

May 1, 1956

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2,743,968

CLOSURE DEVICE

Filed March 22, 1954

3 Sheets-Sheet 2

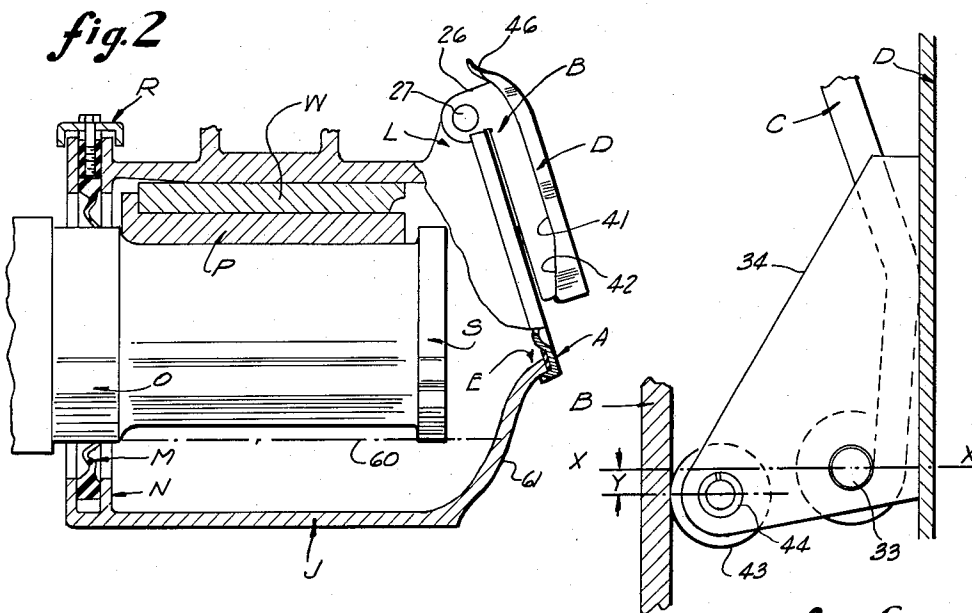
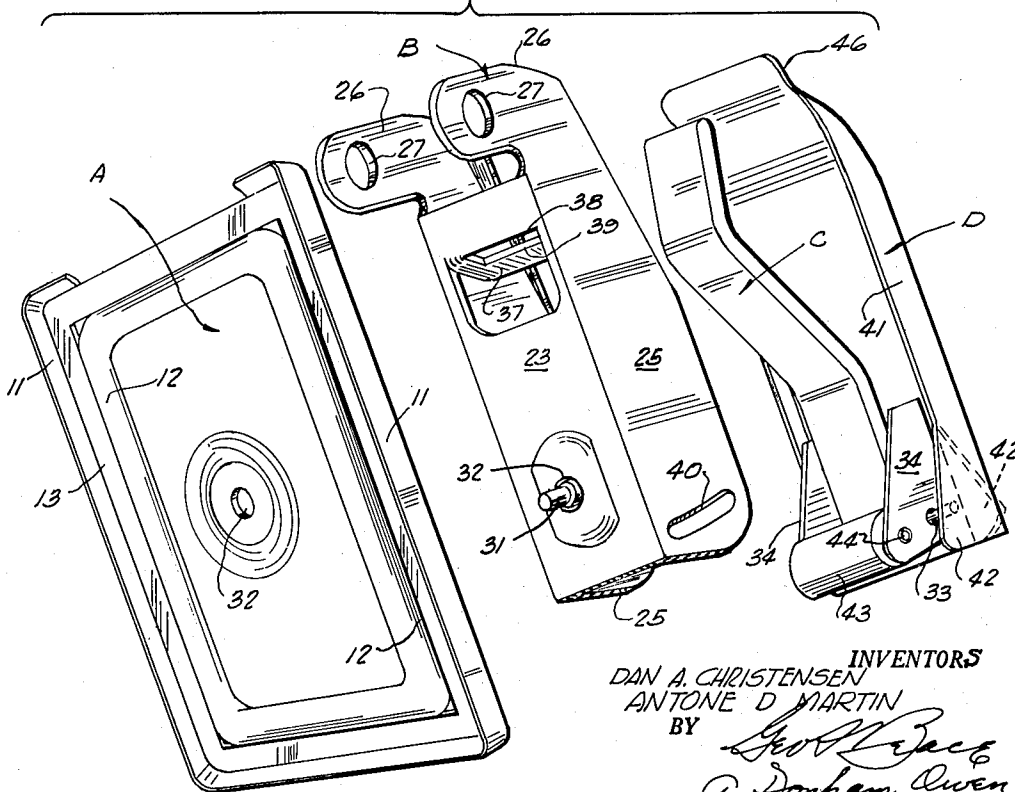


