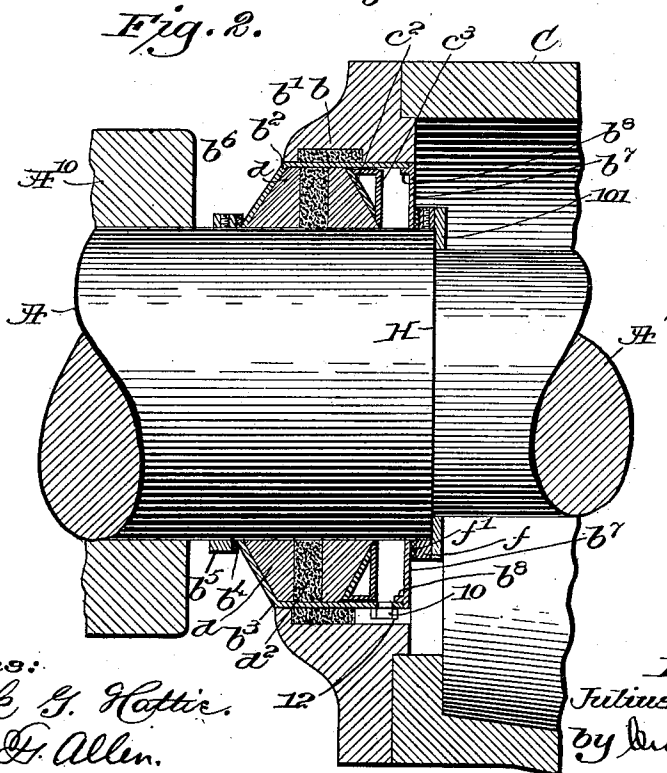
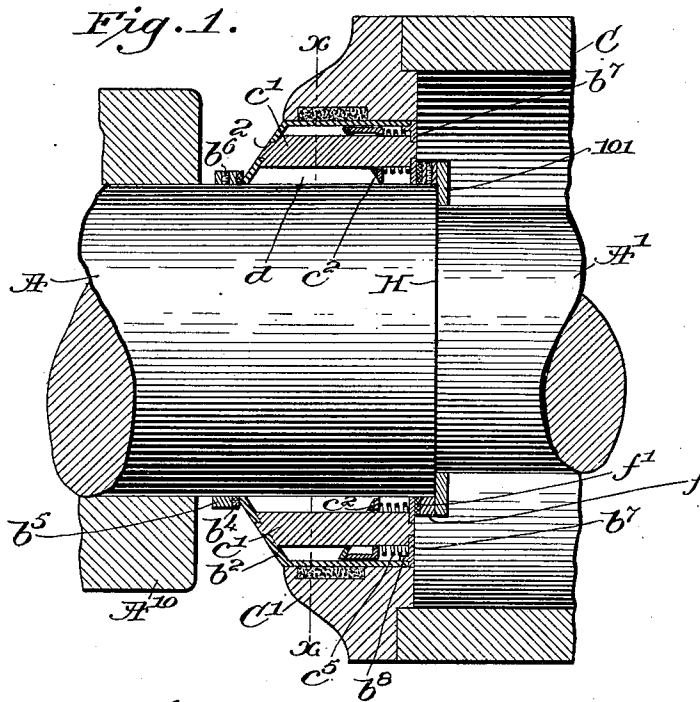


J. A. PERKINS.
DUST GUARD.

(Application filed July 5, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 2.

Fig. 3.

