

No. 775,938.

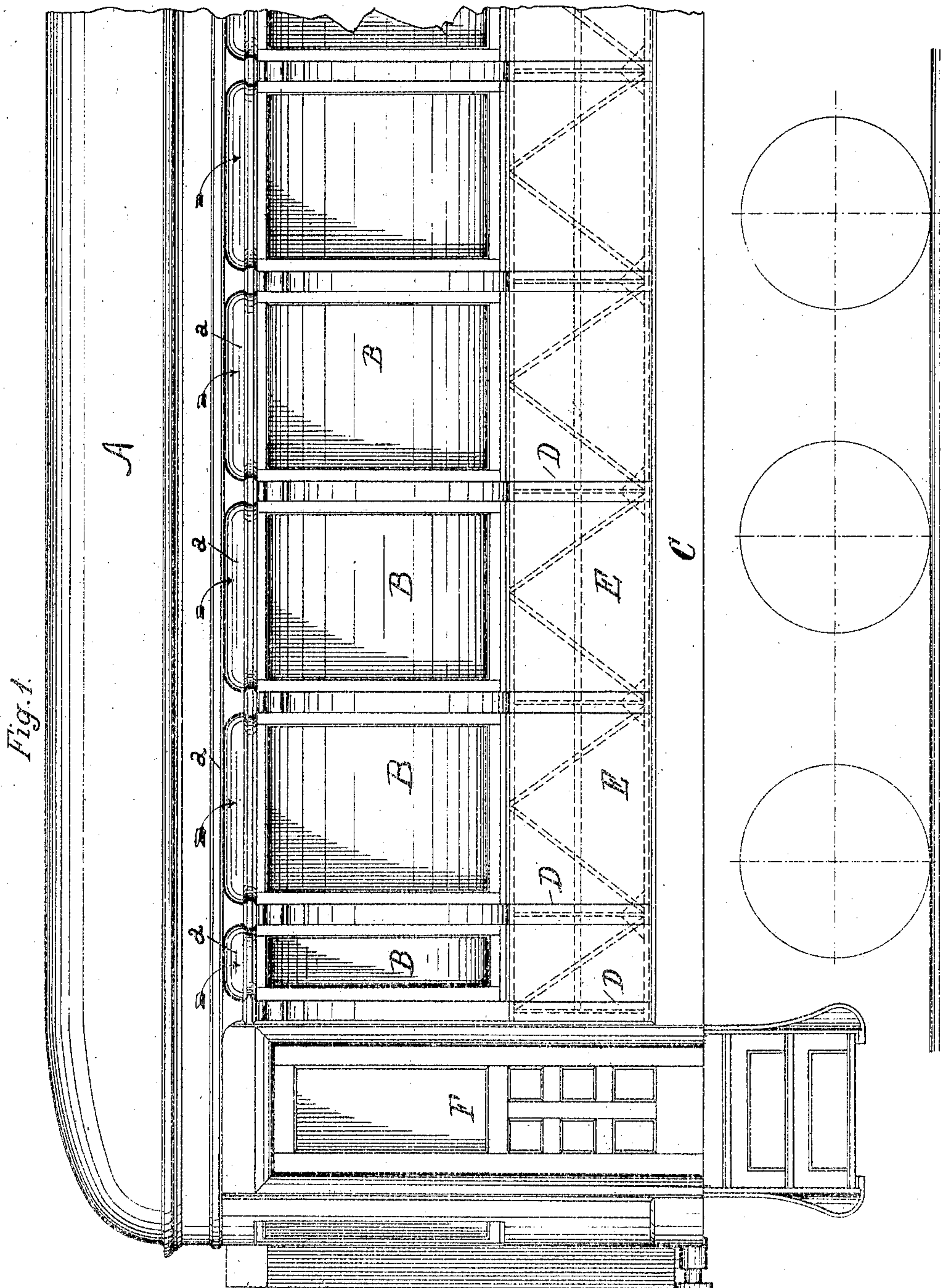
PATENTED NOV. 29, 1904.

H. ROMÜNDER.
OBSERVATION PASSENGER CAR.

APPLICATION FILED JULY 22, 1903.

NO MODEL.

5 SHEETS—SHEET 1.



Witnesses:
Carl S. Fiedler.
Fletcher Handwerker.

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No. 775,938.

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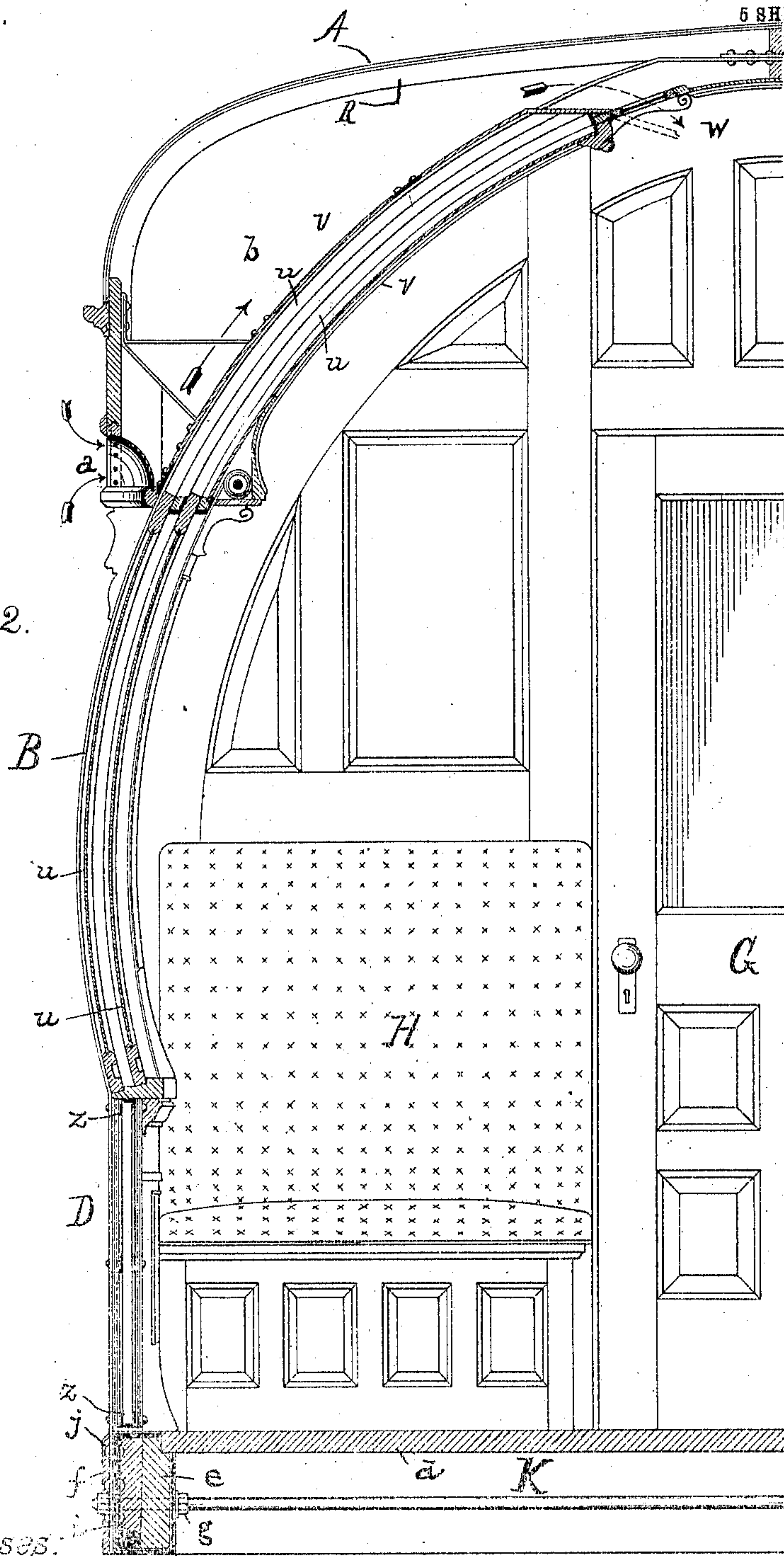
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5 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

