No. 693,997. Patented Feb. 25, 1902.

P. BROWN.

JOURNAL BOX.

(Application filed Dec. 18, 1900.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 1.

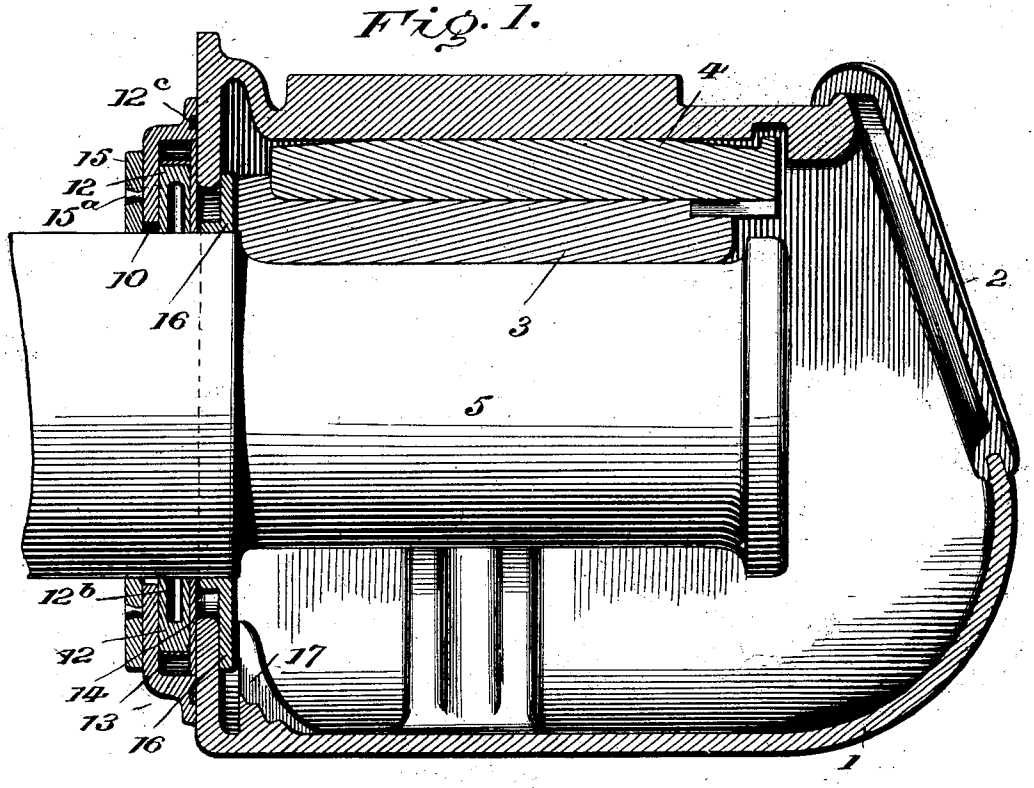
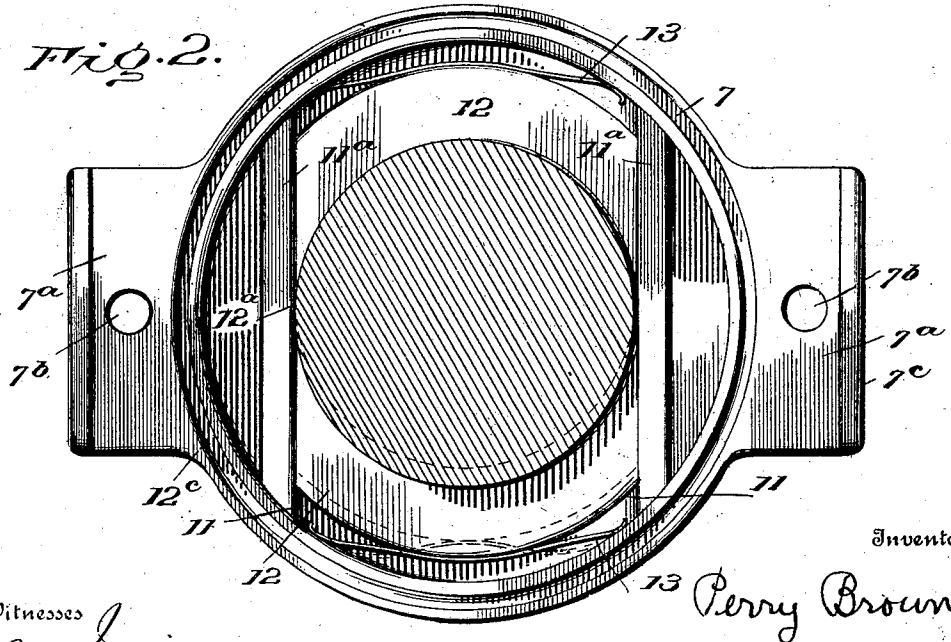


Fig. 2.