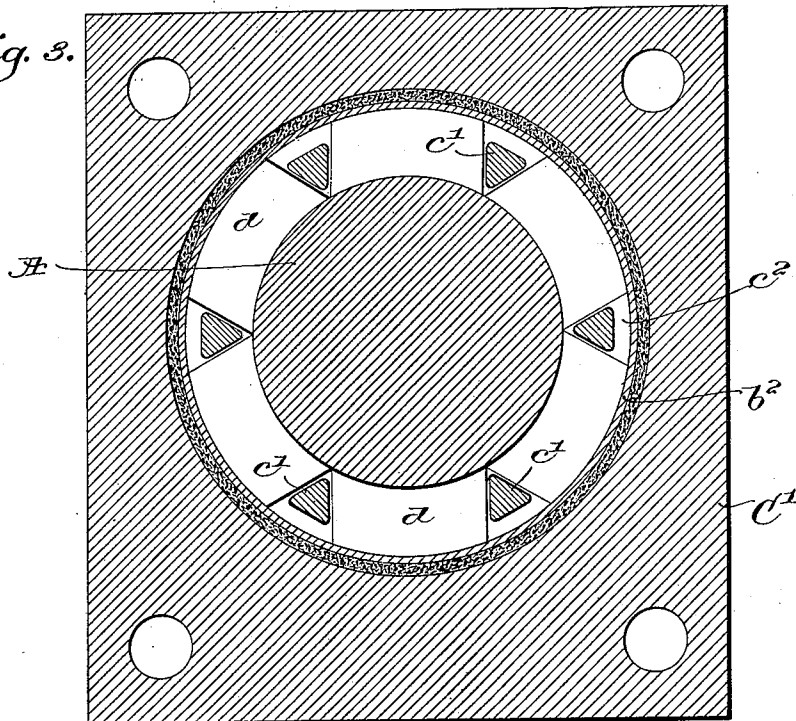


Fig. 4.

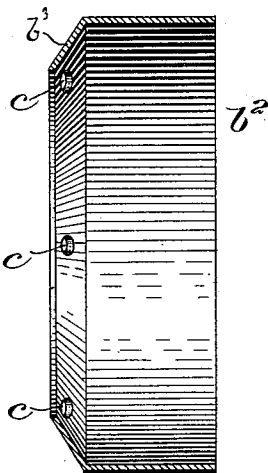


Fig. 5.

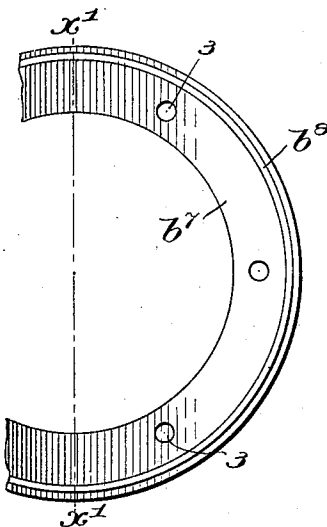


Fig. 6.



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No. 674,635.

Patented May 21, 1901.

J. A. PERKINS.
DUST GUARD.

(Application filed July 5, 1900.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 7.

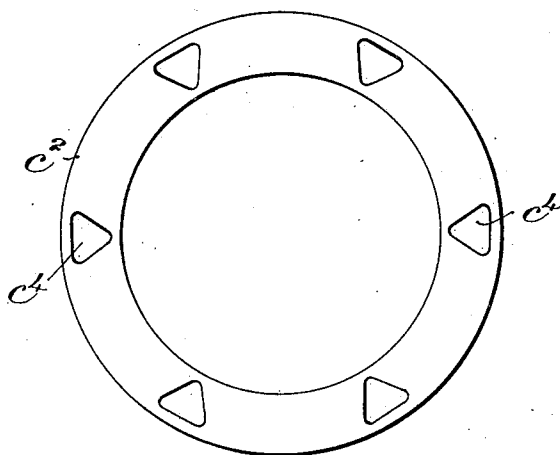


Fig. 8.

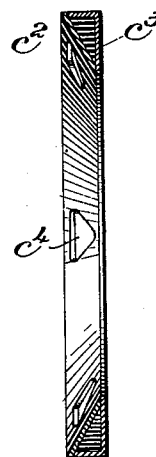


Fig. 9.

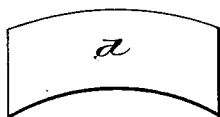


Fig. 16.

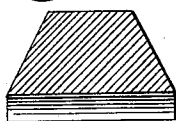


Fig. 10.

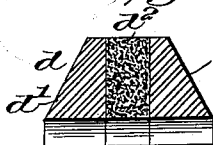


Fig. 11.

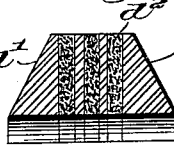


Fig. 12.

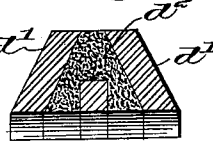


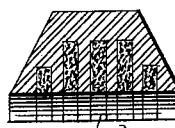
Fig. 13.



Fig. 14.



Fig. 15.



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UNITED STATES PATENT OFFICE.

JULIUS A. PERKINS, OF OMAHA, NEBRASKA, ASSIGNOR TO MOFFETT BEARING COMPANY, OF COUNCIL BLUFFS, IOWA.

DUST-GUARD.

SPECIFICATION forming part of Letters Patent No. 674,635, dated May 21, 1901.

Application filed July 5, 1900. Serial No. 22,527. (No model.)

To all whom it may concern:

Be it known that I, JULIUS A. PERKINS, a citizen of the United States, residing at Omaha, county of Douglas, State of Nebraska, have invented an Improvement in Dust-Guards, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to the construction of a novel improved dust-guard applicable to bearings of the class shown and described in United States application, Serial No. 738,774, filed on the 1st day of December, 1889, whereby dust is prevented from entering the box to interfere with the travel of the bearing-rollers over the journal.

