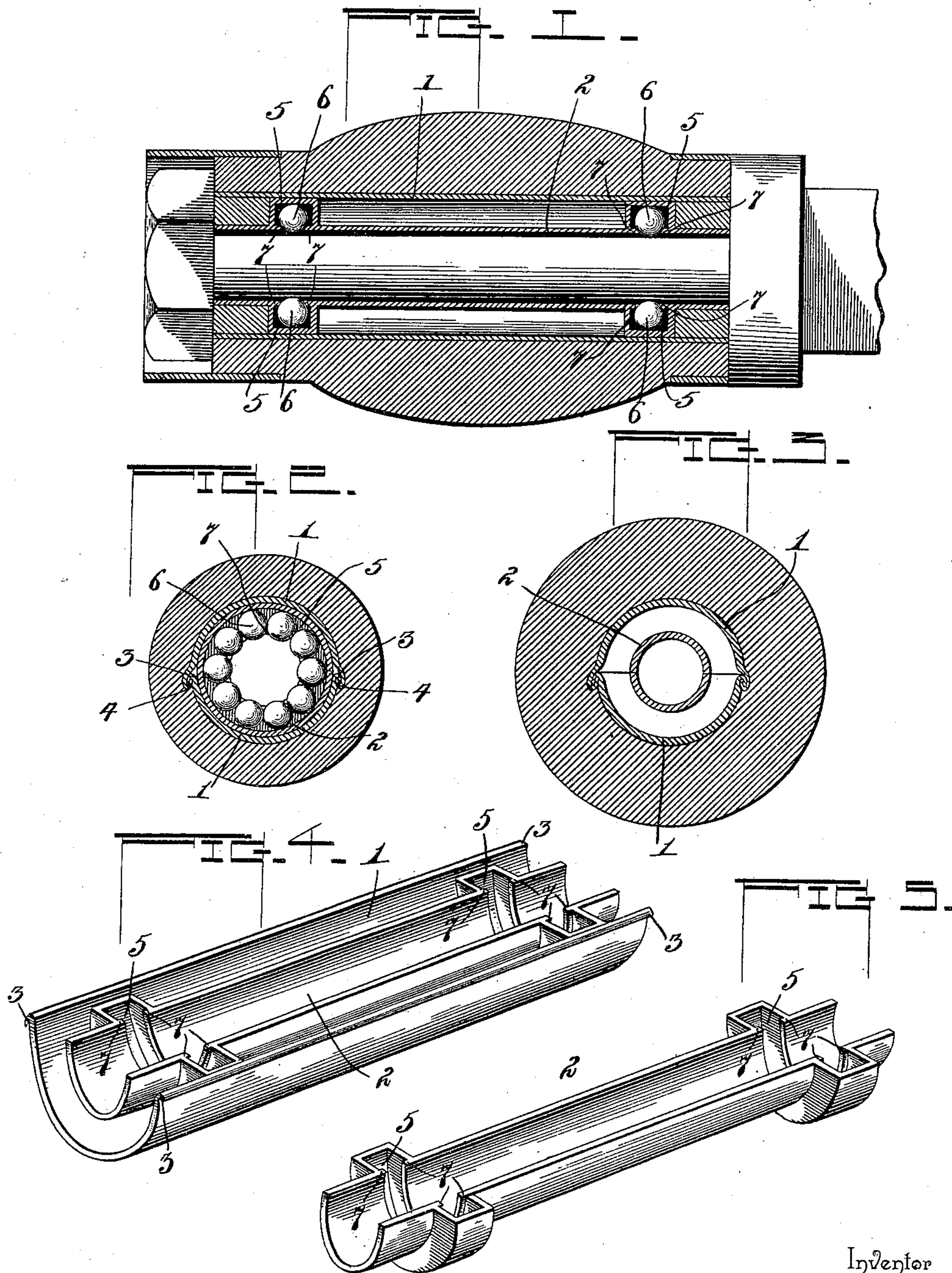


(No Model.)

B. F. STEWART.  
BALL BEARING.

No. 583,826.

Patented June 1, 1897.



Inventor

Witnesses,

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# UNITED STATES PATENT OFFICE.

BENJAMIN F. STEWART, OF WIGGINS, ALABAMA, ASSIGNOR OF ONE-HALF  
TO L. W. SAVAGE, OF EVERGREEN, ALABAMA.

## BALL-BEARING.

SPECIFICATION forming part of Letters Patent No. 583,826, dated June 1, 1897.

Application filed September 10, 1896. Serial No. 605,435. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN F. STEWART, a citizen of the United States, residing at Wiggins, in the county of Covington and State of Alabama, have invented a new and useful Ball-Bearing, of which the following is a specification.