Witnesses

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 693,997. Patented Feb. 25, 1902.

P. BROWN.

JOURNAL BOX.

(Application filed Dec. 18, 1900.)

(No Model.) 4 Sheets—Sheet 2.

Fig. 4.

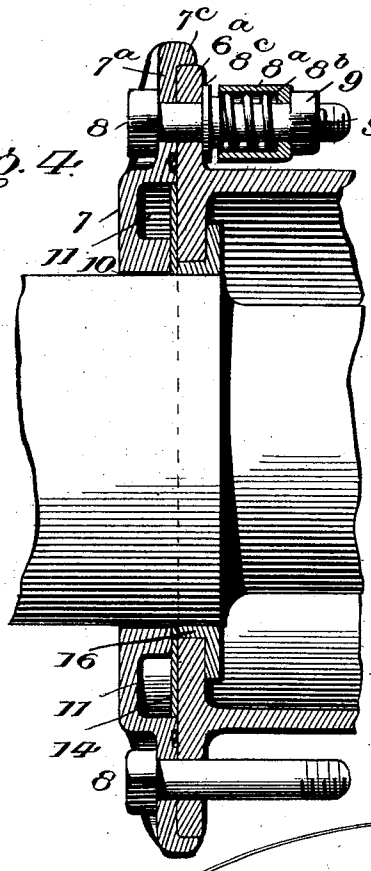

Fig. 5.

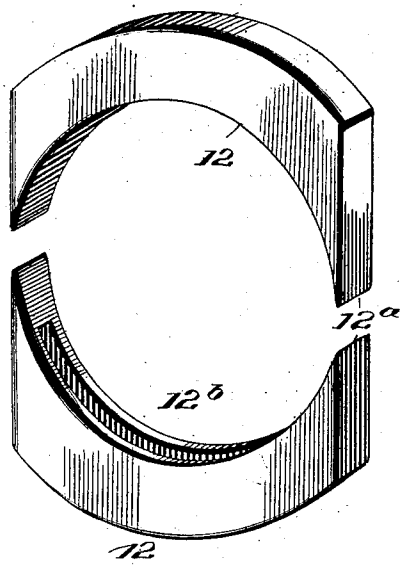

Fig. 3.

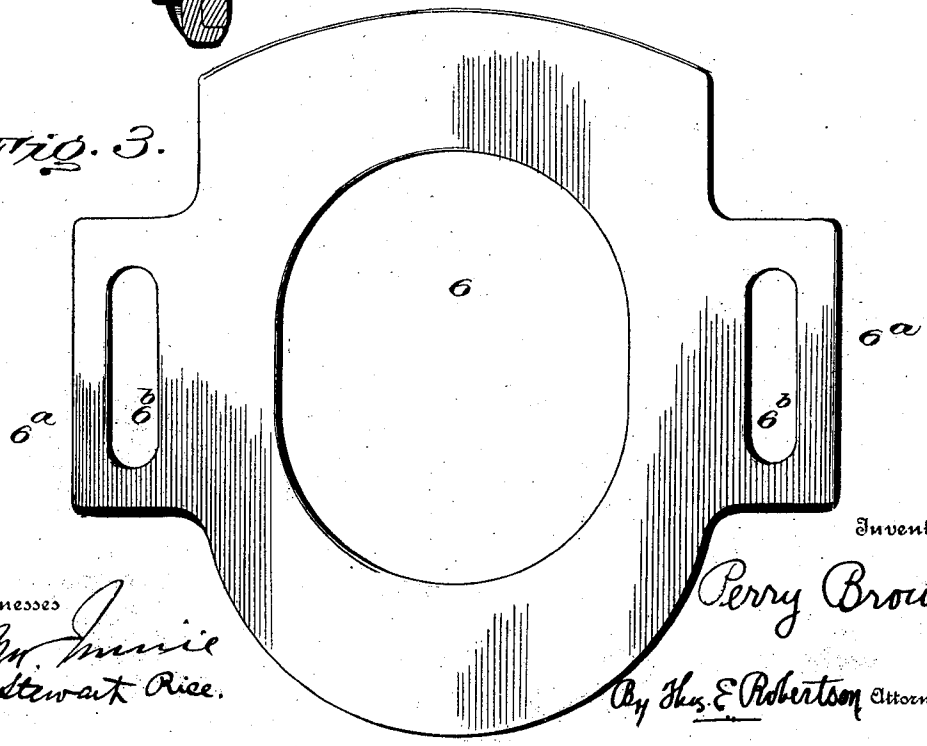

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Fig. 6.

