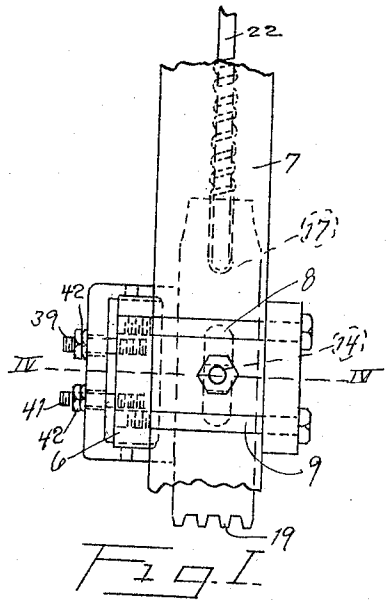


Fig. I.

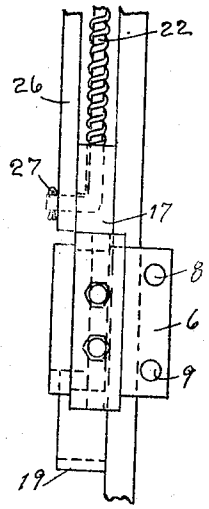


Fig. II.

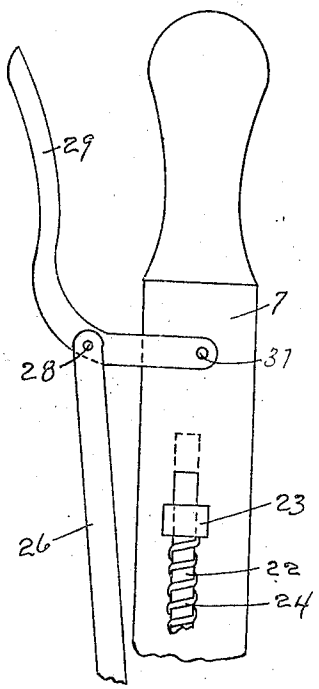


Fig. III.

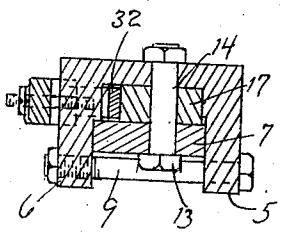


Fig. IV.

INVENTOR.

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1,524,549

LOCOMOTIVE LATCH BOX AND LIFTER

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2 Sheets-Sheet 2

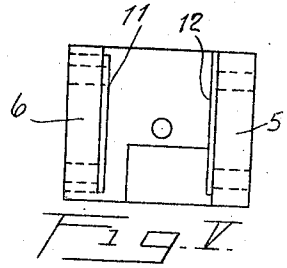


Fig. V.

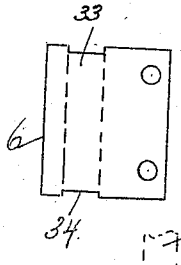


Fig. VI.

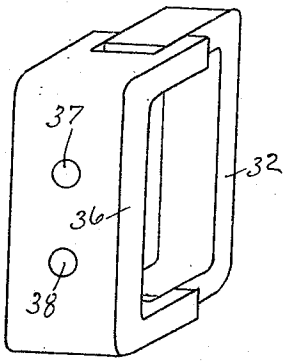


Fig. VII.

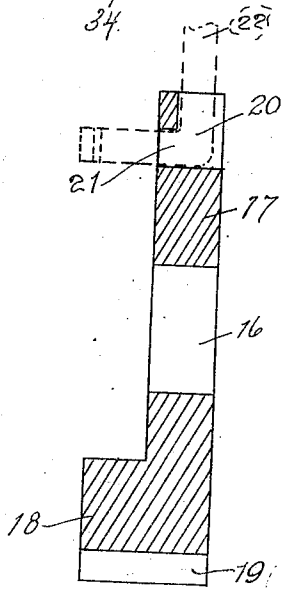


Fig. VIII.

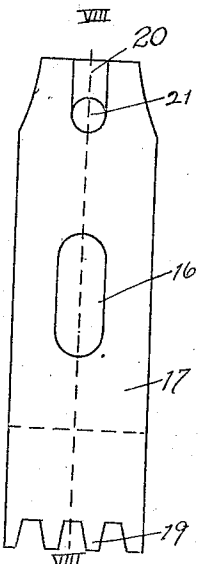


Fig. IX.

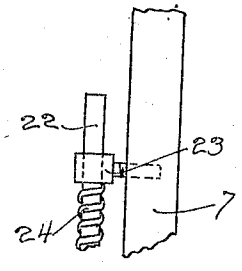


Fig. X.

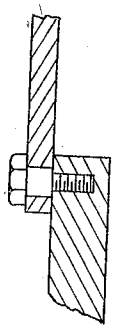


Fig. XI.

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UNITED STATES PATENT OFFICE.

MICHAEL GRUNHUT, OF RICHMOND, CALIFORNIA.

LOCOMOTIVE LATCH BOX AND LIFTER.

Application filed April 25, 1924. Serial No. 709,073.

To all whom it may concern:

Be it known that I, MICHAEL GRUNHUT, citizen of the United States, residing at Richmond, in the county of Contra Costa and State of California, have invented new and useful Improvements in Locomotive Latch Boxes and Lifters, of which the following is a specification.

This invention relates to improvements in locomotive latch boxes, and has particular reference to means for preventing the customary breakage of latch boxes.

The principal object of this invention is to produce a latch box which may be attached to the ordinary reverse lever without altering the construction of the same and one which will not break due to the stresses incident to use.

Another object is to produce a device of this character which is simple in construction, easy to apply and easy to take up to compensate for wear.

