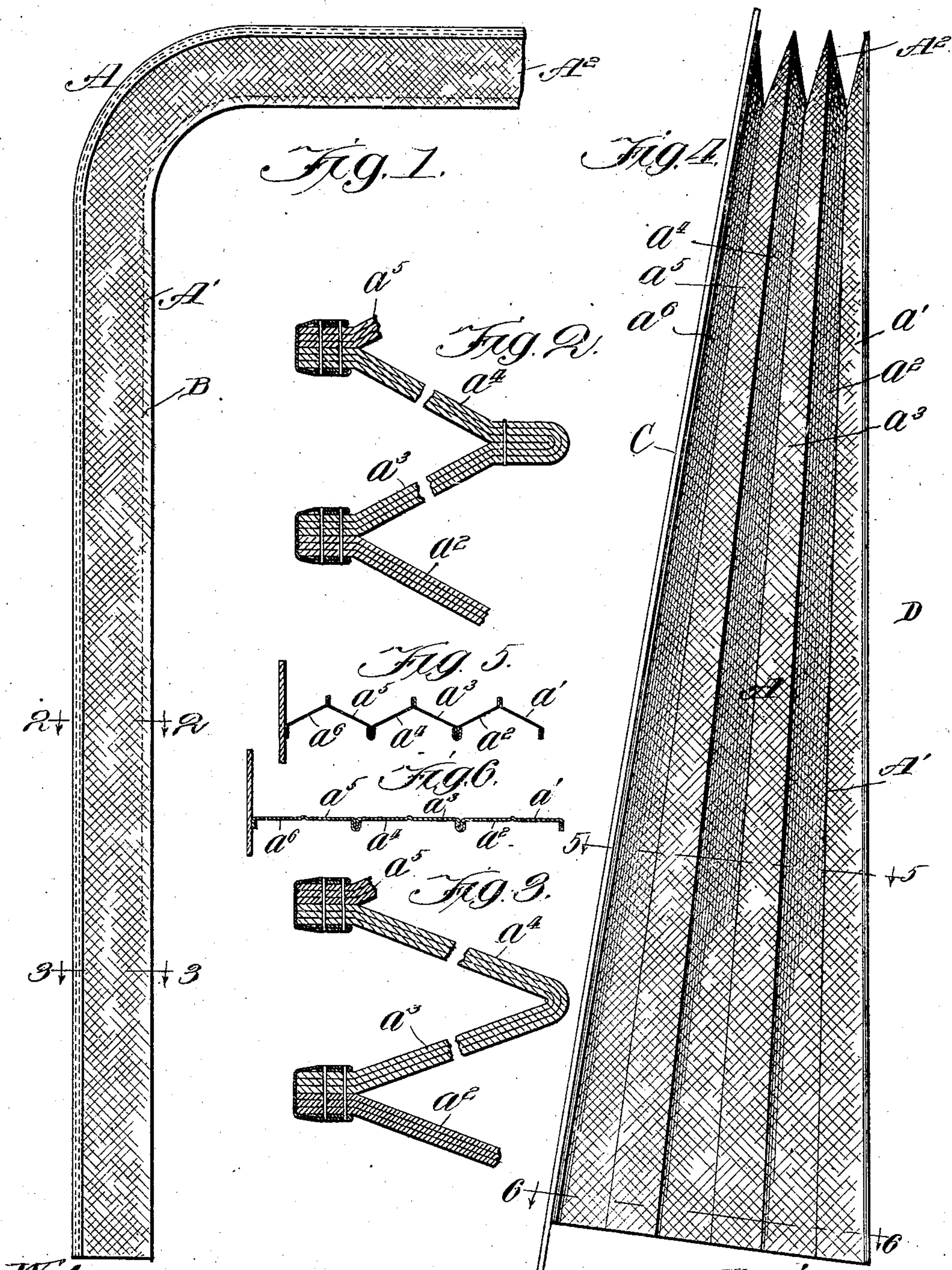


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J. H. DONALDSON.
VESTIBULE DIAPHRAGM.
APPLICATION FILED JULY 1, 1907.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES H. DONALDSON, OF CHICAGO, ILLINOIS.

VESTIBULE-DIAPHRAGM.

No. 882,516.

Specification of Letters Patent.

Patented March 17, 1908.

Application filed July 1, 1907. Serial No. 381,582.

To all whom it may concern:

Be it known that I, JAMES H. DONALDSON, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Vestibule-Diaphragms, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to the construction of diaphragms for use on the vestibules of passenger cars and has for its object to provide means whereby ordinary repairs to the platform of a car, as for example the replacing of buffer springs, and inspection may be effected without requiring the diaphragm to be detached from the car or from the face plate which is adapted to engage the face plate on an adjacent car.

It is customary to so construct diaphragms that they may be distended sufficiently to carry the outer face thereof a predetermined distance away from the end of the car but not sufficiently to permit the ready inspection of the resilient portions of the platform or the parts of the draft rigging immediately adjacent the end of the platform. When it is desired to inspect or repair these parts it is necessary to detach the legs of the diaphragm either from the car or from the outer face plate in order to get the diaphragm and face plate out of the way. The diaphragms are usually secured in place by means of numerous screws and therefore their detachment is a tedious operation and the workmen frequently, instead of removing the screws one at a time, make use of a screw-jack, thereby tearing the diaphragm from the car and usually injuring the diaphragm.

