C. H. WHITE.

SHEAVES FOR SLIDING-DOOR.

No. 172,226. Patented Jan. 11, 1876.

Fig. 1.

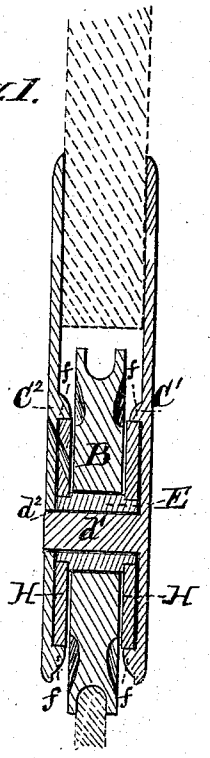

Fig. 2.

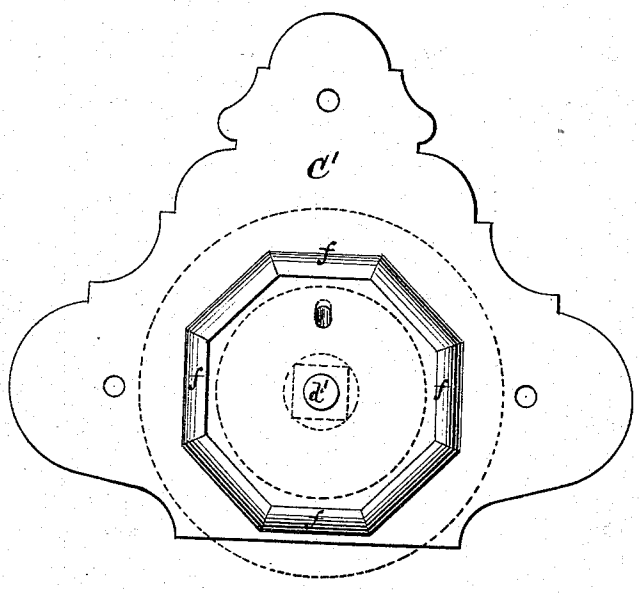

Fig. 3

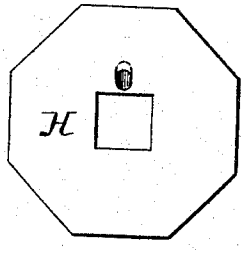

Fig. 4.

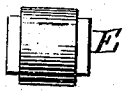

Fig. 5.

Witnesses
John Becker
Fred. Haynes

Charles H. White
by his Attorneys
Brown & Allen.

UNITED STATES PATENT OFFICE.

CHARLES HARCOURT WHITE, OF NEW YORK, N. Y.

IMPROVEMENT IN SHEAVES FOR SLIDING DOORS.

Specification forming part of Letters Patent No. **172,226**, dated January 11, 1876; application filed December 7, 1875.

To all whom it may concern:

Be it known that I, CHARLES HARCOURT WHITE, of New York, in the county and State of New York, have invented certain Improvements in Sheaves for Car-Doors and other Sliding Doors; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention is particularly applicable to sliding doors, such as are used on street-railway cars, but is applicable to sheaves in various other ways in which they are employed. A description of the invention in connection with its application to such doors will serve to illustrate its construction and operation.

In applying sheaves to the sliding doors of street-cars in the usual manner, a face-plate of brass or other metal is attached to each side of the opening in the door in which the sheave works. The sheave-pintle is usually made in one piece with one of these plates, and the chafing or lateral wear and friction of the sheave are against the inner sides of the plates, so that when they become worn to a certain extent it is necessary to entirely replace them by new ones.

The object of my invention is to render the sheaves and their pintles and carrying-plates more durable than those heretofore in use, and to lessen the expense consequent on the renewal thereof when worn, and the expenditure of time and labor necessary in order to effect such renewal.

To this end the invention consists in a novel construction of the carrying-plates, and the combination therewith of removable chafe-plates and a removable shield for the sheave-pintle, whereby provision is made for the ready and economical renewal of only the parts subject to wear and friction, without the necessity for renewing the plates themselves, or for removing more than one of them in order to effect the desired renewal.