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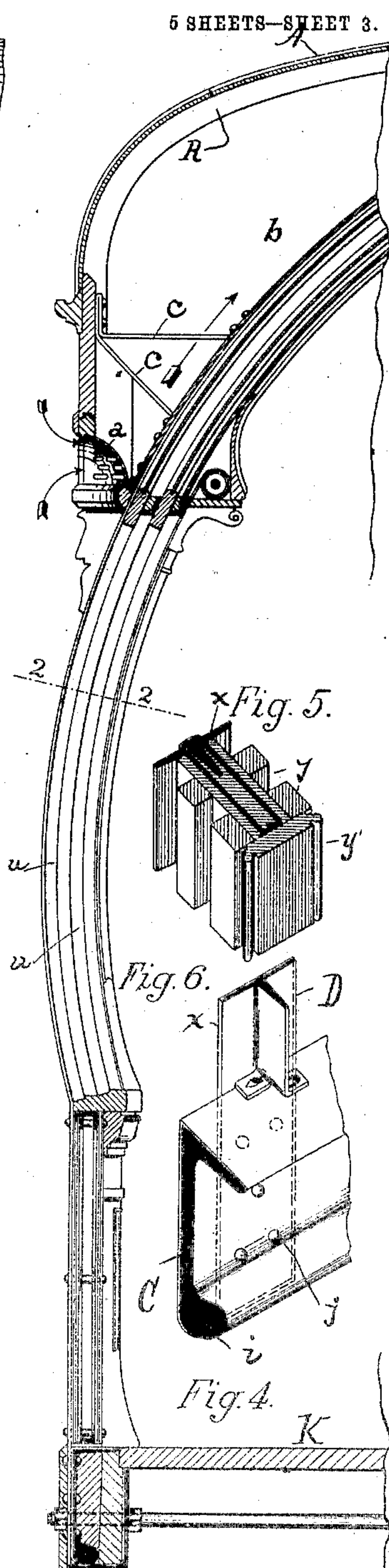
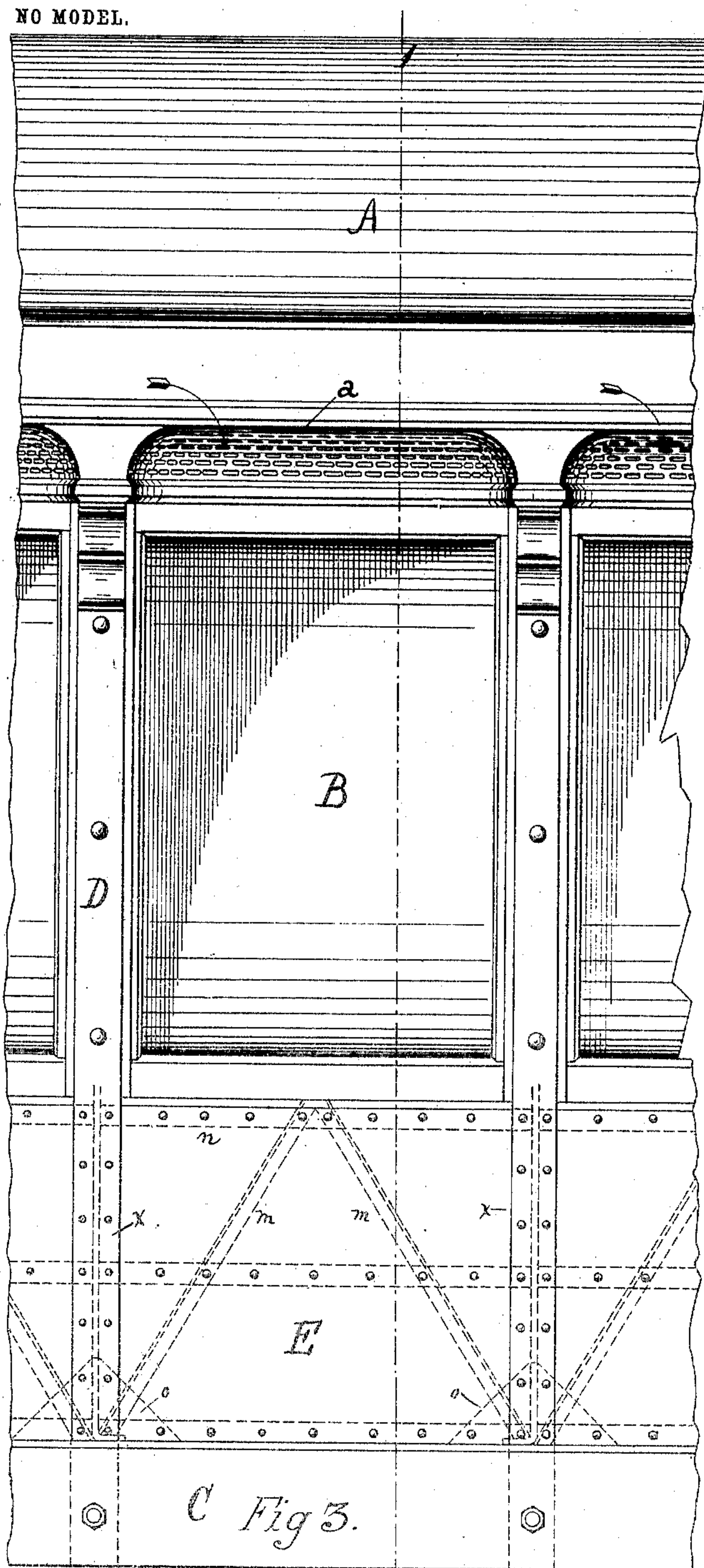
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5 SHEETS—SHEET 3.



