

932,484.

Fig. 1

This diagram shows a cross-sectional view of a mechanical assembly. A large, curved component labeled *A* forms the outer frame. Inside, there are two main cylindrical components: an inner cylinder labeled *b* and an outer cylinder or sleeve labeled *B*. The assembly is supported by a base plate labeled *D*. Various adjustment points and fasteners are indicated by labels: *d*, *g'*, *E'*, *C*, *c*, *G'*, *F''*, *G''*, *g''*, and *D'*.

Fig. 2

This diagram shows a top-down plan view of the same mechanical assembly. It features a central circular component labeled *B* surrounded by a rectangular frame. The frame has four corner supports labeled *e^a* and *f^a*. Adjustment mechanisms are shown along the edges, labeled with *e³*, *g³*, *f'*, *e'²*, *e'*, and *F'²*. The entire unit is mounted on a base plate labeled *I²* and *g²*.

Harry L. Gaither
Ruby V. Nash.

George L. Mansfield
by Lambert & Meltonson
attorneys

UNITED STATES PATENT OFFICE.

GEORGE L. MANSFIELD, OF CHICAGO, ILLINOIS.

DUST-GUARD FOR JOURNAL-BOXES.

932,484.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed December 13, 1906. Serial No. 347,621.

To all whom it may concern:

Be it known that I, GEORGE L. MANSFIELD, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Dust - Guards for Journal-Boxes, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to dust guards for preventing the passage of dust to the interior of journal boxes of railroad cars, and other vehicles.

It is customary to provide journal boxes with pockets to receive dust guards through which the axles pass and which closely surround the axles so as to exclude dust from the journal boxes, thereby protecting the bearings from injury due to heat and to wear which would result from the presence of dust. In order to automatically compensate for the wear to which dust guards are subjected by reason of the rotation of the axles, it is usual to provide relatively movable sections around the axles which move inwardly as their inner peripheries wear away. An objection to this type of dust guards is that the small spaces between the sections necessary to permit their movement toward each other become filled with dust which prevents the inward movement of the sections and consequently a close contact between the dust guard and axles can not be maintained.

The primary object of my invention is to provide a dust guard for journal boxes comprising automatically inwardly movable sections, and closely surrounding an axle, which will move inwardly coincidently with the wear imposed upon them by the rotation of the axle.

A further object of my invention is to provide a dust guard for journal boxes having relatively movable sections closely surrounding an axle, the inner edges of such sections overlapping so as to prevent the inward movement of the sections being impeded by the accumulation of dust between the sections.

A still further object of my invention is to provide a dust guard for journal boxes which will be simple in construction, inexpensive in manufacture, and efficient in use.

The embodiment of my invention herein disclosed may be generally described as comprising a casing through which the car axle extends and which is adapted to be inserted in the usual pocket in a car journal box, a plurality of relatively movable sections within the casing the inner edges of which closely engage the axle, each section having a projection over-lapping the adjacent portion of the other section, thereby preventing the accumulation of dust between the sections, springs interposed between such sections and the casing to automatically move the sections inwardly as they are worn away, and stops for limiting the movement of each section relatively to the casing.

My invention will be more fully described hereinafter with reference to the accompanying drawing in which the same is illustrated as embodied in a convenient and practical form, and in which—

Figure 1 is a vertical section showing my improved dust guard applied to a journal box; and Fig. 2 a cross-section on line 2—2 of Fig. 1, the dust guard being shown as removed from the journal box.

The same reference characters are used to designate the same parts in the two figures of the drawing.

Reference letter A designates a journal box into which the end of a car axle B extends.

a designates the door of the journal box through which waste and a lubricant may be supplied.

C indicates the bearing engaging the journal at the end of the axle, while c indicates a key for retaining the bearing in position within the journal box.

D is a pocket formed in the journal box adapted to receive a dust guard.

The journal box illustrated in the drawing and above described forms in itself no part of my invention, but is merely illustrated in order that the operation of my improved dust guard may be clearly understood. It is, of course, obvious that my improved dust guard may be used in connection with any form of journal box and is not limited in its application to the particular form of journal box herein disclosed.

