No. 703,974. Patented July 1, 1902.

J. SWAN.

JOURNAL BEARING.

(Application filed July 12, 1901.)

(No Model.)

Fig. 1.

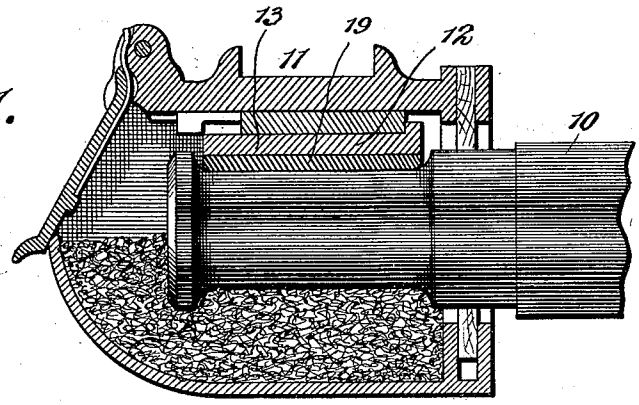


Fig. 2.

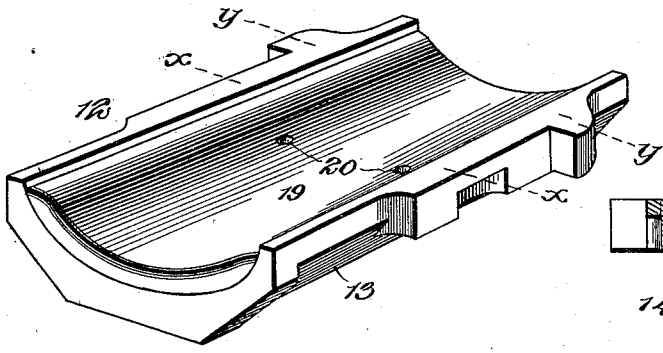


Fig. 3.

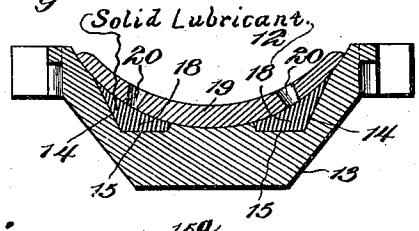


Fig. 4.

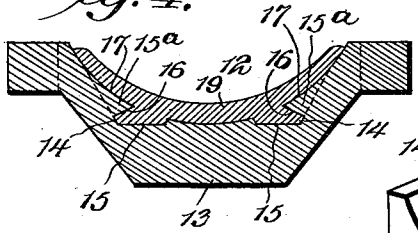
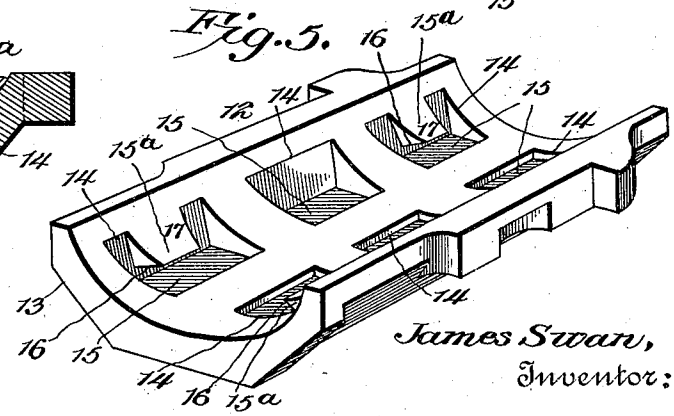


Fig. 5.



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JAMES SWAN, OF TOPEKA, KANSAS.

JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 703,974, dated July 1, 1902.

Application filed July 12, 1901. Serial No. 68,057. (No model.)

To all whom it may concern:

Be it known that I, JAMES SWAN, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented a new and useful Journal-Bearing, of which the following is a specification.

This invention relates to journal-bearings, and more particularly to that character of bearing disclosed in a former patent granted to me on July 19, 1898, and numbered 607,576. In said patent there is shown and described a body or brass having sockets in its concave face, these sockets being provided with holding-lugs that extend into the same from their inner edges and babbitt or other bearing metal cast upon the concave face and engaging said lugs.

One of the objects of this invention is to greatly improve this structure by extending the holding-lugs from the outer edges of the sockets and so constructing the same that they will have a better interlocking engagement with the lining, which latter will thus be more firmly held in place.

Another important feature of the present invention resides in a novel means for storing a lubricant in the bearing, said lubricant being securely sealed in place against leakage between the lining and the body and being automatically fed to the journal during the movement of the same.

In the accompanying drawings there is shown the preferred form of the present improvements, and the construction thereof is fully set forth in the following specification.

It will of course be understood that such slight changes and modifications may be made from the construction shown and described as are permitted by the scope of the appended claims.

In the drawings, Figure 1 is a vertical section view through a journal-box, showing the bearing in place therein. Fig. 2 is a perspective view of the bearing when reversed. Fig. 3 is a vertical sectional view taken on the line X X of Fig. 2. Fig. 4 is a vertical sectional view taken on the line Y Y of Fig. 2. Fig. 5 is a perspective view of the body with the lining and lubricant removed.

Similar reference-numerals designate similar parts throughout the several figures of the drawings.