Witnesses:

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5 SHEETS—SHEET 4.

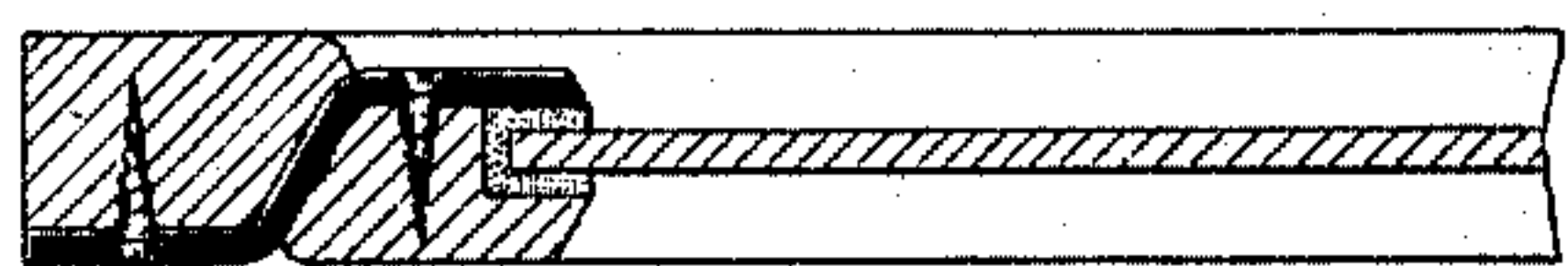


Fig. 7.

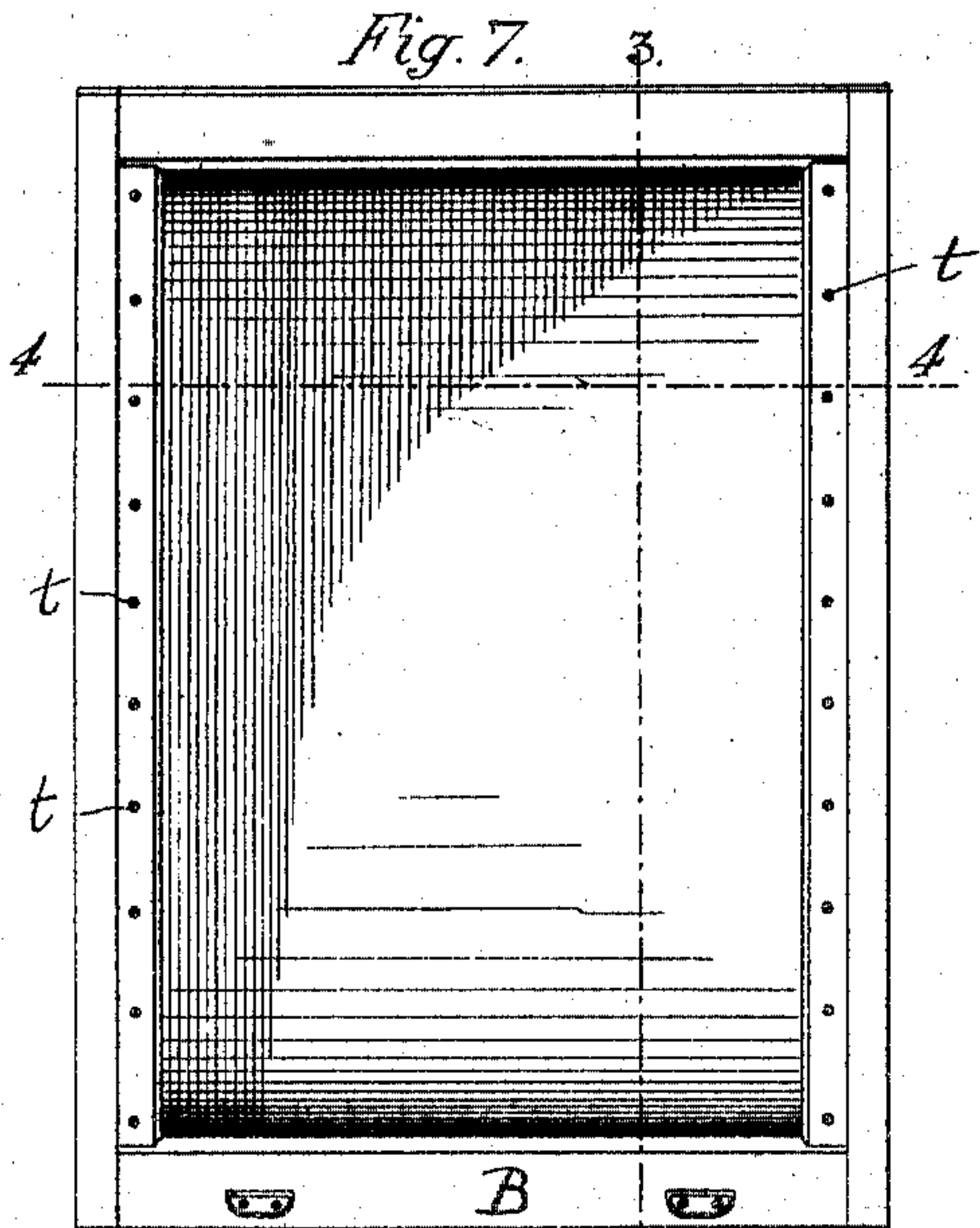
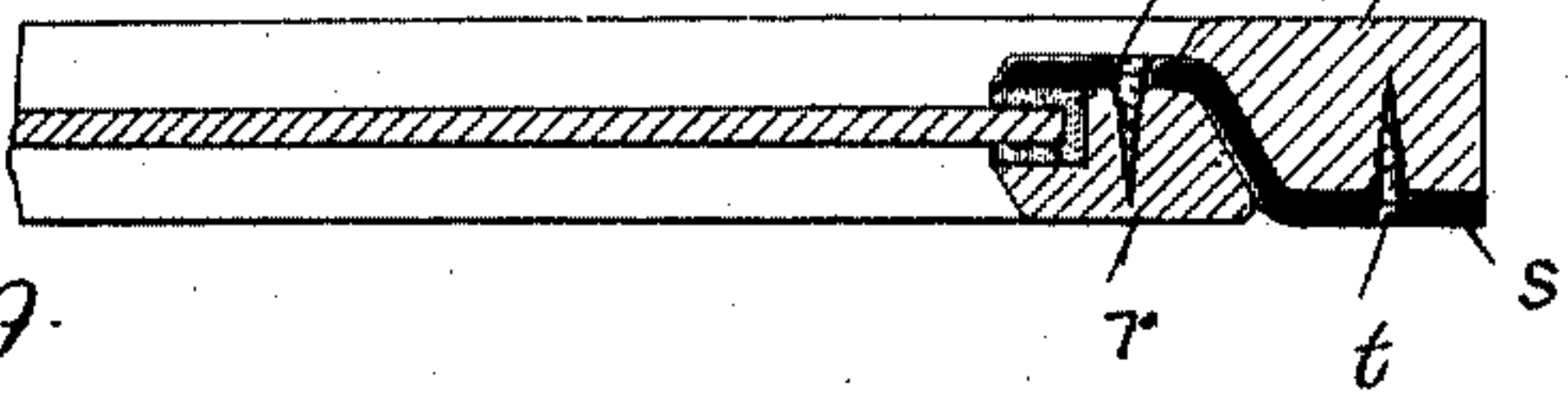


