(No Model.)

F. J. ROBERTS.

JOURNAL BOX GUARD.

No. 552,549. Patented Jan. 7, 1896.

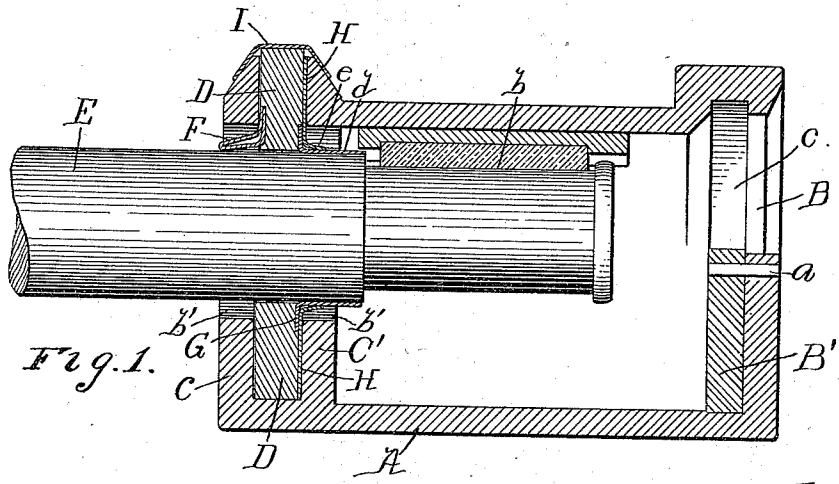

Fig. 1.

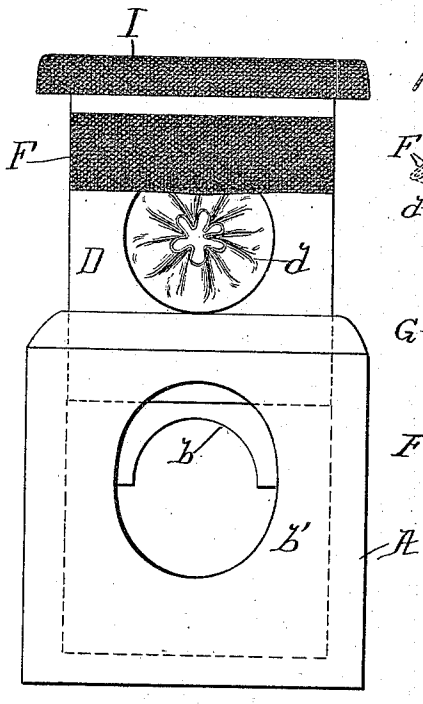

Fig. 2.

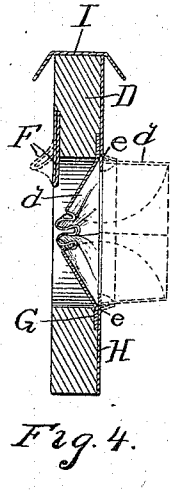

Fig. 4.

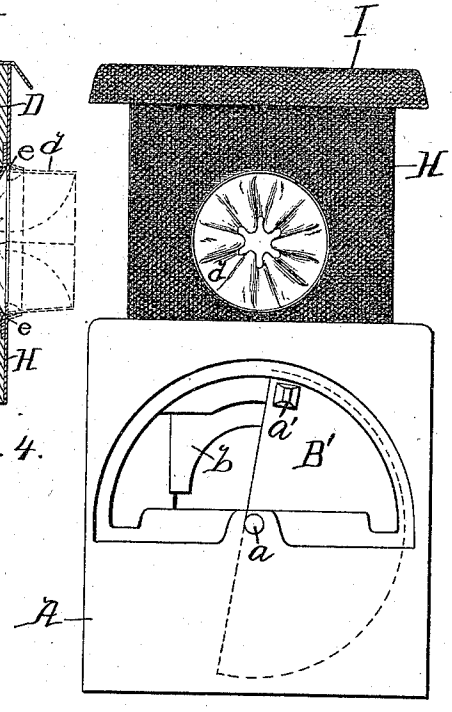

Fig. 3.

