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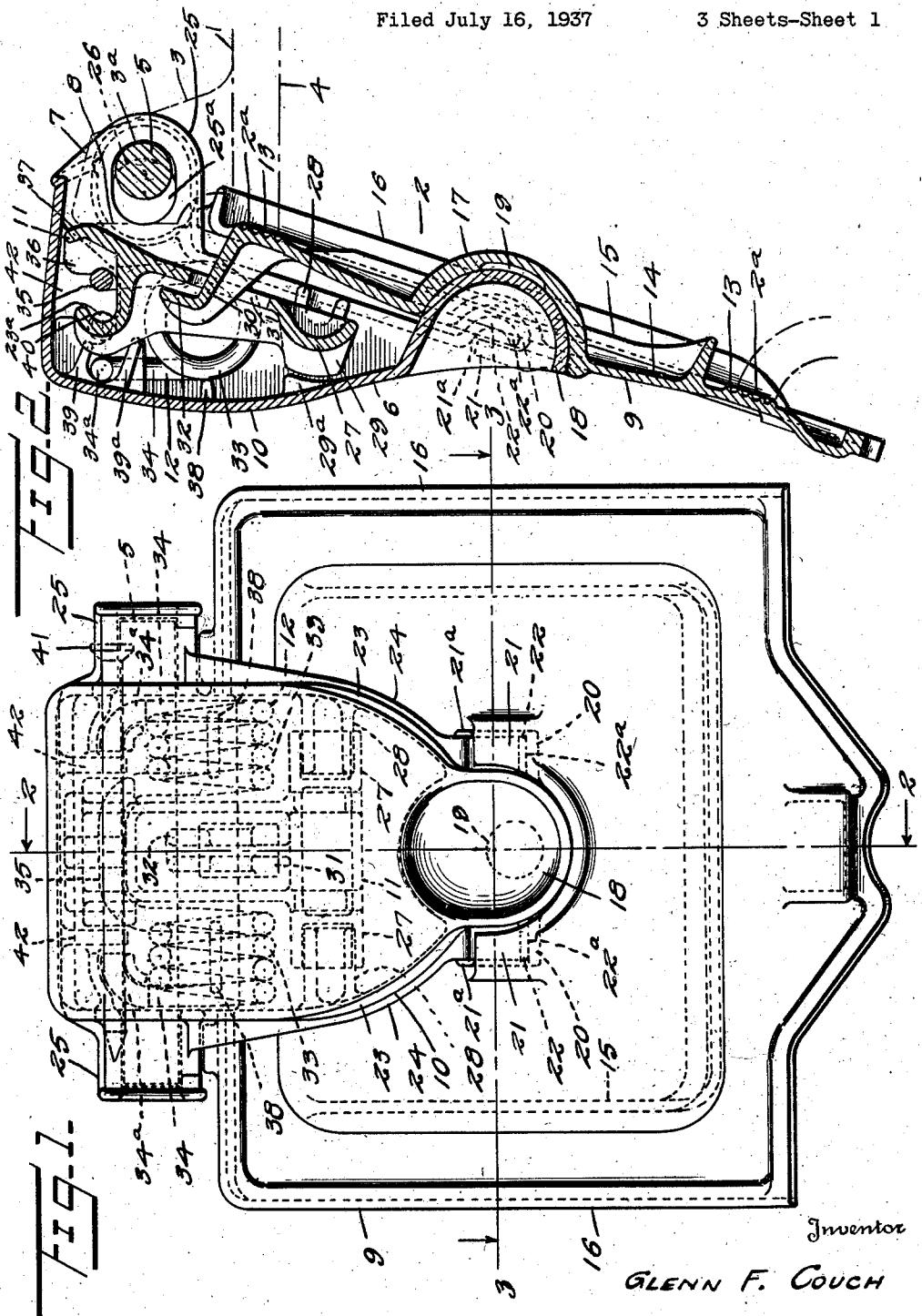
G. F. COUCH

2,258,584

## JOURNAL BOX

Filed July 16, 1937

3 Sheets-Sheet 1



Inventor

GLENN F. COUCH

By Frank J. Meekins attorney

Oct. 14, 1941.