Figure 1 is an enlarged detail showing the inner end of a box and dust-guard and part of a journal, with a hub supposed to be part of a car-wheel connected therewith. Fig. 2 is a like view, the section being taken through the packing constituting the dust-guard. Fig. 3 is a section in the line x , Fig. 1. Fig. 4 is a section through the dust-guard case. Fig. 5 is a partial face view of the inner end or cover of the case; Fig. 6, a section in the line x' , Fig. 5. Figs. 7 and 8 are respectively a face view and section of the pressure device to act upon one tapered side of the packing-sections. Fig. 9 shows a packing-section in side elevation, and Figs. 10 to 16 are cross-sections of packing blocks or sections of different construction embodying my invention.

Referring to the drawings, A represents a shaft having a journal A' ; C, a box; H, a controller, and 101 a fiber or other antifriction washer abutting said controller and to cooperate with the end of a cage, as provided for in said application. The shaft is represented as having connected with it the end A^{10} of a car-wheel hub. These parts may be as fully represented in said application.

Referring to the dust-guard, I have provided the inner end C' of the box C, secured thereto in any suitable manner, as by bolts, with an annular chamber b , in which I have located a case dust-guard b' , it being of a material to preclude dust entering the box outside the dust-guard case b^2 , represented as a metallic box, (see Figs. 1, 2, and 4,) hav-

ing its outer end inclined, as at b^3 , to nearly touch the shaft A, the intumed end of the case contacting with the fiber washer b^4 , held in operative position by a collar b^5 , secured to the shaft in any suitable manner, as by a set-screw b^6 . The inner end of the case is closed by a cover b^7 , having an annular projection b^8 at its inner side, which enters the case.

The shaft A near the controller H has secured to it a collar f , a suitable screw or device being used for such purpose, and between said collar and case I have inserted a fiber washer f' .

The inclined wall b^3 of the case (see Fig. 4) has a series of holes c , in which enter tenons 2 of guides c' , suitable tenons at the opposite ends of said guides entering holes 3 in the cover b^7 . The guides c' —any suitable number—receive about them a pressure device, represented as a ring composed of two parts c^2 and c^3 , each having suitable like holes or openings c^4 to embrace the guides c' . The inner sides c^3 of the pressure device are acted upon in this instance of my invention by a series of suitable springs c^5 of any desired strength, according to the nature of the packing and the closeness of the fit desired between the concaved face of the packing-sections d and the shaft A, the said springs tending to move the packing-sections longitudinally of the shaft.

The packing herein shown is represented as composed of a plurality of blocks segmental in shape in the direction of their length, (see Figs. 3 and 9,) the opposite side walls of the blocks being tapered. These blocks contact at their concaved inner faces with the shaft A, and one inclined side of each block contacts with the inclined end b^3 of the dust-guard case b^2 , while the other side is acted upon by the inclined inner face of the pressure device, and it will be obvious that the inclined face of the pressure device, acting upon one side of the packing-block, will force the other inclined side thereof against the inclined end of the case b^2 , and the resultant pressure will tend to give radial movement to the packing-blocks and keep the inner face of each packing-block in contact with the journal.

The pressure device for the sake of lightness and strength is represented as composed of two parts $c^2 c^3$, each having suitable holes, the part c^2 being made as a ring having an inclined face, it resting against the portion c^3 , presenting two walls substantially at right angles.

The packing-blocks may be made of any usual material commonly employed for packing about shafts and journals; but I prefer to use a light-weight durable non-metallic substance, such as fiber or cork or layers of fiber, cork, wood, or rawhide. In the drawings I have assumed that the outer portions d' of the blocks d are composed of cork and the central portions d^2 of fiber, plumbago, rawhide, or other material commonly used on bearings. These layers d' d^2 may be distinct one from the other, as in Figs. 2, 10, 11, and 12, or the fiber or equivalent may be inserted in suitable grooves made in the body of the block or packing, as in Figs. 13 to 15, which may be either fiber or cork or any other usual or suitable packing material which will by its contact with the shaft act to prevent the passage of dust.

The casing b^2 has a lug 10, which enters a slot 12 in the inner head C' of the box, the said lug preventing the rotation of said casing and packing with the shaft, the slot being long enough to provide for a sliding movement of the box with relation to the casing.

