No. 734,923. PATENTED JULY 28, 1903.

I. METZGER, DEC'D.

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JOURNAL BEARING.

APPLICATION FILED APR. 4, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

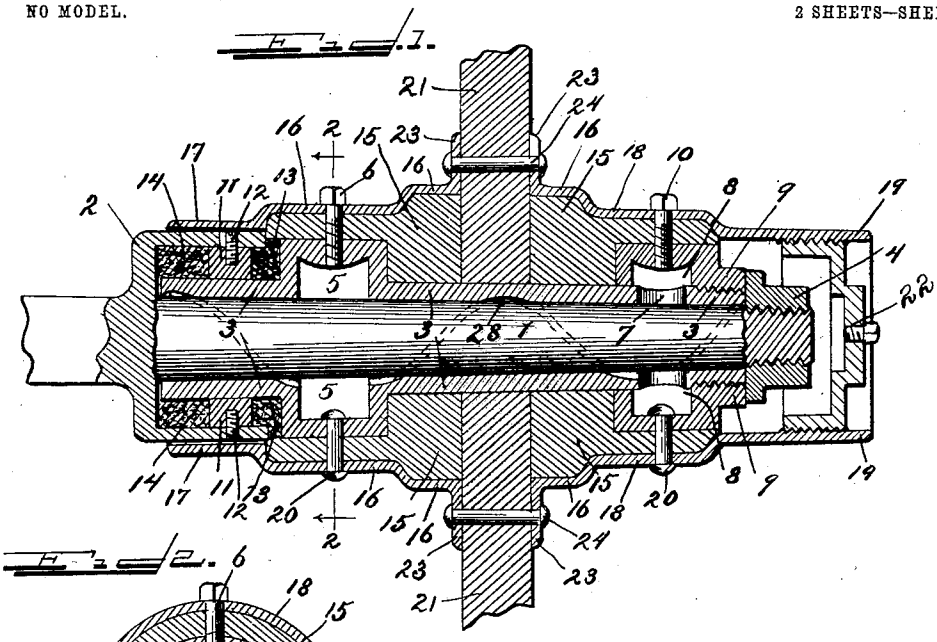


Fig. 2.

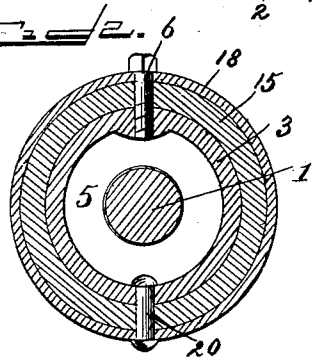
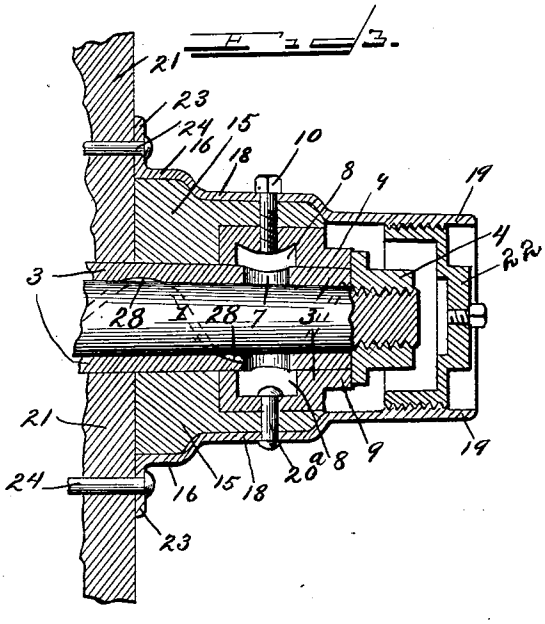


Fig. 3.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.