fig. 7

fig. 6



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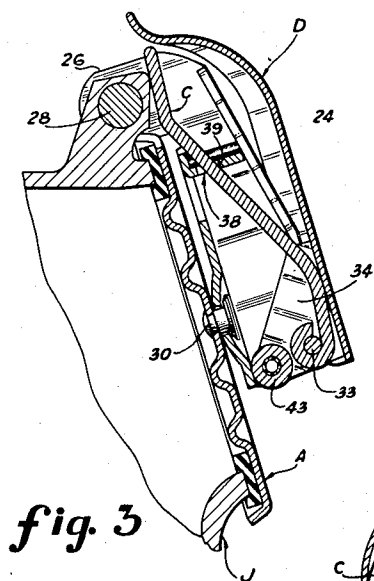


fig. 3

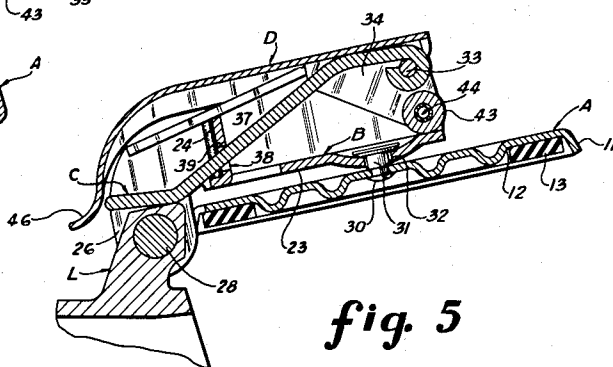


fig. 5

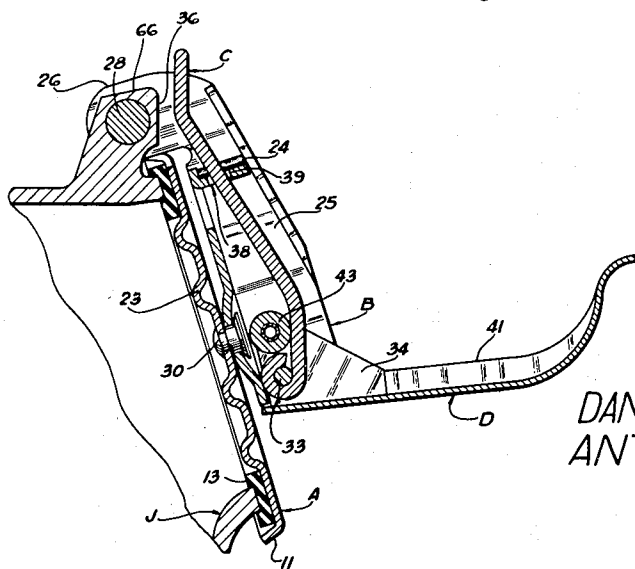


fig. 4

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2,743,968

CLOSURE DEVICE

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Application March 22, 1954, Serial No. 417,692

17 Claims. (Cl. 308—47)

This invention relates to closure devices, and more particularly to a quickly and readily openable closure of novel design for the entryway of a journal housing of the type employed on railway car trucks. The closure includes a unique latching mechanism for holding the cover properly closed under pressure or in an open position entirely to one side of the entryway during inspection and servicing of the journal and the accessories therefor.

The invention is especially well adapted for use on railway car truck journal boxes of the type in general use for many decades. Prior closure devices for this purpose have met with acceptance when used in connection with boxes employing cotton waste in the oil reservoir for conveying oil to the journal and the brass bearing supported thereon. However, these prior constructions are entirely unsatisfactory when the cotton waste is replaced by mechanical lubricators. In this event, it is essential that the closure be positively sealed across the entryway to prevent the escape of lubricant. When waste is present it prevents sloshing of the oil while the car is in movement and hence there is no need for a sealed joint between the cover and the rim of the entryway. Accordingly, the spring pressed cover devices heretofore provided had as their objectives the prevention of rattling and damage to the cover, the safeguarding of the waste against escape, the protection of the box and its contents from the entry of foreign matter and, in particular, a means for safeguarding the cover against opening or tampering by pranksters or unauthorized persons. To serve these ends, certain of the prior cover designs require a tool carried by authorized service personnel to open the cover.

Our unique closure device circumvents the many disadvantages of prior constructions and provides a closure which assures a fluid tight seal between the cover and the journal box even though the latter is formed by rough sand casting. Accordingly, our device is eminently suited to be substituted directly for existing prior covers without the need for any alterations, machining, grinding or other special treatment of the rough cast journal housings as a prerequisite for the conversion of such housings to leak-proof operation. A particular feature of the new design is the support of the closure entirely from the existing single hinge lug cast integral with the top wall of the journal housing. Moreover, the arrangement is such that this lug is utilized by our unique over-center latching design to hold the cover closed against the entryway under high pressure thereby assuring a fluid tight seal as well as safeguarding the cover against accidental or unauthorized opening, and yet the cover can be opened quickly and easily by those familiar with its operation without resort to tools of any kind.

