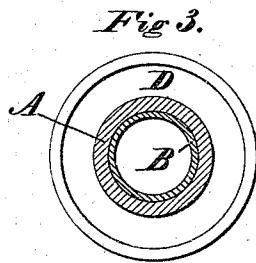
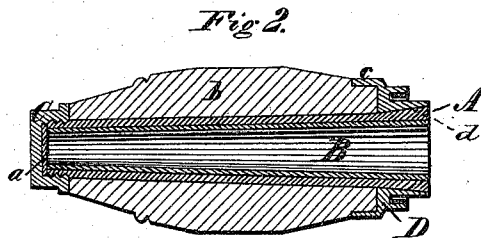
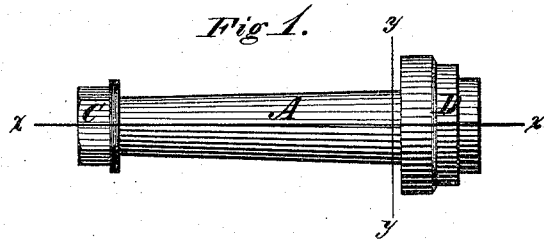


W. A. CLARK.
Axle-Boxes for Vehicles.

No. 142,556.

Patented September 9, 1873.



Witnesses.

Harry King.
H. H. Dodge

Inventor.

William A. Clark.
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Attys

UNITED STATES PATENT OFFICE.

WILLIAM A. CLARK, OF NEW HAVEN, CONNECTICUT.

IMPROVEMENT IN AXLE-BOXES FOR VEHICLES.

Specification forming part of Letters Patent No. **142,556**, dated September 9, 1873; application filed December 6, 1872.

To all whom it may concern:

Be it known that I, WILLIAM A. CLARK, of New Haven, in the county of New Haven and State of Connecticut, have invented certain Improvements in Axle-Boxes for Carriages, of which the following is a specification:

My invention consists in constructing an axle-box with an iron body having a thin steel lining to form the wearing-surface; and, also, in a peculiar manner of securing a collar upon its outside.

Figure 1 is a side view of my improved box. Fig. 2 is a longitudinal central section of the same, and Fig. 3 is a transverse section on the line *y y*.

In constructing my box I make its body A of any desired form and size, of either wrought or cast iron, and provided with a thin lining or inside covering of steel, B, which forms the wearing-surface. The body may first be made, and then the steel lining formed up into the proper shape and inserted therein; or, when the body is made of wrought-iron, the steel facing may be welded thereto while the iron is in the sheet or ingot, and then the box made up from the compound plate, with the steel face on the inside. Where the lining is inserted after the body is made up it may be fastened by brazing, screwing, shrinking the body upon the lining, or in any of the other methods practiced by those familiar with the art of metal-working in similar cases.

By thus constructing an axle-box I am enabled to make a very stiff and strong body, and to provide it with a hard-steel wearing-surface, so that it possesses all the advantages of a solid steel box, while at the same time it can be produced at a far less cost. Around the large end of my box I provide a collar, D, to hold the hub, and to receive a corresponding collar on the axle, as in the patent heretofore granted to me. When the box is made of wrought-iron the collar is made separate therefrom and shrunk on, so that it holds with great firmness. In order to prevent the collar

from being forced off over the end of the box, the portion of the latter upon which the collar bears is given an increased taper outward, as shown at *d*, Fig. 2. This tapering or enlargement of the box precludes any possibility of the collar being forced off, and gives it a much stronger and more solid bearing than it would otherwise have. When the body of the box is made of cast-iron, the collar may be either cast or shrunk thereon; but it is not my intention ordinarily to make the body of any other material than wrought-iron.

By using a wrought-iron body I am enabled to produce a very tough and strong box, which cannot be broken by any strain to which it will ever be liable, while by using the steel lining I am able to give the soft box a hard wearing-surface, which could not be obtained with the wrought-iron. By making the collar separate and securing it upon the body, I avoid the heavy forging that would be necessary in forming the collar solidly upon the body, and consequently reduce very greatly the cost of the box.

I am aware that it has been proposed to make a box for wagon-wheels in which a cast-iron body was cast on a steel lining, but such a box is too heavy for light carriages; and, besides, the casting of the molten iron upon the steel will destroy the temper of the latter, thereby rendering it soft, and but little or no better than wrought-iron. I therefore do not claim such a box; but

What I do claim is—

1. A wrought-iron steel-lined box for carriage-wheels, constructed substantially as described.
2. The collar D, composed of a separate piece and secured upon the enlarged end of the box, substantially as set forth.

WILLIAM A. CLARK.

Witnesses:

PHIL. T. DODGE,
JNO. KENNEY.