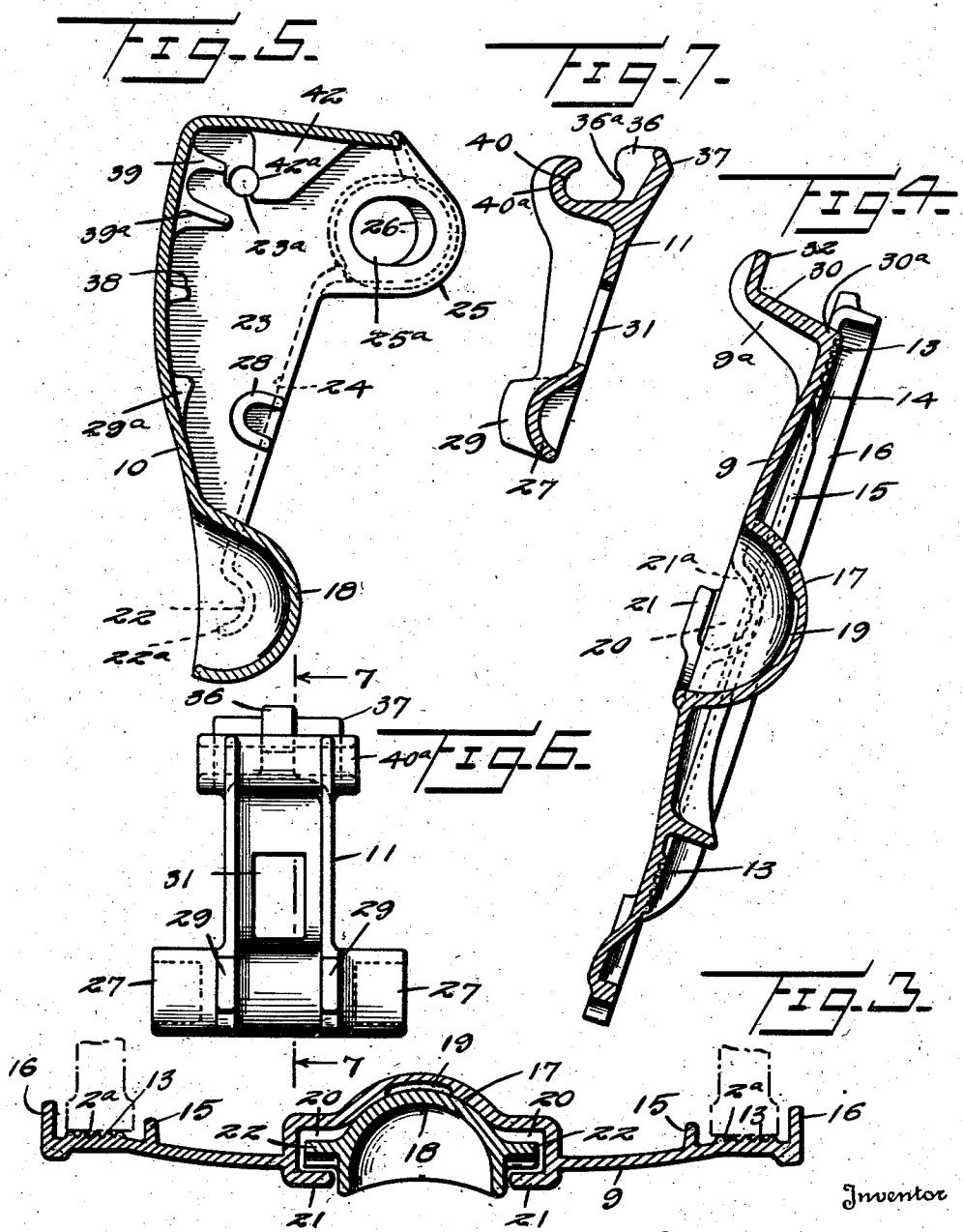
**G. F. COUCH.**

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**JOURNAL BOX**

Filed July 16, 1937

3 Sheets-Sheet 2



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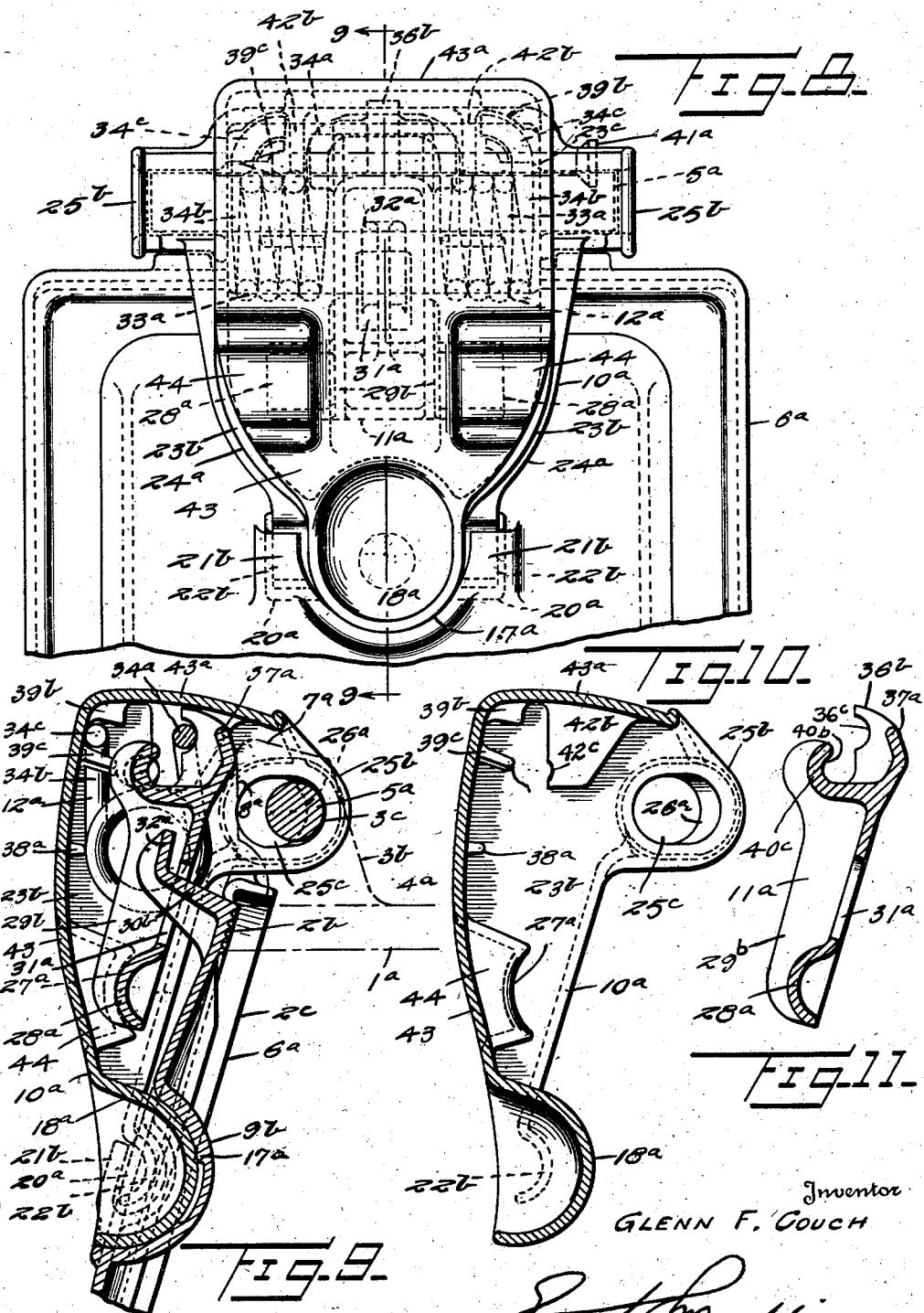
**G. F. COUCH**