Other outstanding features of the invention include simplicity of construction and operation, ruggedness, a self-aligning cover, an over-center latch mechanism making use of a toggle type control lever, as well as an arrangement wherein the cover can be positively locked in

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either the fully closed or open position with ease, speed and certainty.

Accordingly, it is a primary object of the present invention to provide a novel closure device for a journal box or the like characterised by its simplicity, ruggedness, low cost, leak-proof sealing capabilities, ease of operation and positive locking ability in either the closed or open position.

Another object of the invention is the provision of a unitary closure device for a journal box arranged to hold a cover locked closed under high pressure by means of an over-center latch mechanism requiring but a single connection with the journal box.

Yet another object is the provision of a closure device having a self-aligning cover in combination with novel means for holding the same sealed against a journal box entryway.

A further object is the provision of a journal box closure having a common manually operable means for holding the cover sealed closed, or fully open at one side of the entryway with certainty and a wide margin of safety.

Still another object is the provision of a latching mechanism for a journal box cover having a control lever normally closed compactly against the cover so as to protect and conceal the remainder of the mechanism.

Yet another object is the provision of a journal box cover hinge having a pivoting connection with the box proper and a universal, self-aligning connection with the cover.

Numerous other objects and advantages of the invention will become readily apparent from the following detailed specification of an illustrative embodiment taken in connection with the accompanying drawings, wherein:

Figure 1 is a fragmentary perspective view with parts broken away showing our novel closure device sealed against a journal box entryway;

Figure 2 is a central vertical sectional view through a journal box showing details of the assembly generally;

Figure 3 is a cross-sectional view taken along line 3—3 on Figure 1 showing the latching mechanism and the cover in their fully closed positions;

Figure 4 is a view similar to Figure 3 showing the control lever in its open position and the cover in readiness for opening;

Figure 5 is still another view similar to Figure 3 except that it shows the cover locked in open position to one side of the journal box entryway;

Figure 6 is a fragmentary cross-sectional view through the toggle joint of the control mechanism showing the position of parts; and

Figure 7 is an exploded isometric view of the cover, hinge, and toggle mechanism sub-assemblies before being assembled.

Referring first to Figures 1 and 2, it will be seen that the invention is shown as mounted upon a conventional railroad truck journal box J. The wheel supported journal S projects through the rear end wall of the box with its axis lying considerably above the horizontal center line of the box. The weight of the railroad car is transferred to the journal boxes through a bolster assembly not shown but bearing upon the top wall of the box. Resting directly upon the top surface of the journal is the usual brass P which is locked in assembled position thereon by the wedge W.

The inner end of journal S is provided with a smooth collar O upon which the lips of a resilient sealing ring M seat. The oil sealing ring M is suitably supported in liquid tight manner in an annular mounting channel N opening radially toward collar O and having an access passage extending upwardly through the rear top corner of the journal box. The top of the access passage is preferably maintained closed by a removable dust cover R.

The lower section of the journal housing J forms an oil reservoir normally filled with a suitable lubricant for the journal to a level indicated by the dot and dash line 60 on Figure 2. Preferably, a mechanical type lubricator is supported in the oil reservoir directly beneath and in contact with the journal so as to be driven thereby. However, a specific type of lubricator is not illustrated since it forms no part of the present invention. A highly satisfactory lubricator which may be employed is disclosed in a co-pending application for United States Letters Patent, Serial No. 415,468, filed on March 11, 1954, by Lloyd A. Johnson, Dan A. Christensen, and Antone D. Martin.

The front end of the journal box is closed by an end wall 61 having a large area entryway E located in its upper half as made clear by Figure 2. The plane of the rim of this entryway is inclined to the vertical for greater convenience in servicing the interior of the journal housing. This entryway is normally closed by a cover A which, as shown, is stamped from heavy sheet steel. This cover has a downturned rim 11 which cooperates with a channel 12 about the periphery of the cover to seat a thick soft rubber sealing gasket 13. Gasket 13 is anchored in channel 12 by a suitable adhesive, rivets or the like, and seats against the rim of entryway E when the cover is closed to form a liquid tight seal therewith.

Hinge member B has a channel shaped main body formed by a broad flat back wall or web portion 23 and a pair of flanges 25 projecting upwardly from each side thereof. The upper end 26 of each of these flanges projects rearwardly of the main body and is provided with aligned openings 27 to receive a pivot pin 28 journaled in a hinge lug L carried along the front edge of the top wall of the journal housing. As best shown in Figure 1, a tab 65 formed on one of the ears 26 is bent over the headed end of pivot pin 28 to lock it in assembled position. It will thus be clear that openings 27 cooperate with pivot pin 28 to provide a pivotal connection between the upper end of hinge B and the journal box.

