

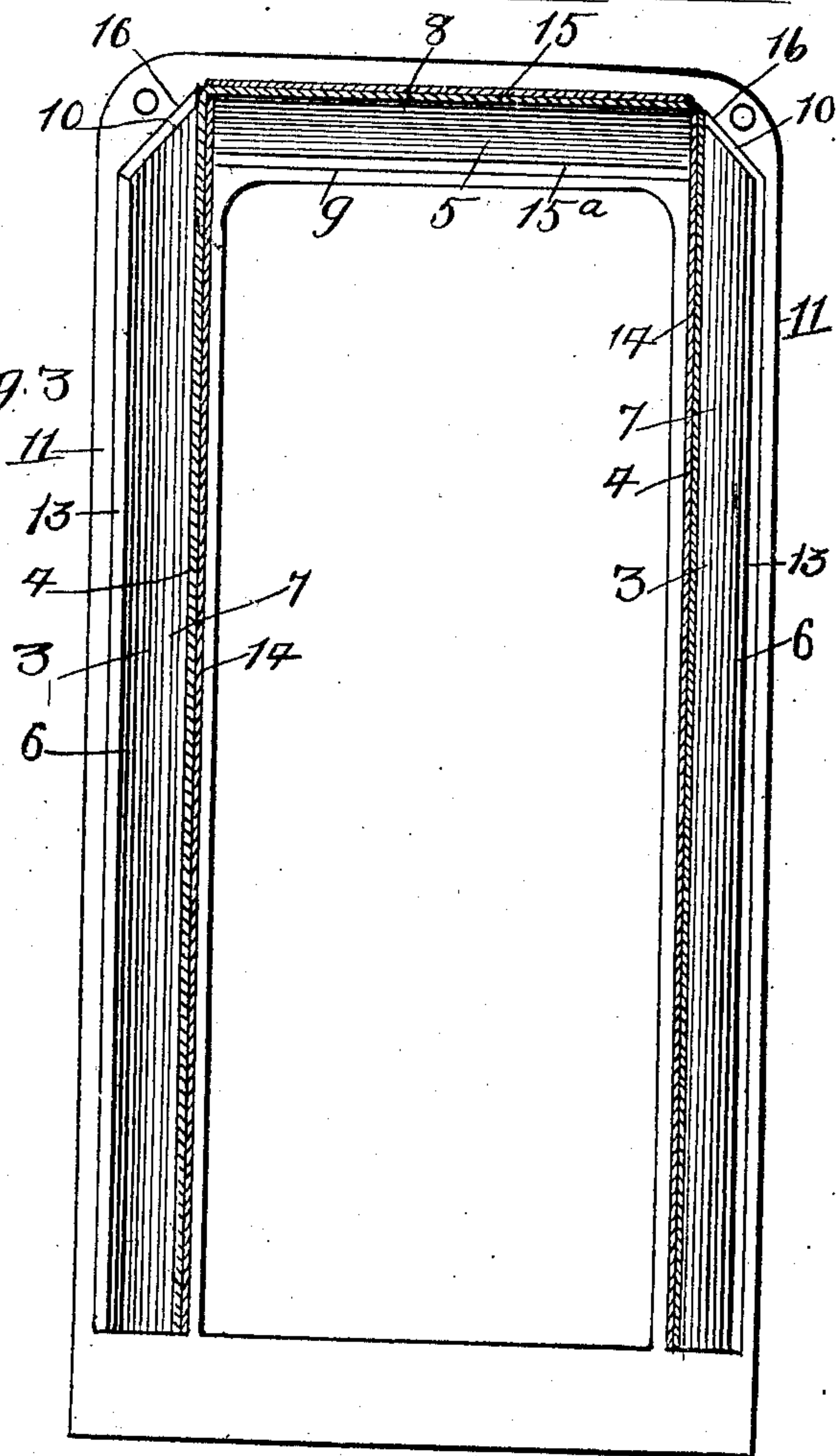
