

L. WILLIAMS.  
HATCH.

APPLICATION FILED DEC. 16, 1903. RENEWED NOV. 22, 1904.

6 SHEETS—SHEET 1.

Fig. 1.

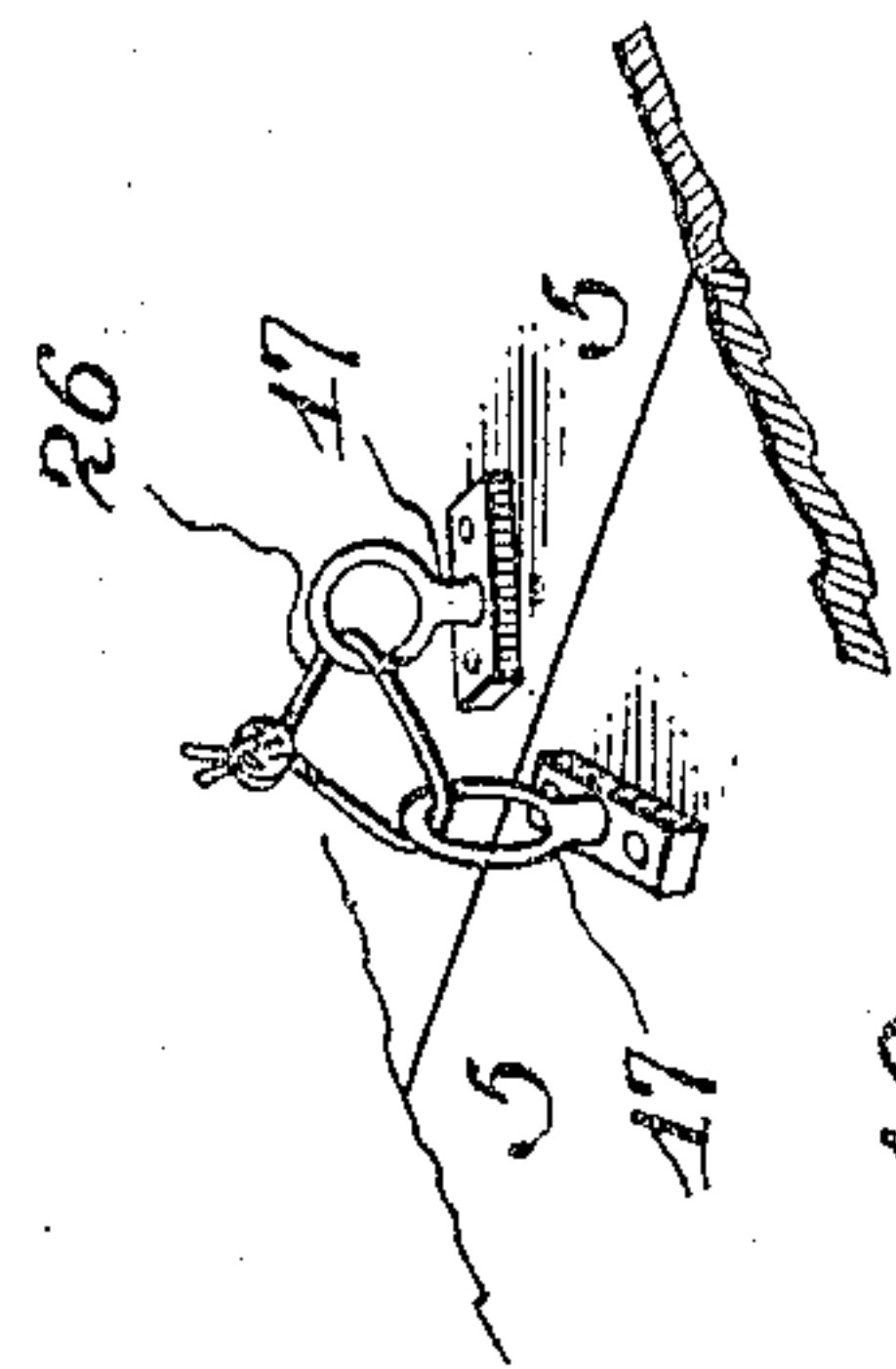
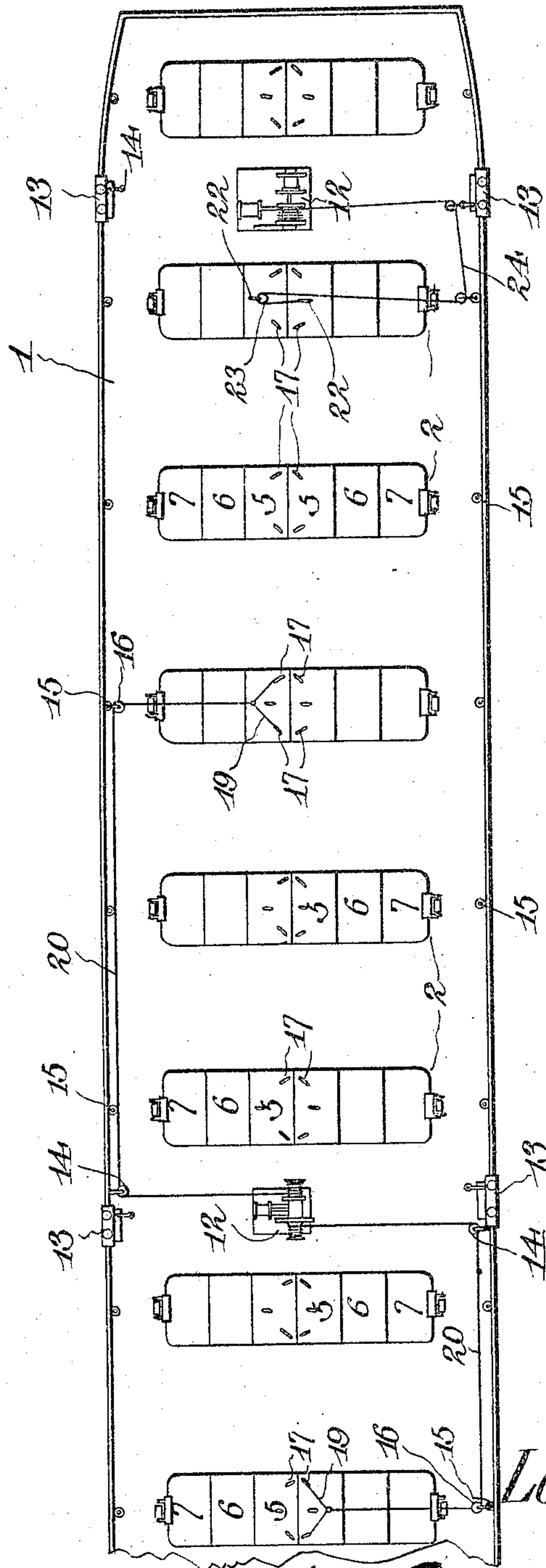


