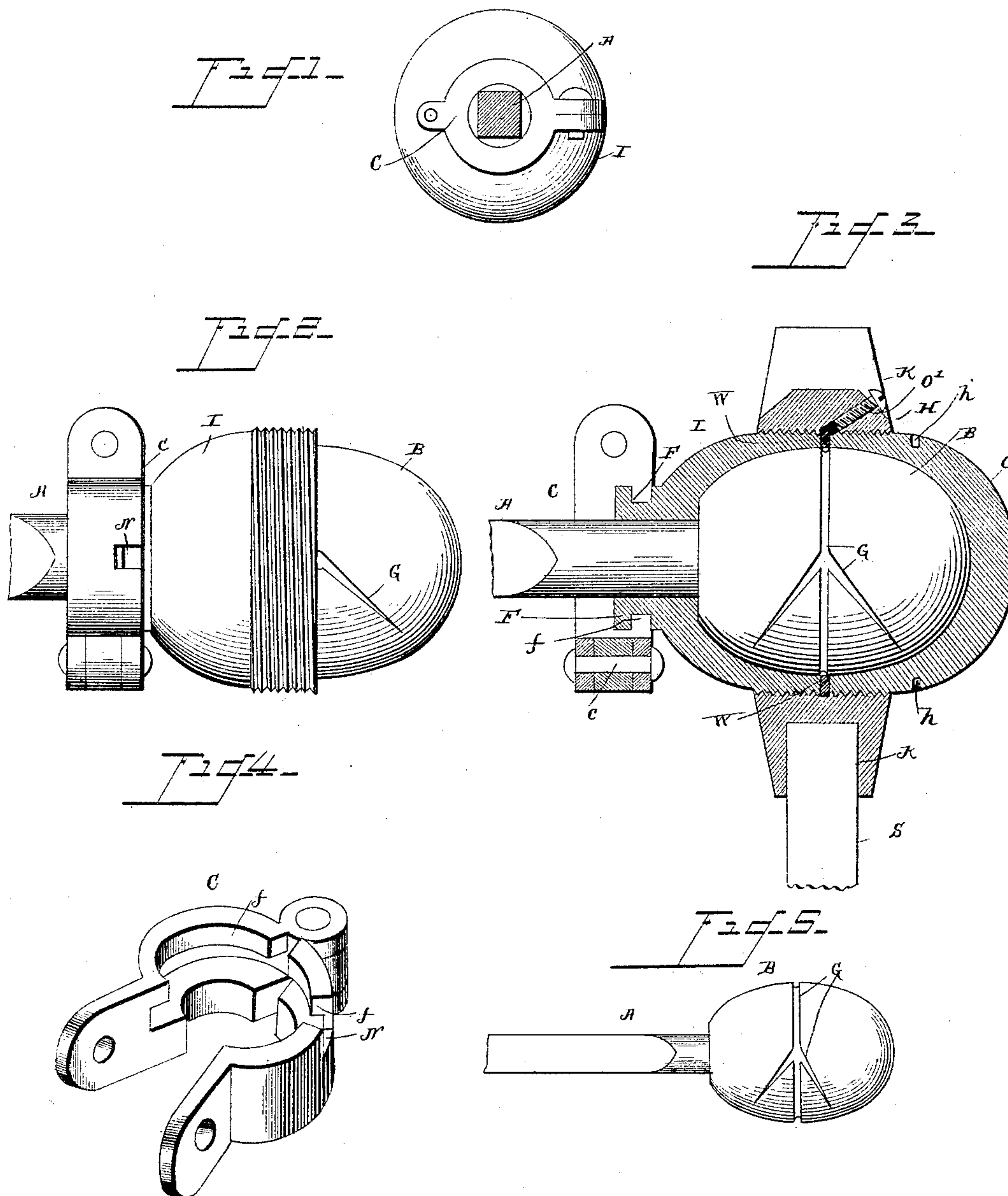


(No Model.)

W. S. MORDEN.  
AXLE BOX.

No. 450,716.

Patented Apr. 21, 1891.



Witnesses

*Geo. C. French*

*N. J. Collamer*

By his Attorneys,

*C. A. Snow & Co.*

Inventor  
*William S. Morden*



# UNITED STATES PATENT OFFICE.

WILLIAM S. MORDEN, OF MONTAGUE, MICHIGAN, ASSIGNOR OF TWO-THIRDS  
TO RALPH HOFFMAN AND GEORGE E. GARDINER, OF SAME PLACE.

## AXLE-BOX.

SPECIFICATION forming part of Letters Patent No. 450,716, dated April 21, 1891.