This invention relates to ball-bearings; and the object in view is to provide a simple, cheap, and efficient antifriction ball-bearing which is especially adapted for use in connection with the wheels of wagons, carriages, buggies, carts, and vehicles of similar construction, the bearing being so constructed as to enable it to be substituted for axle-boxes already in use.

The principal aims of the invention are to make the box in separable halves for giving access to the interior thereof, to combine the ball-races in such manner that oil will be readily transmitted from one to the other, and to so construct and arrange the ball-races that the balls will be prevented from escaping therefrom when the spindle is removed or the wheel taken off.

With the above objects in view the invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and embodied in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section through the improved axle-box. Fig. 2 is a transverse section through the same, taken in line with one of the ball-races. Fig. 3 is a similar view taken about centrally of the axle-box. Fig. 4 is a detail perspective view of one half of the axle-box. Fig. 5 is a similar view of one half of the inner sleeve with its attached ball-races, &c.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

The improved axle-box contemplated in the present invention is made in two similar and approximately equal halves and comprises, essentially, an outer shell 1 and an inner sleeve 2. The halves or sections of the outer shell are provided, respectively, along their longitudinal edges with outturned flanges 3 and inturned flanges 4, which adapt the said

halves or sections to be slid longitudinally together, whereupon the said flanges will interlock and hold the halves or sections together. The inner sleeve 2 is likewise made in equal sections or halves, and one of such sections or halves is secured within its respective half-shell 1 and in effect forms a part thereof. At points slightly removed from the extremities of the sleeve 2 ball-races 5 are provided. These ball-races are substantially U-shaped in cross-section and occupy the space between the sleeve 2 and the shell 1. In these races are placed antifriction-balls 6, the diameter of which is slightly in excess of the space between the outer shell and the inner sleeve, so that the said balls will project slightly into the sleeve 2, where they may contact with the axle or spindle. The ball-races 5 and the sleeve 2 are so combined and arranged that inwardly-projecting shoulders 7 are provided at each side of each ball-race, the distance between each pair of shoulders being somewhat less than the diameter of the balls 6, so that upon the removal of the spindle the balls will be prevented from dropping out of place into the sleeve 2. The space between the shell 1 and sleeve 2 at each end of the axle-box beyond the ball-races may be filled with any suitable filling agent or made solid, which will prevent the ingress of dirt and the egress of oil.

The halves or sections of the axle-box constructed as above described are slid longitudinally into engagement with each other and then inserted in the hub of the wheel, and as the improved axle-box occupies no more space than the ordinary box old axle-boxes may be removed and improved ones constructed in accordance with the present invention readily substituted therefor. They will materially reduce friction and draft of the vehicle and its load and correspondingly lessen the labors of the team. By reason of the sleeve 2 extending from one ball-race to the other oil may readily pass in either direction from one row of balls to the other, and the making of the axle-box in halves or sections by dividing the axle-box longitudinally affords ready and perfect access to every part of the bearing.

It will be understood that the device is susceptible of changes in the form, proportion,



and minor details of construction, which may accordingly be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

5 Having thus described the invention, what is claimed as new is—

1. An axle-box consisting of an outer tube and an inner sleeve spaced apart, ball-races integral with the sleeve and projecting there-  
10 from across the space between the sleeve and outer tube, balls in said races, said tube, the sleeve, and the ball-races being divided longitudinally to form two semicylindrical sections, and means to lock the two sections to-  
15 gether, substantially as described.

2. An axle-box consisting of an outer tube and an inner sleeve spaced apart, ball-races integral with the sleeve and projecting there-  
20 from across the space between the sleeve and outer tube at points removed from the ends of the sleeve, balls in said races, said outer tube, the sleeve and the ball-races being movable together and divided longitudinally to form two semicylindrical sections, and the  
25 edges of the outer tube-sections being formed

with interlocking flanges, substantially as described.

3. A separable axle-box divided longitudinally into substantially equal and semicylindrical sections provided along their meeting  
30 edges with interlocking hooked flanges, in combination with an inner sleeve spaced therefrom and provided with ball-races between the plane of the sleeve and the box and located at points removed from the ends of  
35 the sleeve, balls in said races, and ball-retaining shoulders at each side of said races, the said sleeve and races being divided in alinement with the division in the axle-box, and one section of said sleeve and races be-  
40 ing united rigidly to its respective axle-box section and separable therewith, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in  
45 the presence of two witnesses.

BENJAMIN F. STEWART.

Witnesses:

MORGAN D. JONES,  
J. M. ROBINSON, Jr.