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JOURNAL-BOX GUARD.

SPECIFICATION forming part of Letters Patent No. 552,549, dated January 7, 1896.

Application filed April 5, 1895. Serial No. 544,543. (No model.)

To all whom it may concern:

Be it known that I, FABIAN J. ROBERTS, a citizen of the United States, residing at Detroit, in the county of Wayne, State of Michigan, have invented certain new and useful Improvements in Dust-Guards; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in dust-guards for axle-bearings; and it consists in the construction and arrangement of parts, as hereinafter fully set forth, and pointed out particularly in the claims.

The objects of the invention are to provide cheap, simple, and effective means for excluding dust from axle-journals and in which the arrangement is such as to prevent any egress of the oil; to permit free and ready access to the axle-box; to provide for the withdrawal or insertion of the axle, and for easily and quickly replacing the dust-guard when worn out, which objects are attained by the device illustrated in the accompanying drawings, in which—

Figure 1 is a central longitudinal section through the axle-box and dust-guard, showing the axle in elevation. Fig. 2 is an elevation of the inner end of the axle-box, showing the removable slide on which the dust-guard is mounted partially withdrawn from the box. Fig. 3 is an elevation of the front end of the axle-box with the dust-guard in the position shown in Fig. 2, and Fig. 4 is a central vertical section through the slide and dust-guard mounted thereon.

Referring to the letters of reference, A designates the axle-box, which is preferably cast and rectangular in form and is provided with a suitable bearing-brass *b* therein. In the outer end of said box is a semicircular opening B which affords access thereto for the purpose of introducing the waste and oil. This aperture is closed by an oscillative door B′, which is pivoted at *a* to the front of said box and is adapted to oscillate upon its point of pivot, said door being of such form as to fill said aperture when in a closed position and to expose the entire area of said aperture when open and is provided on its outer face with an extending lug *a′*, by means of which it is actuated. Said door is semicircular in form to correspond with said aperture and to render it dust-tight. Its circular edge is adapted to travel in a circular groove or way *c* formed in the end of said box concentric with the point of pivot of said door, whereby, when the door is closed, all dust and grit are prevented from passing into the box through said opening. The inner end of said box is provided with two parallel walls C C′ through which an elliptical aperture *b′* is formed for the reception of the axle E, and between which is a vertical way adapted to receive a movable slide D, which is provided with an aperture through which the axle is adapted to pass and which registers with the aperture *b′* in said walls. This slide D is adapted to fit closely between said walls at the end of the box, but is capable of vertical movement therein, and the aperture in said slide, through which the axle passes, is of smaller diameter than the apertures *b′* through said walls and closely embraces the periphery of the axle, the location of the parts being such that when in their normal position the axle is supported centrally within the apertures *b′*, which allow of a limited vertical movement thereof, the slide D traveling with said axle in said movement, thereby obviating any variation of the opening in said slide which embraces said axle.

To provide for preventing any dust or dirt from falling upon the upper arc of the axle and working through the aperture in the slide D, there is employed an apron F which is composed of textile fabric and is let into the outer face of the slide D extending transversely thereof and normally depending over the upper arc of the aperture therethrough, so that when the axle is inserted therein said apron will bear upon the periphery thereof, so that it will partially conform to the contour of its upper arc, as clearly shown in Figs. 1 and 4, whereby any dust or dirt falling upon the axle is swept therefrom by said apron as the axle rotates.

As an additional guard, and to arrest the smaller particles of dust and dirt from passing along the axle to the journal, there is employed, upon the reverse or inner face of the

slide D, a collar, of leather or like material G, which is let into the face of said slide around the aperture therethrough and is provided with the flexible flanged portion *d* which embraces and extends longitudinally onto the axle. This flange or leather collar is divided and its edges lapped one on the other so as to permit said collar to be contracted closely around the axle.