The lower end of web portion 23 on hinge B is provided with an inwardly dished portion 29 which seats against a raised area 15 formed centrally of cover A. Hinge B is held assembled to cover A by means of a shouldered rivet 30 having a heavy shank 31 extending loosely through a larger diameter opening 32 in dished portion 29 of the hinge. The length of shank 31 is slightly greater than the thickness of the web 23 of the hinge and its innermost end is headed over against the inner wall of cover A in order to hold the hinge assembled to the cover. In view of the foregoing, it will be clear that cover A has limited lost motion about the shank of rivet 30 and is therefore free to seat squarely against the edges of the journal box entryway E.

The means for holding the cover sealed closed under pressure comprises a toggle actuated latching mechanism formed by a stiff leaf spring C and a toggle control lever D. Both are stamped from heavy sheet metal and have the contours and shapes illustrated in the drawings. However, it is to be understood that they may have various other shapes and contours. As illustrated, the lower end of spring C is curled about a pivot pin 33, the ends of which project from the sides of the spring and form connections to the toggle lever and to the lower end of hinge B. The opposite upper end 35 of the spring terminates opposite the substantially vertical face 36 of lug L. A central portion of spring C extends loosely through an opening 38 formed in a tab 37 struck upwardly from back wall 23 of hinge B. The ends of tab 37 are preferably welded at 24 to hinge flanges 25 to strengthen the tab as well as to prevent the flanges from spreading away from one another. This strengthening is highly desirable as the forward edge 39 of opening 38 serves as the fulcrum for spring C and is placed under high stresses as will be explained more fully presently. Of course, the fulcrum for the spring may be formed in other manners as by a pin or a strip of steel extending between and welded to flanges

25, 25 of the hinge in the same position occupied by the outer end of tab 37.

The manner in which control lever D is connected to the spring and held assembled to the lower end of hinge B will be best understood by reference to Figures 1 and 7. These figures make it clear that the lower end of spring C is curled about and pivotally supported on pin 33. The opposite ends of pin 33 extend through a pair of brackets 34 welded to the central rear side of the control lever and into arcuate slots 40 formed in the lower ends of flanges 25 on hinge B. Slots 40 have a radius centered on the axis of pivot pin 28 and form guideways for the outer ends of pivot pin 33. In addition, these slots serve as the means for holding the control lever and spring C assembled to the hinge B.

Control lever D is provided with a pair of downturned flanges 41 extending along its opposite sides having extensions or wider portions 42 at their lower ends positioned to overlie, at least in part, the ends of pivot pin 33. Initially, one of the tabs 42 is bent outwardly to allow assembly of pin 33 through arcuate slots 40, 40 and the aligned openings in brackets 34, 34. Once the pin is assembled, tab 42 is bent downwardly to lock the pin in place. The position of tab 42 before the assembly of the pin is indicated in dotted lines in Figure 7, while the full line showing of the tab indicates its assembled position.

Again referring to Figures 1 and 7, it will be seen that the lowermost corner of flanges 34, 34 support an elongated roller 43 on a pin 44 anchored in place between flanges 34. By comparing Figures 3 and 5 with Figure 4 it will be noted that, by pivoting control lever D from its closed position substantially parallel with cover A to its open position at right angles thereto, roller 43 is moved through an arcuate path along the web 23 of hinge B. As the roller rolls along web 23, it forces pivot pin 33 and the lower end of spring C to move outwardly away from the cover. In other words, as the lever D is pivoted upwardly from its open position shown in Figure 4 to its closed position shown in Figure 3, roller 43 rolls along the back wall or web portion 23 of the hinge and forces pivot pin 33 outwardly along slots 40 so as to pivot spring C counter-clockwise about the fulcrum provided by edge 39 of tab 37. As spring C pivots about fulcrum 39, its upper end 35 is forced into contact with surface 36 of lug L under high pressure, and of course this pressure is reflected or transmitted back to cover A by way of spring C acting as a lever, as well as by brackets 34, roller 43 and the adjacent portions of hinge B.

It is to be understood that upper end 35 of spring C is brought into contact with surface 36 of lug L very soon after the control lever D starts to pivot away from its open position toward its closed position. By the time the lever has reached its fully closed position illustrated in Figure 3, roller 43 has passed beyond a perpendicular dropped to the back wall 23 of hinge B from the axis of pivot pin 33. This perpendicular is represented by line X—X on Figure 6. When the center line of pin 44 for roller 43 is directly on this perpendicular, the roller may be said to be in its dead center position and spring C is under its maximum pressure condition. However, under these conditions the control lever D is not quite fully closed. When it is fully closed, the axis of roller 43 has moved slightly past the perpendicular line X—X to the position indicated in Figure 6. When so positioned, the pressure exerted by spring C acts in a direction to urge roller 43 to pivot counter-clockwise about pivot pin 33. Therefore, when lever D is fully closed, spring C is effective to lock in this position. In other words, after roller 43 passes downwardly below line X—X, the spring acts to pivot the control lever counter-clockwise until its back wall strikes a stop. As shown, this stop is provided by the bend 48 in spring C. However, the stop could be the forward edges of flanges 25 of hinge B. Gasket 13 of the cover is now compressed under high pressure against the rim of the journal entryway and no

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oil can possibly leak therepast. Nor is there any possibility of the latching mechanism becoming released even under the most adverse operating conditions.