Fig. 10.

Witnesses

*E. J. Stewart*  
*J. W. E. Parker*

by

*C. A. Snow & Co.*  
Attorneys

*Louis Williams,*  
Inventor.

L. WILLIAMS.  
HATCH.

APPLICATION FILED DEC. 16, 1903. RENEWED NOV. 22, 1904.

5 SHEETS—SHEET 2.

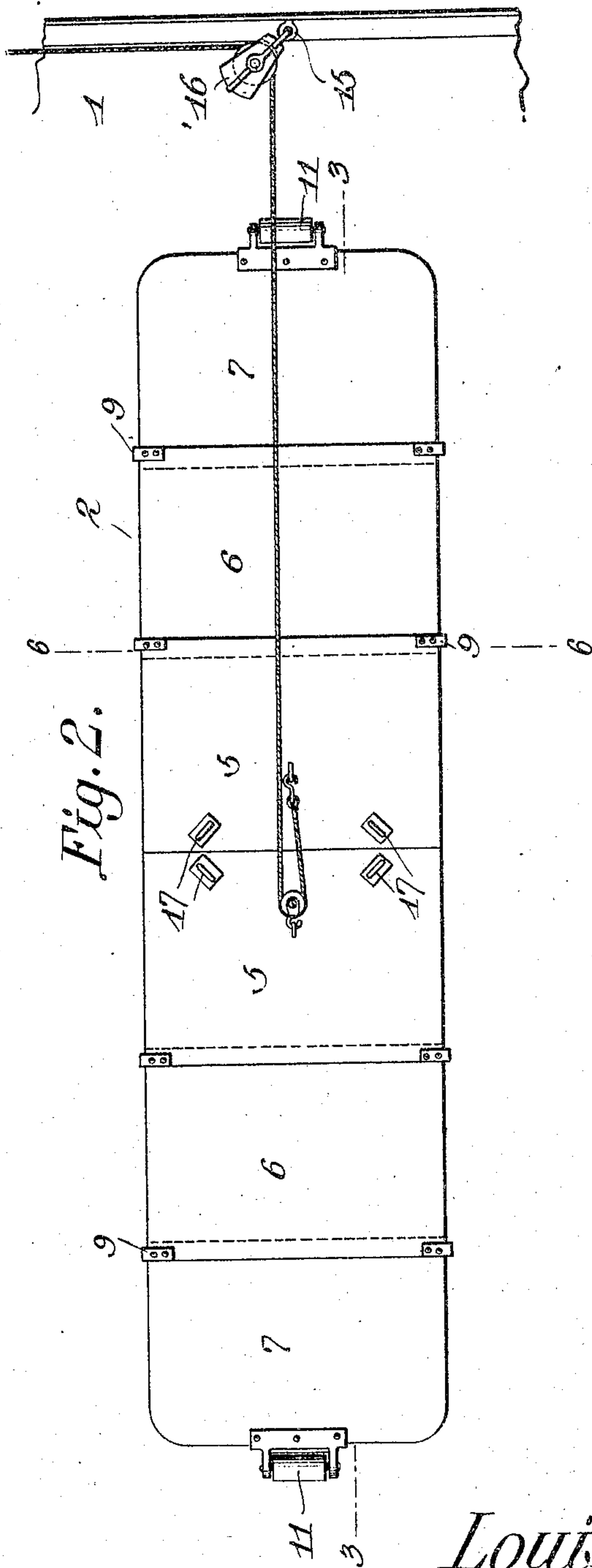


Fig. 2.

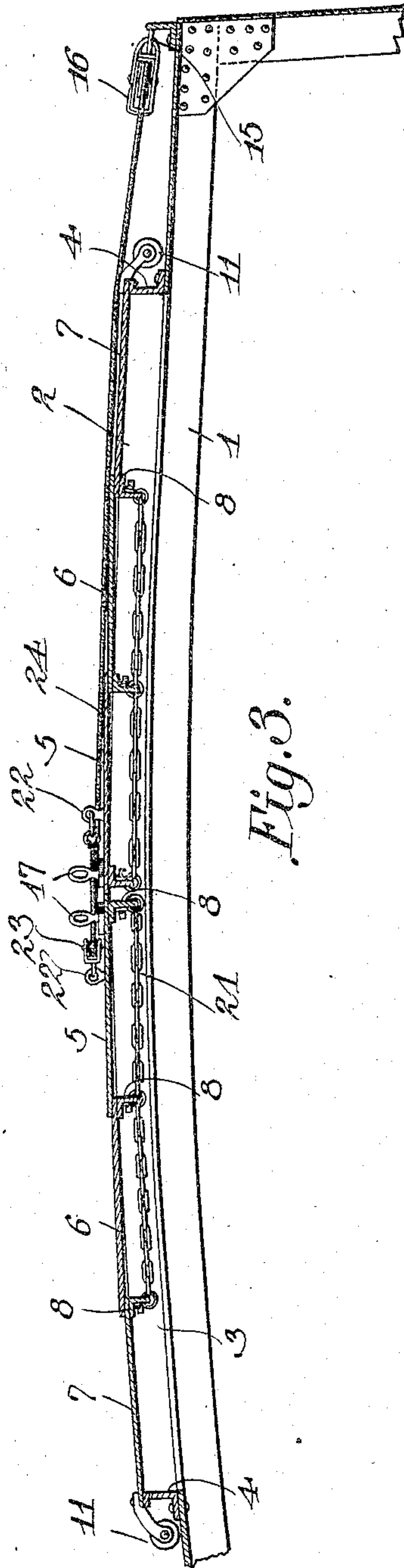


Fig. 3.

