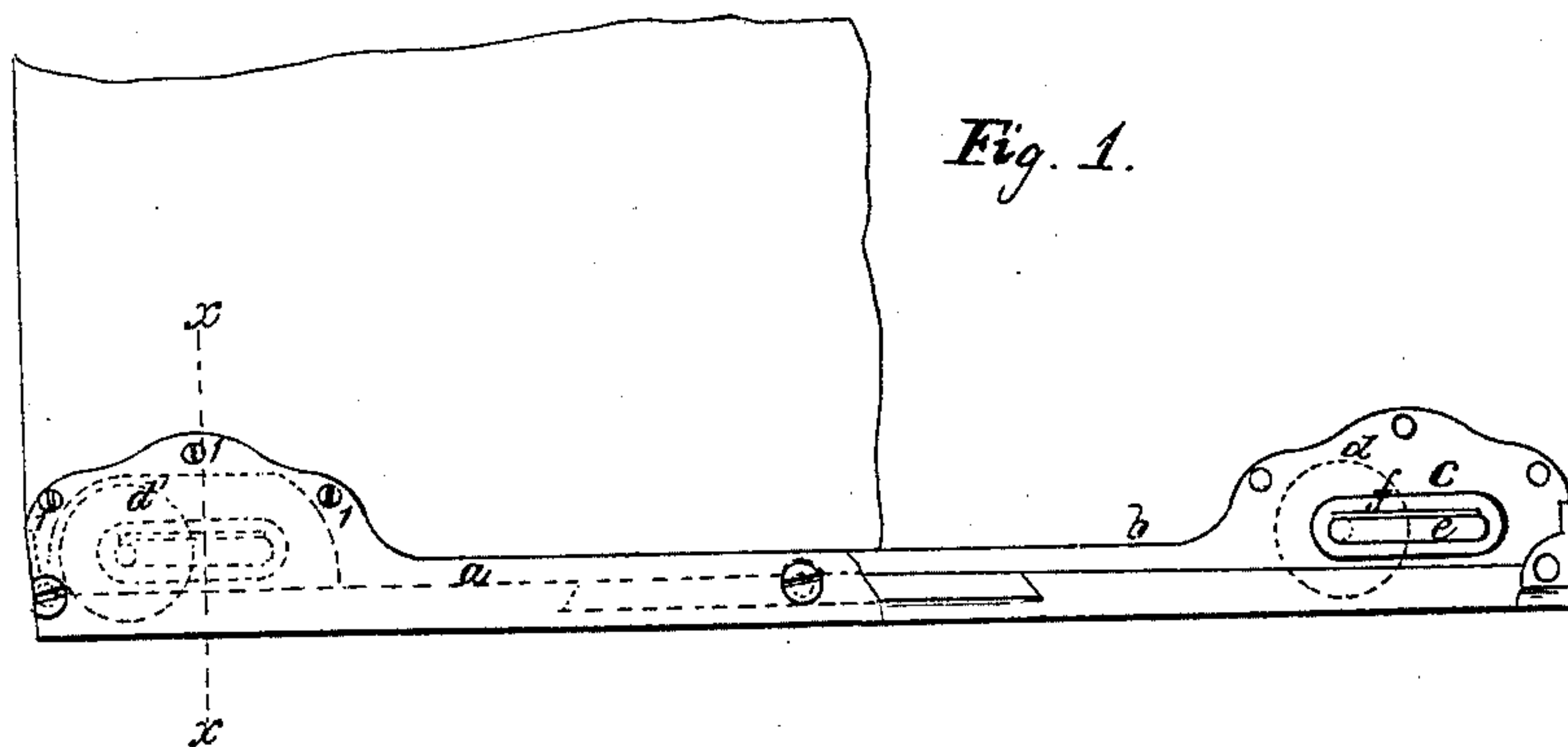


J. H. ROBERTSON.

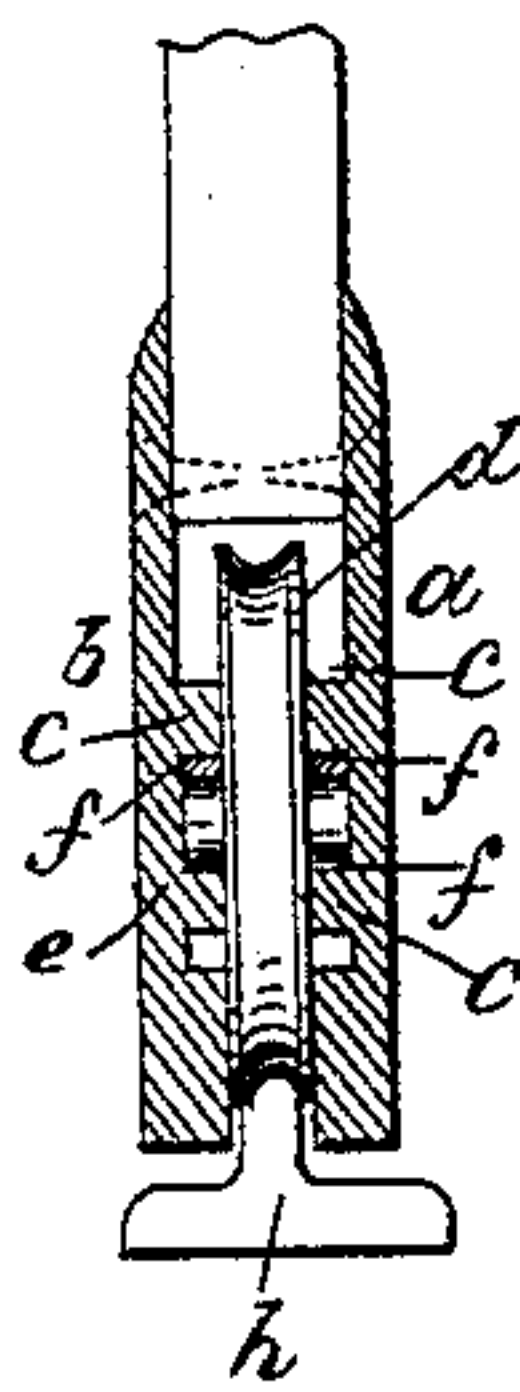
Car-Door Sheaf.

No. 113,931.

Patented April 18, 1871.



*Fig 2*



*Witness.*

*Chas. H. Smith*

*Geo. D. Haver*

*John H. Robertson.*

*per Lemuel W. Terrall*  
*Atty*

# United States Patent Office.

JOHN H. ROBERTSON, OF NEW YORK, N. Y.

Letters Patent No. 113,931, dated April 18, 1871.

## IMPROVEMENT IN CAR-DOORS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern :*

Be it known that I, JOHN H. ROBERTSON, of the city and State of New York, have invented and made a new and useful Improvement in Sheaves for Car-Doors, and the following is declared to be a correct description of the same.

Great difficulty has heretofore been experienced in the sheaves of car-doors by reason of the rapid wear of the bearing of the roller, occasioned by the frequent opening and shutting of the door, especially in street-cars, and as the rollers have been each in a separate case from the other, the bottom of the door between them is liable to be injured or to obstruct the free movement of the door.

Efforts to render the wear less rapid have been made by placing the axis of the roller in horizontal grooves in the case, so as to allow the axis to roll within such grooves; but the cast metal wears more at one place than another, and the axis of the rollers and groove being exposed, present an unsightly appearance, and allow dirt to pass into the grooves.

The nature of my invention consists in a case for the sheaves, made in two parts, to extend the whole length of the bottom of the door, and covering its edges, so as to protect the door from injury, and also carry both rollers, the axes of which work in grooves in the inner surfaces of the case, these grooves being formed by flanges projecting from the inside surfaces of both halves of the case, and I protect the bearing surfaces of the grooves by steel plates inserted against the flanges, so that there will be smooth hard surfaces for the axes to roll upon, and there will be but little wear, and the parts are kept free from dust and dirt by the case inclosing the grooves.

