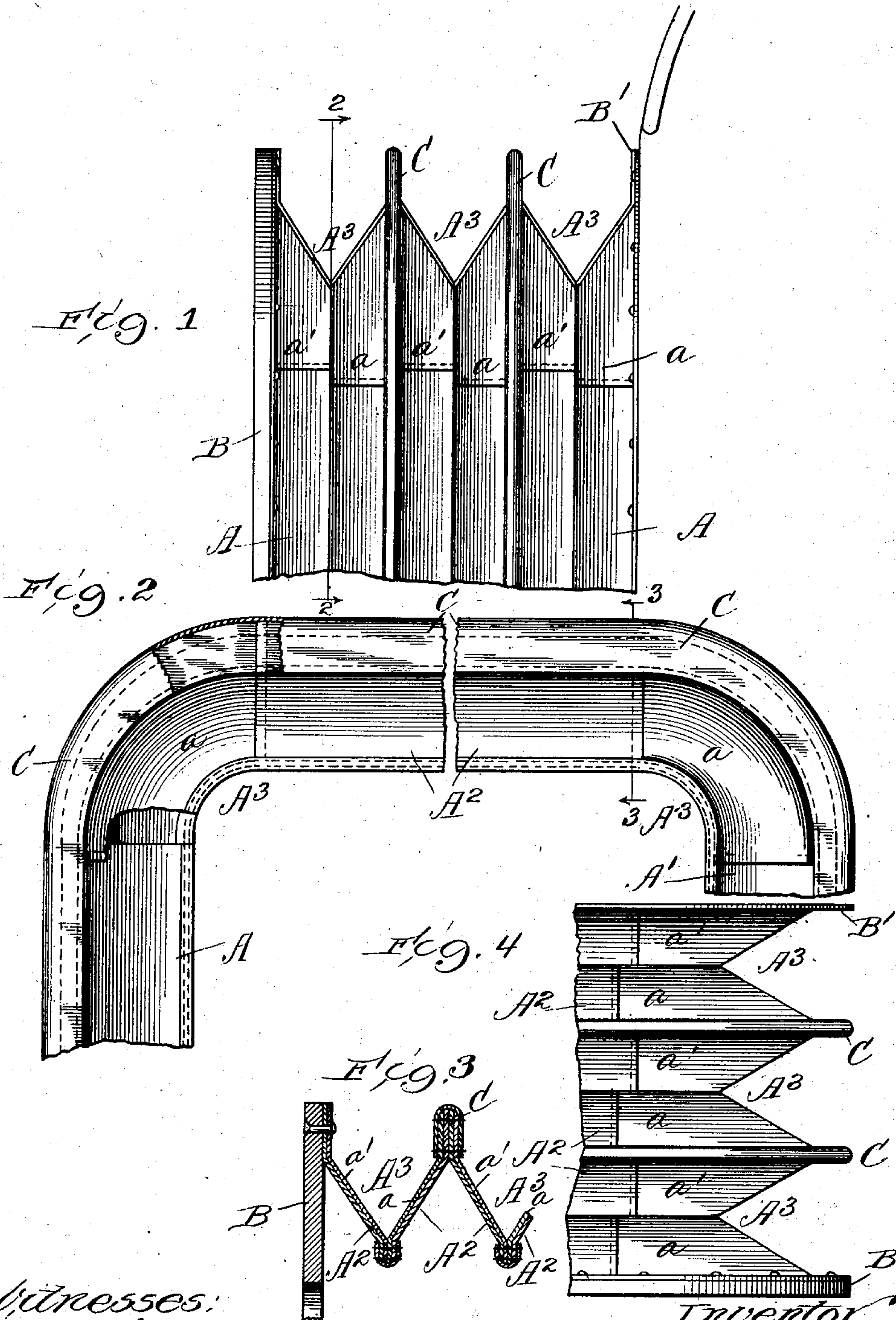


No. 746,062.

PATENTED DEC. 8, 1903.

S. D. FULLER.
CAR VESTIBULE DIAPHRAGM.
APPLICATION FILED MAY 7, 1903.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

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CAR-VESTIBULE DIAPHRAGM.

SPECIFICATION forming part of Letters Patent No. 746,062, dated December 8, 1903.

Application filed May 7, 1903. Serial No. 156,114. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL DOW FULLER, a citizen of the United States, and a resident of the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Vestibule Diaphragms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates more particularly to a car-vestibule diaphragm of that class in which the diaphragm is made of a plurality of layers of fabric, such as cotton-belted or the like, sewed edge to edge to afford an accordion plait. In diaphragms of this class it has been common to construct the upper corners or bends of the diaphragm by butting the ends of the strips together and sewing leather or the like over the joint, thus affording such weak seams that the diaphragms are not stiff enough at the top to prevent the same from sagging under the constant jolting and vibration due to the movement of the car.

The object of this invention is to provide a construction at once cheap and simple and of such strength as to hold the top of the diaphragm from sagging, while enabling the diaphragm to be folded into a minimum space.

The invention consists in the matters hereinafter described and more fully pointed out and defined in the appended claims.

In the drawings, Figure 1 is a fragmentary side elevation of a device embodying my invention. Fig. 2 is a section taken on line 2 2 of Fig. 1. Fig. 3 is a central transverse section taken on line 3 3 of Fig. 2. Fig. 4 is a fragmentary top plan view of the same.