Fig. 8.

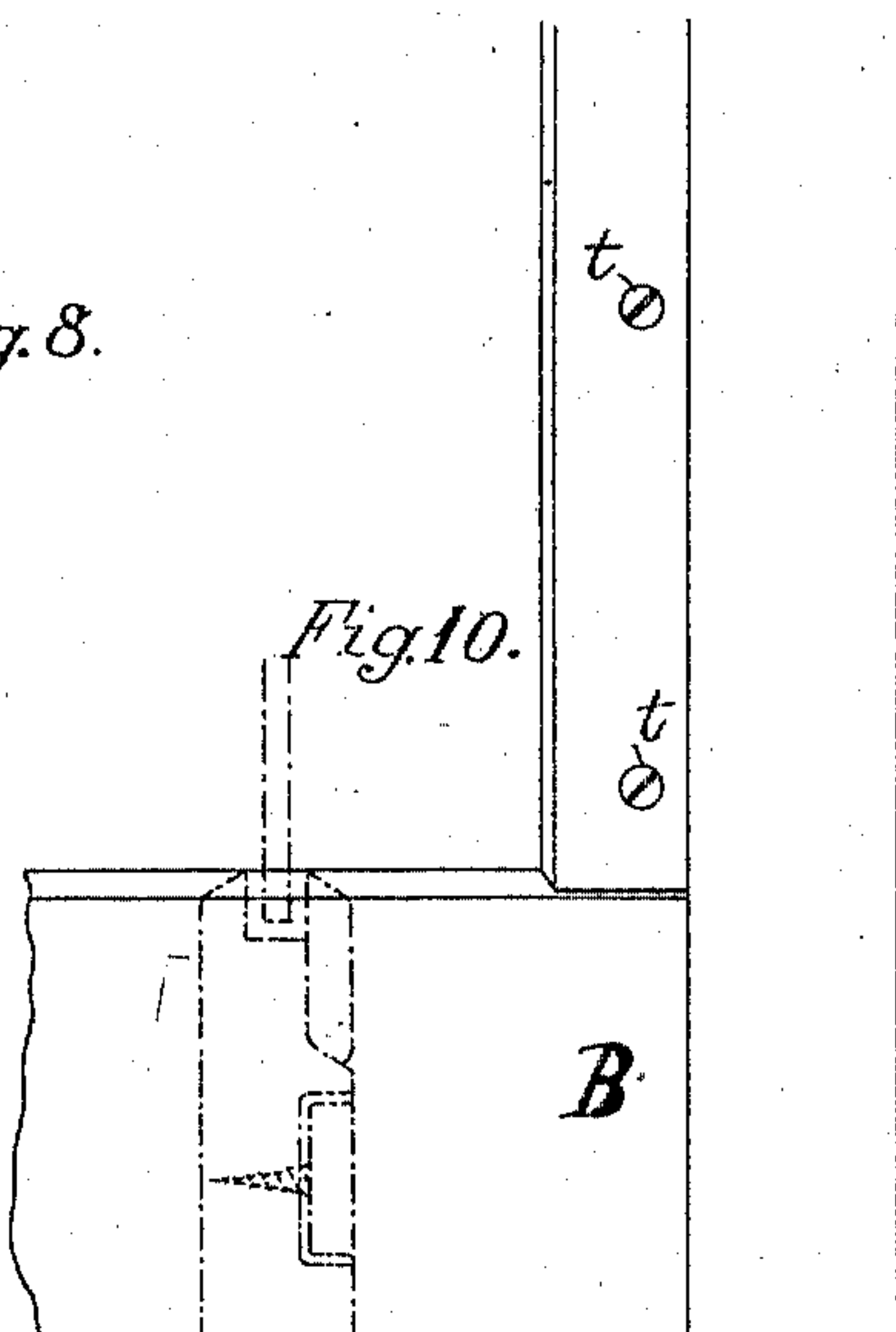


Fig. 10.