2,258,584

## JOURNAL BOX

Filed July 16, 1937

3 Sheets-Sheet 3



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## UNITED STATES PATENT OFFICE

2,258,584

## JOURNAL BOX

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Application July 16, 1937, Serial No. 153,996

20 Claims. (Cl. 308—47)

This invention pertains to a journal box for railway vehicles and more particularly to a ball-jointed lid for closing the access opening to said box.

A principal object of the present invention is the provision of a ball-jointed lid, the particular construction of which provides for an unrestricted vertical and horizontal equalization of the cover portion thereof in order to insure a full bearing engagement between the cover and the juxtaposed surface of an associated journal box, thereby excluding dust, water or any other foreign substance from the interior of the journal box.

Another object of the invention is to provide a ball-jointed lid wherein the pivotal portions are cast integral with associated parts, thereby eliminating the necessity of separate pivot pins and means for retaining said pins in assembled relation with associated parts, which construction requires a multiplicity of parts being heretofore combined in lids of this type.

A further object of the invention is the provision, in a ball-jointed lid, of a cover having a spherically disposed outwardly opening socket formed adjacent the central portion thereof and receiving a ball-shaped lower extremity of a hood in order to permit a universal movement between the cover and hood, and a plurality of recesses formed in the cover spaced laterally of and opening into the socket for housing integrally formed trunnions extending laterally of said ball to retain the hood and cover in assembled relation.

A still further object of the invention is to provide a ball-jointed journal box lid comprising a hood pivotally connected to a hinge lug formed on the journal box and universally connected to a cover, a lever within said hood, the lower portion of which is pivotally mounted on trunnions integrally formed on and extending inwardly of said hood and the upper end of which is in bearing relation with said hinge lug, and a torsion spring having a plurality of spaced upstanding arms engaging the upper portion of the lever and hood, thereby resiliently urging the cover over the access opening when the cover is in closed position.

These and other objects will become apparent from an inspection of the accompanying drawings which illustrate novel constructions and arrangements of parts forming the present invention, wherein:

Figure 1 is a front elevational view of a ball-

jointed journal box lid exemplifying a form of the invention.

Figure 2 is a vertical sectional view, taken along the lines 2—2 of Figure 1, looking in the direction of the arrows.

Figure 3 is a transverse sectional view, taken along the lines 3—3 of Figure 1, looking in the direction of the arrows.

Figure 4 is a vertical sectional view of the cover, taken along the lines 2—2 of Figure 1, looking in the direction of the arrows, said cover being removed from the associated parts.

Figure 5 is a vertical sectional view of the hood, taken along the lines 2—2 of Figure 1, looking in the direction of the arrows, the hood being removed from the associated parts.

Figure 6 is a front elevational view of the lever removed from the assembled lid.

Figure 7 is a vertical sectional view of the lever, taken along the lines 7—7 of Figure 6, looking in the direction of the arrows.

Figure 8 is a front elevational view of a ball-jointed journal box lid illustrating a modified form of the present invention.

Figure 9 is a vertical sectional view, taken along the lines 9—9 of Figure 8, looking in the direction of the arrows.

Figure 10 is a vertical sectional view of the hood, removed from the assembled structure and taken along the lines 9—9 of Figure 8, looking in the direction of the arrows.