Reference characters E' and E² designate relatively movable sections having an opening conforming in curvature to the cross-section of a car axle. The sections E' and E² are located within a casing comprising

top and bottom strips g' and g^2 and side strips g^3 and g^4 to which are secured the walls G' and G^2 . The walls of the casing have openings through them of a size corresponding to the cross-section of a car axle so that when the casing is inserted in the pocket provided therefor in a journal box the end of the car axle may pass through and be closely surrounded by the walls of the casing and extend into the journal box.

Springs are interposed between the sections E' and E^2 and the top and bottom strips g' and g^2 of the surrounding casing. Such springs may be of any desired character, and may conveniently be in the form of short coiled springs such as indicated at F' between the section E' and the strip g' , and such as indicated at F^2 between the section E^2 and the bottom strip g^2 of the casing. These springs may be conveniently seated in recesses formed in the sections.

Stops are preferably provided upon each of the sections E' and E^2 so as to limit its movement with respect to the casing. The function of such stops is to limit the movement of each section with respect to the casing and thereby prevent the inner edges of the sections from passing out of register with the openings through the walls of the casing. Such stops may conveniently consist in projections e^3 and e^4 which extend above shoulders formed on the side strips g^3 and g^4 of the casing. Similar stops are provided on both of the sections E' and E^2 and cooperate with shoulders on the side strips of the casing to prevent either of the sections moving inwardly beyond a predetermined distance.

Each section is provided with a projection e' at its inner periphery which overlies the adjacent portion e^2 of the other section so as to prevent dust from accumulating between the sections and thereby interfering with their inward movement as their inner edges wear away. The sections are preferably made L-shaped and so arranged that on one side of the axle the long arm of one section overlaps the short arm of the other section below the center of the axle while on the other side the over-lapping occurs above the center of the axle. In order that the sections may be moved toward each other by the springs interposed between the same and the casing, each section is cut away to receive the adjacent portion e^2 of the other section, and it is the object of the portion e' to at all times cover the space provided between the sections to permit their movement toward each other.

In order that the sections may closely engage the sides of the axle, springs f' and f^2 are preferably interposed between the side strips g^3 and g^4 of the casing and the ends e^2 , e^2 of the movable sections. Such springs may conveniently be secured to the sections and move relatively to the inner surface of

the side strips of the casing as the sections move inwardly toward the axle.

My improved dust guard is inserted in the usual pocket D of a journal box after which the top of the pocket is closed in the usual manner by means of a strip of wood d . The journal of the axle is then inserted through the dust guard to the interior of the journal box. The dust guard then serves to prevent the passage of dust around the axle to the interior of the journal box while the close contact between the movable sections of the dust guard and the axle prevents dust from passing between the dust guard and axle.

From the foregoing description it will be observed that I have invented an improved dust guard for journal boxes comprising relatively movable sections closely surrounding the axle and overlapping at their inner edges so as to prevent dust from accumulating between the sections and thereby impeding the inward movement of the sections to compensate for the wear incident to the rotation of the axle.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form, the proportion of parts, and the substitution of equivalents, as circumstances may suggest, or render expedient without departing from the spirit of my invention.

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

1. In a dust guard, the combination with a rigid closed casing adapted to fit within a pocket in a car journal box and having an opening therethrough, conforming to the cross-section of a car axle, of a plurality of inwardly movable sections located within said casing and adapted to closely surround the car axle, said sections over-lapping at their inner edges to prevent the accumulation of dust between the sections, springs interposed between said casing and sections for automatically moving the sections inwardly to compensate for the wear incident to the rotation of the axle, and means for limiting the inward movement of each section relatively to the casing.

2. In a dust guard, the combination with a rigid closed casing adapted to fit within a pocket in a car journal box and having an opening therethrough, conforming to the cross-section of a car axle, of a plurality of inwardly movable sections located within said casing and adapted to closely surround the car axle, said sections over-lapping at their inner edges to prevent the accumulation of dust between the sections, and springs interposed between said casing and sections for automatically moving the sections inwardly to compensate for the wear incident to the rotation of the axle, there being

laterally projecting stops on each section, and shoulders on said casing located in the paths of movement of said stops to limit the inward movement of the sections relatively to the casing.