Assembly and operation

Our closure mechanism is easily substituted for a conventional journal box cover on railroad trucks presently in operation. First, the old cover is removed after which our unitary closure mechanism is assembled to the journal box merely by aligning openings 27 of hinge B with the opening in lug L and inserting the heavy duty pivot pin 28. This pin may be locked in assembled position by bending tab 65 carried by one of the flanges 26 of hinge B downwardly over the end and across one of the flat sides of the square-headed pivot pin.

When so assembled, the parts will occupy the position shown in Figure 4 with cover A lying loosely across the journal box entryway and control handle D for the latching mechanism in its open position. Spring C will be lying loosely in the guideway provided by opening 38 in fulcrum tab 37. It will also be observed that one side of roller 43 will lie flush against the back side of the spring, while the other side rests against the flat head of rivet 30. Since the opening 32 in web 23 of the hinge is larger than shank 31 of rivet 30, it will be clear that cover A is free to pivot through small arcs in any direction. Hence, by virtue of this connection with hinge B, the cover can align itself with the rim of entryway automatically and as an incident to the closing of the cover.

To lock the cover closed with its gasket 13 sealed against the rim of the entryway under high pressure, the serviceman merely grasps handle 46 and pivots control lever D upwardly to its fully closed position, as illustrated in Figure 3. As the lever is pivoted about pin 33, roller 43 rolls along web 23 of hinge B, thereby forcing spring C to pivot counter-clockwise about a fulcrum provided by edge 39 in fulcrum tab 37. As the spring pivots, its upper end 35 contacts the uppermost edge of face 36 on lug L. Since the lug is immovable, further closing movement of the control lever after this occurs causes spring C to press the cover inwardly toward the journal entryway and to compress gasket 13.

As the control lever approaches its fully closed position, the axis of roller 43 will lie on line X—X (Figure 6), and the highly stressed spring will be inoperative to rotate the control lever in either direction. However, when the lever is fully closed, the axis of roller 43 will lie below the neutral position represented by line X—X, and the control lever will be locked closed by the energy store in the highly stressed spring.

At this point it will be clear how the construction devised by us acts entirely through lug L to apply an unusually high closing pressure to the central portion of the cover. Moreover, the cover is free to swing as necessary to bring its rim into alignment with the rim of the journal box entryway as the closing pressure is applied. If spring C is made sufficiently stiff, as is preferable, little or no bending need occur in the spring which then acts as a stiff lever. Manufacturing tolerances and other variances are readily absorbed by compressing the thick soft sealing gasket 13.

The manner of releasing of the cover will be quite apparent from the foregoing. Thus, the operator grasps end 46 of the toggle lever and swings it outwardly to the open position shown in Figure 4. This relieves spring C of all stresses and allows pivot pin 33 to move inwardly toward the cover along arcuate slots 40. The entire assembly may now be freely pivoted about hinge pin 28 to its open position above and entirely to one side of the journal entryway. While the left hand holds the cover in this position, the right is used to swing the control lever closed with the upper end 35 of spring C in contact with the foremost end of flat surface 66 on lug L, as clearly shown in Figure 3. Surface 66 is preferably so located with respect to the various parts of the cover

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assembly and with the axis of pin 28, that spring C is placed under light to medium stress as the control lever is closed to move roller 43 past its neutral position. It follows that smaller effort is required on the part of the operator to lock the cover open than to lock it closed. Once the cover is locked open, the serviceman may proceed to service the journal with full assurance that the cover cannot swing closed accidentally or unexpectedly and injure him.

As soon as the servicing operation has been completed, the operator opens the control lever to release the pressure on the spring and allow the cover to swing to the position shown in Figure 4. Thereafter, the lever is again returned to its closed position to lock the cover sealed across the entryway.

While only a single embodiment of the invention has been specifically illustrated and described, it will be readily apparent to those skilled in this art that its various novel features and relationships can be carried out in many other ways without departing from the spirit of the invention. For example, the control lever may be pivoted directly to the lower end of hinge B and arranged to have its roller 43 bear against the inner flat side of spring C and acting to force the lower end of the spring outwardly as the control lever is closed. In this event, the opposite lateral edges of spring C could be provided with stop pins extending into arcuate slots 40 and serving to prevent the spring from moving out of its assembled position.