In the invention hereinbefore described it will be observed that the packing is contained wholly in a separate casing having a sliding fit and movable longitudinally of the axis of the shaft and with relation to the box. The packing-sections are also of peculiar shape—that is, their inner faces, which contact with the shaft, are concave. Their ends are parallel, so that as the sections wear each section will contact with the section next to it, and the contacting sections present inclined surfaces, which are acted upon by an inclined surface, which aids in keeping the concave face of each section in contact with the shaft.

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

1. The combination with a shaft and a box, of a dust-guard consisting of a case fitted loosely with relation to the end of the box and surrounding said shaft, and a series of independent packing-blocks mounted in said case, and means acting normally on said blocks tending to move them longitudinally of and radially toward the shaft.

2. The combination with a box, of a case movable with relation thereto, and a plurality of packing-blocks located in said case, and movable radially therein.

3. The combination with a box, of a case entering said box loosely, a shaft surrounded by said case and box, means to connect said box and case that they may slide one with relation to the other, and a series of packing-blocks located in said case.

4. The combination with a box and a shaft, of a dust-guard case entering said box loosely and keyed to said box to slide longitudinally thereof, said case having a sliding fit with relation to the box, and a plurality of packing-blocks located in said case.

5. A dust-guard composed of a case having an incline at one end, a pressure device contained in said case and presenting an inclined face, and a series of packing-blocks having their side faces inclined and acted upon by the inclines of the case and of the pressure device.

6. The combination with a shaft and a box, of a dust-guard case entering said box loosely, a series of packing-blocks radially movable in said case, and a pressure device movable longitudinally of said shaft and in its movement forcing the blocks toward the center of rotation of said shaft.

7. The combination with a shaft and a box, of a dust-guard case entering said box loosely, a series of packing-blocks radially movable in said case, a pressure device movable longitudinally of said shaft, and a series of guides for said pressure device, the longitudinal movement of the pressure device giving radial movement to the said blocks.

8. The combination with a box and a shaft, of a dust-guard case independent of the box and occupying a position between the box and the shaft, a plurality of packing-blocks in said case, a pressure device, a series of guides for said pressure device, and a series of springs acting upon said pressure device to move it longitudinally of the shaft and force said blocks radially toward the shaft.

9. A dust-guard case having one end tapered, a cover applied to the opposite end of said case, a series of guides sustained at their ends in said case and its cover, a pressure device located in said case and directed in its movements by said guide, and suitable means to move said pressure device toward the inclined end of the case.

10. A shaft, a box, a dust-guard case containing a dust-guard, and a packing interposed between said case and the end of the box.

11. The combination with a box and a shaft, of a dust-guard connected with said box and said dust-guard being free to slide out and in said box, longitudinally thereof and means for normally restraining said movement and for holding the dust-guard in place.

12. A box, a shaft, and a packing composed of sections, the inner faces of which contact with the shaft, and a casing inclosing the packing and preventing it from contacting with the box, said casing being connected to the box.

13. The combination with a box and a shaft, of a dust-guard surrounding said shaft and longitudinally entering one end of the box loosely, packing inside said case contacting with the shaft and packing interposed between the case and the box.

14. In a dust-guard, a box, a shaft, combined with a series of interposed packing-sections, presenting concaved faces to contact with the shaft and parallel ends which abut one against the other, said sections being movable radially and longitudinally of the shaft.

15. In a dust-guard, a box, a shaft, combined with a series of interposed packing-sections surrounding the shaft and presenting concaved faces to contact with the shaft, said sections having their ends parallel and contacting one with the other, said sections presenting outer inclined faces and means having inclines contacting therewith to maintain the concaved faces of the sections in contact with the shaft.

16. A rotating shaft, a dust-guard case containing packing, a box having an end surrounding said dust-guard case, and means to restrain the rotation of said case in said box end yet permit the sliding of said case in said box end in the direction of the longitudinal axis of the shaft.

17. A rotating shaft, a dust-guard case containing packing, a box having an end surrounding said dust-guard case, means to re-

strain the rotation of said case in said box end yet permit the sliding of said case in said box end in the direction of the longitudinal axis of the shaft, and collars fixed upon the shaft and having interposed between their faces and the ends of the dust-guard case suitable packing.

18. A rotating shaft, a dust-guard case containing packing, a box having an end surrounding said dust-guard case, means to restrain the rotation of said case in said box end yet permit the sliding of said case in said box end in the direction of the longitudinal axis of the shaft, and a packing interposed between the exterior of the dust-guard case and the interior of the box end to prevent dust entering the box between the outer side of the case and the opening in which it slides in the box end.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JULIUS A. PERKINS.

Witnesses:

GEO. W. GREGORY,
MARGARET A. DUNN.