3. In a dust guard, the combination with a rigid closed casing adapted to fit within a pocket in a car journal box and having an opening therethrough, conforming to the cross-section of a car axle, of a plurality of inwardly movable sections located within said casing and adapted to closely surround the car axle, said sections over-lapping at their inner edges to prevent the accumulation of dust between the sections, springs interposed between said casing and sections for automatically moving the sections toward each other, there being laterally projecting stops on each section, and shoulders on said casing located in the paths of movement of said stops to limit the movement of said sections by said springs, and springs for forcing the over-lapping portions of said sections toward the axle.

4. In a dust guard, the combination with a rigid closed casing adapted to fit within a pocket in a car journal box and having an opening therethrough, conforming to the cross-section of a car axle, of a plurality of inwardly movable sections located within said casing and adapted to closely surround the car axle, said sections over-lapping at one side of their inner edges above a horizontal line through the axle and at the other side of their inner edges below said horizontal line to prevent the accumulation of dust between the sections, and springs interposed between said casing and sections for automatically moving the sections inwardly to compensate for the wear incident to the rotation of the axle.

5. In a dust guard, a pair of similar engaging sections forming, when assembled, a rectangle with a circular opening therethrough, each of said sections having an end edge, two parallel side edges and a fourth edge including a semi-circular portion and a portion tangential to the semi-circular portion and parallel to the side edges; said tangential portion on one section engaging and over-lapping one side edge of the other section; a flat closed casing surrounding said sections and having an opening therethrough registering with the circular opening formed by said sections; said casing being arranged to support said sections for relative sliding movements in a direction parallel to said side edges; and springs tending to force said sections toward each other.

6. In a dust guard, a pair of similar engaging sections forming, when assembled, a rectangle with a circular opening therethrough, each of said sections having an end edge, two parallel side edges and a fourth edge including a semi-circular portion and a portion

tangential to the semi-circular portion and parallel to the side edges; said tangential portion on one section engaging and over-lapping one side edge of the other section; a flat closed casing surrounding said sections and having an opening therethrough registering with the circular opening formed by said sections; said casing being arranged to support said sections for relative sliding movements in a direction parallel to said side edges; springs between each of said end edges and the casing and a spring between one of the side edges of each section and the casing.

7. In a dust guard, a flat rigid casing closed on all sides and having aligned openings through the side walls conforming to the cross-section of the axle to which the guard is applied, a plurality of similar flat sections slidably arranged between the side walls of said casing, each of said sections having a curved inner edge arranged to form with the corresponding edges of the other sections a circular opening conforming to the cross-section of the axle, said curved edge on each section having a tangential continuation arranged to over-lap and engage with one of the outer edges of the adjacent section, and springs tending to force said sections toward a common center.

8. As an article of manufacture, a dust-guard comprising a rigid casing closed on all sides and provided with an opening through two of its walls of a size conforming to the cross-section of an axle, a plurality of duplicate inwardly movable sections arranged within said casing, said sections having their inner edges shaped to conform to the periphery of an axle and the inner edge of one section over-lapping the adjacent section.

9. A dust guard for journal boxes composed of a plurality of similar inwardly movable sections whose inner edges over-lap along planes tangential to the axle opening, means for forcing said sections toward each other in directions parallel with said inner edges, and means acting at right angles to said inner edges for holding said inner edges in engagement with each other.

10. A dust guard for journal boxes comprising a rigid closed casing having registering axle receiving openings in opposite sides thereof, a plurality of inwardly movable sections arranged within said casing and having their inner edges over-lapping along planes tangential to the axle opening, springs between said casing and said sections for moving the sections radially toward each other and additional springs between said casing and said sections acting at right angles to said inner edges for maintaining said inner edges in engagement with each other.

11. In a dust guard, a pair of similar sections forming, when assembled, a rectangle with a circular opening therethrough: each

of said sections having an end, each two parallel side edges and a fourth edge including a semi-circular portion and a portion tangential to the semi-circular portion and parallel to the side edges; said tangential portion on one section engaging and overlapping one side edge of the other section; means for forcing said sections toward each other in the direction parallel to said side

edges; and means for holding the tangential portion of each section against the edge of the other section. 10

In testimony whereof, I sign this specification in the presence of two witnesses.

GEORGE L. MANSFIELD.

Witnesses:

GEO. L. WILKINSON,
HARRY S. GAITHER.