Mar. 27, 1923. 1,450,007.

C. W. PFLAGER.

CAR DIAPHRAGM.

FILED OCT. 27, 1921.

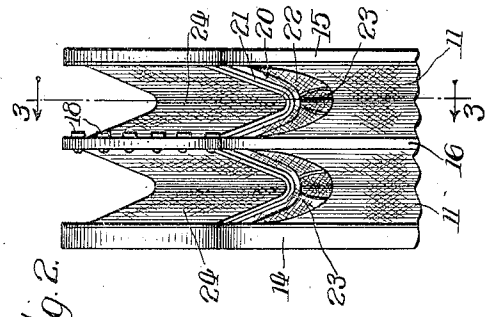

Fig. 2.

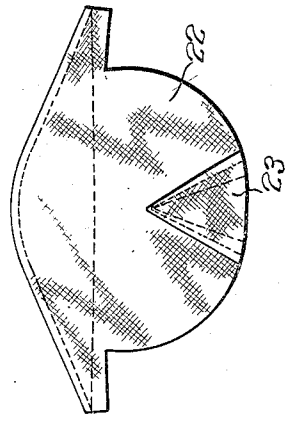

Fig. 5.

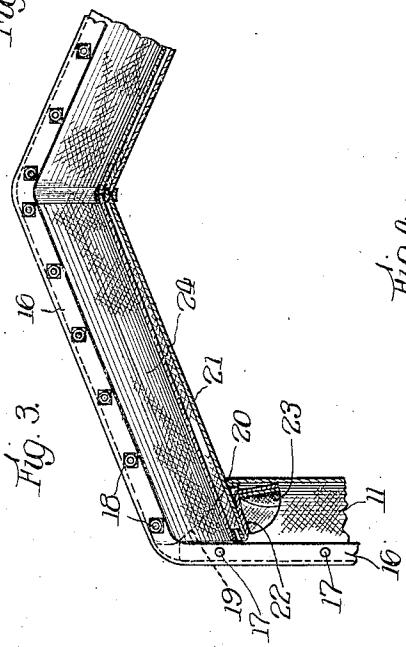

Fig. 3.

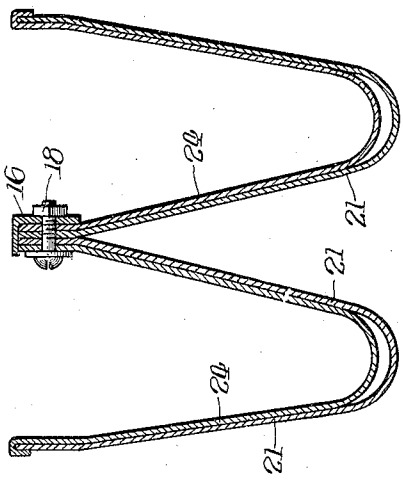

Fig. 4.

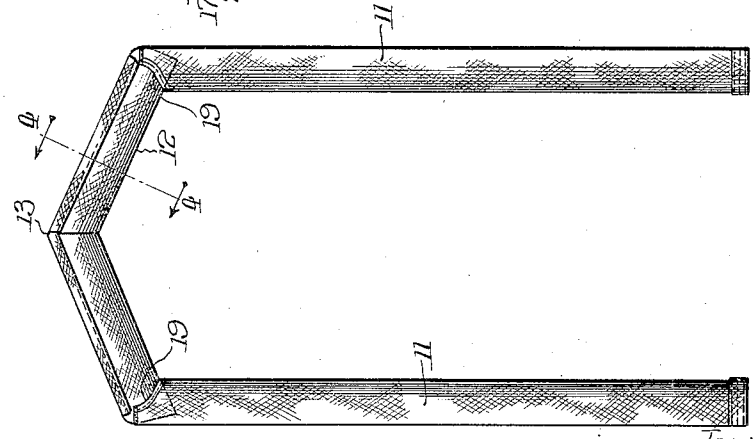

Fig. 1.

Witness:
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Patented Mar. 27, 1923. 1,450,007

UNITED STATES PATENT OFFICE.

CHARLES W. PFLAGER, OF CHICAGO, ILLINOIS.

CAR DIAPHRAGM.

Application filed October 27, 1921. Serial No. 510,954.

To all whom it may concern:

Be it known that I, CHARLES W. PFLAGER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car Diaphragms, of which the following is a specification.