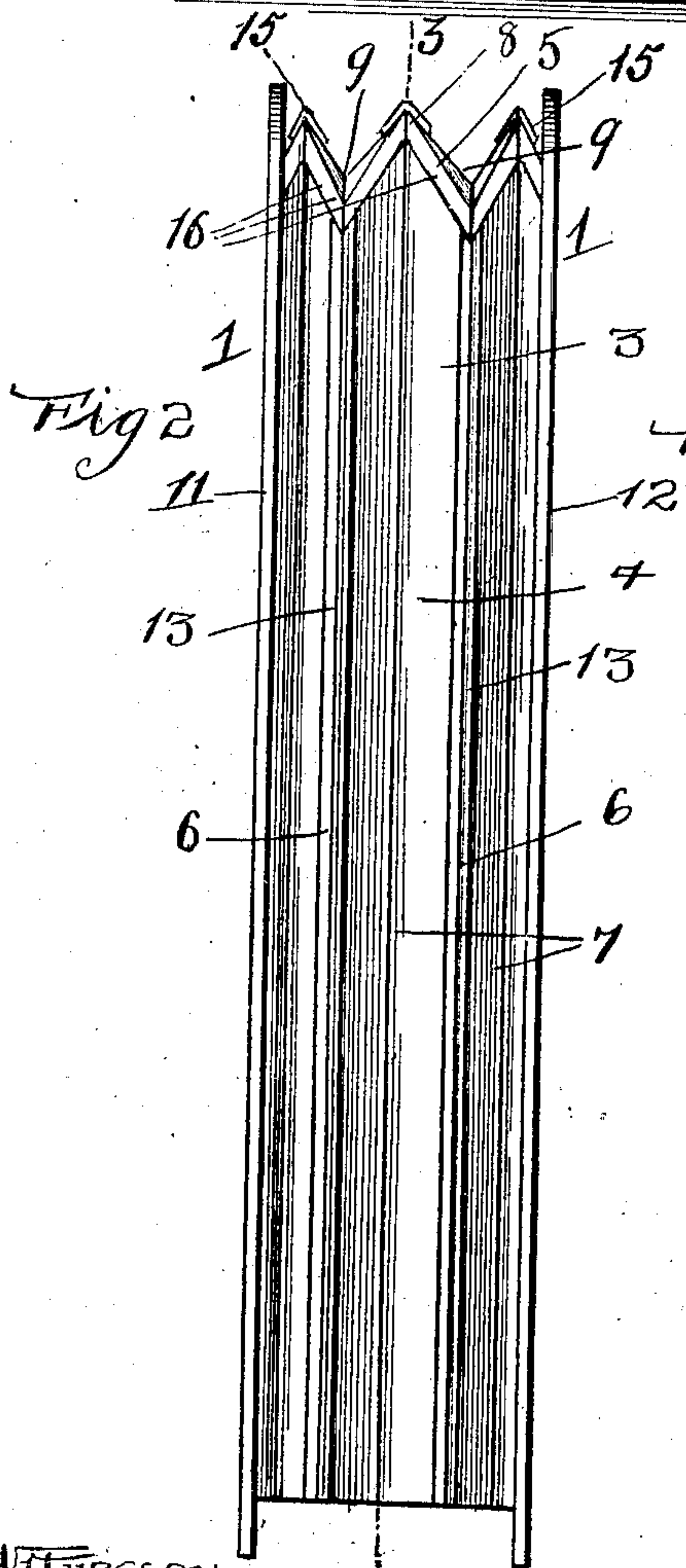