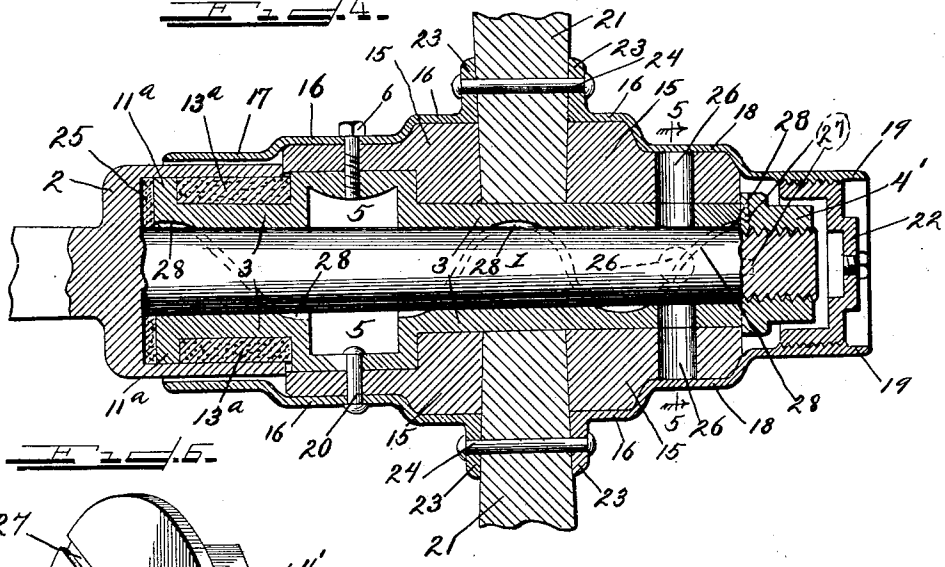


Fig. 6.

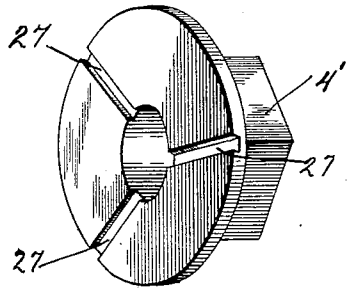
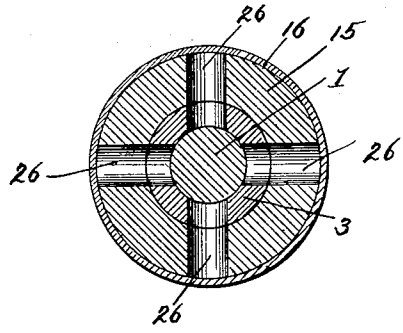


Fig. 5.



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No. 734,923. Patented July 28, 1903.

UNITED STATES PATENT OFFICE.

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JOURNAL-BEARING.

SPECIFICATION forming part of Letters Patent No. 734,923, dated July 28, 1903.

Application filed April 4, 1901. Serial No. 54,229. (No model.)

To all whom it may concern:

Be it known that I, ISBON METZGER, a citizen of the United States, residing near Winfield, in the county of Louisa and State of Iowa, have invented certain new and useful Improvements in Journal-Bearings, of which the following is a full, clear, and exact specification.

My invention relates to journal-bearings, but more particularly to journal-bearings for carriages and other vehicles; and it has for its primary object to provide an improved simple and efficient form of journal-bearing capable of carrying a large supply of oil or lubricant and which shall be provided with means whereby said lubricant will be prevented from escaping and grit and dirt prevented from entering the bearing.

With these ends in view my invention consists in certain features of novelty in the construction, combination, and arrangement of parts by which said objects and certain other objects hereinafter appearing are attained, all as fully described with reference to the accompanying drawings, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a vertical longitudinal sectional view of a vehicle journal-bearing and hub embodying my improvements. Fig. 2 is a cross-section thereof, taken on the line 2 2, Fig. 1. Fig. 3 is a sectional view of one end of the hub and axle-spindle, showing a modification hereinafter described. Fig. 4 is a view similar to Fig. 1, showing a still further modified form. Fig. 5 is a transverse section thereof, taken on the line 5 5, Fig. 4; and Fig. 6 is a view of the retaining-nut hereinafter described.

1 is the axle-spindle, which may be of the tapering or any suitable form, and upon the rear end of which is formed or otherwise secured a cup-shaped flange 2, which surrounds the rear or inner end of the spindle 1 and projects forwardly thereover. Inserted over the spindle 1 is a box 3, which extends preferably from the shoulder of the flange 2 to the forward end of the spindle 1, where the latter is provided with a retaining-nut 4, threaded thereon and abutting against the end of the box 3 for holding the box against longitudinal movement on the spindle 1. The box 3, at or near its inner or rear end, is formed with an enlarged annular chamber 5, which constitutes an oil-receptacle for holding a large quantity of oil or lubricant in immediate contact with the spindle 1, said oil-chamber 5 being supplied when desired through a suitable filling-aperture, which is ordinarily closed by a set-screw 6. The forward or outer end of the box 3 is provided with one or more transverse apertures or holes 7, and surrounding these apertures 7 is an oil-chamber 8, which has a screw-threaded neck 9 screwed upon the end of the box 3 in such a manner that the chamber 8 will be placed in direct communication with the interior of the box 3 through the apertures 7, and the oil or lubricant contained within the chamber 8 will come in contact with the spindle 1 through said apertures as the box 3 revolves. The chamber 8 may be supplied with lubricant when desired through a suitable aperture closed by a set-screw 10, which also serves the further purpose of holding the chamber 8 against accidental unscrewing. The retaining-nut 4 may also be made of sufficient diameter to overlap the neck 9, and thus further guard against displacement of chamber 8.