This invention has to do with car diaphragms of that general type comprising collapsible and expansible folds or accordion plaits, and is particularly concerned with accordion plaited fabric diaphragms, although certain constructional features are adaptable for use in connection with metallic diaphragms of the folding or collapsing type.

In diaphragms of this type and particularly of fabric, wear develops most quickly at the top and particularly at the corner junction between the side and top members due to twisting strains unequally and unsymmetrically acting upon the vertical fold of the side and horizontal folds of the top.

To remedy this common cause of diaphragm wear and ultimate disintegration, as also to enable individual replacement or renewal of the top or side portions, it is here proposed to leave the side and top disconnected, to cause the troughs of the top plaits or folds to extend beyond the troughs of the side plaits after the manner of eaves for the shedding of water therebeyond, and to relieve or notch the upper extremities of the side troughs to accommodate therein the top troughs; also to provide aprons depending from the eaves in front of the notches to guard against entrance of the elements; also to provide a hood of asbestos fabric or the like above the top to protect the same from damage by sparks or hot cinders, and to provide a separable fastening of the top and hood members to the usual metal frame or binding strip whereby to render the same easily renewable.

Other novel features of construction, and advantageous functions accomplished thereby will become apparent to those skilled in this art from the following detailed description of the invention predicated upon one embodiment thereof as shown in the accompanying drawings wherein—

Fig. 1 is a face elevation of the diaphragm taken back of the face plate of a car;

Fig. 2 is a fragmentary side elevation of the top portion of the diaphragm;

Fig. 3 is a vertical transverse section on the line 3—3 of Fig. 2;

Fig. 4 is an enlarged cross-section on the line 4—4 of Fig. 1; and

Fig. 5 is a detailed view of the apron which protects the open joint between the top and side diaphragm members.

While a specific embodiment of the invention is shown in the drawing and will be utilized in the description for purposes of exemplification, it is to be understood that the invention is not limited to the specific embodiment shown and that the drawing and description are to be taken in an illustrative and not in an unnecessarily limiting sense.

Having reference to the drawings, the diaphragm comprises, as is usual, side members 11 and top members 12. In this particular embodiment, the top of the diaphragm is of the apex construction, sloping in both directions from a central ridge 13. The diaphragm is illustrated as being duo-fold, the rear portion of one fold being secured to the car end plate 14, and the front portion of the other fold secured to the face plate 15. The adjacent portions of the two folds are connected by means of a metal frame or binding strip 16. This strip extends, as do the ends and face plates, the full height of the side members and across the top of the diaphragm, forming an inverted U. Ordinarily, the side members 11 and top members 12 are connected together at the junction therebetween; whereas according to the present invention, they are entirely independent one of the other except to the extent that they are both attached to the car end and face plates and to the binding strip, the side members being permanently affixed thereto by means of rivets 17, and the top members being separably connected therewith by means of bolts 18.

In order to effect a weatherproof and non-wearable junction between the side and top members of the diaphragm, the upper margins of the side members are notched as indicated at 19, the notch having its deepest portion coincident with the bottom of the trough of the fold and adapted to receive the trough of the fold of the top member which lies within said notch and projects therebeyond, as most clearly shown in Fig. 3 and in dotted lines in Fig. 1, whereby the pro-

jecting ends of the top fold serve after the manner of eaves, to shed the water beyond the side members. The notched edge of the side member is preferably provided with a binding wear strip 20, although the bottom of the upper trough is not intended to rest or bear any weight upon the fabric of the side member. To the lower face of the projecting trough 21 is secured a fabric apron 22, cored and provided with a gusset 23 whereby the same is adapted to fall loosely in front of the notch opening 19 to guard against entrance of the elements, dust-laden air, rain, snow, cinders and the like.

A hood 24 of asbestos fabric or the like is suspended between the upper portions of the car end plate, face plate and binding strips, for the protection of the underlying diaphragm top. This hood is co-extensive with the underlying top diaphragm member, having its side portions extending beyond the side members of the diaphragm for discharging dirt and cinders beyond the side walls. The hood and also the top diaphragm folds, are removably secured to the frame or binding strip 16 by means of bolts 18 whereby the whole hood or the top of the diaphragm may be removed for renewal or replacement without in any way disturbing the side members which, under exigencies of use, outlive the top member.