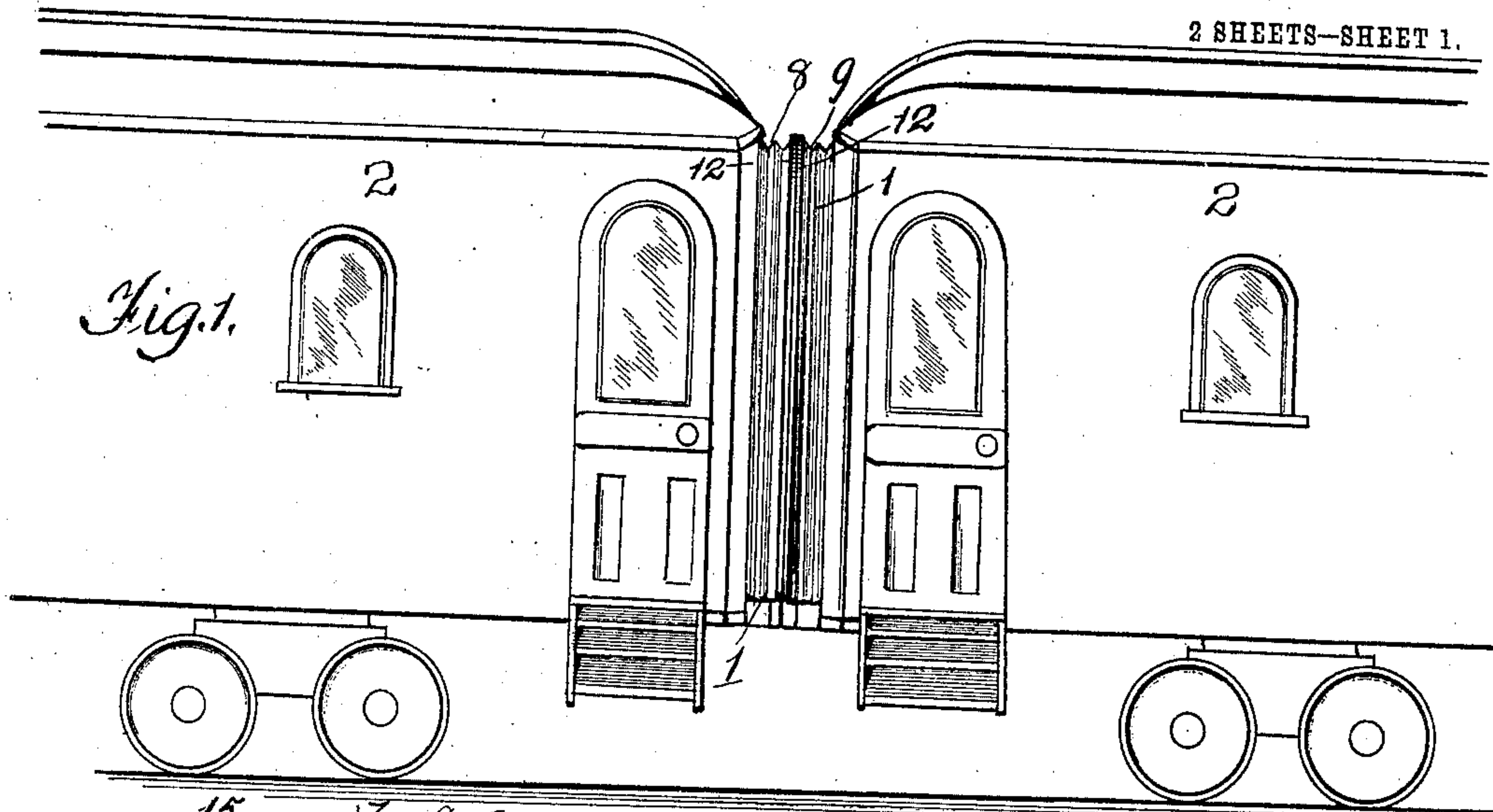
No. 830,559.