In carrying out my invention I make the carrying-plates similar in their general form and construction to those in common use, with the sheave-pintle in one piece with one of said plates, and its end entering a seat or bearing in the other plate when the parts are in place. Surrounding the pintle on one plate and the bearing for its reception on the other, I form a circular or polygonal boss or rib, the space within the boundary of which serves as a seat for a removable chafe-plate. The sheave-pintle is made smaller than the opening in the sheave for its reception, and is re-enforced by a tubular shield surrounding it, and receiving the wear and friction of the sheave. This shield has its ends squared and engaging with sockets in the chafe-plates, to prevent it from turning when in place. The shield and chafe-plates and the sheave itself are made of chilled iron, and are, therefore, harder and more durable, and will stand more wear and friction, than if made of ordinary cast-iron. When, however, the parts become loose from long wear, they may be renewed by simply taking off one of the brass face or carrying plates, and substituting a new shield and chafe-plates for the old ones, and again replacing the face-plate, which, with its fellow, not being subject to any wear whatever, will last much longer than those of the ordinary construction. I thus, in the first place, make the sheave and its connection much more durable than those which are in common use, and I also reduce the expense of renewal and the time and labor necessary therefor.

The accompanying drawing illustrates the manner of carrying out my invention.

Figure 1 represents a vertical section of my invention as applied to a car-door—a portion of the door itself and the rib or bead on which the sheave runs being shown in dotted lines. Fig. 2 is a view of the inner side of one of the carrying-plates. Fig. 3 is a detail view of one of the chafe-plates. Fig. 4 is a side view of the re-enforcing-shield, and Fig. 5 is an end view of the same.

The sheave B is of the usual or any suitable form, and is made of chilled iron in order to increase its durability. The carrying-plates C^1 C^2 may be of brass or any other suitable metal. The plate C^1 has the sheave-pintle d^1 cast or formed in one piece with it, and the plate C^2 has an opening, d^2, for the reception of the end of said pintle, and forming a firm bearing therefor when the two plates are in place with the sheave between them. In the usual construction of these carrying-plates the pintle is made of the same size as the hole for its reception in the sheave, and when the pintle

becomes so much worn as to be useless the entire plate is thrown away.

In my invention, in order to provide for compensating for the wear of the pintle, I make it considerably smaller than the hole in the sheave, and surround it by a re-enforcing shield or sleeve, E, of tubular form, the external diameter of which corresponds with the diameter of the hole in the sheave, so as to fit nicely therein. This shield or sleeve E thus becomes the bearing on which the sheave revolves; and in order to prevent it from turning when in use its ends are squared, and enter recesses of corresponding form in the stationary carrying-plates, or in chafe-plates, hereinafter described. When the bearing or axis for the sheave thus formed by the sleeve becomes so worn as to require renewal, it may be readily removed and replaced by a new one. As the friction of the sheave predominates in one direction the wear upon the sleeve is on one side only, so that when that one side becomes so worn as to require renewal it may be reversed, so as to bring the wear on the opposite side, and thus the axis of the sheave may be made to wear much longer than one which is not reversible.

In the usual construction of the carrying-plates the wear and friction of the sheave in a lateral direction, or parallel with its axis, are against the inner sides of the two plates, and when they become worn both plates are thrown aside as useless. This is also avoided in my invention by the peculiar construction of the plates and the use of renewable chafe-plates. On the inner side of each of the plates C^1 and C^2, surrounding the pintle d^1 or the opening d^2, I form a boss, rib, or bead, *f*, the outline of which is preferably polygonal, as shown. The space within the circumference of this boss, rib, or bead forms a recess or seat for holding a removable chafe-plate, H, of corresponding outline. (See Fig. 3.) This chafe-plate is provided with a square central opening, for engagement with the squared ends of the sleeve E, before described. When the chafe-plates are in place in their seats, with the various parts in operation, they receive the lateral wear and friction of the sheave, and when they become worn they are readily replaced by new ones. If the wear is only partial they may simply have their position changed or reversed.

By the construction and arrangement herein described the parts subject to wear are rendered more durable, because of their being made of chilled iron. The cost of renewal is reduced, because it is only necessary to renew the parts which are made of cheap material, while the most expensive portions are protected from wear and injury. The time and labor required for renewal are lessened, because it is only necessary to take off one of the plates, remove the worn parts, and substitute new ones, or change the positions of the old ones, and then return the plate to its place.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a sheave and removable chafe-plate, of the carrying-plate, provided with a boss, rib, or bead, forming a recess or seat for the chafe-plate, substantially as herein described.

2. The combination of the plates C^1 C^2, constructed as described, with the sheave B, shield or sleeve E, and chafe-plates H H, arranged and operating substantially as and for the purposes specified.

CHARLES HARCOURT WHITE.

Witnesses:

BENJAMIN W. HOFFMAN,

FRED. HAYNES.