While the invention is capable of use in connection with bearings of various sorts, in the present instance it is shown in connection with the journal of a railway-car axle, one end of which is illustrated and designated by the reference-numeral 10. The boxing for the journal is of the ordinary construction and designated 11. Within this boxing is located the improved bearing 12, which is fastened therein in any desired or approved manner. As shown in the drawings, this bearing comprises a body or brass 13, the exterior face of which is preferably of the same construction as that adopted by the Master Car-Builders' Association. The concave face of this body is provided with oppositely-disposed rows of angular sockets 14, having flat bottoms, as 15. In the construction shown three sockets are employed in each row, and holding-lugs 15ª are located in the outer two, said holding-lugs extending into the sockets from their outer edges, but terminating short of the opposite edges. These lugs preferably taper toward their free end edges, and their under sides are so formed as to constitute retaining-shoulders 16. The upper faces 17 of the lugs are curved to conform to the curvature of the face of the bearing. The intermediate sockets constitute boxes for lubricating material 18, which is of solid form, preferably graphite. This graphite is held together by a binder consisting of a weak solution of gum-arabic.

Covering the concave face of the body 13 is a lining 19 of Babbitt or other suitable bearing metal, said lining being cast upon the face and covering the intermediate box and the lubricant contained therein. This lining completely fills the end boxes and engages beneath the retaining-shoulders of the holding-lugs and also against the tapering side faces thereof, so that it is securely held in place. Tapered feed-openings 20 are arranged in the lining and communicate with the intermediate box, thus forming a passage-way through which the lubricant can pass to the bearing. By casting this lining directly upon the concave face it will be evident that a much tighter joint can be obtained than if said lining was applied in solid form and fastened at the ends or in any other manner. There is thus no danger of the lubricant leaking between the adjacent faces of the body

and lining and being wasted without coming into contact with the bearing. In practical operation the preferred manner of applying the lubricant is to first form it into a thick paste with the solution of gum-arabic and allow the same to dry. After being thoroughly dried the babbitt is applied in a molten state, and the feed-openings are then cast in this surface at the time or are drilled through after the metal has solidified. In action the oil in the boxing will be carried by the journal to the bearing and will collect in the feed-openings until it contacts with the graphite held together by the gum-arabic. This oil will thus moisten the solid lubricant sufficiently to disintegrate the same, whereupon it will gravitate through the feed-openings onto the bearing, its place within the pocket being taken either by the oil which collects therein or by air which will pass through the feed-openings. By this construction it will therefore be seen that the lining is securely held in place, not only because of the undercut retaining-shoulders 16, but also by reason of the tapered arrangement of the holding-lugs. Further than this, the means for storing lubricant within the journal provides for the proper lubrication of the bearing after being put into service and avoiding any waste or leakage of the same. Another important advantage is gained from the curvature of the outer faces of the lugs. Should the lining become worn, the journal will rest upon the face of the body, and by this arrangement the curved faces of the lugs form additional bearing-surfaces.

From the foregoing it is thought that the construction, operation, and many advantages of the herein-described invention will be apparent to those skilled in the art without further description, and it will be understood that various changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit of sacrificing any of the advantages of the invention.

Having thus described the invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a journal-bearing, the combination with a body having a pocket, of a lubricant in substantially solid form arranged in the pocket, and a lining cast upon the body and covering the pocket and the lubricant located therein, said lining having a feed passage-way communicating with the pocket.

2. In a journal-bearing, the combination with a body having a pocket, of a solid lubricant arranged in the pocket, said lubricant comprising a granular mass and a binder holding the same together, and a lining cast upon the body and covering the pocket and the lubricant located therein, said lining having a feed passage-way communicating with the pocket.

3. In a journal-bearing, the combination with a body having a pocket, of a solid lubricant arranged in the pocket, said lubricant comprising a granular mass and a soluble binder holding the same together, and a lining cast upon the body and covering the pocket and the lubricant located therein, said lining having a passage-way communicating with the pocket.

4. In a journal-bearing, the combination with a body having a concave face, said face being provided with a pocket, of a lubricant arranged in the pocket and comprising a mixture of graphite and gum-arabic, and a bearing-lining cast upon the concave face and covering the pocket and the lubricant located therein, said lining being provided with feed-openings that communicate with the pocket.

5. In a journal-bearing, a body having a concave inner face, said face being provided with sockets, holding-lugs extending into said sockets from their outer edges, said lugs terminating short of the opposite sides of the sockets and having their ends so formed as to constitute undercut retaining-shoulders, and a bearing-lining cast upon the concave face and engaged behind said shoulders.

6. In a journal-bearing, a body having a concave face, said face being provided with oppositely-disposed sockets, holding-lugs extending into said sockets from their outer edges and tapering toward their inner ends, said lugs terminating short of the opposite sides of the sockets, and having said inner ends so formed as to constitute undercut shoulders, and a metallic bearing-lining cast upon the concave face and engaged behind said shoulders and the tapered sides of the holding-lugs.

7. In a journal-bearing, the combination with a body having a lubricant-receiving pocket, of a bearing-lining cast upon the body and forming a wall over the pocket, said lining having a lubricant-discharge opening leading from the pocket.

8. In a journal-bearing, a body having a concaved inner face, said body being provided with sockets that open from its concaved face, holding-lugs extending into the sockets from their outer edges, said lugs terminating short of the bottoms of the sockets and the opposite sides of the same and having their outer faces curved and flush with the concaved face of the body to constitute a part of the bearing-surface thereof, and a lining cast upon the concaved face and filling the pockets, said lining covering the lugs and engaging beneath the inner ends thereof.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES SWAN.

Witnesses:
JAMES ALBERT SWAN,
JOHN WILTON.