From the foregoing it will be observed that a diaphragm of the accordion type is provided wherein the unequal flexing of the top and side members is not permitted to operate at the junction therebetween to destroy the diaphragm structure, the top and side members, according to the invention, being entirely independent one of the other and yet cooperating at the corner in such manner as to secure protection against the entrance of the elements; also that provision is made for the renewal of the top diaphragm member when it becomes worn without necessitating replacement of the side members which may be in good condition.

I claim:

1. A car vestibule diaphragm of the accordion type including side and top members of flexible material, the top member having a portion projecting above and beyond the side member and unattached thereto.

2. A car vestibule diaphragm of the accordion type including independently supported side and top members of flexible material, the top member overlapping the side member and being unattached thereto.

3. A car vestibule diaphragm of the accordion type including independently supported side and top members, the terminal edge of the top member overlapping the adjacent edge of the side member and being unattached thereto.

4. A car vestibule diaphragm of the accordion type including side and top members of flexible material, the top member being independently supported and having a pendant portion overhanging the side member.

5. A car vestibule diaphragm of the accordion type including independent side and top members, the top member projecting above and beyond the side member, and an apron depending from the projecting portion of the top member in front of the upper edge of the side member.

6. A car vestibule diaphragm including independent side and top members, the upper margin of the side member notched and a portion of the top member lying in said notch and projecting beyond the side member.

7. A car vestibule diaphragm of the accordion type including independent side and top members, the top member projecting above and beyond the side member, the upper margin of the side member notched and the trough of the top member lying in said notch.

8. A car vestibule diaphragm of the accordion type including independent side and top members, the top member projecting above and beyond the side member, the upper margin of the side member notched and the trough of the top member lying in said notch, and an apron depending from the projecting portion of the top member in front of the notched upper edge of the side member.

9. A car vestibule diaphragm of the accordion type including independent side and top members, the side members permanently attached to the diaphragm frame and the top member separately attached thereto for independent replacement.

10. A car vestibule diaphragm of the accordion type including independent side and top members, the upper margin of the side member notched and the trough of the top member lying in said notch and projecting beyond the side member, a wear strip binding the notched edge, and an apron depending from the projecting portion of the top member in front of the notched upper edge of the side member.

11. A car vestibule diaphragm of the accordion type including independent side and top members, a metal binding strip extending up the sides and across the top between the folds, and certain of the plaits separably attached thereto.

12. A car vestibule diaphragm of the accordion type including independent side and top members, and a unitary binding strip extending up the sides and along the top between the folds.

13. A car vestibule diaphragm of the accordion type including unattached side and top members, a unitary metal binding strip

extending up the sides and along the top between the folds, and certain of the plaits separably attached to said strip.

14. A car vestibule diaphragm of the accordion type including independent side and top members, a metal binding strip extending up the sides and across the top between the folds, the side plaits permanently attached to the strip and the top plaits separably attached thereto, a diaphragm hood separably attached to the metal strip above the diaphragm top and similarly independent of the side members.

15. A car vestibule diaphragm of the accordion type including independent side and top members, the top member projecting above and beyond the side member, the upper margin of the side member notched and the trough of the top member lying in said notch, and a metal binding strip extending up the sides and across the top between the folds, the side plates permanently attached to the strip and the top plates separably attached thereto.

16. A car vestibule diaphragm of the accordion type including independent side and top members, the top member projecting above and beyond the side member, the upper margin of the side member notched and the trough of the top member lying in said notch, and a metal binding strip extending up the sides and across the top between the folds, the side plates permanently attached to the strip and the top plates separably attached thereto, and an apron depending from the projecting trough of the top member in front of the notch to shield the same against the entrance of the elements.

17. A car vestibule diaphragm of the accordion type including independently supported unattached side and top members.

18. A car vestibule diaphragm of the accordion type including independently supported side and top members, the top member being provided exteriorly of the side member with a depending portion unattached to the side member.

19. A car vestibule diaphragm of the accordion type including independently supported side and top members, the top member being provided exteriorly of the side member with a depending portion unattached to the side member and in substantial parallelism thereto.

20. A car vestibule diaphragm of the accordion type including independently supported side and top members of flexible material, the top member being inclined downwardly adjacent the side members and provided exteriorly of the latter with a depending portion unattached to the side member.

In testimony whereof I have hereunto subscribed my name.

CHARLES W. PFLAGER.