Application filed August 6, 1890. Serial No. 361,155. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM S. MORDEN, a citizen of the United States, residing at Montague, in the county of Muskegon and State of Michigan, have invented a new and useful Axle-Box, of which the following is a specification.

This invention relates to carriages and wagons, and more especially to that class thereof known as "axle-boxes;" and the object thereof is to provide improvements upon existing devices of this same class.

To this end the invention consists of a box carried by the hub of a wheel and a spherical ball upon the end of the axle, said box turning upon said ball, and the whole being of the specific construction hereinafter more fully described, and illustrated in the drawings, in which—

Figure 1 is an elevation of the inner end of a hub embodying my invention, the axle being shown in section. Fig. 2 is a plan view of the same. Fig. 3 is a central vertical section. Fig. 4 is a perspective detail of the clamp hereinafter mentioned. Fig. 5 is a plan view of the end of the axle, showing the ball thereon.

Referring to the said drawings, the letter A designates the axle, upon the end of which is a ball B, preferably spherical, or nearly so, and which ball may be of metal, of glass, or of other suitable material, and preferably has lubricating-grooves G upon its exterior.

S are the spokes of the wheel, which at their inner ends are seated in sockets K in the hub H, which latter is interiorly screw-threaded.

O is an outer and I an inner cup having exteriorly-threaded mouths adapted to be screwed into the hub H from opposite sides, as will be clearly understood, and between the inner ends of these cups is arranged a leather washer W, which is adapted to take up oil and to prevent the entrance of dust or grit to the interior of the cavity formed by the two cups.

O' is an oil-cup opening through the hub at its outer end between two of the spokes and at its inner end alongside the washer W.

The inner end of the inner cup I has an opening of a size to loosely embrace the axle, and the latter is passed therethrough, so that the ball B shall stand inside the cavity formed by the two cups, which cavity it fits closely, as

will be understood. Around said opening at the inner end of the inner cup is a grooved flange F, and C is a clamp made in two parts hinged together at one side and connected by a bolt c at the other side, whereby it may be clipped upon the axle, the outer side of said clamp having a flange f, fitting said grooved flange F, as shown. Said clamp may be provided with a notch N for the purpose of oiling, if desired, and this clamp prevents the entrance of all dust or grit to the interior of the cavity from this point.

In assembling the parts of this improved axle-box the outer cup O is first screwed into the outer end of the hub—for instance, by means of a pipe-wrench or spanner taking into the holes h shown in said cup—and the inner cup I, with the axle passing therethrough, is brought into position and screwed into the inner end of the hub, the washer W being interposed between the meeting ends of said cups, as above described. After the inner cup has been tightened, so that the cavity formed by the two cups shall embrace the ball B without any play between the parts, the clamp C is brought into position, placed around the grooved flange F, and clipped upon the axle A by means of the bolt c. This improved axle-box is then in condition for use and may be lubricated in the manner above described. Although I have illustrated and described the bearing between the open inner end of the inner cup and the axle as closed by the clamp C, any other suitable clamp or dust-guard may be substituted in lieu thereof without materially affecting the other parts of the axle-box, as it will be readily understood that the wheel is prevented from all longitudinal play upon the axle by the close contact between the ball and the two cups. After the contacting surfaces have become worn one or both of the cups may be screwed a little further into the hub, either compressing the washer W, substituting a new one therefor that shall be thinner, or filing off the inner ends of the cups, and the cavity is thereby reduced in size so as to more closely embrace the ball.

What is claimed as new is—

1. The herein-described axle-box, the same comprising an interiorly-screw-threaded hub, inner and outer cups screwed into the oppo-



site ends of said hub, the axle passing through the inner end of the inner socket, and a ball upon the end of said axle fitting within the cavity between said cups, as set forth.

5 2. In an axle-box, the combination, with the interiorly-screw-threaded hub H, the outer cup O, screwed into the outer end of said hub, and the inner cup I, screwed into the inner end thereof, with a washer W between the  
10 meeting ends of said cups, the inner end of inner cup having an opening, of the axle A, passing loosely through said opening, a dust-guard upon said axle around said opening, and a ball B, rigidly secured to the end of said  
15 axle and fitting within the cavity between the cups, as set forth.

3. In an axle-box, the combination, with the

interiorly - threaded hub H and the cup I, screwed therein and having an opening in its inner end surrounded by a grooved flange F, 20 of the axle A, passing loosely through said opening, a ball B upon said axle, upon which ball the cup turns, and a clamp C, clipped to said axle and having a flange f engaging said grooved flange F, substantially as hereinbe- 25 fore described.

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

WILLIAM S. MORDEN.

Witnesses:

C. L. STRENG,

G. C. THOMPSON.