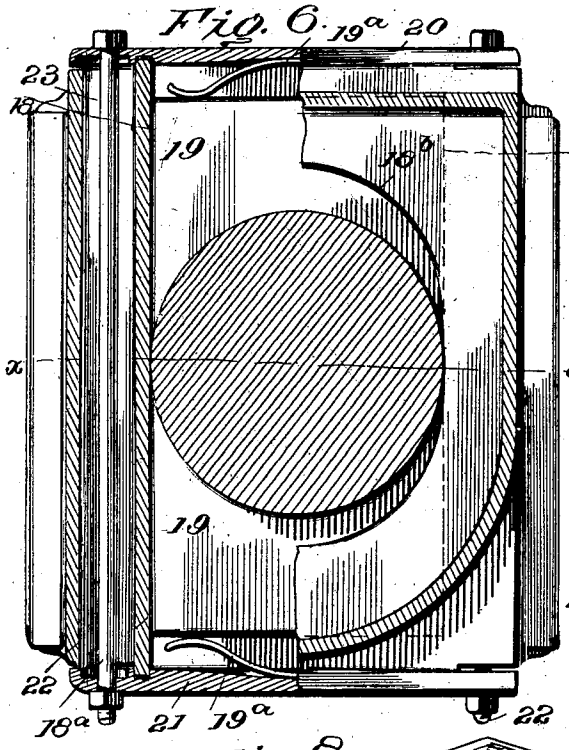


Fig. 7.

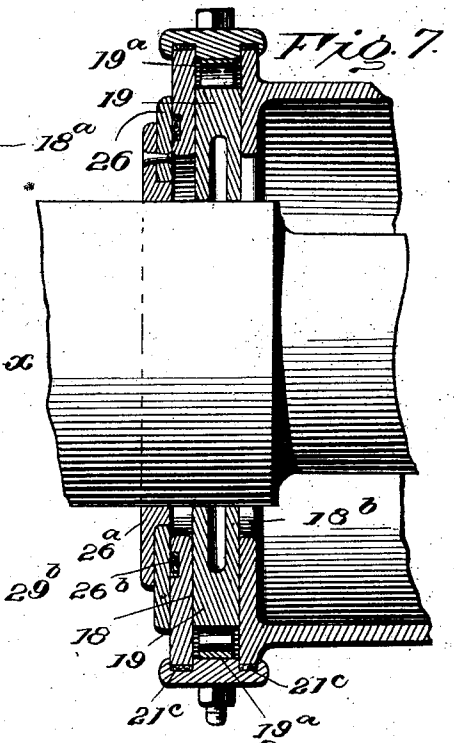


Fig. 8.

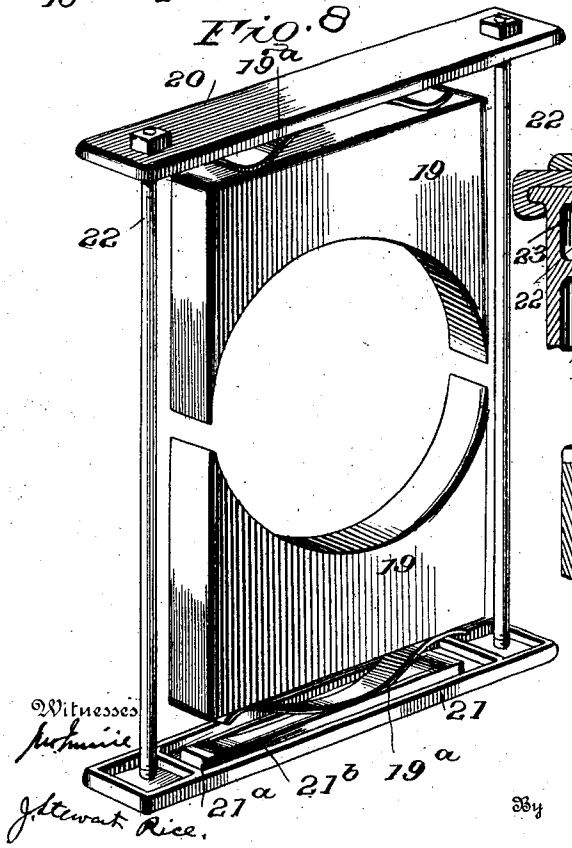


Fig. 9.