Secured within the annular or cup-shaped flange 2 is a bearing-ring 11, which may be secured to said flange 2 in any suitable manner—such, for example, as by means of pin 12. This bearing-ring 11 serves to support the portion of the box 3 which extends into the flange 2, and on either side of this ring 11 are located suitable packing-rings 13 14, which prevent the oil from escaping between the flange 2 and box 3 and also prevent the admission of dust and dirt between said members.

The box 3 is driven into the rear end of a wooden hub 15, into the outer end of which hub is socketed the chamber 8, which, together with the enlarged chamber 5, holds the box securely against endwise displacement in the hub. Over the rear or inner end of the hub is forced a shell or sheath 16, which has an annular flange 17 surrounding the flange 2, and over the outer end of the hub is forced a shell or sheath 18, which has a flange 19 surrounding the retaining-nut 4

and containing a screw-threaded cap, which closes the outer end of the hub. The set screws or plugs 6 10, which close the filling-apertures, are carried through the hub and the sheaths 16 18, respectively, and serve the further purpose of better binding the parts together. If desired, additional rivets 20 may be passed through the sheaths and hub and into the chambers 5 8 for further guarding against the displacement or relative movement of the parts.

21 represents the spokes, which are secured in the hub between flanges 23 on the sheaths 16 18 in the usual or any suitable manner, the flanges and spokes being bound together, if desired, by bolts or rivets 24.

In the form of my invention shown in Fig. 3 the construction may be the same as that already described, with the exception that instead of screwing the chamber 8 upon the end of the box 3 the same is forced thereon and held by rivets 20^a.

In the form of my invention shown in Figs. 4 and 5 the rear or inner end of the device is modified by omitting the separate bearing-ring 11 and providing the rear or inner end of the box 3 with a bearing-flange 11^a, formed directly thereon and bearing against the annular flange 2, and interposed between the chamber 5 and said ring 11^a is a packing 13^a, and surrounding the spindle 1 at the inner end of the box 3 is a washer 25, which receives the end thrust of the box 3. The outer end of the device is modified by the omission of the chamber 8, before described, and in lieu thereof I provide radial or lateral oil-cavities 26, formed radially in the hub 15, directly in line with the apertures 7. These oil-cavities 26 are formed by boring through the hub 15 and box 3 after the box has been inserted, but before the sheath 18 has been forced over the hub, so that the sheath will close the outer ends of said oil-cavities 26. In this form of the invention the inner face of the retaining-nut 4′ is provided with radial oil-grooves 27, as better shown in Fig. 6, which catch the oil as it is carried up by the end of the revolving hub and permit the same to run down against the spindle, whence it is conducted to the inner part of the spindle by a spiral groove 28, formed in the inner face of the box 3, a number of said channels 27 being provided, so that one will be uppermost, notwithstanding different distances to which the nut may be screwed onto the spindle. This spiral groove 28 may be continued back in the box 3 beyond the oil-cavities 26, so as to lead the oil from said cavities farther inward along the spindle or conduct the oil from chamber 5 toward the cavities 26.

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

1. In a journal-bearing the combination of a spindle, a box journaled thereon and having an enlarged annular oil-chamber surrounding said spindle, a retaining-nut secured on the outer end of said spindle and having one or more radial grooves formed in the inner face thereof contiguous to the end of the box, and means for closing both ends of the box for preventing the oil from escaping, said spindle having an oil-groove extending from end to end thereof and terminating contiguous to one of said radial grooves in the nut, substantially as set forth.

2. In a journal-bearing the combination of a spindle, a box secured thereon and having a chamber 5 and perforations 7, chamber 8 secured on said box over perforations 7, retaining-nut secured on said spindle against the end of said box, the filling-plugs 6 10, the annular cup-shaped flange 2, the bearing-ring 11 and packings 13 14, substantially as set forth.

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Witnesses:
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