From the foregoing, it will be readily apparent that the arrangement of parts is such that the operator always pulls on the control lever to release the cover, and pushes on the lever to lock the cover in a stationary position. Moreover, it will be observed that the operator applies the operating forces to the control lever D in a direction directly away from or directly toward the hinge pivot pin 28. This is a feature having obvious functional and structural advantages. However, this arrangement of the control lever is not essential as the device could manifestly be designed so that the control lever pivots downwardly against the bottom rim of cover A when closing, if the designer so prefers. Or if desired, the control lever could swing laterally against either side edge of the cover when closed.

From the above description, it is apparent that the cover device of the present invention offers a practical solution to the many problems involved in using various types of mechanical lubricators for railroad truck journals. Thus, it provides a cover which is not only leak tight and fool proof in operation, but which can be opened and closed without the use of tools. Moreover, our simple, rugged closure mechanism may be quickly substituted for conventional cover devices on existing railroad car trucks without the necessity for any alterations in the journal box structure.

We claim:

1. In combination with a lubricant container having an entrance, a cover device adapted to provide a leak tight seal for said entrance comprising a lid corresponding in shape to the entrance of the container, hinge means having a hinge pivot by which it is pivoted on said container and having means by which it is pivotally secured to said lid, a flat spring slidably mounted in said hinge means having one end positioned to engage said container at a point offset from said hinge pivot, and lever means secured to the other end of said spring and operable to engage said hinge means to pry said last mentioned end of said spring away from the pivotal lid means and said one end of said spring is forced into operative engagement with said container to hold the lid firmly closed.

2. A closure mechanism for the entryway of a journal box of the type having a hinge lug for the closure mechanism adjacent a rim of said entryway, said mechanism comprising a cover adapted to overlaid and seal against the rim of a journal box entryway, hinge means

having one end opposite and movably connected to the central area of said cover and another end adapted to be pivoted to a journal box hinge lug, elongated stiff spring means fulcrumed on said hinge means intermediate the ends of said spring means, the outer end of said spring means being opposite said hinge lug and its inner end being opposite the central area of said cover and freely movable through a limited arc toward and away from said cover, and lever means carried by said closure mechanism for pivoting said spring means about said fulcrum so that the outer end of said spring is brought into high pressure contact with the face of a journal box pivot lug when said closure mechanism is assembled thereon.

3. A journal box closure mechanism for use on a journal box of the type having a hinge lug with a pair of faces at an angle to one another, said mechanism comprising a cover, a hinge member having a loose connection to the central exterior portion thereof, said hinge member extending beyond a rim of said cover and having pivot means at one end adapted to be pivotally connected to the lug of a journal box, a stiff leaf spring overlying said cover and having one end located opposite the pivot means of said hinge member, means on said hinge member forming a fulcrum for said spring near the pivot means end of said hinge member, an L-shaped control lever movably connected to said spring near the junction of its two legs and at a point opposite the central portion of the cover, the shorter of said legs being operative to swing toward said cover and pivot said spring about said fulcrum to force the opposite outer end thereof toward the pivot axis of said hinge member and being cooperative with the face of a hinge lug when coupled thereto to force said cover releasably into sealing contact with the rim of a journal box entryway, and the longer leg of said control lever forming a handle for swinging the shorter leg between the open and closed positions of said mechanism.

4. A journal box closure mechanism as defined in claim 3 in which said L-shaped control lever is pivotable through an arc wherein said shorter leg traverses a perpendicular to said cover from the movable connection between said spring and said control member, one end of said arc being closely adjacent said perpendicular whereby said spring is effective to lock said control member against return to the opposite end of said arc until forcibly released through the longer leg of said control member.

5. A journal box closure mechanism for use on a railroad journal box of the type having a hinge lug with faces at an angle to one another, said mechanism comprising a cover, hinge means connected to said cover and having a portion projecting beyond one rim edge thereof adapted to be pivotally connected to the pivot lug of a journal box, elongated stiff spring means overlying the front face of said cover and having one end adjacent the central portion thereof and its other end projecting beyond the cover rim and terminating adjacent but in spaced relation to the pivot axis of said hinge means, means carried by said hinge means providing a fulcrum for said spring means intermediate its ends and near a rim edge of said cover, and a toggle lever movably connected to said hinge means having a short leg and a long leg serving as a handle, said toggle lever being operable when pivoted toward and away from said cover to pivot said spring means about the fulcrum therefor and move the projecting end of said spring means toward and away from the pivot axis of said hinge means.