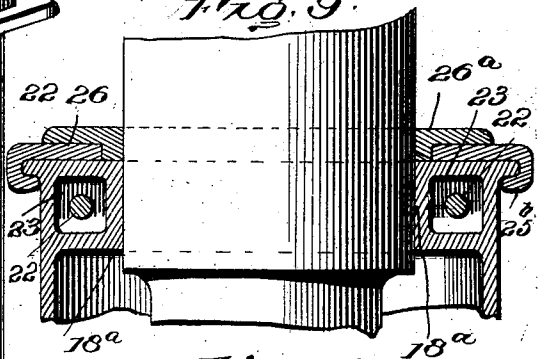
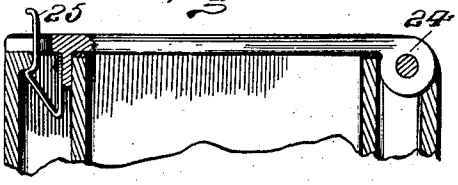


Fig. 10.



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P. BROWN.

JOURNAL BOX.

(Application filed Dec. 18, 1900.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 11.

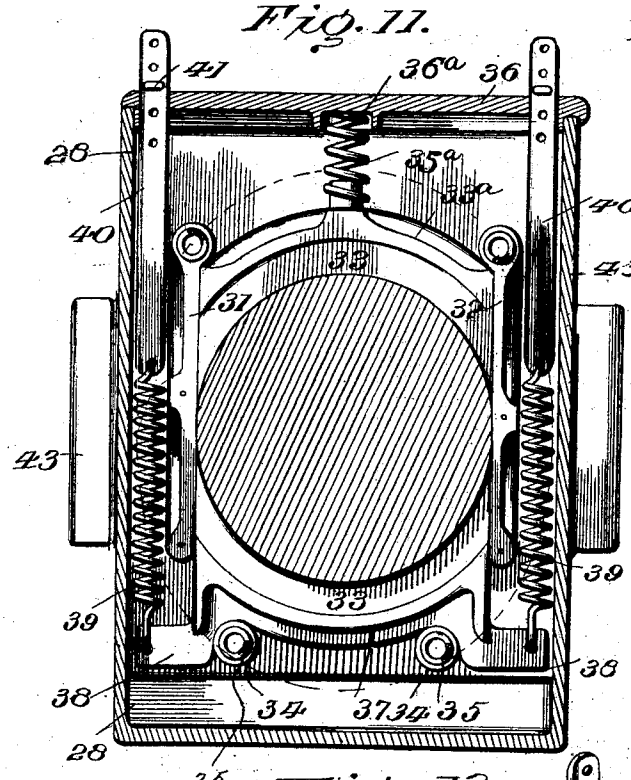


Fig. 12.

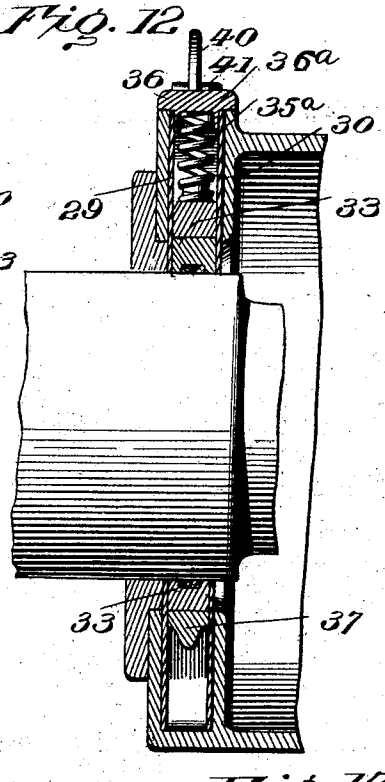


Fig. 13.