Figure 11 is a vertical sectional view of the lever, taken along the lines 9—9 of Figure 8, looking in the direction of the arrows, the lever being removed from the associated parts.

Referring now in detail to the drawings, wherein like reference characters designate corresponding parts, and considering initially the structure illustrated in Figures 1 to 7, inclusive, there is indicated, diagrammatically, a portion of a journal box 1 having an access opening 2 and a hinge lug 3 extending upwardly from and adjacent the front portion of the roof or top wall 4 of said box. The hinge lug 3 is provided with an aperture 3a through which extends a rod or pintle 5 pivotally connecting an articulated journal box lid, generally designated as 6, to the box. The lug 3 has angularly disposed surfaces 7 and 8 formed thereon which are engaged by a portion of the lid, whereby said lid is retained in either open or closed position. Considered generally, the lid 6 comprises a lid proper or cover 9 adapted to close the access opening 2 of the journal box, a hood 10 connected universally to the cover 9 and pivotally to

the hinge lug 3, a lever 11 pivotally engaging the hood 10 and abutting the hinge lug 3, and a resilient actuating means 12 which, in the present invention, is in the form of a torsion spring acting between the hood 10 and lever 11.

The cover 8 is preferably formed as a casting having a circumambient sinuous portion 13 projecting outwardly from the inner surface 14 thereof adapted to engage the lid-seating face or access defining surface 2<sup>a</sup> of the journal box 2 in order to effect a dust-proof and/or waterproof seal between the cover and box when the lid is in closed position. A protective rib or drip flange 15, formed as a U-shaped member extending inwardly of the cover to within the box and preferably along the sides and lower portion thereof in spaced relation to the sinuous portion 13, functions as a cover reinforcing means. The flange 15 also acts as an inner shield for the juncture formed by the lid and box to arrest the lubricating medium which is thrown against the sides of the box and inner surface of the lid by the bearing or end portion of an associated axle (not shown) housed within the journal box; the sinuous portion and drip flange being substantially as described and claimed in my copending application Serial Number 127,234, filed February 23, 1937. Peripheral flanges 16 extend along the sides and a portion of the top of the cover in spaced relation to the box in order to direct foreign substance away from the juncture formed by the cover and box and thereby partially eliminate the possibility of said substance reaching the juncture.

The cover is provided with an outwardly opening spherical cavity or concave recess 17 positioned adjacent the central portion thereof which forms a socket for the reception of a coaxial or correspondingly spherical ball 18 forming the lower extremity of the hood 10, which is also formed as a casting. The ball and socket construction allows a vertical and horizontal equalization or an articulate movement of the cover with respect to the hood in order to permit a full bearing of the sinuous portion 13 with the access defining surfaces 2<sup>a</sup> of the box. The socket 17, having a centrally disposed relief 19 primarily intended for the accommodation of a lubricating medium, and ball 18 are formed large so as to provide an adequate bearing area therebetween to eliminate or overcome a vertical movement of the cover with respect to the hood which may be caused by vibratory forces transmitted thereto.

The cover is further provided with a plurality of outwardly facing recesses 20 spaced laterally of and opening into the socket 17, said recesses being preferably cylindrical in form and partially closed by overlying flanges 21 which are integral with the cover. An unwarranted separation between the hood and cover is prevented by oppositely disposed ears 22, preferably cylindrical in form and integral with the ball 18, which extend into and are housed by the partially closed recesses 20. Sufficient clearance is provided between the cover 8, flanges 21 and ears 22 to permit an unrestricted universal or articulate movement of the cover with respect to the hood. In order to assemble the hood and cover, the ears, desirably crescent-shaped and coaxial with the recesses 20, have the free ends 22<sup>a</sup> thereof inserted into the recess openings 21<sup>a</sup> and, by a clockwise rotation of the hood, the ears are thereby threaded into the recesses.

The ears 22 are connected to spaced side walls 23 of the hood by reinforcing flanges 24 which

extend along the side walls to merge into hinging hubs 25, the latter of which project laterally from the side walls adjacent the top extremity of the hood and are provided with elongated apertures 25<sup>a</sup> receiving the pintle 5. Reentrant flanges 26 partially restrict the outer portions of the apertures 25<sup>a</sup> so as to overlie the extremities of the pintle 5 in order to retain the pintle in assembled relation with the hood and hinge lug.

The spring lever 11, preferably of cast form and positioned within the hood, is provided with laterally extending, crescent-shaped or cylindrical bearings 27 adjacent the lower portion thereof which are pivotally mounted on spaced trunnions 28 formed integral with and extending inwardly of the hood from the side walls 23. The bearings 27 are prevented from becoming disengaged from the trunnions 28 by means of webs 29 projecting outwardly of the lever 11 which are adapted to engage oppositely disposed pads 29<sup>a</sup> formed on the hood. The webs 29 extending longitudinally along the sides of the lever also function as reinforcing means to rigidify the lever.