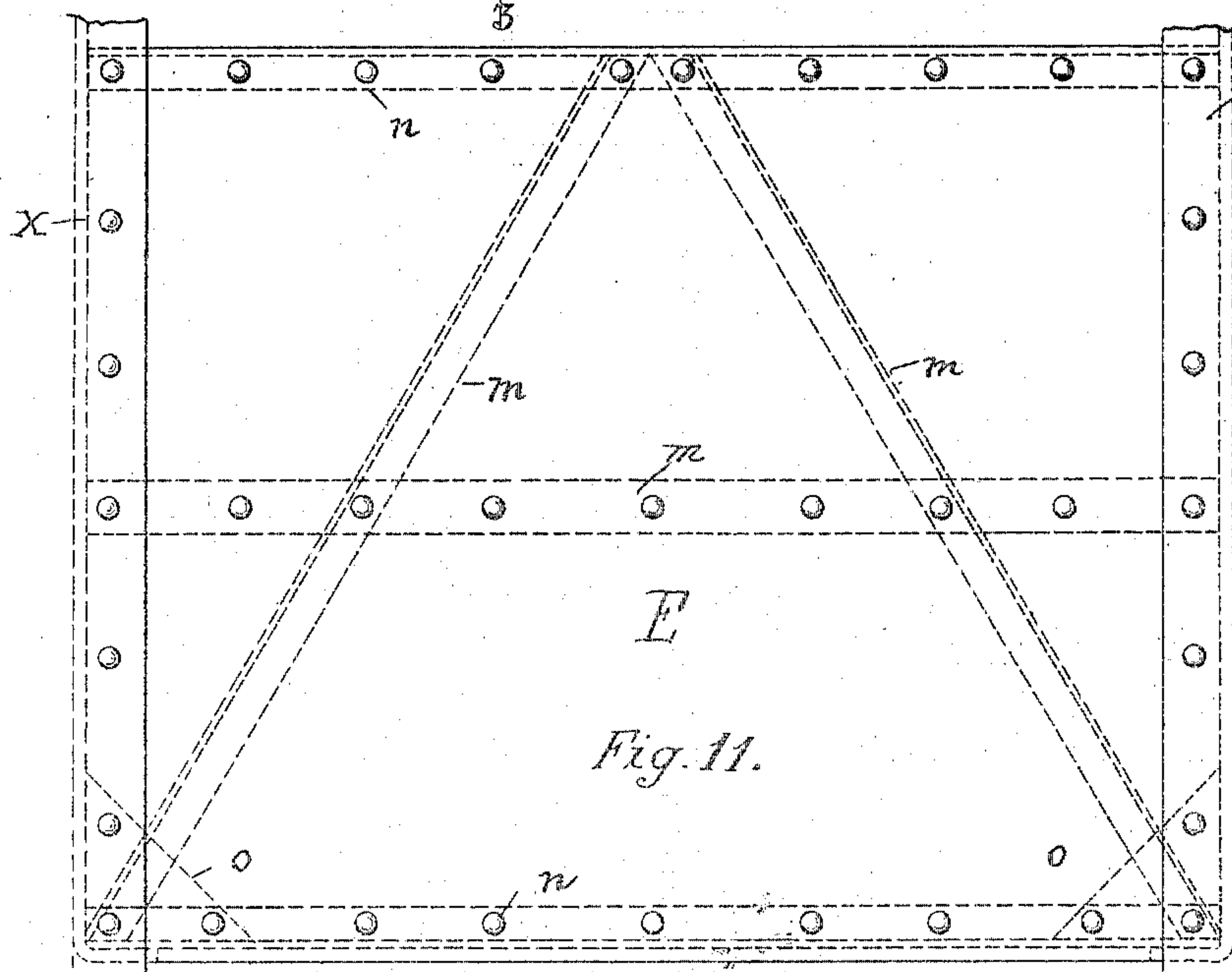


Fig. 11.

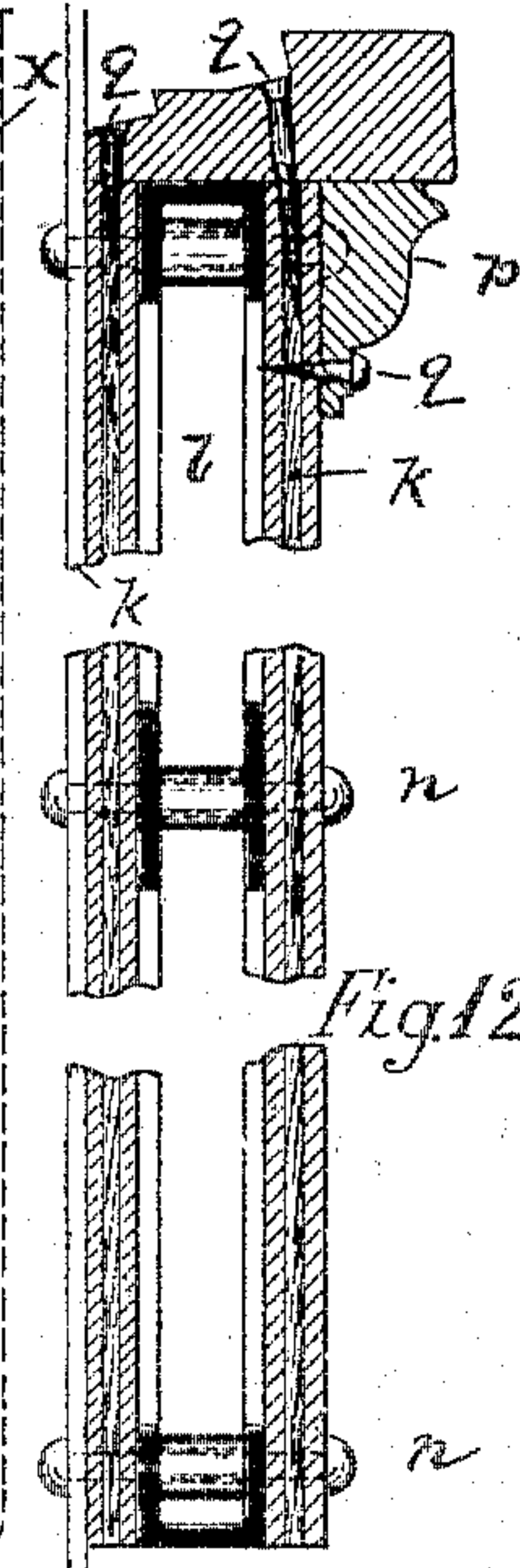


Fig. 12.

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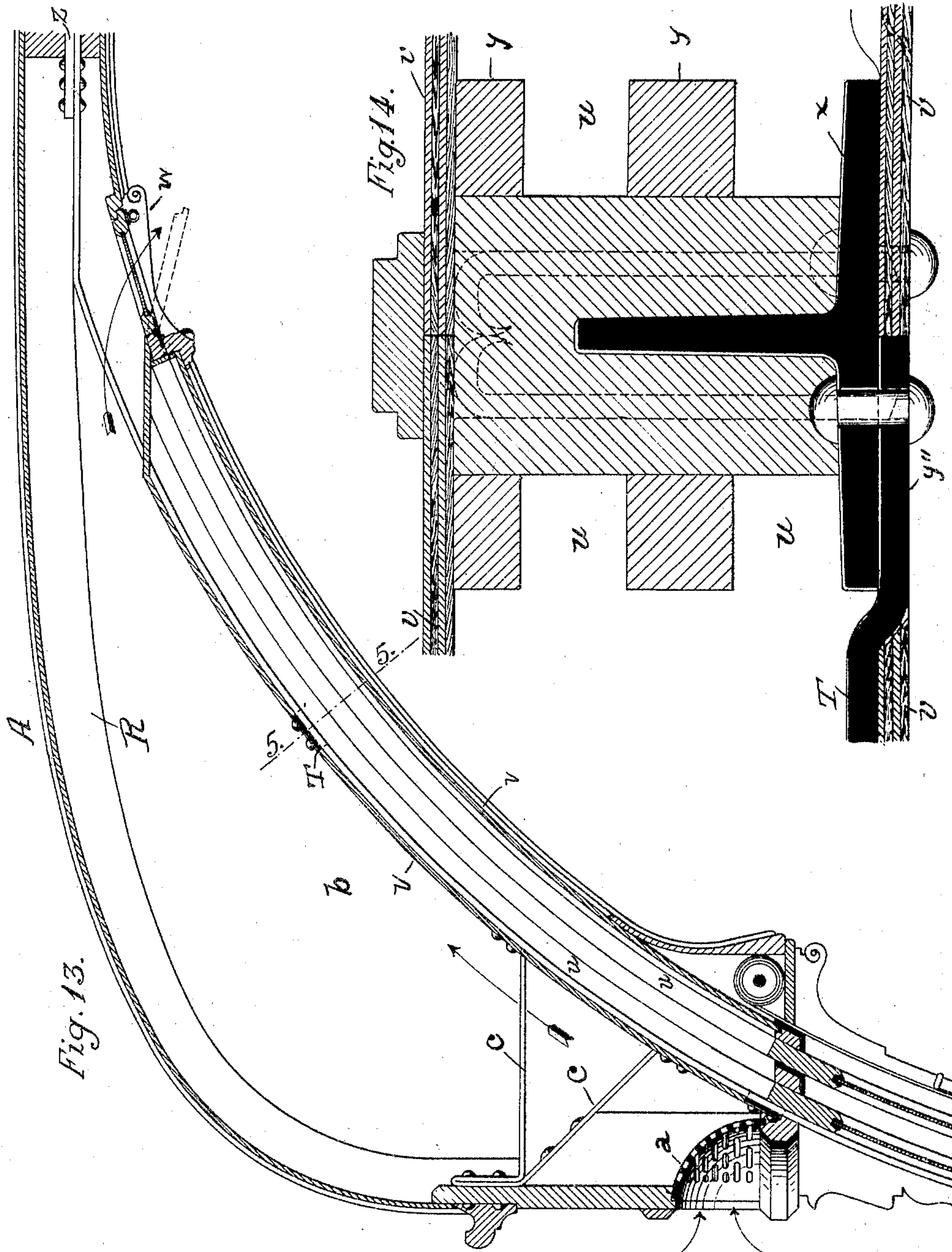
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OBSERVATION PASSENGER CAR.