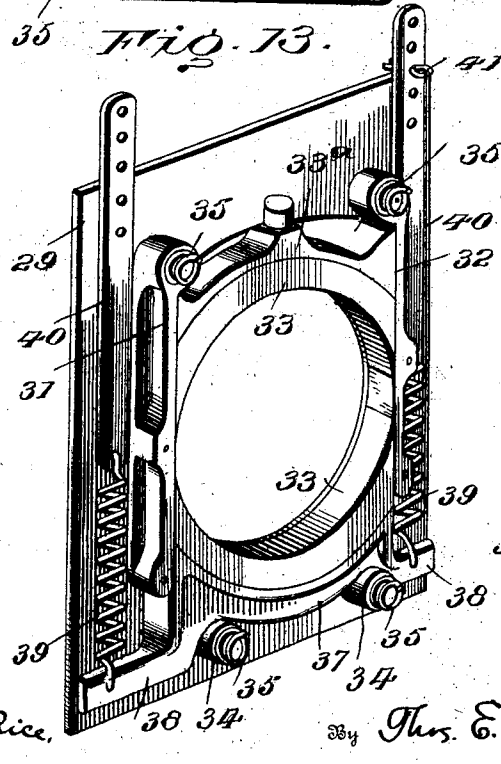
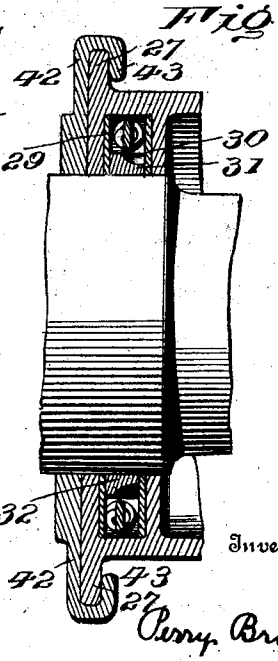


Fig. 14.



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UNITED STATES PATENT OFFICE.

PERRY BROWN, OF WILMINGTON, DELAWARE.

JOURNAL-BOX.

SPECIFICATION forming part of Letters Patent No. 693,997, dated February 25, 1902.

Application filed December 18, 1900. Serial No. 40,274. (No model.)

To all whom it may concern:

Be it known that I, PERRY BROWN, a citizen of the United States, residing at Wilmington, in the county of Newcastle, State of Delaware, have invented a certain new and useful Improvement in Journal-Boxes, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improvement in journal-boxes, and has for its object a dust-proof closure for the rear end of such boxes.

The boxes with which I am familiar are not nearly as perfect as they might be and owing to their defects do not prevent the lubricant from running or wasting out of the ends where the journals enter. It is well known that this rear end is the most difficult to effectually close and that the greatest difficulties to be overcome are to prevent grit and sand from entering the box and the lubricant from oozing out and following the journal until it reaches the wheel, and as it follows the wheel it finally trickles down on the track, and thus makes extensive sanding necessary. This is particularly noticeable where trains are waiting at stations and where the rails are frequently found with oil running over them from leaky boxes. The result is a slippery rail on which it is not only difficult to stop the train, but which is the cause of the driving-wheels of the locomotive "spinning" to such an extent as to make it almost impossible to get a start. Of course a tight box prevents this leakage and also keeps out grit and sand, and thus prevents a great deal of wear on the journal and brasses, and by preventing the admission of such grit and sand the further advantage is attained of having cleaner waste and oil. My invention is therefore designed to overcome these defects of the rear end of the box, and my object is attained by the several constructions, arrangements, and combinations of parts hereinafter more particularly described and then definitely claimed at the end hereof.

In the accompanying drawings, which represent several ways of carrying out my invention, Figure 1 is a longitudinal central section through a journal-box provided with my invention thereon. Fig. 2 is a front elevation of the cover over the rear of the box, but with the "ring" removed therefrom to reveal the parts behind. Fig. 3 is an end elevation of the rear of the box with the cover removed. Fig. 4 is a horizontal section through the rear end of the box. Fig. 5 is perspective view showing the followers or fillers detached. Fig. 6 is a vertical section through the rear end of the box, but of a modified form. Fig. 7 is a vertical section of the same. Fig. 8 is a perspective view of some of the parts detached. Fig. 9 is a section through the line $x\,x$ of Fig. 6. Fig. 10 shows a modified form of fastening to be used in lieu of the fastenings shown in Fig. 6. Fig. 11 is a sectional view of another modified form of closure. Fig. 12 is a sectional view of the same, taken at right angles thereto. Fig. 13 is a perspective view of the parts within the cover, and Fig. 14 is a cross-section of Fig. 11.

Referring now to the details of the drawings by numerals and particularly to Figs. 1, 2, 3, 4, and 5, 1 represents a journal-box made on the lines shown in my United States Patent No. 649,533, in which 2 represents the swinging door or lid, 3 the brass, and 4 the wedge for holding the same in position, while 5 represents the journal; but it will be apparent that while I show my improvements on my own box and prefer to use them thereon they are applicable to other boxes now in common use.