In order to limit the relative movement between the hood and cover during the opening movement of the lid, the cover is provided with an outwardly extending web 30 projecting through an opening 31 positioned in and intermediate the ends of the lever. An angularly disposed flange 32, formed on the outer end of the web, is positioned in overlying relation to the lever so that when a closed lid is moved to open position the cover portion thereof will pivot about the ball and socket connection with a slight pivotal movement of the entire lid taking place at the pintle 5 until the flange 32 reaches and bears against the lever, at which time the continued pivotal movement of the lid will be entirely about the pintle 5. A vertically disposed reinforcing web 32<sup>a</sup> rigidly joins the cover 8, web 30 and flange 32 so as to overcome any hinging action of the web and flange about the base 30<sup>a</sup> of the web when the lid is moved to open position.

The torsion spring 12, positioned within the hood, is desirably formed by spaced coils 33, positioned on either side of the lever, having outer or end upstanding arms 34 bearing against the upper portion of the hood and an inner or intermediate connecting arm 35 upstanding from the coils and bearing against a centrally disposed web 36 on the upper portion of the lever. The arms 34 and 35, acting between the hood and lever, resiliently urge the shoulder 37 forming the outer top portion of the lever into engagement with the angularly disposed surfaces 7 or 8, thereby retaining the lid in either open or closed position, as well as resiliently urge the cover into intimate contact with the access defining surfaces 2<sup>a</sup> over the access opening when the cover is in closed position.

Spaced spring abutting fins or webs 38, extending inwardly and longitudinally of the hood, are engaged by the coils 33 in order to prevent a distortion of the spring. It will be observed that the present construction is such that the intermediate spring arm 35 engages the lever 11 in a plane below the shoulder 37 so as to urge the lever bearings 27 inwardly against the hood trunnions 28 and thereby resiliently force the ball 18 into the socket 17.

The spring is retained in operable position by means of the inner intermediate arm 35 being seated in a notch 36<sup>a</sup> formed in the web 36 while the upper free extremities 34<sup>a</sup> of the outer end

arms 34 are curved radially toward the lever and interposed between correspondingly curved retaining flanges 39 and 39<sup>a</sup> extending inwardly of the hood.

In order to provide means for retaining the associated parts of the lid in assembled relation, during the shipment of a lid, separated from a journal box, the top portion of the lever is urged toward the outer part of the hood until the concave surface 40 of the hook 40<sup>a</sup>, which is formed on the inner upper portion of the lever and disposed oppositely from the web 36 and shoulder 37, is aligned with apertures 23<sup>a</sup> provided in the side walls 23. A rod or nail 41, indicated diagrammatically, is then inserted into or threaded through the apertures, whereupon, by a release of the lever, the surface 40 of the hook 40<sup>a</sup> will engage the nail and arrest the spreading action of the arms 34 and 35, thereby preventing an unwarranted disassembly of the lid structure. Downwardly projecting lugs 42, extending inwardly of the hood from the top portion thereof and spaced laterally of the lever 11, are provided with notches 42<sup>a</sup> preferably aligned with the apertures 23<sup>a</sup> for supporting the nail 41 intermediate the ends thereof.

The articulated lid may be assembled with a journal box by aligning the apertures 25<sup>a</sup> in the hubs 25 with the aperture 3<sup>a</sup> in the hinge lug 3 and then inserting the pintle 5 into said apertures. The lid is then rotated until the top or shoulder portion 37 of the lever engages the apex of the hinge lug which is formed by the juncture of the angularly disposed surfaces 7 and 8, thereby moving the hook 40<sup>a</sup> away from the nail 41. By a removal of the nail the lid will then be operatively connected to the hinge lug, the pintle being retained in operable position within the apertures by means of the overlying flanges 26.

Referring now to Figures 8 to 11, inclusive, which illustrate a modified form of the invention, there is disclosed a ball-jointed lid, designated generally as 6<sup>a</sup>, pivotally connected to the hinge lug 3<sup>b</sup>, extending upwardly from the roof or top wall portion 4<sup>a</sup> of a journal box 1<sup>a</sup> by means of a pintle 5<sup>a</sup> which extends through an aperture 3<sup>c</sup> provided in the lug 3<sup>b</sup>.

The lid of the present illustration comprises generally a cover 9<sup>b</sup> substantially similar in construction to the cover 9 of the previously described structure and likewise employed for the purpose of being positioned into intimate contact with journal box surfaces 2<sup>b</sup> which define an access opening 2<sup>c</sup> of the journal box so as to exclude effectively water, dust or any foreign substance from the interior of the box, a hood 10<sup>a</sup> connected pivotally to the hinge lug 3<sup>b</sup> and universally to the cover, a lever 11<sup>a</sup> housed within the hood, pivotally mounted on the hood and bearing against the hinge lug, and an actuating spring 12<sup>a</sup> also housed within the hood and having portions thereof acting between the hood and lever so as to retain the lid in open or closed position.

The cover 9<sup>b</sup>, desirably of cast form, is provided with a spherical recess or concave socket 17<sup>a</sup> desirably positioned substantially centrally thereof which forms a receptacle for a preferably coaxial ball 18<sup>a</sup> forming the lower extremity of the hood. The ball 18<sup>a</sup> and socket 17<sup>a</sup> provide a ball joint between the hood and cover, thereby allowing a universal movement or an unrestricted rotative adjusting action of the cover to permit a full bearing relation between the cover 9<sup>b</sup>

and the access defining surface 2<sup>b</sup> of the journal box 1<sup>a</sup>.

