United States Patent [19]

Touchstone

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[54] **REPAIR DEVICE FOR LOCOMOTIVE HOOD DOOR LATCHES**

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[52] **U.S. Cl.** **292/1,** 292/223, 292/DIG. 49

[51] **Int. Cl.** **E05c 19/18**

[58] **Field of Search** ..... 85/13, 49; 292/1, 2, 194, 292/223, DIG. 56, DIG. 49; 339/265

[56] **References Cited**

UNITED STATES PATENTS

1,194,636	8/1916	Joy	292/DIG. 56
2,003,062	5/1935	Wickwire	85/49
2,621,952	12/1952	Gander	292/223 X
3,522,924	8/1970	Arnold, Jr.	85/13 X

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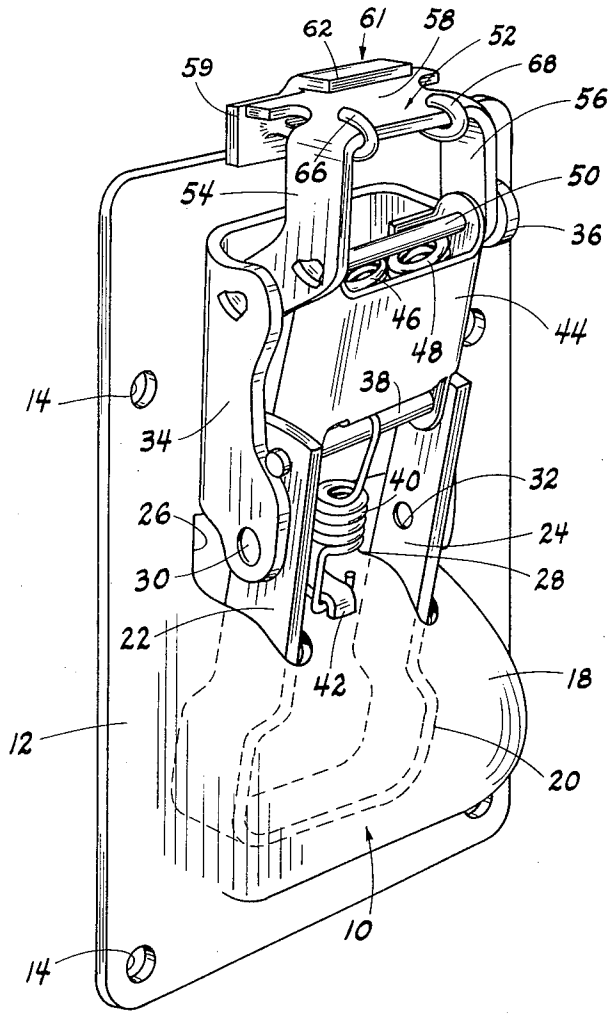
[57] **ABSTRACT**

A repair device for the hood door latch of a locomotive and comprising a substantially U-shaped element which may be easily secured to the door latch for restoring the door latch to an efficient latching operation without removal of the latch from the door and without alteration of the latch structure itself.