My present invention resides in the closure at the rear end, and in its preferred form the rear end of the box is made as shown in Fig. 3, in which there is an elongated opening 6, through which the journal 5 protrudes in the usual way. On each side of this rear end is formed a lug 6^a, in which lugs are elongated slots 6^b. To this rear end is attached a cover 7, (see Fig. 2,) forming the closure, each side of this cover 7 having lugs 7^a similar to those on the rear end of the box, except that the lugs 7^a are provided with perforations 7^b instead of slots and are also formed with flanges 7^c, which coact with the edges of the lugs 6^a and act as guides. This cover is shown in front elevation in Fig. 2, and in Fig. 4 it is shown as being slidingly secured to the rear end of the box by means of bolts 8, passing through the perforations 7^b and through slots 6^b. These bolts are specially provided with

springs, so as to yieldingly attach the cover 7 to the box and allow the cover to adjust itself thereon as the brass becomes worn, as will be explained later. The construction of the bolt and its coöperating parts is shown best in Fig. 4 and comprise a sleeved pocket 8^a, slipped over the bolt 8, with a spring 8^b therein and a cover 8^c, the whole being secured in position by means of a nut 9, which may be held from being shaken off by a cotter 9^a. This construction forms a connection between the cover and the end of the box, which will be sufficiently tight for its purpose and which will at the same time allow the cover and its connected dust-guarding devices to adjust themselves as the brass wears. The cover is preferably formed with an annular recess filled with packing 12^c, as seen in Figs. 1 and 2. This cover 7 is provided with an opening 10 of substantially the same shape and diameter as the journal 5, and is also formed with a recess 11, which is restricted in its horizontal dimension by the vertical ribs 11^a, preferably cast integral with the cover, so that the opening between these ribs is of the same size as the journal which fits therein. These ribs 11^a also form guides for followers or fillers 12, which are pressed toward each other and against the journal by springs 13. It will be observed that these followers or fillers 12 snugly fit the recess formed by the ribs 11 and that as the opening between these ribs is the same size as the diameter of the journal the inside line of these followers or fillers and the outside vertical edge thereof come down to a point or a knife-edge 12^a, as shown in Fig. 2. It is obvious that, if preferred, a different form of spring can be used than those shown at 13 and that the space between the ribs and the outer curve of the cover may be cast solid. To cover the recess formed in the cover, I provide a ring 14, which snugly fits over the journal 5, as seen in Fig. 1, and as this ring 14 has no motion vertically with respect to the journal the ring always fits the latter, the wear being taken by the spring-actuated followers or fillers 12 immediately back of this ring.

On the rear of the cover is preferably riveted a wearing-ring 15 to take the wear from the wheel, so that the wear will not be borne directly by the cover. It is obvious that when this ring becomes worn it may be replaced. If preferred, this ring may be simply slipped over the axle or journal 5; but I prefer to rivet it to the cover, as shown at 15^a. This ring prevents the wheel from wearing a hole in the rear of the box, which frequently happens with the boxes now in use. I also place a flanged slide 16 on the inside of the box, which of course is provided with an opening of the same diameter as the journal, and this slide is of such size as to always keep the opening in the rear of the box closed, as it is capable of motion vertically with respect to the box, but not with respect to the journal. To support this slide at the bottom and to keep it from moving forwardly, I cast in the bottom of the box a narrow rib or bracket 17, (see Fig. 1,) the upper end of the slide being kept from moving forwardly by the brass 3. It is obvious from an inspection of Fig. 1 that as the lubricant, or rather the waste, is by the motion of the journal forced rearwardly all of its pressure is borne by this slide, and hence the latter is forced against the walls of the opening, and the more the pressure the more tightly the slide is pressed against the rear end of the box. This pressure effectually closes the opening and prevents the escape of the lubricant; but should any escape it would of course be caught by the spring-actuated followers or fillers 12. The latter are provided with a slot 12^b, (or a series of openings, if preferred,) and these slots or openings catch any lubricant that may escape, and as the openings are filled up the material caught therein will lubricate the journal as it rotates within said followers or fillers. It is obvious that these slots or openings may be filled with lubricant before they are placed in position, if preferred.