Witnesses  
*E. Stewart*  
*John E. Parker*

*Louis Williams,* Inventor.  
by *C. A. Snow & Co.* Attorneys

L. WILLIAMS.  
HATCH.

APPLICATION FILED DEC. 16, 1903. RENEWED NOV. 22, 1904.

5 SHEETS—SHEET 3.

Fig. 9.

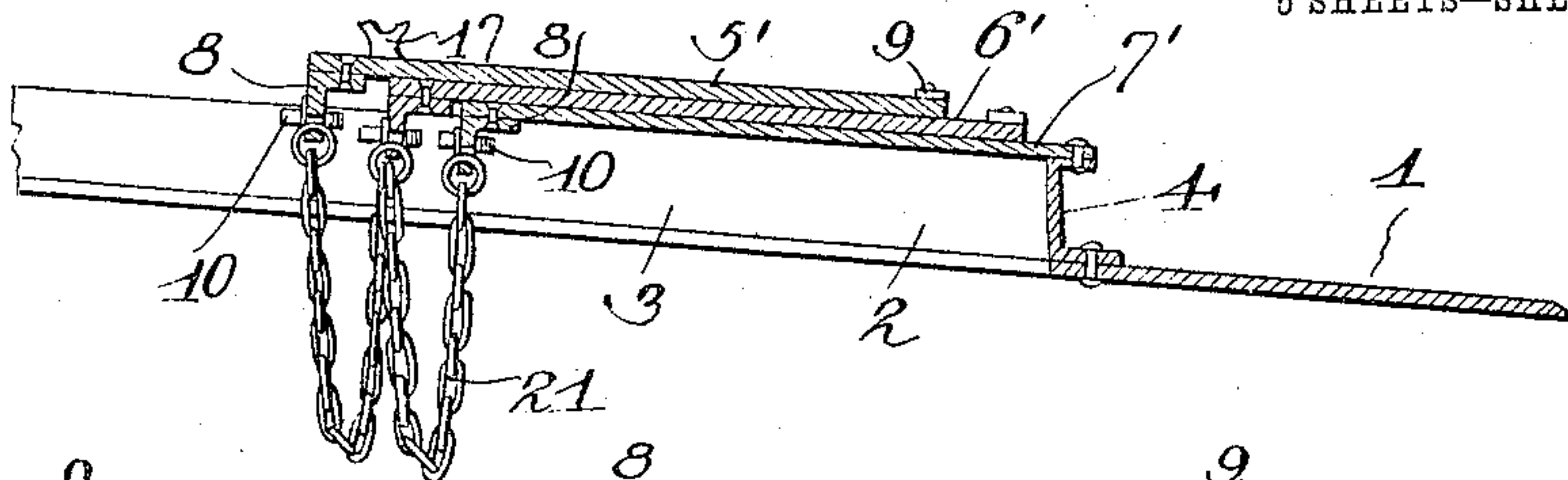


Fig. 6.