APPLICATION FILED JULY 22, 1903.

NO MODEL.

6 SHEETS—SHEET 5.



Witnesses:
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Walther Landliker

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UNITED STATES PATENT OFFICE.

HERMANN ROMÜNDER, OF BLOOMSBURY, NEW JERSEY.

OBSERVATION PASSENGER-CAR.

SPECIFICATION forming part of Letters Patent No. 775,938, dated November 29, 1904.

Application filed July 22, 1903. Serial No. 166,516. (No model.)

To all whom it may concern:

Be it known that I, HERMANN ROMÜNDER, a citizen of the United States, and a resident of Bloomsbury, county of Hunterdon, and State of New Jersey, have invented certain new and useful Improvements in Observation Passenger-Cars, of which the following is a specification.

The object of my invention is to provide a closed passenger-car for interurban and steam railways of the type commonly known as an "observation-car" and to construct this car in such a way as to combine unusual strength and durability with simplicity and cheapness of construction. To that end I provide the car, among other things, with reversible and interchangeable metal side posts and a metal skeleton frame, an improved system of ventilation, an improved window-sash and side panel construction, and an improved roof construction.

One form of my invention is shown in the accompanying drawings, in which—

Figure 1 is a side view of a portion of a car embodying my invention. Fig. 2 is a vertical section of half of the car. Fig. 3 is a side view of a panel-section of the car. Fig. 4 is a vertical section on line 1 1 of Fig. 3. Fig. 5 is an enlarged section on line 2 2 of Fig. 4. Fig. 6 is an enlarged detail showing the manner in which the steel frame of the side post is riveted to the side sill and bottom frame. Fig. 7 is an elevation of the curved window. Fig. 8 is a vertical section on line 3 3 of Fig. 7. Fig. 9 is an enlarged section on line 4 4 of Fig. 7, partly broken away. Fig. 10 is an enlarged detail showing a corner of the window-sash. Fig. 11 is a side view, on an enlarged scale, of the lower side panel. Fig. 12 is a vertical section thereof. Fig. 13 is a detail showing in sections the upper part of one-half of the car. Fig. 14 is an enlarged sectional view on line 5 5 of Fig. 13.

Same letters indicate similar parts in the different drawings.

A is the roof of the car, which is so constructed as to dispense with the monitor or lantern roof now used for ventilation purposes, and thereby considerably increase the interior height of the car without increasing the outside height of the car.

The system of ventilation which I employ is one in which the outer air enters the car through openings *a a* between the side posts above the side windows B B, as shown by the arrows in Figs. 1, 2, 3, 4, and 13. These openings are preferably protected by a curved grating, as shown more particularly in Figs. 3, 4, and 13, and by ventilating through what might be called the "eaves" of the overhanging roof A, I secure an ample current of fresh air through the air-space *b* between the outer roof and the window-pockets provided in the upper part of the car-body between the side posts, with absolute protection against cinders, dust, or other local annoyances carried in suspension by the air, the air-space *b* being connected with the interior of the car by means of inner ventilators *w*, preferably consisting of panel-sashes which can be opened and closed to regulate the ventilation, the inner ventilators being arranged considerably higher than the outer ventilators, so that the outside air on entering the hollow space or spaces between the outer roof and inner ceiling of the car must travel upward to the inner ventilators, whereby the impurities held and carried by the air in suspension are deposited on the upper surface of the inner ceiling of the car and only fresh pure air enters the interior of the car, the said window-pockets, consisting, preferably, of an upper and a lower wood-veneer plate *v v*, inclosing the upper part of the curved grooves *u u*, provided in the upper curved part of the side posts. This roof A extends over the entire upper portion of the car from side to side and from end to end, so as to furnish one continuous strong and permanently-closed cover for the car, and is supported by the braces *c c*, fastened to the metal-frame side posts and the brackets and letter-face boards on which the bent rafters R R rest. These rafters, consisting, preferably, of T-iron, are bent as required and suitably secured to the side posts and sufficiently braced to support the roof of the car. The roof-covering consists of wood-veneer plates made of a number of wood-veneer layers, the alternate layers having their grain preferably reversed, all the layers being united under heat and pressure by means of any suitable waterproof cementing composition—such, for

example, as a compound of glue and potash—whereby they form practically one homogeneous plate of wood impervious to moisture and atmospheric influences. This wood-veneer plate is much stronger and more durable than a considerably thicker board with the grain running all in one direction, and this construction obviates the use of tongued-and-grooved boards, which must be bent and shaped by hand and secured to the rafters, then covered with canvas, and painted to produce a weatherproof roof, as now commonly constructed.