As I have stated, the foregoing is a description of the preferable form of my improvement for making the rear end of the box dust-proof, and from said description and the accompanying drawings it will be evident that as the journal wears and allows the box to drop down the opening is kept closed by reason of the cover which is slidingly secured to the box and which has contained therein a ring and spring-actuated followers or fillers, which latter under all conditions close around the journal and keep tight thereon. It will also be noticeable that as the followers or fillers are only as wide as the journal and as their ends are so formed as to always wear to a taper or knife-edge the box will be kept tight under all conditions. I deem this of the utmost importance, inasmuch as if the followers or fillers 12 are only the same in width as the journal is wide they always wear to a taper or knife-edge and can be used until they are practically worn away. I also deem it important to restrict the width of the chamber in which these followers or fillers operate, as by these two means it is possible to always keep the joint around the journal absolutely tight, as the more the followers or fillers wear the more accurately they fit against the journal.

A modified form of my invention is shown in Figs. 6, 7, 8, 9, and 10, in which form we have a cover slidingly engaging the rear end of the box working similar to that shown in Figs. 1 to 5, but the followers or fillers work in a recess in the back of the box instead of in the said cover. This recess is shown at 18 and is formed between the two vertical walls 18^a of the box, which walls are the same distance apart as the diameter of the journal, so that the journal snugly fits the opening in the rear end on the sides. This opening is elongated, as seen at 18^b in Figs. 6 and 7, and is kept closed by means of the fillers or follow-

ers 19, which are pressed against the journal by means of the springs 19^a acting against said fillers or followers and the top 20 and bottom 21 of the box, respectively. Both the top and bottom of the box are formed alike, and are shown best at the bottom of Fig. 8, in which there is a recess 21^a and a rib or projection 21^b inside of said recess, which latter enters the opening in the end of the box. The recess 21^a is intended for packing 21^c, (see Fig. 7,) so as to make these covers tight. Bolts 22 pass through pockets 23 on each side of the box and through both the top 20 and bottom 21 and secure them in place. Instead of the bolts the top and bottom may each be hinged or pivoted at one side, as shown at 24 in Fig. 10, the other end being secured by a spring-catch 25, whose operation is evident from the drawings. The rear end of the box is closed by a cover 26, which has grooves formed by flanges or turned-over ends 25^b. (Shown in Fig. 9.) This cover performs the same function as the cover in Fig. 1 and slides on the rear of the box in a similar manner, the cover being always held in place by the journal on which it is placed. The rear side of this cover is provided with a ring 26^a, riveted thereto, somewhat similar to the ring shown in Fig. 1. In this form instead of forming a recess or groove in the cover for packing the recess 26^b is formed in the box itself. (See Fig. 7.) There is a marked advantage in having the opening containing the followers or fillers open at both the top and bottom, as shown in Fig. 6, inasmuch as by this construction I am able to remove one follower or filler from the bottom and the other from the top and replace them without taking the box off of the journal, as is necessary with all other boxes with which I am familiar.

In Figs. 11, 12, 13, and 14 I show another modification which is arranged to be fitted in the boxes as now manufactured, the only change necessary in the box itself being the provision of two ribs 27, one on each side of the box, for the purpose of securing the cover, as will be explained. Within the opening 28, which, as before implied, is in the boxes now on the market, I insert the spring-actuated followers or fillers and the plates and connections for holding them in position. These plates are numbered 29 and 30. To the first of these are riveted or otherwise secured parallel arms 31 and 32, which form guides for the followers or fillers 33. These arms 31 and 32 and bosses 34 (also riveted to the plates 29) are formed with seats for springs 35, adapted to press the plates 29 and 30 away from each other, and thus continually press them against the walls of the opening in the box. The fillers or followers are made on the same idea as in the two forms first described—that is, they have tapered ends and fit between two walls, (the arms 31 and 32,) which are a distance apart equal to the diameter of the journal. The upper follower or filler is pressed downwardly by a form 33^a, against which acts the spring 35^a, fitting within a pocket 36^a, formed within the cover 36. The lower follower or filler is supported by a form or frame 37, having two outwardly-projecting arms 38, to which springs 39 are connected, the other ends of the springs having rods 40 connected therewith, which project through openings in the top of the cover 36, and the cover is secured on the box by means of cotters or their equivalents 41, passing through openings in these rods 40. A plurality of openings is provided in each rod, so that these cotters perform the double function of holding the covers in position and, through the medium of the plurality of openings, of regulating the tension of the springs 39. It is obvious that these springs keep the lower filler or follower in contact with the lower half of the journal. Slidingly secured on the rib 27, hereinbefore described, is the cover 42, which has turned-over edges 43, like those shown in Figs. 6 and 9, while this cover is of the shape shown in dotted lines in Fig. 11 it may, if desired, be made exactly like the cover of the forms shown in Figs. 6 to 10.