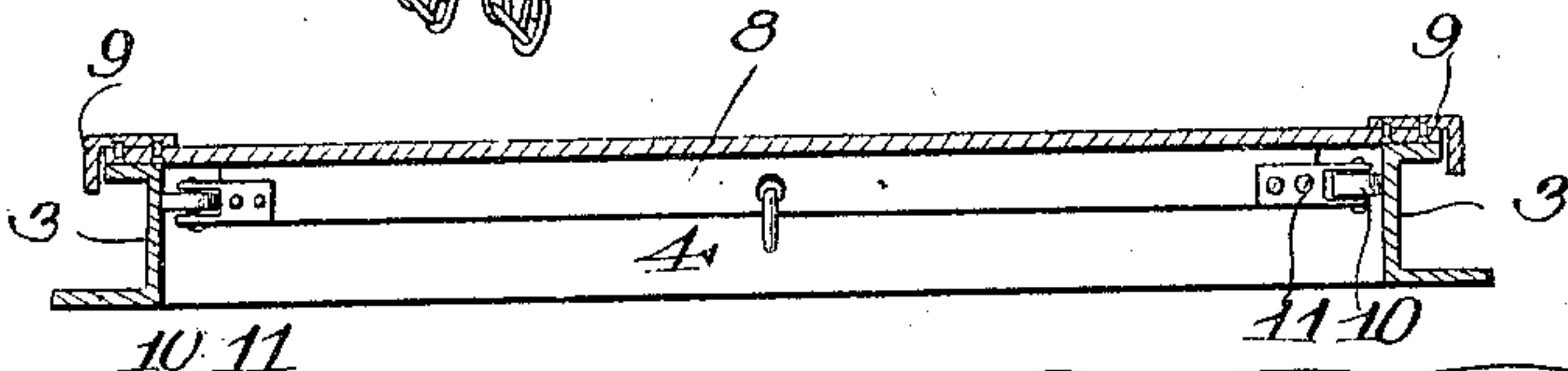


Fig. 4.