1 Claim, 5 Drawing Figures



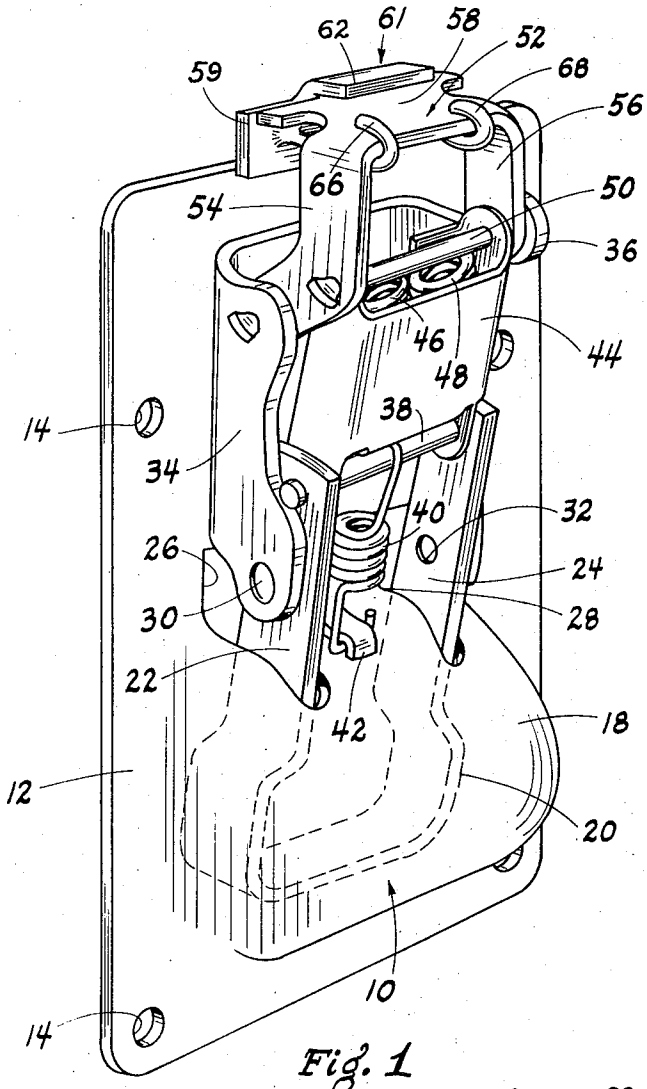

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Fig. 1

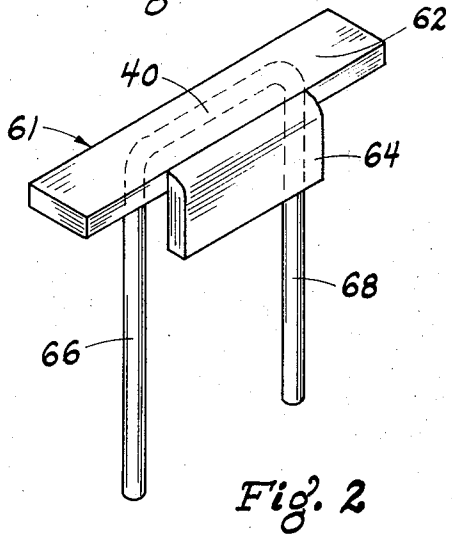
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Fig. 2