PATENTED SEPT. 11, 1906.

L. C. BASSFORD.
VESTIBULE CAR DIAPHRAGM.

APPLICATION FILED DEC. 30, 1905.

2 SHEETS—SHEET 1.



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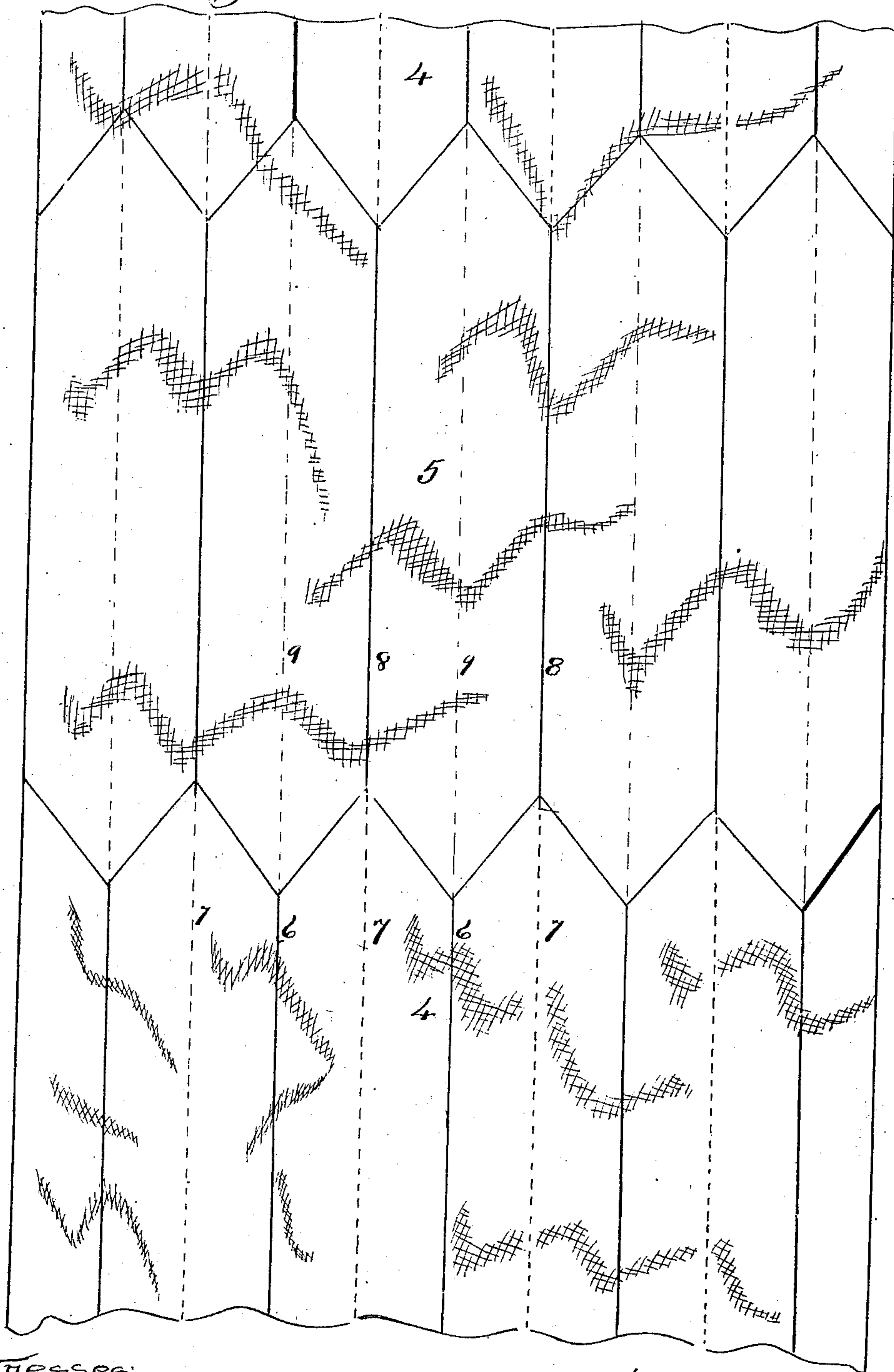
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2 SHEETS—SHEET 2.

Fig. 7.



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UNITED STATES PATENT OFFICE.

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VESTIBULE-CAR DIAPHRAGM.

No. 830,559.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed December 30, 1905. Serial No. 294,018.

To all whom it may concern:

Be it known that I, LOWELL C. BASSFORD, 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 Vestibule-Car Diaphragms, of which the following is a specification.

As ordinarily constructed, vestibule-car diaphragms are made of separate sections of heavy fabric forming the sides and top of the diaphragm, respectively, and having separately-formed corner-sections inserted thereinto, the whole being stitched together and reinforced by means of leather strips at the folds. This method of forming the diaphragm is cumbersome and expensive and necessitates the addition of the reinforcing-strips after the body of the diaphragm has been formed, which is a difficult method of attaching the reinforcing-strips and prevents them from being secured to the fabric in a flat condition.

The object of the present invention is to so form the bellows folds composing the diaphragm that the entire diaphragm, with the exception of the reinforcing-strips, can be formed from a single piece of fabric without seams or inserted corners, which results in greater strength and durability and is a very much cheaper method of forming the diaphragm than the method ordinarily employed.

The present invention also enables the reinforcing-strips to be applied to the fabric in its flat condition and to be bent or folded with the body of the diaphragm into the proper shape, which method of forming the diaphragm as a whole results in a very much better diaphragm and one which is very much more economically, easily, and quickly manufactured than the present diaphragms ordinarily used. At the same time the danger of leakage, rotting, and ripping at the seams is obviated, so that the life and usefulness of the diaphragm will be correspondingly increased.