C is the bottom frame of the car, to which the side posts D D are secured, as shown in detail in Fig. 6. These side posts of both sides of the car are made of a fixed pattern or shape, so that there are no rights or lefts, but all the side posts are interchangeable and reversible without regard to the width of the car and consist of a metal rib X, preferably T-iron, covered with wood, as shown in Fig. 5. This construction is shown on a larger scale in Fig. 14, which also shows a portion of the cross-bars T, preferably of metal, riveted to one leg of the T-iron frame. These cross-bars T extend the full length of the car and are riveted to the separate side posts near the top, thereby serving to bind them together at the upper curved portion, as they are bound together at the lower straight portion by lateral stiffening-braces *m m* and by the corner-plates *o o*, the side sills *e f*, and the bulb iron *i* at the bottom. The upper ends of each opposite set of side posts D D are connected to each other or to a connecting link-piece Z, preferably a metal bar of any desired length, whereby the car may be made of any desired width, the same side posts being employed for narrow and wide cars, the latter ordinarily requiring only a wider floor and a wider roof, any additional widths in the metal body-frame being produced by the link-pieces Z Z.

Between the side posts are the side sections of which the sides of the car are composed and which consist of the curved windows B and the lower side panels E.

The car is provided with usual doors F G and suitable seats H. A floor K is composed of the floor-timbers *d* (see Fig. 2) and the side sills, which latter consist of the wooden beams *e f*, bolted together by bolts *g* and reinforced on one side by the inner angle-iron *h* and on the other by the outer bulb iron *i*, to which latter the steel side posts are riveted by the rivets *j j*. The bulb angle-iron and the lower end of the steel side posts are shown more clearly in Fig. 6.

The side posts D extend upright from the floor-level to a height suitable for the sash or window-sill level and then curve broadly, substantially as shown, and terminate at a convenient height in the roof of the car. Metal corner-plates *o* are riveted to the metal part of the side posts and side sills to strengthen

the joints of both, and slant stiffening-braces *m* are provided between adjoining side posts at the lower, straight, and substantially vertical portion and riveted to the metal rib *x* of said side posts to give the car great lateral stiffness.

The lower side panel E is set between each two adjoining side posts and consists, as shown in Fig. 12, of the wood-veneer plates *k k*, with an air-space *l* between them, whereby the car is made warmer in cold weather. Each of these wood-veneer plates *k* is composed of a number of layers of wood veneer, the alternate layers having their grain preferably reversed and all the layers being united under heat and pressure by means of any suitable waterproof cementing composition—such, for example, as a compound of glue and potash—whereby a plate of wood impervious to moisture and atmospheric influences is formed, which plates are then riveted by means of rivets *n n*, as shown in Figs. 11 and 12, to the side posts and to the slant stiffening-braces *m m*. (Shown in dotted lines in Figs. 1, 3, and 11.)

To the upper part of the side panel is secured the sill or window-stool *p* by screws *q* or otherwise. Upon this sill *p* the curved windows B rest when closed. These windows, as shown more in detail in Figs. 7, 8, 9, and 10, are constructed absolutely strong and durable and curved to conform to the grooves *u* in the side posts, in which said grooves they slide when raised or lowered. They are preferably constructed, as shown in Fig. 9, with upright stiles *r r*, which are suitably connected to the top and bottom rail, as shown in dotted lines in Fig. 10, and consist each of wood facings mounted upon what I call “Z-shaped” piece *s*, which is preferably of metal or other strong and malleable material, so arranged that one part of the Z-shaped piece is visible on the outside of the sash and the other part on the inside, the wood facings being firmly held thereto by the screws *t t* or otherwise. As shown in Fig. 8, these upright stiles are curved, the curvature corresponding with that of the side-post grooves, and by reason of the curvature thus obtained the sash is adapted to rise and fall in the curved grooves *u u* of the side posts D, as shown in Figs. 2, 4, and 13. There are two of these grooves, preferably on concentric curves, so that there may be two windows separately movable and adapted to different seasons of the year. The glass pane of the window is preferably embedded in rubber or other yielding substance, and by reason of the peculiar construction of the upright stiles *r r* of the window-sash the glass may be set nearly, if not quite, in the center of the sash.

When open, each window rests in the upper part of the groove out of the way under the roof where the grooves *u u* are covered by the inner and outer wood-veneer plates *v*

5 *v*, which serve as a window-pocket and inner
 ceiling of the car and prevent the air entering
 through the grated opening *a* from entering
 the interior of the car except through the ven-
 tilators *w*, as shown by the arrow in Figs. 2
 and 13. By means of this construction I obtain
 a closed observation passenger-car adapted for
 use in all weathers upon steam-railways and
 also for street and interurban traffic. This
 10 car while supplying a nearly continuous win-
 dow-space has a substantial steel or iron
 framework consisting of the side posts con-
 nected to cross-bars above and to side sills and
 corner-plates below and with lateral stiffen-
 ing-braces at the lower straight portion of the
 15 side posts, and this skeleton structure is adapt-
 ed to be used for cars of varying widths, be-
 cause the construction of the sides of the car
 is independent of the width of the car, the
 same side posts and side sections being em-
 20 ployed for narrow and wide cars, which ordi-
 narily necessitates only a wider floor and a
 wider roof, any additional width required be-
 ing produced by link-pieces of required length,
 25 preferably of metal, being riveted to the top
 ends of opposite side posts.

The skeleton metal structure, carefully and
 strongly riveted together, is, as explained, well
 covered on the inside and on the outside of
 30 the car with wood, either solid or veneer, and
 the woodwork is preferably constructed, as
 described, of wood-veneer plates consisting of
 a number of layers of wood veneer, the grain
 of alternate layers being preferably reversed
 35 and united by any suitable waterproof cement-
 ing composition under heat and pressure,
 whereby they form practically one homoge-
 neous plate of wood impervious to moisture
 and atmospheric influences, and the car, of
 40 course, provided with electric or other means
 of lighting, chairs or other seats, and the de-
 tails and ornamentations usual to such struc-
 tures. A car thus constructed possesses great
 strength and durability at considerably-re-
 45 duced manufacturing cost and combines per-
 fect ventilation with complete protection
 against the weather and greatest possible com-
 fort and convenience to the passengers on ac-
 count of the high roomy interior of the car,
 50 the large curved side windows, and the per-
 fect ventilation.

I claim—

1. A steel-frame passenger-car composed of
 a number of reversible and interchangeable
 55 side posts consisting of a metal frame covered
 with wood, the lower portion of which is sub-
 stantially vertical while the upper portion is
 curved on the arc of a circle, the side posts
 being riveted at the bottom to the side sills
 60 of the bottom frame of the car, which side
 sills preferably consist of wooden beams re-
 inforced by metal bars, preferably angle or
 bulb angle iron, and so arranged at the top
 that each opposite set of side posts can be riv-
 65 eted together or to a link-piece, preferably of

metal connecting them, whereby the car may
 be manufactured of any desired width; cor-
 ner-plates, preferably of metal, strengthen-
 ing the joints of the side posts and side sills;
 slant stiffening-braces, preferably of metal, 70
 between the lower vertical part of adjoining
 side posts, giving the side posts and the car-
 body great lateral stiffness; and cross-bars,
 preferably of metal, extending the full length
 of the car-body in the upper curved part of 75
 the side posts and riveted to said side posts,
 thereby serving to bind them together near
 the top.