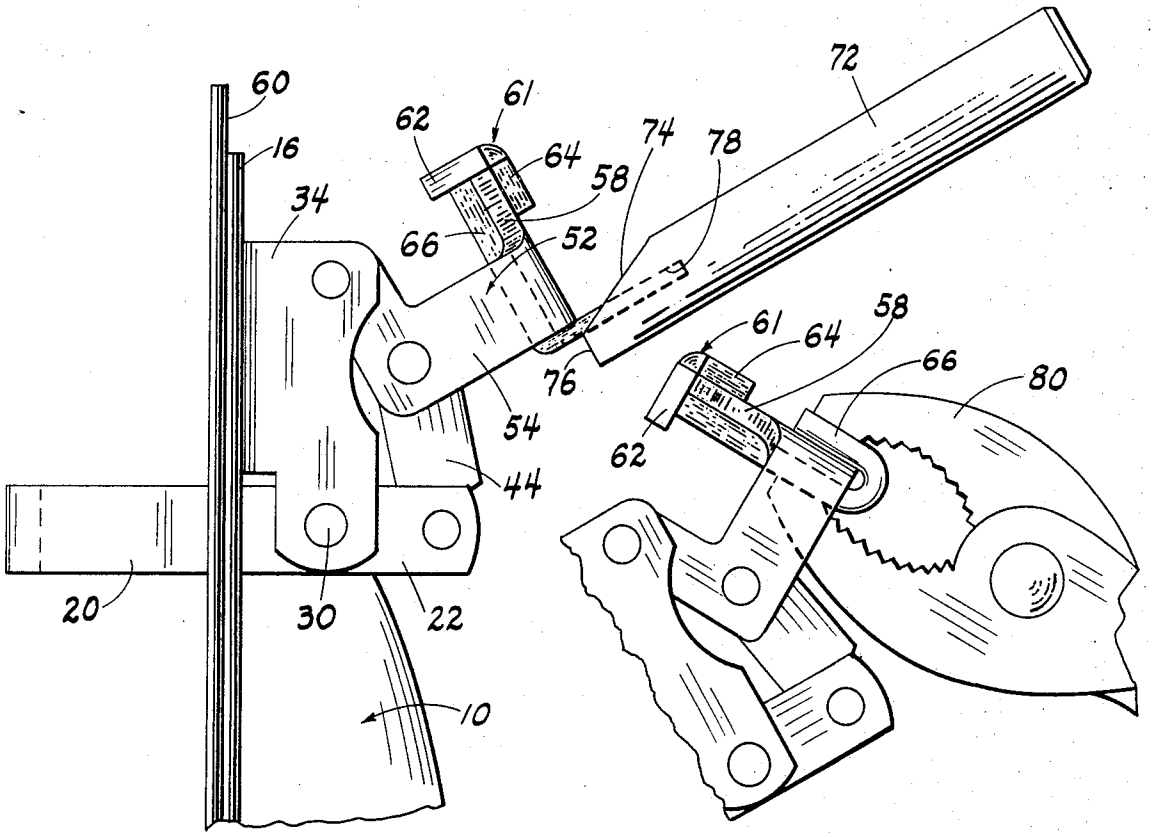

Fig. 4

Fig. 5

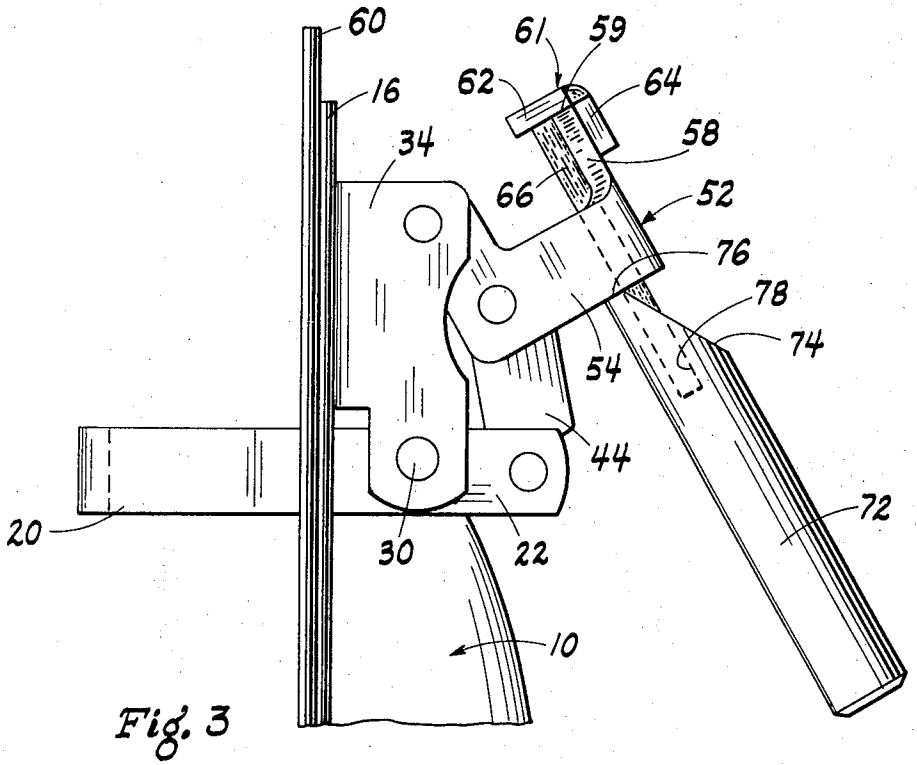

Fig. 3

REPAIR DEVICE FOR LOCOMOTIVE HOOD DOOR LATCHES

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to improvements in door latch repair devices and more particularly, but not by way of limitation, to a repair device for locomotive hood door latches.

2. Description of the Prior Art

It is a governmental requirement that locomotive hood doors be provided with latch devices which efficiently and securely retain the hood door in a closed position to preclude the escape of poluting gases, and the like, which cause damage and otherwise contaminate the areas surrounding the hood doors. The door latch in use on many locomotive hoods comprises a retainer member engagable with the hood frame and hingedly secured to the latch in such a manner that the retainer element is spring urged against the frame for securely holding the door in the closed position. During use of the latch, however, the apertures at the hinge connections frequently become elongated, and the hinge action for retaining the retainer element in position becomes loose or "sloppy" whereby the door is not held securely, and the door may rattle and leak. It is the usual practice to remove the entire latch from the hood door and repair the hinge connection in order to restore the latch to an efficient operation. This procedure not only requires loss of use time for the locomotive but also the cost for the repair of the latch is usually quite expensive.