The invention consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of the connected ends of two vestibule-cars, showing the diaphragm of the present invention; Fig. 2, an outside edge elevation of the diaphragm; Fig. 3, a sectional elevation taken on line 3 3 of Fig. 2; and Fig. 4, a plan view, partly broken away, of a piece of

fabric in flat condition, showing in full lines the folds to be made for forming the ridges of the completed diaphragm and in dotted lines the folds to be made to form the valleys. 60

As is universally the case the diaphragms 1 are secured to the abutting ends of vestibule-cars 2 and consist of the body portion 3, having side walls 4 and a top wall or roof 5 bridging the space between the side walls and extending at right angles thereto. In my invention the side walls and top or roof are all formed integrally of a single piece of heavy fabric of the character ordinarily employed in making vestibule-car diaphragms, and the sides and top are provided with bellows-folds. The bellows folds of the sides are formed to have outwardly-extending ridges 6 and intermediate valleys 7 of suitable number to provide for the necessary expansion and contraction, and the ridges and valleys on opposite sides of a diaphragm are in alignment with one another. The cross-wall or roof is likewise provided with ridges 8 and valleys 9, which ridges and valleys are in staggered relation with respect to the ridges and valleys in the side walls of the diaphragm. In other words, the companion ridges of the opposite side walls are connected by the valleys of the cross-wall, and vice versa. This arrangement gives the arched formation and enables the entire diaphragm to be formed from a single piece of fabric folded in this manner. When folded in this manner, the outer corner-folds 10 of the diaphragm will of necessity assume the beveled or sloping contour shown in Fig. 3, which preserves more fully the arched formation of the diaphragm as a whole. 80

The diaphragm is secured at its opposite ends to inner and outer arches 11 and 12 of the usual character, the former of which are secured to the car-body in the usual manner. The diaphragm-body formed as above specified is reinforced by means of outer side strips 13, which bridge the angles of the outer ridges, and inner side strips 14, which bridge the angles of the inner ridges, the inner strips being in alternate relation with respect to the outer strips. The top wall is likewise reinforced by means of outer reinforcing-strips 15 and inner reinforcing-strips 15^a, which are secured to the top wall at the angles formed by the ridges. In each case the strip bridges over a ridge, leaving the corresponding valleys without additional reinforcement. In like manner the corners 10 are reinforced by means of 100 105 110

short corner-strips 16, which connect the top and side reinforcing-strips and form, as it were, a continuous reinforcement throughout the entire diaphragm. This method of reinforcing enables the strips to be stitched or riveted to the fabric before the folds or creases are made and while the fabric is lying flat in the form of a strip or sheet, which enables the reinforcing-strips to be more easily, firmly, and perfectly secured than is ordinarily the case where the strips are applied after the bellows folds are formed.

The diaphragm formed as above specified preserves in a general way the arch formation ordinarily given to diaphragms, and the diaphragm of the present invention can be ordinarily used in all places in which the old style diaphragms are used, no rearrangement or remodeling of the vestibule being necessary in order to adapt it for use with the diaphragm of the present invention. The diaphragm is not only more simple of construction, but is neater, more perfect, and better adapted for the purpose intended than diaphragms of ordinary construction.

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

1. A diaphragm for vestibule-cars having side walls and a top cross-wall all being provided with bellows folds, the ridges on the opposite sides connecting with the valleys across the top and the side valleys connecting with the top ridges, and arch-frames to which the ends of the diaphragm are secured, substantially as described.

2. A diaphragm for vestibule-cars consisting of side walls and a top all formed from a

continuous piece of fabric, the side walls and top being provided with bellows folds formed in the continuous fabric, the sides having ridges and valleys connecting with the valleys and ridges respectively across the top, and arch-frames to which the ends of the diaphragm are secured, substantially as described.

3. A diaphragm for vestibule-cars consisting of side walls and a top all formed from a continuous piece of fabric, the side walls and top being provided with bellows folds formed in the continuous fabric, the sides having ridges and valleys in alinement with the valleys and ridges respectively across the top, arch-frames to which the ends of the diaphragm are secured, and reinforcing-strips secured along the angles of the ridges of the sides and top, substantially as described.

4. A diaphragm for vestibule-cars consisting of side walls and a top all formed integrally from a continuous strip of fabric, the companion side walls being provided with bellows folds having oppositely-disposed ridges and valleys and the top being formed with bellows folds having ridges and valleys in staggered relation with respect to the ridges and valleys of the sides, forming diagonally-extending corner-folds, reinforcing-strips along the angles of the ridges and along the diagonally-extending corner-folds, and arch-frames to which the ends of the diaphragm are secured, substantially as described.

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