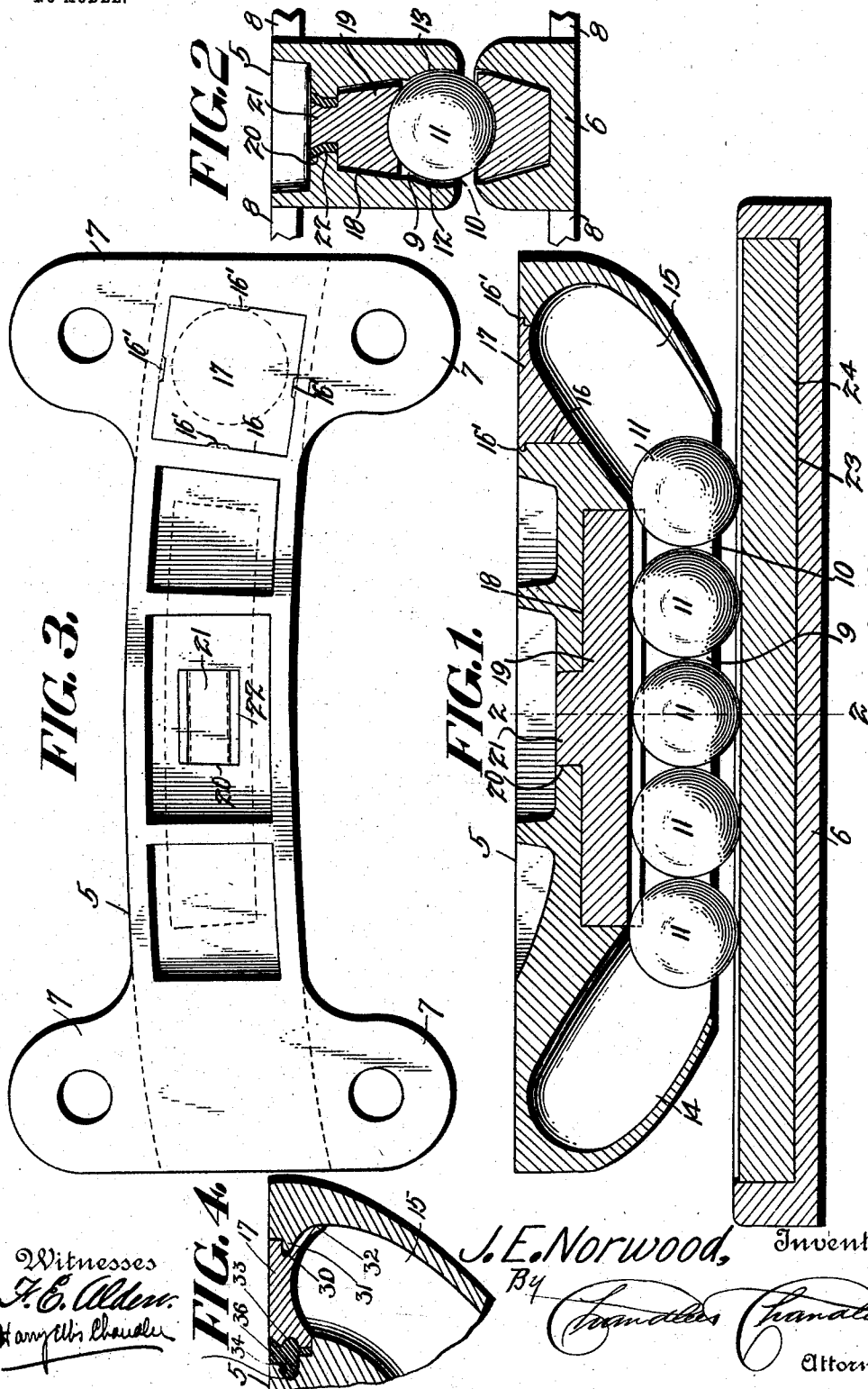
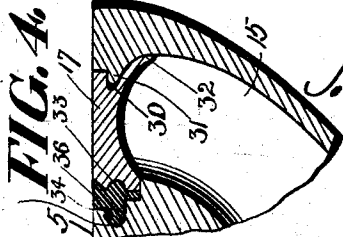


J. E. NORWOOD.
SIDE BEARING FOR CARS.
APPLICATION FILED APR. 14, 1902.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN E. NORWOOD, OF BALTIMORE, MARYLAND, ASSIGNOR TO BALTIMORE BALL BEARING CO., OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

SIDE BEARING FOR CARS.

SPECIFICATION forming part of Letters Patent No. 719,952, dated February 3, 1903.

Application filed April 14, 1902. Serial No. 102,866. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. NORWOOD, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Side Bearings for Cars; and I do hereby 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.

This invention relates to side bearings for railway-cars, and more particularly to the class of roller-bearings; and it has for its object to provide a construction wherein an effective number of bearing-balls will at all times lie between the bearing-plates or races to sustain the body of the cars and in which the balls will have a free bodily movement and will automatically return to their normal positions when pressure is removed from them.

A further object of the invention is to provide as an article of manufacture such a structure as may be manufactured at a minimum cost, which will include but few parts, and in which the parts will be held securely from loosening.

Other objects and advantages of the invention will be understood from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a central longitudinal section taken vertically through both the upper and lower castings of a side bearing embodying the present invention. Fig. 2 is a section on line 2-2 of Fig. 1. Fig. 3 is a top plan view of the upper casing, the bearing or race plate being indicated in dotted lines. Fig. 4 is a vertical section through one end portion of the upper casing and showing the employment of seal for holding the plug in place.