It is believed that the detailed description of the various forms of my invention makes unnecessary a description of the operation, yet it may not be out of place to state that in each form shown there is a cover for the rear of the box, which is slidingly secured thereon and which may adjust itself thereto as the brass wears. It is also manifest that in each of the forms followers or fillers are used which are only as wide as the journal is thick, and these followers or fillers slide or adjust themselves in a recess which is likewise of the same size as the journal.

It is obvious that besides the modifications shown in my drawings others can be made without departing from the spirit of my invention, and I therefore intend the following claims to cover such variations and modifications as would naturally fall within the lines of my invention.

What I claim as new is—

1. A journal-box having an opening in its end, a cover slidingly secured to the outer wall of said end and over said opening, and a ring supported by and moving with said cover and interposed between said cover and the outer wall of the box.

2. A journal-box having an opening in its rear end, a journal entering therein, a cover slidingly secured over said opening, a ring supported by the cover and moving therewith, and means for closing said opening comprising a spring-actuated follower or filler.

3. A journal-box having an open rear end, a journal entering therein, in combination with a cover supported on said journal and slidingly secured to said end and means for closing said opening comprising a spring-actuated follower or filler acting against the journal at a right angle thereto and moving as said cover slides.

4. A journal-box having an opening in its

end, a journal entering therein, in combination with a cover supported on said journal and slidingly secured to said end and spring-actuated followers or fillers supported by said slidingly-secured cover and closing around said journal.

5. A journal-box having an open rear end, a journal entering therein, a cover supported by said journal and slidingly secured over said opening, and a yielding connection for attaching said cover to said end comprising a spring-actuated bolt.

6. A journal-box having an open rear end, a journal entering therein, in combination with a cover supported on said journal and slidingly secured to said end, means for closing said opening comprising a spring-actuated follower or filler, the said means being supported by said sliding cover and a ring slipped over the journal and coacting with said follower or filler.

7. A journal-box having an opening in its end, a journal entering therein, in combination with a cover supported on said journal, a yielding connection slidingly connecting said cover to said end, and spring-actuated followers or fillers supported by said sliding cover and acting against the journal at a right angle thereto.

8. A journal-box having an open rear end, a journal entering therein, a cover supported by said journal and slidingly secured to said end and followers or fillers forming a closure for said opening and bearing on opposite sides of said journal, the said followers or fillers being supported by said sliding cover and having their adjacent edges formed to a knife-edge.

9. A journal-box having an open rear end, a journal entering therein, a cover supported by said journal and slidingly secured to said end and followers or fillers forming a closure for said opening and bearing on opposite sides of said journal, the said followers or fillers being only as wide as the journal is thick and having their adjacent edges formed to a knife-edge.

10. A journal-box having an open rear end, a journal entering therein, the said opening being elongated and having its smaller diameter of the same size as the journal, and a spring-actuated follower closing the gap between the elongated opening and the journal.

11. A journal-box having an open rear end, a journal entering therein, a cover supported on said journal and slidingly secured to said end, followers or fillers supported by said sliding cover and forming a closure for said opening and bearing on opposite sides of said journal and a spring for each follower or filler causing it to press against said journal.

12. A journal-box having an open rear end, a journal entering therein, a cover supported on said journal and slidingly secured to said end, followers or fillers supported by said sliding cover and forming a closure for said opening and bearing on opposite sides of said journal and a spring for each follower or filler causing it to press against said journal, the said followers or fillers having their adjacent edges formed to a knife-edge.

13. A journal-box having an open rear end, a journal entering therein, an opening or recess on each side of said journal, a spring-actuated follower or filler in each of said openings bearing against opposite sides of the journal, and a cover slidingly secured to the rear end of the box and supporting said spring-actuated followers.

14. A journal-box having an open rear end, a journal entering therein, a cover slidingly secured over said opening and followers or fillers inclosed in said cover and acting against the journal.

15. A journal-box having an open rear end, a journal entering therein, a cover secured on the outer wall of said end, and having an elongated opening therein, and a ring or washer supported by said cover and having an opening therein of substantially the same size as the journal and moving therewith.

In testimony whereof I affix my signature, in the presence of two witnesses, this 14th day of December, 1900.

PERRY BROWN.

Witnesses:
GEO. E. FRECH,
J. STEWART RICE.