6. In combination with a railroad car journal box of the type having a large area entryway in the end thereof and a pivot lug for a cover therefor overlying the top edge of said entryway, said lug having a pair of faces arranged at an angle to one another and respectively offset outwardly and above the pivot axis of said lug, a closure mechanism for releasably sealing said entryway closed under high pressure, said mechanism comprising a cover,

gasket means carried by the inner rim of said cover adapted to be sealed against the edge of said entryway when the closure is in closed position, an elongated hinge having its inner end movably secured to the outer central area of said cover and its outer end projecting beyond the top edge of the cover and pivotally connected to said pivot lug, latching means for said cover including an elongated stiff spring overlying the outer face of said cover with one end opposite the central area of said cover and an outer end terminating opposite a face of said pivot lug, means carried by said hinge providing a fulcrum for said spring intermediate the ends thereof, a control lever movably connected to the inner end of said spring including an operating handle at one end and cam means on the other end offset from the inner end of said spring, said control lever being operable to pivot said spring about said fulcrum and move the outer end of said spring against a face of said pivot lug under high pressure whereby the reactive forces resulting therefrom are transmitted to said cover by way of said spring and cam means in a direction to force the gasket means on said cover into fluid tight sealing engagement with the journal box entryway.

7. The combination defined in claim 6 wherein the operating handle of said control lever is movable toward and away from the axis of said pivot lug with said handle being positioned closest to said pivot when the outer end of said spring is held under high pressure against a face of said pivot lug, and said operating handle being positioned more remotely from said pivot axis when said spring is unstressed whereby the movement of said operating handle when under the greatest stress takes place while the same is close to said pivot.

8. In combination, a journal box of the type having a front entryway, a closure mechanism for said entryway, said journal box having a hinge lug with faces at an angle to one another, said mechanism comprising a cover adapted to close against the exterior side of a journal box entryway, hinge means for pivotally connecting said cover to said journal box hinge lug, over-center latch mechanism for holding said cover closed under pressure, said mechanism including a stiff pressure transmitting lever and a manually operable control lever, said pressure transmitting lever having one end projecting beyond the rim of said cover so as to terminate opposite a face of said hinge lug and its other end overlying the outer center portion of said cover, means carried by said hinge means providing a fulcrum for said pressure transmitting lever intermediate the ends thereof, and means including cam means operatively interconnecting said hinge means and the end of said pressure transmitting lever overlying the central portion of said cover for pivoting said pressure transmitting lever about said fulcrum into contact with a face of said hinge lug whereby further movement of said control lever forces said cover against said journal box entryway under high pressure.

9. The combination defined in claim 8 wherein said latch mechanism is cooperable with the other face of said hinge lug to lock said cover in an open position to one side of said entryway by closing said manually operable control lever while said cover is adjacent said open position.

10. A closure mechanism for the entryway of a journal box of the type having a pivot lug extending along an edge of the entryway and having a pair of faces intersecting along a line offset from the pivot axis of said lug, said mechanism comprising a cover, a double ended hinge member having one end movably connected to said cover and its second end extending beyond the rim of the cover and adapted to be pivotally connected to the pivot lug of a journal housing, an elongated stiff spring, means pivotally supporting on a fulcrum a mid portion of said spring on said hinge member intermediate the ends thereof with the ends of said spring terminating adjacent the ends of said hinge member, a manually operable lever,

means pivotally supporting said lever between the juxtaposed ends of said spring and hinge member at one end of the latter, said lever being operable to pivot said spring about its fulcrum and move the other end thereof toward and away from the adjacent end of said hinge.

11. In a railway truck journal assembly of the type having a journal housing provided with a front access opening, said housing having a pivot lug extending along the top edge of said opening, said lug having a pair of faces arranged at an angle to one another and adapted to cooperate with a closure latch means to hold a cover for said access opening in closed or open position; that improvement which comprises a quick opening closure mechanism for said access opening, said mechanism including a cover having a resilient gasket about its inner rim positioned to form a fluid-tight seal with the edge of said opening when the cover is pressed closed under pressure, a double ended hinge having its lower end movably connected with said cover, means for pivotally connecting the upper end of said hinge to said pivot lug for movement of said cover into and out of closed position across said opening, stiff spring means fulcrumed on said hinge with one end positioned opposite a face of said lug and its second end adjacent the lower end of said hinge, and manually operable lever means positioned between the lower end of said hinge and the adjacent end of said spring means operable to pivot said spring means about the fulcrum therefore to bring the upper end of said spring means into high pressure engagement with a face of said lug and lock said closure mechanism against pivotal movement about said lug.

12. In a railway truck journal assembly of the type having a journal housing provided with a front access opening, said housing having a pivot lug extending along the top edge of said opening, said lug having a pair of faces arranged at an angle to one another and adapted to cooperate with a closure latch means to hold a cover for said access opening in closed or open position; that improvement which comprises a quick opening closure mechanism for said access opening, said mechanism including a cover having a resilient gasket secured to its inner rim to form a fluid-tight seal with the edge of said access opening when the cover is pressed closed under pressure, a double ended hinge, means providing a limited lost motion connection between the lower end of said hinge and said cover, a pintle pin pivotally connecting the upper end of said hinge to said pivot lug for movement of said cover into and out of closed position across said opening, a stiff leaf spring fulcrumed on said hinge with one end positioned opposite a face of said lug and its second end adjacent the lower end of said hinge, and manually operable lever means positioned between the lower end of said hinge and the adjacent end of said spring operable to pivot said spring about said fulcrum to bring the upper end of said spring into high pressure engagement with a face of said lug and lock said closure mechanism against pivotal movement about said lug.