Cylindrical recesses 20<sup>a</sup>, partially closed by overlying flanges 21<sup>b</sup> and spaced laterally of and opening into the socket 17<sup>a</sup>, are partially occupied by crescent-shaped ears 22<sup>b</sup> extending outwardly from and formed integrally with the ball 18<sup>a</sup> so as to prevent an unwarranted separation between the hood and cover. The ears 22<sup>b</sup> are desirably made coaxial with the recesses 20<sup>a</sup> so that the cover may be free to move about the ball 18<sup>a</sup>, and adequate clearance is provided between the ears and cover in order that the ears may engage the cover only upon an abnormal movement of the cover. The upper portion of the hood 10<sup>a</sup> is preferably formed by spaced side walls 23<sup>b</sup> connected together by a front wall 43, the lower portion of which merges into the ball 18<sup>a</sup>, and a top wall 43<sup>a</sup> overlying the hinge lug 3<sup>b</sup> in spaced relation thereto.

Reinforcing flanges 24<sup>a</sup> extend longitudinally of the hood from the side walls 23<sup>b</sup> to merge into the ears 22<sup>b</sup> and hinging hubs 25<sup>b</sup> outstanding from the side walls adjacent the top extremity thereof. The hubs 25<sup>b</sup> are provided with elongated apertures 25<sup>c</sup> which receive the pintle 5<sup>a</sup>, thereby forming a pivotal connection between the lid 6<sup>a</sup> and the journal box 1<sup>a</sup>. Reentrant flanges 26<sup>a</sup> on the hubs 25<sup>b</sup> extend into and partially restrict the apertures 25<sup>c</sup> to overlie the ends of the pintle 5<sup>a</sup> and prevent an unwarranted transverse movement of the pintle and a consequent separation of the lid from the journal box.

The lever 11<sup>a</sup>, desirably made as a casting and housed within the hood 10<sup>a</sup>, is formed with outstanding cylindrical trunnions 28<sup>a</sup> positioned adjacent the lower portion thereof and adapted to engage as well as pivot on correspondingly formed concave bearing surfaces 27<sup>a</sup> formed on laterally spaced convolutions 44 extending inwardly of the hood from the side walls 23<sup>b</sup> and front walls 43. Integrally formed webs 29<sup>b</sup>, extending outwardly and longitudinally of the lever to form lever rigidifying means, are positioned intermediate the convolutions to prevent a lateral shifting of the lower portion of the lever.

The upper portion of the lever is preferably U-shaped in cross section, the outer leg 31<sup>a</sup> of which forms an abutting shoulder adapted to bear against the hinge lug surface 8<sup>a</sup> to retain the lid in access covering position or the angularly disposed hinge lug surface 7<sup>a</sup> to retain the lid in open position. An outstanding web 30<sup>b</sup> extends outwardly of the cover adjacent the top portion thereof and through an accommodating aperture 31<sup>a</sup> formed in the lever to terminate in an angularly disposed flange 32<sup>a</sup> which overlies the lever in spaced relation and is adapted to engage the lever in order to limit the rotative movement of the cover when the lid is moved to open position.

The torsion spring 12<sup>a</sup>, employed to act between the hood and lever so as to retain resiliently and positively the lid in closed or open position, is formed desirably of a plurality of coils 33<sup>a</sup> spaced on either side of the lever 11<sup>a</sup>. The spring is provided with an end upstanding arm 34<sup>b</sup> terminating in reentrant or arcuate portions 34<sup>c</sup> which are retained in operable position by interlocking with correspondingly concentric spaced flanges 39<sup>b</sup> and 39<sup>c</sup> extending inwardly of the front wall 43 of the hood.

The coils 33<sup>a</sup> are connected together by an upstanding intermediate arm 34<sup>a</sup> which acts against a centrally disposed web 36<sup>b</sup> extending toward

the front wall of the hood from the lever shoulder 37<sup>a</sup> and is retained in operable position by means of nesting in a notch 36<sup>c</sup> formed in the web 36<sup>b</sup>. In the present described structure the intermediate arm bears against the lever in a plane spaced above the journal box lug contacting portion of the shoulder 37<sup>a</sup>, thereby urging the lever trunnions 28<sup>a</sup> outwardly of the journal box and into bearing engagement with the surface 27<sup>a</sup> of the convolutions 44. Spring abutting fins or webs 38<sup>a</sup>, extending inwardly of the hood from the front wall 48, are engaged by the spring coils 33<sup>a</sup> in order to obviate a distortion of the spring.

The lid of the instant structure is retained in assembled relation during shipment thereof separated from a journal box in a similar manner to that of the previously described structure, that is the top portion of the lever 11<sup>a</sup> is urged toward the front wall 48 until the concave surface 40<sup>b</sup> of the hook 40<sup>c</sup>, forming the inner leg of the U-shaped lever top, is substantially aligned with the aperture 23<sup>c</sup> provided in desirably only one of the hood sides 23<sup>b</sup>.