In the drawing—

Figure 1 is an elevation of the door-sheave with one plate partially removed, to show the inner face of the other plate, and

Figure 2 is a cross-section of the same at the line *x x*.

The sheave-case is formed of the two half-plates *a*

*b*, extending the width of the door, and fastened thereto by screws *l l*.

The case is wide enough to grasp and cover the lower edges of the door, and the ends of the case are sufficiently high to contain the rollers.

The flanges *c c* are formed upon the inside of the plates *a b*, near each end thereof, and between these flanges are grooves *e*, which form elongated bearings for the journals of the rollers *d d'*, and within these the journals roll as the door is moved, and the upper or wearing surfaces of these grooves are protected by a steel plate, *f*, fastened thereto, so that the journals bear against it.

These plates, being of steel, form hard smooth surfaces that do not wear into hollows or indentations, to interfere with the rolling of the axles upon them.

The rollers and grooves being entirely out of sight, there is nothing to mar the appearance of the case, and dirt cannot enter and clog up the journals of the rollers, as is the case when the groove passes through the side of the case.

This case can be run more closely to the track *h* than the door itself, because the metal case will not be influenced by moisture as the wooden door, and the case grasping the edge of the door, injury to said door is prevented.

I claim as my invention—

1. The steel bars or plates introduced into the elongated bearings for the roller journals, substantially as and for the purposes set forth.

2. The case made of two parts, screwed together and grasping the bottom of the door to protect the same, and containing the elongated bearings for the rollers, as set forth.

Signed by me this 13th day of February, A. D. 1871.

JOHN H. ROBERTSON.

Witnesses:

FREDK. PASS,  
GEORGE R. ROBERTSON.