SUMMARY OF THE INVENTION

The present invention contemplates a novel repair device which may be quickly and easily secured to the hood door latch without removal of the latch from the door, and without alteration of the latch structure itself. The novel device comprises a bar element having a pair of spaced legs or prongs extending substantially perpendicularly therefrom providing a substantially U-shaped element. In addition, a support member is secured to the bar for facilitating retaining of the repair element in position on the latch. The bar element is disposed against the frame engaging edge of the hinged latch retainer element, and the prongs extend along one face of the retainer element while the support member is disposed against the opposite face thereof. A special tool is utilized for engaging the outer ends of the prong members and bending the outer ends around the opposite edge of the retainer element in order to secure the repair device thereon. Finally a normal pair of pliers, or the like, are utilized for securely clamping or pinching the bent outer ends of the prongs into a tight engagement with the retainer element. With the repair device thus installed on the door latch, the bar member thereof engages the hood frame in the same manner that the outer edge of the retainer element of the latch and compensated for the looseness of the latch action caused by the worn hinge points of the latch. The novel repair device may be quickly and easily installed on the latch, and permits an efficient operation for an extended period of time for the latch until such time that the latch becomes so worn that replacement thereof is necessary.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of a locomotive hood door latch having a repair device embodying the invention installed thereon.

FIG. **2** is a perspective view of a repair device embodying the invention.

FIG. **3** is a side elevational view of a locomotive hood door latch installed on a locomotive hood, and depicts the initial step of installing a repair device embodying the invention thereon.

FIG. **4** is a view similar to FIG. **3** depicting the next succeeding step in installing the repair device on the hood door latch.

FIG. **5** is a side elevational view of the retaining element of a hood door latch and depicts the final step in installing the repair device of the invention thereon.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in detail, reference character **10** generally indicates a locomotive hood door latch such as normally in use today on the G.P. and S.D. model locomotive hood doors. The latch **10** as shown herein comprises a mounting plate **12** having a plurality of apertures **14** provided therein for receiving suitable bolts, rivets, or the like (not shown), therethrough for securing the latch to the inside of a locomotive hood door **16** (FIGS. **3** and **4**). An enlarged or bulbous housing element **18** is provided on the plate **12** which extends rearwardly from the door **16** and having the outer portion (not shown) thereof open for access from the exterior of the locomotive hood door for a purpose as will be herinafter set forth. A substantially U-shaped handle member **20** is disposed in the enlarged portion **18** and the spaced ends **22** and **24** thereof extend through apertures or slits, **26** and **28,** respectively, and into the inner side of the door **16.** The ends **22** and **24** are pivotally secured at **30** and **32,** respectively, to a pair of aligned oppositely disposed outwardly extending flanges **34** and **36** provided on the plate **12.** A rod **38** is secured between the ends **22** and **24** and a suitable spring **40** is anchored between the rod **38** and a hook member **42** provided on the plate **12.**

A channel-type member **44** is pivotally secured to the rod **38** in any suitable manner for encasing a plurality of suitable springs **46** and **48.** A rod **50** extends between the flanges **34** and **36** and across the open outer end of the channel-like member **44** as clearly shown in FIG. **1** and retains the springs **46** and **48** therein, as well as provides a pivotal connection for the outer end of the member **44.** A door retainer element **52** is pivotally secured to the rod **50.** The retainer element **52** comprises a pair of spaced link arm members **54** and **56** integral with a main plate member **58** which is provided with an outer edge **59** for engaging the locomotive hood frame **60** (FIGS. **3** and **4**) in the closed position of the door **16** and latched position of the latch **10.**

When the pivot connections or hinge points of the latch **10** become worn, such as by an elongation of the bores wherein the pivot shafts and connections engage the glanges **34** and **36,** the edge **58** may not engage the hood frame **60** with sufficient pressure for securely retaining the door **16** in the closed position. When this occurs, a repair device generally indicated at **61** may be quickly and easily secured to the retaining element **52** for re-establishing a pressure engagement between the

latch **10** and the hood frame **60** to insure an efficient latching of the door **16** in the closed position thereof.