Mounted upon the inner face of said slide and secured thereto, in any suitable manner, is a webbing of fabric H which covers the entire face of said slide and is provided with a reduced aperture which registers with the opening therein, and through which the flexible flange *d* of the leather collar extends. The size of the aperture through said webbing being smaller than that of the collar causes the edges *e* of the webbing to extend onto the flexible flange *d* of said collar when the axle is passed through the aperture in said slide, which position of parts is shown in Figs. 1 and 4, and by the contraction of the edge *e* of said webbing said flange *d* is caused at all times to closely embrace the axle and is held in yielding contact therewith. This extension of the flexible flange *d* inwardly onto that portion of the axle which projects into the box adjacent to the journal serves not only to prevent the entrance of dust along the axle to the journal, but obviates the escape of oil from the box around the aperture through said slide D, for the reason that said flange, by the longitudinal play of the axle, will wipe the oil therefrom back into the box, confining the oil entirely within the box and preventing it from passing into the way in which the slide is located, as would result were said flange to terminate on a plane approximate to the vertical face of the slide, as will be readily understood.

The flexibility of the leather collar and flange and of the apron-guard F enables them to be folded within the aperture through the slide D when it is desired to withdraw said slide from the box. To accomplish this, the axle is first withdrawn, when said parts are folded within the aperture in the slide and said slide removed, as shown in Figs. 2, 3, and 4. This arrangement enables the dust-guard to be readily replenished when it shall have become so worn as to be of no further service, the flexible flange *d* being folded within the slide when it is replaced in the box and is forced outward to its proper position to embrace the axle by the passage of the axle through the aperture in said slide, as shown in Fig. 1 and by dotted lines in Fig. 4.

To prevent the entrance of dust around the slide D from the top, said slide is provided with the flexible covering I, which is attached to the upper edge thereof and which, projecting laterally, covers the opening around said slide, as clearly shown in Fig. 1.

It will now be seen that this improved device constitutes a simple, effective and inexpensive dust-guard, and which, when it becomes worn out, may be replaced by simply withdrawing the slide and attaching a new leather washer thereto and replacing the embracing-webbing H and the outer apron F, if required.

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

1. In a dust guard for axles, the combination with the axle box, and a removable slide in the end thereof through which the axle passes; of a flexible apron on the outer face of the slide, a collar on the inner face having a flexible flange, and a webbing also secured to the inner face of the slide and provided with an aperture having a flexible edge adapted to receive the flange of the collar and hold the same against the axle, as and for the purpose set forth.

2. In a dust guard for axles, the combination of the axle box, the removable slide located in the end of said box and apertured to receive the axle which passes through said slide into the box and carries a journal on its inner end, the flexible collar mounted on said slide around the aperture through which the axle passes, said collar having an integral flange which extends into the axle box and embraces the longitudinal periphery of the axle between the journal thereof and the face of said slide, and the fabric or webbing mounted on the face of said slide next the box and having a reduced aperture normally smaller than the axle through which said axle and flange extend and which extends into the box and serves to contract said flange upon the axle.

3. In a dust guard for axles, the combination of the axle-box adapted to receive the axle, the removable slide in the end of said box through which the axle passes, the flexible apron mounted on the outer face of said slide and embracing a portion of the upper arc of the axle, and the flexible covering mounted upon the upper edge of the slide and extending over the edges of the opening or way in the box in which said slide is located.

4. In a dust guard for axles, the combination with the axle-box having a semicircular opening in the upper face of the outer end thereof, the remaining portion of the end of said box below said opening being solid, said box having a circular way in the upper wall thereof adjacent to and concentric with said opening, of the semicircular door pivoted to the inner face of the solid portion of the end of said box concentric with said way, in which its edge is adapted to travel, whereby the aperture in said box may be opened or closed by the oscillation of said door.

In testimony whereof I affix my signature in presence of two witnesses.

FABIAN J. ROBERTS.

Witnesses:
THEO. F. MILLSPAUGH,
E. S. WHEELER.