2. A passenger-car composed of a metal
 skeleton frame consisting of metal-rib side 80
 posts covered with wood, riveted at the bot-
 tom to the metal part of the side sills of the
 car, and at the top to each other or to a link-
 piece connecting them, whereby the car may
 be made wider or narrower as required; lat- 85
 eral stiffening-braces, preferably of metal, be-
 tween the lower straight portion of said side
 posts and riveted thereto; metal cross-bars ex-
 tending the length of the car and riveted to
 the side posts at the upper curved portion 90
 thereof; a number of side sections, each com-
 posed of a lower side panel and one or two
 curved windows, the side panel consisting of
 water and weather proof wood-veneer plates
 riveted to the steel framing of the car, and 95
 the window or windows being movable in the
 grooves of the side posts and adapted to oc-
 cupy the lower portion of the grooves and
 rest against the window-sill when closed, and
 to be raised part or all the way up into a win- 100
 dow-pocket provided between adjoining side
 posts and inclosing the upper portion of the
 grooves and protecting the curved window or
 windows when open; bent rafters, preferably
 of metal, suitably secured to the side posts 105
 and sufficiently braced to support the roof of
 the car which consists of water and weather
 proof wood-veneer plates, forming practically
 one continuous closed roof suitably secured
 to said bent rafters and overhanging the body 110
 of the car; outer ventilators between the side
 posts under the eaves of the overhanging roof
 and inner ventilators in the ceiling of the car.

3. A passenger-car provided with one con-
 tinuous roof composed of wood-veneer plates 115
 consisting of two or more layers of wood
 veneer with the grain of alternate layers pref-
 erably reversed, and all the layers united by
 a waterproof cementing composition under
 heat and pressure, whereby they form prac- 120
 tically one homogeneous plate of wood, im-
 pervious to moisture and atmospheric in-
 fluences; said roof overhanging the body of
 the car so that one or more hollow spaces
 are formed between the outer roof and the 125
 inner ceiling of the car; the ventilation of the
 car being secured through outer ventilators
 in openings between the side posts under the
 eaves of the overhanging roof, above the side
 windows, said openings being preferably cov- 130

ered by a grating or otherwise; and inner ventilators in openings in the inner ceiling of the car between the top part of the side posts, said inner ventilators consisting preferably
 5 of panel sashes which can be opened and closed as required, to regulate the ventilation of the car; the inner ventilators being arranged considerably higher than the outer ventilators so that the outside air on entering the hollow
 10 space or spaces between the outer roof and inner ceiling of the car, must travel upward to the inner ventilators, whereby the impurities held and carried by the air in suspension, are deposited on the upper surface of the inner ceiling of the car, and fresh pure air only
 15 enters the interior of the car.

4. A passenger-car, the sides of which are composed of a number of reversible and interchangeable side posts, consisting of metal
 20 rib and wood filling, the lower portion of which is straight and substantially vertical and the upper portion is curved and provided with one or two curved and preferably concentric grooves; side panels between the lower
 25 straight portion of said side posts, said side panels consisting of an inner and an outer wood-veneer plate, made of two or more layers of wood veneer, the grain of alternate layers being preferably reversed, united by a
 30 waterproof cementing composition under heat and pressure, thereby forming practically one homogeneous plate of wood, impervious to moisture and atmospheric influences; said veneer plates being riveted to adjoining side
 35 posts and to lateral stiffening-braces between said side posts and so arranged as to leave one or more air-spaces between the wood-veneer plates forming the inner and outer walls of the side panels; a window-sill secured to
 40 the upper part of the side panel and one or two large curved windows resting, when closed, upon the said window-sill or window-stool and movable in the grooves provided in the upper circular part of the side posts.

45 5. A passenger-car provided with a number of reversible and interchangeable side posts consisting of a metal rib covered with wood, riveted at the bottom preferably to bulb angle-iron, forming a part of the side
 50 sills of the car; the lower portion of said side posts being straight and substantially vertical, while the upper portion is curved and provided with one or two grooves adapted to receive one or two curved movable windows;
 55 said side posts being connected near the top by cross-bars, preferably of metal, and at the lower straight portion by lateral stiffening-braces, preferably of metal, thus forming a metal skeleton structure for the sides of the
 60 car.

6. A steel skeleton-frame passenger-car composed of a suitable bottom framing formed by side and cross sills consisting preferably of wood beams reinforced by metal bars; a number
 65 of reversible and interchangeable side

posts consisting of metal rib and wood filling, the lower portion of which is straight and substantially vertical and the upper portion curved on the arc of a circle, said side posts being suitably connected to said bottom framing and with each other; bent rafters, preferably of metal, suitably connected to said side posts; one continuous roof, consisting of wood-veneer plates formed each of two or more layers of wood veneer, united with reversed grain
 75 by means of a waterproof cementing composition under heat and pressure, thereby forming practically one homogeneous plate of wood, impervious to moisture and atmospheric influences; said roof being secured to said bent
 80 rafters and overhanging the body of the car so that an air-space is formed between the said roof and the inner ceiling of the car, communicating with outer ventilators between the side posts under the eaves of the overhanging
 85 roof, and inner ventilators provided in the ceiling of the car between the top part of the side posts, said inner ventilators being preferably arranged so as to be opened and closed in order to regulate the ventilation; side sections
 90 between the side posts, consisting of large curved side windows movable in grooves provided in the upper circular part of the side posts, and lower side panels, consisting of a window-sill and an inner and an outer wall
 95 formed of wood-veneer plates consisting each of two or more layers of wood veneer, united with reversed grain by means of a waterproof cementing composition under heat and pressure, thereby forming practically one homogeneous plate of wood, impervious to moisture and atmospheric influences; said inner and outer wall being suitably connected so as to leave air-spaces between the wood-veneer plates.
 105

7. A passenger-car composed of a metal skeleton frame consisting of a metal bottom framing, reversible and interchangeable side posts, preferably of T-iron, the lower portion of which is straight and substantially vertical and the upper portion from the line of the window-sill on, curved on the arc of a circle; curved metal rafters and lateral metal stiffening-bars, all riveted together to form the metal frame of the car, to which the woodwork and detailed finish of the car is suitably attached,
 110 the woodwork consisting of wood-veneer plates made of two or more layers of wood veneer, the grain of alternate layers being preferably reversed, and all the layers being
 115 united by a waterproof cementing composition under heat and pressure, thereby forming practically one homogeneous plate of wood, impervious to moisture and atmospheric influences.
 120

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