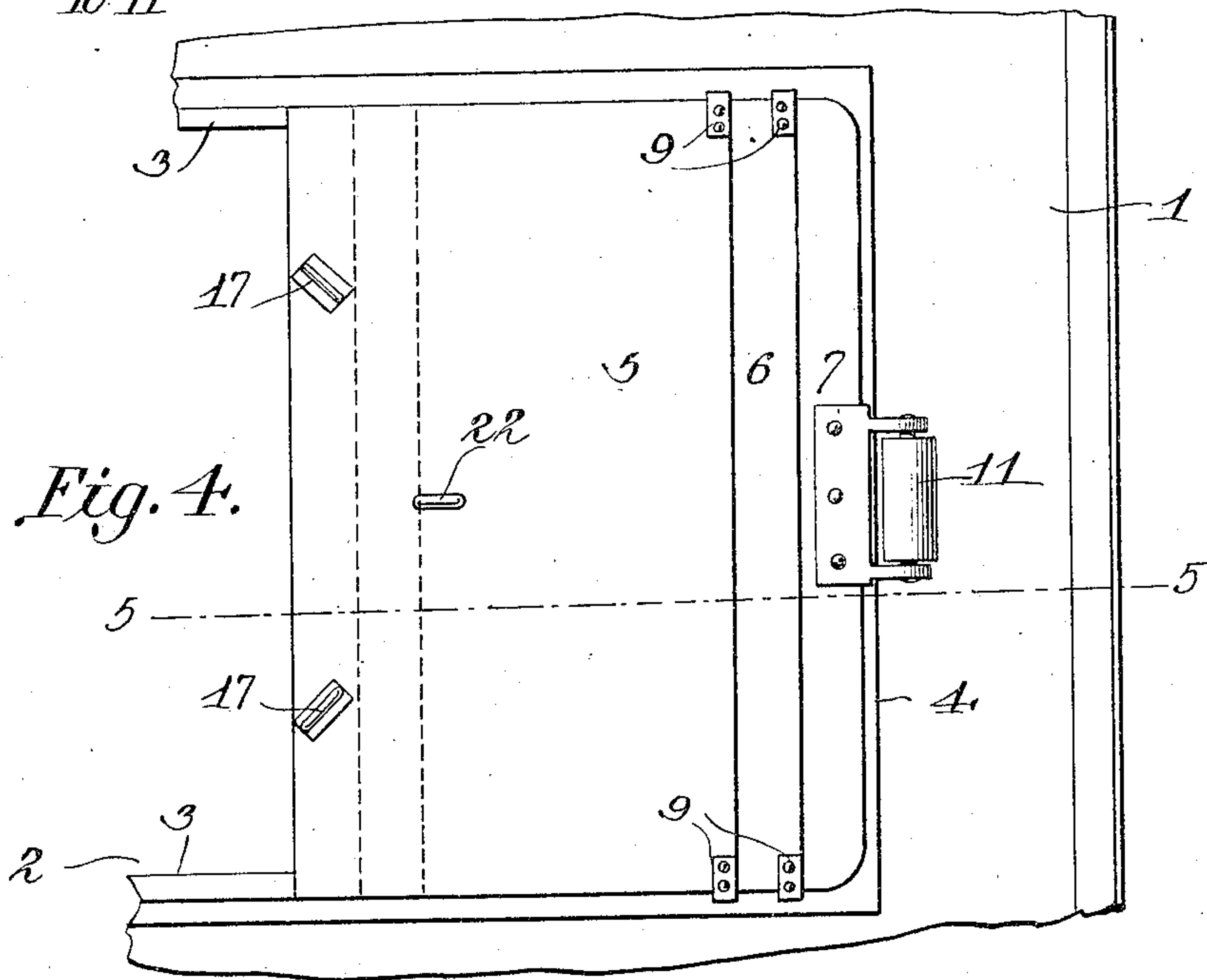
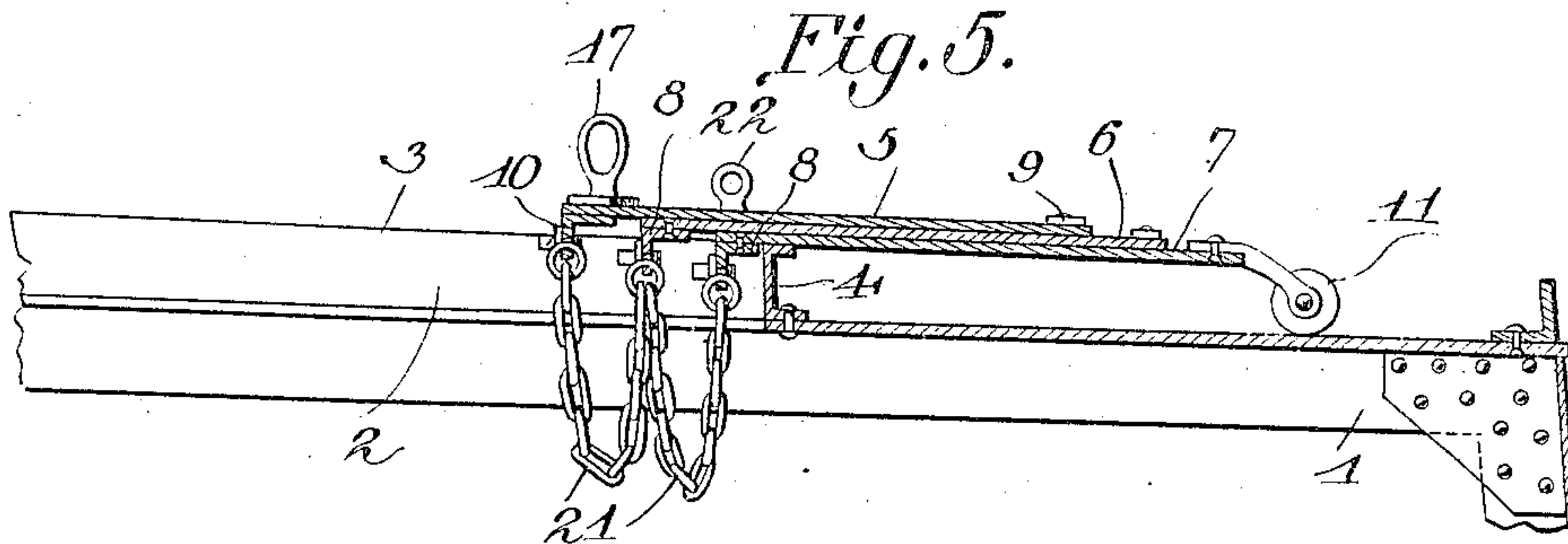


Fig. 5.



Witnesses  
E. C. Stewart  
J. M. Parker

Louis Williams, Inventor.  
by C. A. Snow & Co.  
Attorneys



L. WILLIAMS.  
HATCH.

APPLICATION FILED DEC. 16, 1903. RENEWED NOV. 22, 1904.