Referring now to the drawings, the present bearing comprises an upper casting 5 and a lower casting 6, which are adapted for attachment to the body and truck bolsters, respectively, of a car through the medium of bolts engaged through the perforated ears 7 and 8, respectively. The casting 5 has a ball-passage formed therein and which ball-passage

comprises a central straight portion 9, having a slot 10 in its lower side through which the bearing-balls 11 project, the side walls 12 and 13 of the passage being concave to partly receive the balls, the width of the slot 10 being less than the diameter of a ball, so that the balls are prevented from dropping out of the ball-passage. The ball-passage comprises also upwardly-directed tubular end portions 14 and 15, which curve gradually from the central portion 9 of the passage, so that the bottom walls of said extensions are inclined. With this construction a ball may be moved from the straight portion of the ball-passage into the inclined end portion and when released will return by gravity from the inclined portion to the straight or horizontal portion. To permit of application of the bearing-balls to the ball-passage, an opening 16 is formed through the upper wall and a part of the end wall of the extension 15 of the passage, and the balls are dropped through this opening, after which a metal plug 17 is engaged in the opening to prevent passage of the balls out through the opening. At the sides of the opening 16 are ears 16', and after the plug 17 is engaged in the opening 16 these ears are bent down upon the plug to prevent displacement thereof. When the balls are to be removed, the ears are bent back and the plug withdrawn. The plug has a flange at its upper end which engages in the countersink at the upper end of the opening 16 to prevent the plug from dropping down into the ball-passage. It will be noted that when a ball reaches the end of the portion 15 of the passage it has a bearing against the hard metal of the end of the passage and not against the plug, so that the latter is not forced out. In the upper wall of the portion 9 of the ball-passage is formed a cross-sectionally angular socket or seat 18, in which is disposed the upper arc-shape bearing or race plate 19, and in the upper wall of this socket or seat are perforations 20, countersunk at the upper end, and in which perforations are engaged the headed stems 21, formed upon the plate 19. The stems 21 are of less diameter than the perforations 20 to permit of the casting of a seal 22 around each stem to hold the latter in its perforation. In

this construction of the upper member of the side bearings the entire ball-casing is cast integral and the bearing or race plate is attached without the use of bolts or screws, 5 that are liable to loosen, while at the same time it is held securely.

In the lower casting 6 is formed a longitudinal slot or seat 23, in which is disposed the bearing or race plate 24.

10 The castings in the present construction are preferably made of malleable iron, while the balls and bearing or race plates are of hard steel, the bearing-faces of said plates being preferably arc-shaped in cross-section, so as 15 to give increased bearing-surfaces for the balls and overcome lateral motion.

It will be understood that in practice modifications of the specific construction shown may be made and that any suitable materials 20 and proportions may be used without departing from the spirit of the invention.

In Fig. 4 of the drawings there is shown a modification wherein the plug 17 has a recess 30 in one side which receives the finger 31 of 25 the casing, below which recess is a finger 32, which lies against the inner face of the ball-passage to prevent outward movement of this portion of the plug. The opposite edge of the plug has a recess 33, while the adjacent 30 wall of the opening 34, in which the plug is inserted, has a recess 35, and into the recesses 33 and 35 is cast metal 36 to hold the plug in position. By means of this seal wobbling of the plug is prevented and it is held 35 securely in place under all conditions.

What is claimed is—

1. In a bearing for cars, an upper bearing-casing formed integral and having a ball-passage, the ends of which are closed, balls dis- 40 posed in the passage, said casing having a slot leading to the passage between the ends of the latter and through which the balls project, the casing having an opening leading to one end portion of the ball-passage out of line 45 of the balls in action.

2. In a bearing for cars, a casing formed integral and having a ball-passage which is slotted in its under side and the end portions of 50 which are closed and inclined, and balls held within the passage and projecting through the slot, said casing having an opening leading through the upper wall of an inclined end portion of the passage for insertion of the 55 balls, said opening being out of line of the movement of the balls in action.

3. A side bearing for car-trucks comprising an upper casing having a bearing-face and

balls disposed in operative relation to the bearing-face, said casing having separate closed-ended passages at the ends of the bearing-face to receive balls successively when 60 moved from the bearing-face, said passages being inclined to discharge the balls into operative relation to the bearing-face.

4. A side bearing for car-trucks comprising 65 an upper casing having a bearing-face and balls disposed in operative relation to the bearing-face, said casing having separate closed-ended passages at the ends of the bearing-face to receive balls successively when 70 moved from the bearing-face, said passages being inclined to discharge the balls into operative relation to the bearing-face, the casing having an opening leading to an inclined end portion of the passage through the upper 75 wall thereof for insertion of balls.

5. In an upper bearing, a ball-casing formed integral and having a slotted ball-passage having closed ends and in which the balls are held and through which slot the balls project, 80 said passage having an opening through which the balls may be introduced, the opening being out of the line of movement of the balls in action.

6. In a bearing, the combination with an 85 upper bearing-casing having a perforation therein of a bearing-plate having a stem passed upwardly through the perforation and grooved, the perforation adjacent to the grooved portion of the stem being increased 90 in diameter, and a soft-metal seal cast into the groove and the adjacent portion of the perforation whereby the bearing-plate is suspended.

7. In a bearing the combination with an upper 95 bearing-casing having a socket in its under side of a bearing-plate disposed in the socket and a soft-metal seal engaged with the casing and a portion of the bearing-plate for holding the latter in the socket. 100

8. In a bearing the combination with a bearing-plate having a stem, of an attaching device having a perforation therethrough in which the stem is inserted and a soft seal 105 passed in engagement with the stem and the attaching device, said stem being exposed at its free end to permit of application of a tool for driving the stem from the perforation.

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

JOHN E. NORWOOD.

Witnesses:

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WM. D. ALLEN.