The present invention contemplates the use of a simple expedient whereby it becomes unnecessary to detach the diaphragm either from the car or from the face plate, by enabling the diaphragm itself to be abnormally distended at the lower portions so as to provide ready access to the parts which it may be desired to inspect or repair. To this end I make use of a diaphragm of usual construction in which each leg is made up of a number of sections which are formed in pairs so that two adjacent sections consist of a single strip of material folded together. It is usual to provide a row of stitching a short distance

within the folded edge at the junction of companion sections and, in accordance with the present invention, I omit these stitches along the lower part of the legs of the diaphragm. By this means the diaphragm as a whole may be distended a normal distance with the outer face plate parallel with the front of the car; but, when it is desired to have access to the car parts beneath the lower end of the diaphragm, the lower ends of the legs may be distended more than the normal distance; this being permitted by reason of the omission of the stitches at the lower ends of the legs. At the same time that the lower ends of the legs are distended abnormally the upper ends are, of course, distended less than the maximum amount, so that the face plate slants outwardly from the top toward the bottom.

My invention will be more fully understood and its various objects and advantages will be more apparent from the following detailed description taken in connection with the accompanying drawing wherein;

Figure 1 is a front view of one half of the diaphragm arranged in accordance with the present invention, the face plate being omitted to more clearly show the construction of the diaphragm; Fig. 2 is a section taken on line 2—2 of Fig. 1; Fig. 3 is a section taken on line 3—3 of Fig. 1; Fig. 4 is a side elevation of the diaphragm shown in Fig. 1 together with the outer face plate, the diaphragm being in the position wherein the lower ends of its legs are distended to the extreme limit; Fig. 5 is a section taken on line 5—5 of Fig. 4; and Fig. 6 is a section taken on line 6—6 of Fig. 4.

Referring to the drawing, A indicates a diaphragm as a whole having a pair of legs similar to the leg A' connected by a top portion A². Each leg and the top portion are made of a number of sections, six of these sections, a'—a⁶, being shown. These sections are arranged in pairs so that each pair may be made of a single strip of material folded lengthwise upon itself. Thus sections a' and a² are made of one piece, sections a³ and a⁴ are made of another piece, and sections a⁵ and a⁶ are made of a third piece. The several pairs of sections are united by joining the free edge of one section to the free edge of the adjacent section of the next pair in any suitable manner. The sections are usually arranged so that the fold in the fabric which forms the adjacent ends of two

integral sections is on the inside, although this is not of course absolutely essential. It is customary to run a row of stitching B through the folds near the edge thereof, this stitching ordinarily running throughout the lengths of the legs. The extent to which the legs of the diaphragm may be distended depends of course upon the length of each section between the fastenings on the outside of the diaphragm and the row of stitches on the inner side. In accordance with my invention the stitching does not extend entirely to the bottom of the legs but terminates at some intermediate point. I have found that very good results may be obtained by leaving out the stitching throughout about two feet at the lower ends of the legs, as indicated in Fig. 1. By this means the lower portions of the legs may be distended materially further than the remainder of the diaphragm since the effective width of each section is greater at the bottom than throughout those portions along which the stitching extends.

In Fig. 4 the diaphragm is shown in the position it occupies when the lower portions thereof are distended as far as they will go. The face plate C, being rigid, does not bend, but slants backwardly from the bottom to the top. The lower part of the diaphragm is therefore further away from the car and the upper end is nearer the end of the car than would be the case if the whole diaphragm were distended in such a manner as to leave the face plate C parallel with the end of the car D and the top of the diaphragm is distended less than this latter amount. It will thus be seen that the diaphragm operates in the usual way while the face plate remains parallel with the car but, at the same time, an abnormal extension of the lower end may be obtained as circumstances may require; and thereby the detachment of the diaphragm from the face plate or from the car to permit inspection or repair of the parts adjacent the end of the platform is unnecessary.

In Fig. 6 I have shown the relative positions of the several sections of one of the legs near the bottom thereof when the diaphragm is distended as shown in Fig. 4. In Fig. 5 I have illustrated the positions of the

sections at a point somewhat above the lower unstitched portions.

Having now fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A vestibule-diaphragm having legs made up of a plurality of connected sections, the effective width of said sections being greater at one end than at the other.

2. A vestibule-diaphragm made up of a number of sections arranged to permit a predetermined distention of the diaphragm when the faces of the diaphragm are maintained parallel and a greater distention of one end of the diaphragm upon inclining the faces of the diaphragm towards each other.

3. A vestibule-diaphragm made up of a number of connected sections whose effective width is greater at the bottom than at the top.

4. A vestibule-diaphragm made up of a number of sections connected together so as to have a uniform effective width throughout a portion of their lengths and a greater effective width throughout the remainder of their length.

5. A vestibule-diaphragm made up of a number of sections arranged in pairs, each pair being formed of a strip folded longitudinally, and means for fastening the sections of each pair together throughout a portion of their length along a line with the folded edge.

6. A vestibule-diaphragm made up of a number of sections arranged in pairs, each pair being formed of a strip folded longitudinally, and means for fastening the sections of each pair together except at the lower ends thereof along a line within the folded edge.

7. A vestibule-diaphragm made up of a number of sections arranged in pairs, each pair being formed of a strip folded longitudinally, a row of stitching passing through the sections of each pair near the folded edge, said stitching terminating at some distance above the lower end of the diaphragm.

In testimony whereof, I sign this specification in the presence of two witnesses.

JAMES H. DONALDSON.

Witnesses:

WM. F. FREUDENREICH,
HARRY S. GAITHER.