5 SHEETS—SHEET 4.

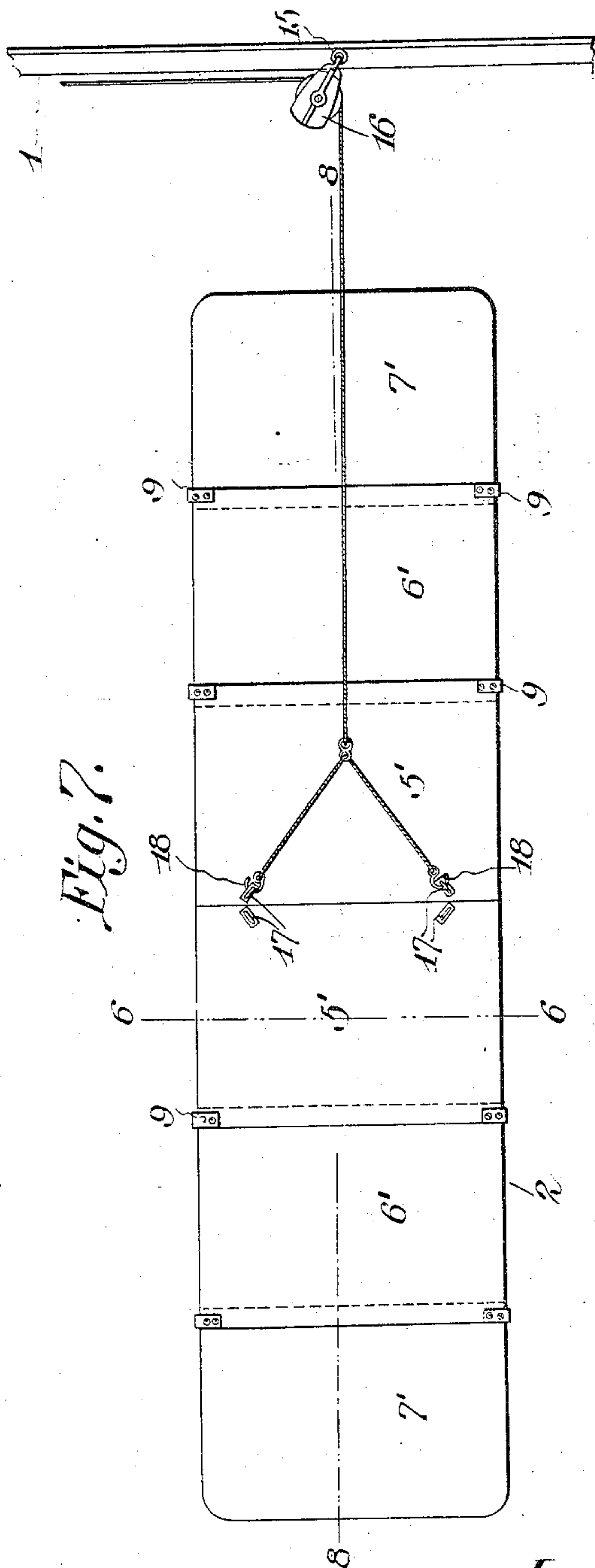


Fig. 7.

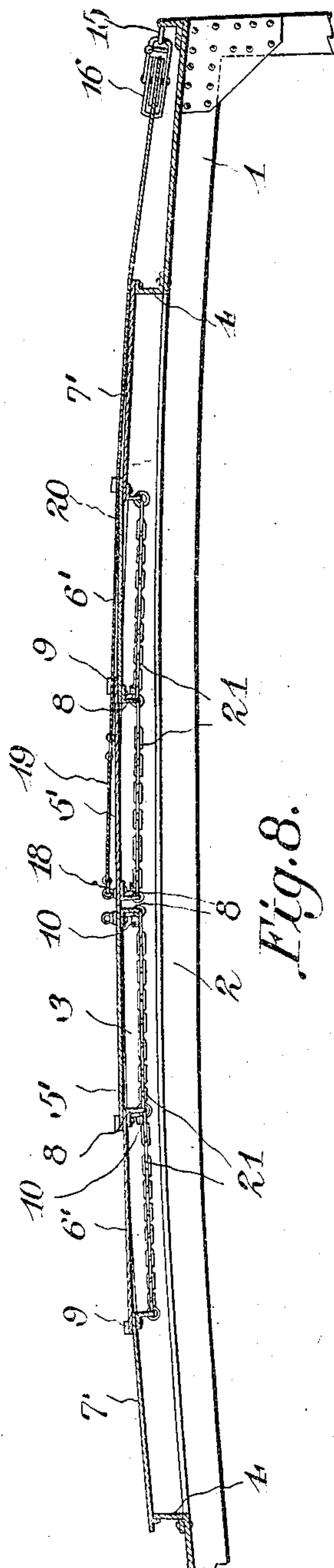


Fig. 8.