A still further object is to provide means whereby the latch raising rod will not become detached from the latch.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure I is a side elevation of a reverse lever having my latch box mounted thereon,

Figure II is an end elevation of Figure I,

Figure III is a fragmentary detail view of the upper end of the reverse lever,

Figure IV is a cross-section taken on the line 4—4 of Figure I,

Figure V is a side elevation of the latch box casing,

Figure VI is an end elevation of Figure V,

Figure VII is a detail perspective view of the gib-liner,

Figure VIII is a vertical cross-section of the latch taken on the line 8—8 of Figure IX,

Figure IX is a side elevation of Figure VIII,

Figure X is a fragmentary detail view showing the manner of securing the upper end of the tension rod, and

Figure XI is a fragmentary detail view of the present method of fastening the latch raising lever.

In a locomotive there is a reverse lever having a latch secured thereto, which latch is provided with teeth adapted to come into contact with a quadrant for the purpose of maintaining the reversing lever in adjusted position. The common practice is to fasten the latch raising lever to the latch as by a shoulder-bolt, as shown in Figure XI. This practice, however, results in serious breakage due to the fact that the present day locomotive has grown to such a size that the strain due to the weaving action results in the breaking of the latch raising bolt, with the result that it is impossible for the engineer to raise the latch, a serious matter when under way. The same method is also employed for securing the tension rod to the latch, with the result that breakage releases the latch from any tension and therefore the jostling of the cab would oftentimes cause the latch to become disengaged from the quadrant thus allowing the link motion to go from forward to a reverse position, without a warning to the engineer.

I have therefore devised a means whereby the latch mechanism may be at all times kept in contact with the quadrant without straining the parts sufficient to cause breakage, and at the same time allowing for the free movement of the parts as caused by the weaving action of the locomotive. In accomplishing this I provide a latch casing as best shown in Figures IV, V and VI. This casing is substantially U-shaped being provided with legs 5 and 6. This casing is clamped to the reverse lever 7 as by bolts 8 and 9. By viewing Figure V it will be noted that shoulders 11 and 12 are provided within the casing against which the reverse lever 7 contacts.

A guide bolt 13 is positioned in the reverse lever 7 and has a square head 14 which is positioned within a slide-way 16 of the latch member 17. This latch member is provided with an enlarged end 18 having teeth 19 adapted to engage the teeth of the quadrant (not shown). The opposite end of the latch is recessed as at 20 and bored as at 21 so as to accommodate the bent end of a tension rod 22, the upper end of which rod passes through the head of a guide bolt 23 secured to the reverse lever.

A coil spring 24 contacts the under surface of the guide bolt 23 and bears upon the upper end of the latch 17. A lifting link 26 is

connected with the bent end of the rod 22, as best shown in Figure II, while a cotter pin 27 prevents the accidental removal of the end of the link 26. The opposite end of this link is pivoted at 28 to a latch grip 29 pivoted at 31 to the reverse lever 7. In order to take up the wear incident to the continuous movement of the latch, I provide a gib-liner 32 which is substantially U-shaped and bears against one side of the latch as best shown in Figures I and IV. This gib-liner has its bent ends slidably retained in recesses 33 and 34 formed in the leg 6 of the latch box casing.

A gib-clamp 36 of U-shaped construction has its legs bifurcated so as to straddle the ends of the gib-liner as best shown in Figure VII. This gib-clamp is provided with orifices 37 and 38, through which stud bolts 39 and 41 are adapted to freely pass. These stud bolts are secured to the leg 6 of the latch box casing and after the clamp has been passed thereover, are adapted to have lock nuts 42 screwed thereon so as to contact the clamp for the purpose of adjusting the pressure upon the gib-liner and consequently the sliding latch.

The result of this construction is that through the loose connection of the tension rod with the latch, the customary breakage is eliminated due to the fact that there are no excessive strains, also through this construction it will be noted that the lifting link 26 is also secured to the same rod thus saving an operation in construction, and at the same time eliminating the wearing as above mentioned.

It will also be noted that the casing about the reverse lever has its opposite legs secured together by a bolt thereby clamping the structure securely to the reverse lever and further preventing danger of breakage.

It will be further noted that any wear may be easily taken up through the arrangement of the adjustable gib-liner.

It is to be understood that the form of my invention herewith shown and described is to taken as a prefered example of the same, and that various changes in the shape, size and arrangment of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. In a device of the character described the combination with a reverse lever of a locomotive, of a latch box clamped thereto, a latch movable through said latch box and having a recess formed therein, said recess communicating with a bore extending through said latch, a tension rod extending into said recess, and through said bore, a link secured to said tension rod, and means for-operating said link for the purpose of reciprocating said latch.

2. In a device of the character described the combination with a reverse lever of a locomotive, of a latch box clamped thereto, a latch movable through said latch box and having a recess formed therein, said recess communicating with a bore extending through said latch, a tension rod extending into said recess and through said bore, a link secured to said tension rod, means for operating said link for the purpose of reciprocating said latch, and a U-shaped member adapted to contact said slide, for the purpose specified.

3. In a device of the character described the combination with a reverse lever of a locomotive, of a latch slidably secured to said lever, said latch being provided with a recess near its upper extremity, a bore extending through said latch and communicating with said recess, a tension rod adapted to have a portion of its lower extremity positioned in the said latch and extending through said bore, a link pivotally secured to said rod extending through said latch, a spring slidably mounted on said rod and contacting said latch, a guide slidably mounted on said rod and contacting the opposite side of said spring, said guide being secured to said reverse lever, a latch handle pivotally secured to said reverse lever, the opposite end of said link being pivotally secured to said pivoted handle, and means for retaining said latch box in intimate contact with said reverse lever.

In testimony whereof I affix my signature.

MICHAEL GRUNHUT.