The repair device **61** comprises a bar member **62** preferably of a length complementary to the length of the edge **59** of the retainer element **52.** A support block **64** is welded or otherwise secured to one edge of the bar **62** as clearly shown in FIG **2.** A pair of prong members **66** and **68** extend substantially perpendicularly from the plate **62** and the plane determined by the prong members **66** and **68** is spaced from the support block **68** a distance complementary to the width of the plate member **58** of the retainer **52.** The prongs **66** and **68** may be in the form of a substantially U-shaped element having the cross member portion **70** thereof welded to the bar **62** in spaced relationship to the support block **64.**

Referring now to FIGS. **3, 4** and **5,** in order to install the repair device **61,** the handle member **20** of the latch **10** may be manually grasped and pulled outwardly to the position shown in FIGS. **3, 4** and **5.** This "opens" the latch **10** and places the retainer element in an accessible position. The repair device **61** may then be disposed on the plate **58** of the retainer element **52** in such a manner that the bar **62** is disposed adjacent the edge **59,** the support block or brace **64** is disposed against the outer surface of the plate **58,** and the prongs **66** and **68** are disposed adjacent the inner surface of the plate **58.** It will be readily apparent that the prongs **66** and **68** are longer than the plate **58** and the outer ends of the prongs extend beyond the retainer **52.**

A special tool **72** is provided in combination with the repair device **61** for facilitating the installation thereof. The tool **72** is substantially elongated rod having one end thereof having a tapered portion as shown at **74.** A portion of the said one end is flat as shown at **76** and substantially perpendicular with respect to the longitudinal dimension of the rod **72** for a purpose as will be hereinafter set forth. A bore **78** extends longitudinally in the rod **72** at the tapered end thereof for receiving a prong **66** or **68** therein. The bore **78** is preferably of a diameter complementary to the diameter of the prongs **66** and **68** whereby the prongs may be easily inserted therein, but may be easily manipulated by the tool **72** as will be hereinafter set forth. Of course, it will be apparent that the prongs **66** and **68** may be of any desired cross-sectional configuration, with the cross-sectional configuration of the bore **78** being complementary with respect thereto.

The tool **72** may be placed against the retainer element **52** withe the flat end **76** in engagement therewith and the prong **66** inserted within the bore **78** as shown in FIG. **3.** The tool **72** may then be manually moved to the position shown in FIG. **4** whereby the prong **66** is bent at substantially right angles against the outer end of the retainer **52.** The tool **72** may be similarly engaged with the prong **68** and manipulated for bending the prong **68** in a similar manner.

Any normal or standard pair of pliers **80** may then be used in the normal manner for folding the bent end of the prong **66** against the outer surface of the plate **58** as shown in FIG. **5,** and theprong **68** may be similarly folded against the outer surface of the plate **58.** This secures the repair device to the retainer element **52,** and the bar **62** is now in position to engage the hood frame in the manner of the edge **59.**

Subsequent to the installation of the repair device **61** on the latch **10,** the handle **20** may be manually moved to a lowered position, as shown in FIG. **1,** thus bringing the bar **72** into engagement with the hood frame **60** in the same manner as the edge **58** of an unworn latch **10.** The repaired latch **10** may be utilized in the normal manner for efficiently retaining the door **16** in a closed position.

From the foregoing it will be apparent that the present invention provides a repair device for locomotive hood door latches which may be quickly and easily installed on the latch without removal of the latch from the locomotive, and without alteration of the actual structure of the latch itself. The installation of the repair device may be accomplished at substantially any site wherein the locomotive may be located, and requires very little loss of use time for the locomotive. The novel repair device may manually disposed over the retainer element of the latch, and quickly and easily clamped securely thereon by the use of a special tool and a standard pair of pliers. The novel device is simple and efficient in operation and economical and durable in construction.

Whereas the present invention has been described in particular relation to the drawings attached hereto, it should be understood that other and further modifications, apart from those shown or suggested herein, may be made within the spirit and scope of this invention.

What is claimed is:

1. A repair device for locomotive hood door latches having a retainer element with a latch engagement edge, and comprising bar means disposed adjacent said engagement edge, means secured to the bar means for spanning the retainer element for facilitating retaining of the bar means against the engagement edge, and means for clamping the device securely on the retainer element, and wherein the securing means comprises prong means secured to the bar means and extending substantially perpendicularly therefrom, support plate means secured to the bar means and spaced from the prong means for receiving said engagement edge therebetween, and said prong means comprises a substantially U-shaped member having the cross member thereof welded to the bar means and the legs thereof extending substantially perpendicularly from the bar means.

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