Downwardly projecting legs or lugs 42<sup>b</sup>, spaced on either side of the lever 11<sup>a</sup> and extending inwardly of the hood from the top wall 48<sup>a</sup>, are provided with notches 42<sup>c</sup> which are in alignment with the aperture 23<sup>c</sup>. A rod or nail 41<sup>a</sup>, indicated diagrammatically, is then inserted into the aperture 23<sup>c</sup>, and upon release of the lever the surface 40<sup>b</sup> of the hook will engage and urge the nail into the notches 42<sup>c</sup>, thereby restricting outward movement of the lever, arresting the spreading action of the spring arms and retaining the entire structure in assembled relation.

It will, of course, be understood that the disclosed and described constructions merely exemplify the present invention and further, that various alterations may be made to the present structures without departing from within the scope of the appended claims.

I claim:

1. A journal box lid comprising a cover with an outwardly opening socket adjacent the central portion thereof, a hood with a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, recesses formed in the cover opening into said socket, integrally formed means projecting outwardly of said ball and housed by said recesses for preventing separation between the cover and hood, a lever pivotally mounted on said hood, and resilient means acting between said lever and hood.

2. A journal box lid comprising a cover with an outwardly opening socket adjacent the central portion thereof, a hood with a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, laterally spaced recesses formed in the cover opening into said socket, integrally formed ears projecting laterally of said ball into said recesses for preventing separation between the cover and hood, a lever pivotally connected to said hood, a web extending outwardly of the cover through an opening provided in said lever, said web having an angularly disposed flange overlying said lever in spaced relation thereto, and a torsion spring having upstanding arms engaging said lever and hood.

3. A journal box lid comprising a cover with an outwardly opening socket adjacent the central portion thereof, a hood with a ball-shaped lower portion extending into said socket to provide for

an articulated movement therebetween, laterally spaced cylindrical recesses formed in the cover opening into said socket, integrally formed ears projecting outwardly of said ball and into said recesses for preventing separation between the cover and hood, said ears being normally spaced from said cover, a lever pivotally engaging said hood, and resilient means acting between said lever and hood.

10 4. In an articulated lid, in combination, a cover having an outwardly opening socket, a hood with a ball-shaped portion extending into said socket for providing a universal movement therebetween, laterally spaced recesses formed in the cover opening into said socket, integral ears outstanding from said ball housed in said recesses for preventing separation between the cover and hood, integral trunnions formed on said hood, lever means pivotally engaging said trunnions, and torsion spring means acting between said lever and hood.

20 5. In combination with a journal box having a hinge lug and an access opening, an articulated lid comprising a hood pivotally connected to the hinge lug, a cover normally closing said access opening having an outwardly opening socket therein, a ball formed on the lower part of said hood extending into said socket for universal movement therebetween, laterally spaced recesses formed in said cover and opening into said socket, ears projecting outwardly of the ball and extending into the recesses for preventing separation between the hood and cover, integral trunnions formed on and extending within the hood, a lever pivotally mounted on said trunnions and bearing against said hinge lug, and spring means acting between said lever and hood for urging said cover into intimate contact with said journal box over said access opening.

30 6. A journal box lid comprising a cover with an outwardly opening socket adjacent the central portion thereof, a hood with a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, recesses formed in the cover and opening into said socket, integrally formed ears projecting outwardly of said ball housed by said recesses for preventing separation between the cover and hood, a lever pivotally connected to said hood, a web extending outwardly of the cover and through an opening formed in said lever, said web having an angularly disposed flange overlying said lever in spaced relation thereto, and a torsion spring having a portion thereof positioned on each side of said lever and upstanding arms acting between the hood and lever.

40 7. A journal box lid comprising a cover having an outwardly opening socket, a hood with a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, integral means formed on said ball extending into correspondingly formed means in said cover for preventing separation between said hood and cover, integral trunnions formed on and extending within said hood, a lever pivotally mounted on said trunnions, and a torsion spring having portions thereof spaced on each side of said lever; said spring having its end portions engaging the hood and an intermediate portion engaging the lever.

50 8. In combination with a journal box having a hinge lug and an access opening, an articulated lid comprising a hood pivotally connected to the hinge lug, a cover normally closing said access opening having an outwardly opening socket

therein, a ball formed on the lower part of said hood, extending into said socket for universal movement therebetween, laterally spaced recesses formed in said cover and opening into said socket, ears projecting outwardly of the ball extending into the recesses for preventing separation between the hood and cover, integral trunnions formed on and extending within the hood, a lever pivotally mounted on said trunnions and bearing against said hinge lug, and a torsion spring having upstanding arms acting between said lever and hood for urging said cover over said access opening.