As shown in said drawings, said diaphragm is constructed in three pieces or sections comprising the legs A and A', the top A², each comprising straight strips of fabric, such as cotton-belted or the like, of a suitable width and having the alternate edges thereof stitched or otherwise permanently secured to the corresponding edges of similar strips placed thereon and affording an accordion plait, as more fully shown in Fig. 3. The free edge of the last strip on each side is turned

outwardly to permit the same to be rigidly secured to the diaphragm face-plate B or vestibule face-plate B' by riveting or other suitable means. The strips forming the legs are of two lengths, arranged alternately, thus presenting alternate long and short ends for the strips at the upper end of each leg, and the top section is constructed of strips of equal length arranged to provide alternate long and short ends on alternate strips at each end of the top, the arrangement at each end being complementary with the corresponding end of the adjacent leg. In securing said legs and the top section A² together corner-pieces A³ are used, each composed of strips of fabric similar to that before described and similarly arranged in accordion plaits, but having the ends thereof directed at right angles with each other to permit the same being stitched to the leg-sections and top sections, respectively, thus forming a rounded corner, as shown in Fig. 2. These corner-sections A³, as shown, are formed of strips of fabric having approximately equal length, which are sewed together at their adjacent edges to provide alternate long and short ends *a* and *a'* at each end complementary with the ends of the strips forming the top A² and the leg-sections A and A'. The upper ends of said corner-sections are then placed within the folds of the top section and outside the leg, so that the ends of the top strips overlap the complementary ends of the corner and the ends of said corner-strips overlap the complementary ends of the leg-strips, and said laps are stitched securely together. The transverse seams formed by the junction of said corner-sections with the legs and top are thus arranged alternate one above the other, as shown in Figs. 1 and 4 and indicated in dotted lines in Fig. 2, the strips forming the corner-sections extending beneath the corresponding strips forming the top and outside of the corresponding strips forming the legs, thus affording no obstruction to water flowing therefrom or dirt, sparks, cinders, or the like sliding off the same. After the diaphragm is assembled with the top and legs connected by the corner-sections A³ the outer bends or folds thereof are stitched in a plurality of lines, said lines of stitching extending from

the legs around the corner-sections and across the top, as shown in Fig. 2, and are spaced much farther apart at the top of the diaphragm than at the legs, thus affording a thick
 5 broad seam or web which, together with the overlapped and staggered arrangement of the transverse seams before described, adds very greatly to the strength of the diaphragm and prevents the same from sagging. In finishing the diaphragm an outer covering of
 10 leather C or other suitable material is usually employed to cover the raw edges of the strips, and the same may be secured thereto by stitching or in any other desired manner.
 15 The operation is as follows: The staggered arrangement of the transverse seams forming the connection between leg-strips and the corners of the top strips adds very greatly to the strength and rigidity of the corner, while
 20 permitting the diaphragm to be folded much more closely together than has heretofore been possible, and it is obvious that the same, in connection with the broad web formed at the top of the diaphragm and which extends down
 25 the corners to the legs, affords such rigidity as to obviate the use of any auxiliary stiffening means, as in diaphragms where the strips are very narrow. The construction described enables the diaphragm to be to a certain extent self-cleansing, as there are no raw edges
 30 to permit lodgment of dust and dirt therein. Obviously auxiliary stiffening means may be used in conjunction with my improvements or invention, if desired, and any suitable fastening means may be employed as preferred and details of construction may be
 35 varied without departing from the principles of this invention.

I claim as my invention—

40 1. A car-vestibule diaphragm comprising straight, accordion-plaited legs, and a straight, similarly-plaited top section, corner-sections joining the same, also accordion-plaited and having the ends directed at a right angle
 45 with each other, the ends of the corner-plaits being alternately long and short and secured by sewing or the like to the corresponding plaits of the top and leg sections, and when so joined to provide transverse alternately-
 50 arranged or staggered seams.

2. A diaphragm of the class described comprising straight legs and a top section, each formed of a plurality of strips the alternate
 55 ends of which are arranged to project beyond the intermediate strips and corner-sections

comprising strips of equal length arranged to present alternate long and short ends at each end of the section and sewed to the end of the top section and leg by stitching the long ends of the corner-section to the short
 60 ends of the top and leg and the reverse, thus providing alternately-arranged or staggered transverse seams at the junction of the top and leg with the corner.

3. In a car-diaphragm the combination 65 with leg-sections each comprising a plurality of strips of fabric having alternate edges stitched to adjacent similar strips to afford accordion plaits, the upper ends of alternate strips projecting beyond the ends of the adja-
 70 cent strips, a similarly-constructed top section having the strips of equal length and arranged to provide at each end thereof alternate long and short ends of the strips and corner-sections similarly arranged and adapted to be secured within the top and outside
 75 of the legs by rows of transverse stitches, the long ends of said corners being stitched to the short ends of the top and legs and the reverse and providing staggered transverse
 80 seams, and a line of stitching or the like extending from the legs around the corner and top of the diaphragm and having its greatest distance from the margin along the top and providing a broad, stiff web along the top and
 85 at each of the upper angles acting to support the diaphragm.

4. The combination with accordion-plaited leg-sections and a top section each comprising a plurality of strips of fabric sewed by
 90 alternate edges to adjacent strips and having the alternate ends of said strips in the legs and top respectively longer and shorter than adjacent strips, corner-pieces forming the connection between the legs and top and also
 95 constructed of strips and having long and short ends, said corner-piece being secured within the top of the diaphragm and outside of the leg of the diaphragm by means of transverse seams connecting complementary ends
 100 of the strips and arranged staggering of the diaphragm.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

SAMUEL DOW FULLER.

Witnesses:

ALFRED C. ODELL,
 W. W. WITENBURY.