To all whom it may concern:

Be it known that I, John J. Tatum, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Metal Car Diaphragms and Faceplate Safety Guards, of which the following is a specification.

In all first class equipment of railroad cars for passenger service, when operating in trains of a plurality of cars, it is customary to enclose the communicating passages between the cars in order that passengers may be safeguarded from falling from the platforms or between the cars and also be protected from inclement weather. It is necessary that the enclosing means be made adjustable to provide for all service movements between two cars including the angular displacement due to cars rounding curves, especially the sharp curves at terminals; it is also necessary that the covering be extensible and contractible to conform to the compression of extension of the usual spring connected coupling attachments of the car.

In practice it has been found that the diaphragm face plates of two adjacent diaphragms move transversely relatively to each other to such an extent that there is an unprotected space or opening between their vertical side edges, through which the arm or other portion of the passenger’s body may be projected if a passenger happens to lose his balance, due to the lurching of the cars, or on curves as he is passing through the passageway between two cars. Accidents of this character have happened which resulted in crippling the passenger and in damage suits against the railroad company.

One of the objects of my invention is to provide a face plate safety guard of such character that it may be applied to the present equipment now in use and save the enormous expense of replacement and loss of the present equipment.

A further object of my invention is to provide a metallic car diaphragm which is practically indestructible, which, although made of comparatively unyielding material, provides efficiently for all movement of parts to permit of all service movements around curves and the coupler movements; and with these and other objects in view my invention consists of the parts and combination of parts as will be hereinafter pointed out.

In the drawing:

Figure 1 is a horizontal section of a car and its diaphragm on a plane above the floor of the car.

Figure 2 is a diagrammatic view illustrating the action of the face plate safety guard.

Figure 3 is an enlarged detail view, in section, of the vestibule platform post, face plate, face plate safety guard and diaphragm.

Figure 4 is an embodiment of my improved face plate safety guard applied to the face plate of the fabric diaphragm now in use on many cars.

Figure 5 is a detail sectional view of another embodiment of my invention.

The reference numeral 1 designates a car of any desired construction, provided with the vestibule platform posts 2, and 3, and with the usual buffer plate 4 connected to any suitable buffer, not shown. The face plates 5 are secured to the buffer plate and extend upwardly therefrom and are of the usual construction.

A housing 6, substantially U shaped, in cross section is provided with flanges 7 and 8, the flange 8 being secured by rivets, 9 or the like, to the vestibule platform posts. This housing is constructed to receive the diaphragm rocker and slip plate 10, the inner edge of which is bent with a return bend which assures the centering of the diaphragm in the housing and an efficient rocking and slip joint between the housing and diaphragm. The outer edge of the diaphragm rocker and slip plate 10 is formed with an open return bend or hook 11.

The face plate is provided with my improved safety guard 12 and secured thereto by means of rivets, 13, or the like. This safety guard 12 is provided with a return bent open hook 14 which is adapted to loosely engage the hook 11 of the diaphragm 10 and has a slip and rocker movement therewith, whereby the diaphragm may adapt itself to all service movements of the car without imposing a strain upon its associated parts.

The face plate safety guard 12 extends a material distance beyond the outer vertical edge of the face plate, as indicated at 15 and terminates in a rearwardly extending flange 16. The flange 16 is not vitally essential to the effective operation of my guard, but by employing it I am enabled to
use metal of a lighter gage, as the flange 16 acts as a rigidifying member for the light gage metal, and I am thereby enabled to materially reduce the weight of the car. In using a much heavier gage of metal the guard would be a flat plate as shown at 15 in Figure 5.

In the bulling and draft movements between two adjacent cars the diaphragm rocker and slide plate 10 moves backward and forward in the housing 6 as will be readily understood from the drawing, and the loose hook engagement between the diaphragm rocker and slide plate and the face plate safety guard will accommodate all angular service movements between adjacent ends of two coupled cars.

Many curves, especially those at terminals, on railroads are very abrupt or “sharp” and on such curves the angular movements between the ends of adjacent cars is considerable, in fact it is so great that the face plates 5 move transversely a comparatively wide distance apart thereby leaving unobstructed open spaces between them as diagrammatically shown in Figure 2, and if passengers are passing through the vestibule at such a time and the cars lurch the passenger is likely to be thrown to one side and his arm or other part of his body projected through the opening between the edges of the face plates, and if the face plates quickly return to their normal position before the passenger can extract himself he will be caught between the edges of the face plate and injured or killed. Such accidents are happening and result in damage suits against the railroads, all of which is eliminated by the fact that my improved safety guard projects beyond the outer edge of the face plate 5 and in or substantially in the same plane as the rubbing face of the face plate.

The portion 15 of the safety guard projects from the outer edge of the face plate a distance equal to the ascertained abnormal angular movement of the car under all service conditions, hence, there is never, at any time, an open space between the edges of two adjacent face plates.

If it is desired to use the face plates of the fabric diaphragms in use with my improved safety guard, it is not necessary to have the hook 14 as the guard 15 shown in Figures 4 and 5 may be riveted to the face plate. By this means it is not necessary to throw away the many thousands of vestibule face plates now in use in order to provide a guard between them and the safety guard embodying my invention may be made of comparatively light gage metal, thus, in applying my guards the weight of the car is not appreciably increased.

The guard is offset at 18 so that the inner portion may be riveted to the rear face of the face plates 5, while the portion 15 may be in the same plane as the rubbing face of the plate 5.

Changes may be made within the scope of my claims in the details of construction.

What I claim is:

1. In a vestibule for cars, a face plate, a sheet metal strip secured to the face plate and projecting beyond the outer edge of the face plate and functioning as a safety guard, an upset rigidifying member on the outer edge of the metal strip.

2. In a vestibule for cars, a face plate, a sheet metal strip secured to the face plate and projecting beyond the outer edge of the face plate and functioning as a safety guard, and a flange formed on the outer edge of the metal strip.

3. In a vestibule for cars, a face plate, and a safety guard secured to the face plate with one side portion thereof extending beyond the outer edge of the face plate, and a hinge member formed on the other side portion of said guard.

4. In a vestibule for cars, a face plate, a sheet metal strip secured to the face plate and projecting beyond the outer edge of the face plate and functioning as a safety guard, and a hinge member formed at the inner edge portion of the metal strip.

5. In a vestibule for cars, a face plate, a sheet metal strip secured to the inner face of the face plate and projecting materially beyond the outer edge of the face plate and functioning as a safety guard, a rigidifying flange on the outer edge of the metal strip, and a return bend formed on the inner edge of said metal strip and functioning as a hinge member, a diaphragm rocker plate hinged to the hinge member of said metal strip, and a pocket for the diaphragm rocker, within which the rocker is free to rock and telescope.

6. In a vestibule for cars, a face plate, a metal plate secured to and projecting materially beyond the outer edge of the face plate, and functioning as a safety guard, and a diaphragm extending from the inner edge portion of said metal plate and solely carried thereby, and adapted to telescope in a pocket on an adjacent car.

In testimony whereof I affix my signature.

JOHN J. TATUM