9. In combination with a journal box having a hinge lug and an access opening, an articulated lid comprising a hood pivotally connected to the hinge lug, a cover normally closing said access opening having an outwardly opening socket, a ball formed on the lower portion of said hood extending into said socket for universal movement therebetween, laterally spaced recesses formed in the cover and opening into said socket, ears projecting outwardly of the ball extending into the recesses for preventing separation between the hood and cover, integral trunnions formed on and extending within the hood, a lever pivotally mounted on said trunnions and bearing against said hinge lug, a web extending outwardly of the cover through an opening provided in said lever, said web having an angularly disposed flange overlying a portion of the lever in spaced relation thereto, and spring means acting between said lever and hood for urging the cover over said access opening.

10. A journal box lid comprising a cover with an outwardly opening socket adjacent the central portion thereof, a hood with a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, recesses formed in the cover and opening into said socket, integrally formed ears projecting outwardly of said ball into said recesses for preventing separation between the cover and hood, a lever pivotally connected to said hood, and a torsion spring having end arms engaging said hood and an intermediate arm engaging said lever.

11. A journal box lid comprising a cover having an outwardly opening socket, a hood with a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, integral means formed on said hood and cover adjacent said ball and socket for preventing separation therebetween, integral trunnions formed on and extending within said hood, a lever pivotally mounted on said trunnions, a torsion spring within said hood having coil portions thereof spaced on each side of said lever, webs extending inwardly of said hood abutting said coils, said spring having end arms upstanding from said coil portions engaging the hood and an intermediate arm upstanding from said coil portions engaging said lever.

12. A journal box lid comprising a cover, a hood connected to said cover, a lever positioned within and having one end thereof engaging said hood intermediate the ends thereof, spring means acting between the hood and the other end of said lever for urging them apart, lugs within the hood and spaced laterally of said lever, and removable means extending between and bearing against said lugs and engaged by a hook formed on the other end of said lever for retaining the lid in assembled relation.

13. An article of manufacture, a journal box cover having an outwardly opening socket adja-

cent the central portion thereof being adapted to receive a correspondingly formed portion of an associated hood, recesses formed in said cover and opening into said socket, and flanges formed on said cover partially overlying said recesses to form restricted openings on each side of said socket and adapted to engage elements of said hood in order to prevent the separation between said cover and associated hood.

14. As an article of manufacture, a hood for use with a journal box lid comprising a ball-shaped bearing portion formed adjacent one end thereof, laterally projecting cylindrical means formed integrally with said bearing portion, and apertured hinging hubs formed on said hood adjacent the other end thereof.

15. In a journal box lid connection comprising a cover having an outwardly opening socket adjacent the central portion thereof, a hood having a portion adjacent the lower extremity thereof extending into said socket to effect an articulated movement between said hood and cover, recesses formed in said cover and associated with said socket, transversely spaced integral cylindrical means formed on said hood and positioned in said recesses, and means formed on said cover overlying said integral means in spaced relation thereto for preventing separation between said hood and cover.

16. A journal box lid comprising a cover with an outwardly opening socket adjacent the central portion thereof, a hood with a correspondingly formed lower portion extending into said socket to allow an articulated movement between said hood and cover, recesses formed in said cover associated with said socket, integral means projecting outwardly from adjacent the lower portion of said hood and housed by said recesses for preventing separation between the cover and hood, a lever pivotally mounted on said hood, and resilient means acting against said lever for urging one end thereof away from said hood.

17. A journal box lid comprising a cover with an outwardly opening socket adjacent the central portion thereof, a hood with a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, cylindrically formed recesses in said cover communicating with said socket, cylindrically formed means integral with said ball and housed in said recesses for preventing separation between the cover and hood, a lever pivotally mounted on said hood, and resilient means acting between said lever and hood.

18. A journal box lid comprising a cover having an outwardly opening socket adjacent the central portion thereof, a hood having a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, cylindrically formed recesses in said cover opening into said socket, means integral with said lid partially overlying said recesses, cylindrically formed means integral with said ball and housed in said recesses for preventing separation between the cover and hood, said cylindrically formed means being normally spaced from said cover and overlying means, a lever pivotally mounted on said hood, and resilient means acting between said lever and hood.

19. A journal box lid comprising a cover with an outwardly opening socket adjacent the central portion thereof, a hood with a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, recesses in said cover communicating with said

socket, means formed integral with said cover partially overlying said recesses, outstanding means formed integral with said ball-shaped lower portion extending into said recesses and underlying said integral means for retaining said hood and cover in assembled relation, said outstanding means being normally out of contact with said cover to permit movement of said cover relatively to said hood, bearing means extending inwardly of said hood above said ball-shaped lower portion, a lever within said hood having one end thereof in intimate contact with said bearing means, and a spring means acting between said hood and another end of said lever.

20. A journal box lid comprising a cover having an outwardly opening socket adjacent the cen-

tral portion thereof, a hood with a ball-shaped lower portion extending into said socket to permit an articulated movement therebetween, integral means formed on said hood and cover adjacent said ball and socket for preventing separation therebetween, integral trunnions formed on and extending within said hood, a lever pivotally mounted on said trunnions, a torsion spring having coil portions thereof spaced on each side of said lever and having end upstanding arms terminating in curved portions, curved retaining flanges formed integrally on said hood and associated with said curved portions, and an intermediate arm connecting said coil portions and seated in a notch in said lever.

GLENN F. COUCH.