13. In a railway truck journal assembly of the type having a journal housing provided with a front access opening, said housing having a pivot lug extending along the top edge of said opening, said lug having a pair of faces arranged at an angle to one another and adapted to cooperate with a closure latch means to hold a cover for said access opening in closed or open position; that improvement which comprises a quick opening closure mechanism for said access opening, said mechanism including a cover having a resilient gasket about its inner rim to form a fluid-tight seal with the edge of said opening when the cover is pressed closed under pressure, a rigid hinge link having a ball and socket connection between one end thereof and said cover, means pivotally connecting the upper end of said hinge link to said pivot lug for movement of said cover into and out of closed position across said opening, leaf spring means fulcrumed

on said hinge link between the upper and lower ends thereof with its upper end positioned opposite a face of said lug and its lower end adjacent the lower end of said hinge link, and manually operable lever means having a pivoting lost motion connection with the lower end of said hinge link and being movable to pivot the lower end of said spring means about the fulcrum therefore to bring the upper end of said spring means into high pressure engagement with a face of said lug and lock said closure mechanism against pivotal movement about said lug.

14. In a railway truck journal assembly of the type having a journal housing provided with a front access opening, said housing having a pivot lug extending along the top edge of said opening, said lug having a pair of faces arranged at an angle to one another and adapted to cooperate with a closure latch means to hold a cover for said access opening in closed or open position; that improvement which comprises a quick opening closure mechanism for said access opening, said mechanism including a cover having a resilient gasket about its inner rim positioned to form a fluid-tight seal with the edge of said opening when the cover is pressed closed under pressure, a double ended hinge having its lower end movably connected with said cover, means for pivotally connecting the upper end of said hinge to said pivot lug for movement of said cover into and out of closed position across said opening, manually operable toggle lever means for locking said cover sealed across said access opening, said toggle lever means including a stiff leaf spring extending lengthwise of said hinge and having a mid-portion thereof fulcrumed on an intermediate portion of said hinge, one end of said spring terminating opposite a face of said lug and its lower end terminating adjacent the lower end of said hinge, and movably supported between the lower end of said hinge and the adjacent end of said spring operable to pivot said spring about the fulcrum therefore to bring the upper end of said spring into high pressure engagement with a face of said lug and lock said closure mechanism against pivotal movement about said lug.

15. A closure device for use on railway truck journal housings comprising: a cover plate, a channel shaped supporting hinge therefor having two upstanding sides connected by an integral web, said sides extending beyond said web at one end and having aligned openings to receive a pintle pin, fulcrum means supported between the sides of said hinge in spaced parallel relation to said web, a leaf spring extending lengthwise of said hinge and through the opening provided between said fulcrum means and the web of said hinge, a manually operable toggle lever overlying said hinge and said leaf spring, pivot means interconnecting one end of said spring and one end of said hinge at a point in the vicinity of the connection between said hinge and cover, and means operatively connected to said lever for pivoting said leaf spring on said fulcrum and moving the outer free end thereof toward and away from the axis of said aligned openings.

16. A closure device for use on railway truck journal housings comprising: a cover plate, a channel shaped supporting hinge therefor having a web interconnecting two parallel side members, said side members having L-shaped ends projecting beyond one end of said web and having aligned openings in the end portions thereof for the reception of a heavy duty pintle pin, means movably connecting said web to the outer central portion of said cover with the sides of said hinge projecting outwardly away from said web and cover, a fulcrum connected between the sides of said hinge intermediate the ends thereof and cooperating with said web in reinforcing the sides of the hinge, an elongated spring held captive between said web and fulcrum and having its ends terminating opposite the ends of said hinge, an L-shaped control lever overlying the open side of said hinge with its

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shorter leg adjacent one end of said hinge, a pivotal connection between the sides of said hinge and the junction of the legs of said control lever, the shorter leg of said control lever being movable between said web and the adjacent end of said spring to pivot said spring on said fulcrum and move the outer free end of the spring toward and away from the axis of said aligned openings. 5

17. A closure device as defined in claim 16 including a roller movably supported across the end of the shorter leg of said control to facilitate the movement of the 10

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control lever when the free outer end of said spring is being held against movement.

References Cited in the file of this patent

UNITED STATES PATENTS

2,014,582	Putz -----	Sept. 17, 1935
2,191,761	Horn -----	Feb. 27, 1940

FOREIGN PATENTS

2,634	Australia -----	July 2, 1926
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