Louis Williams,

Inventor.

by

C. A. Snow & Co.

Attorneys

Witnesses

E. C. Stewart  
J. W. Parker

L. WILLIAMS.  
HATCH.

APPLICATION FILED DEC. 16, 1903. RENEWED NOV. 22, 1904.

5 SHEETS—SHEET 5.

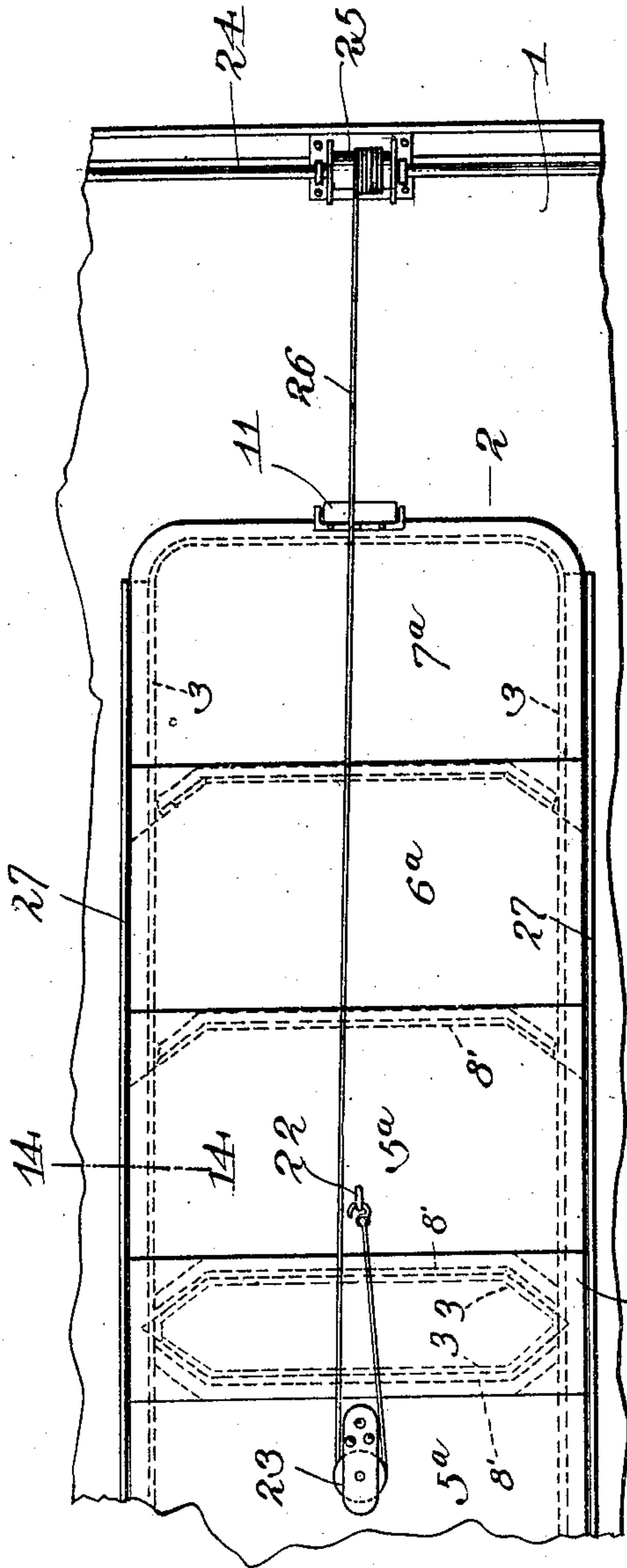


Fig. 11.

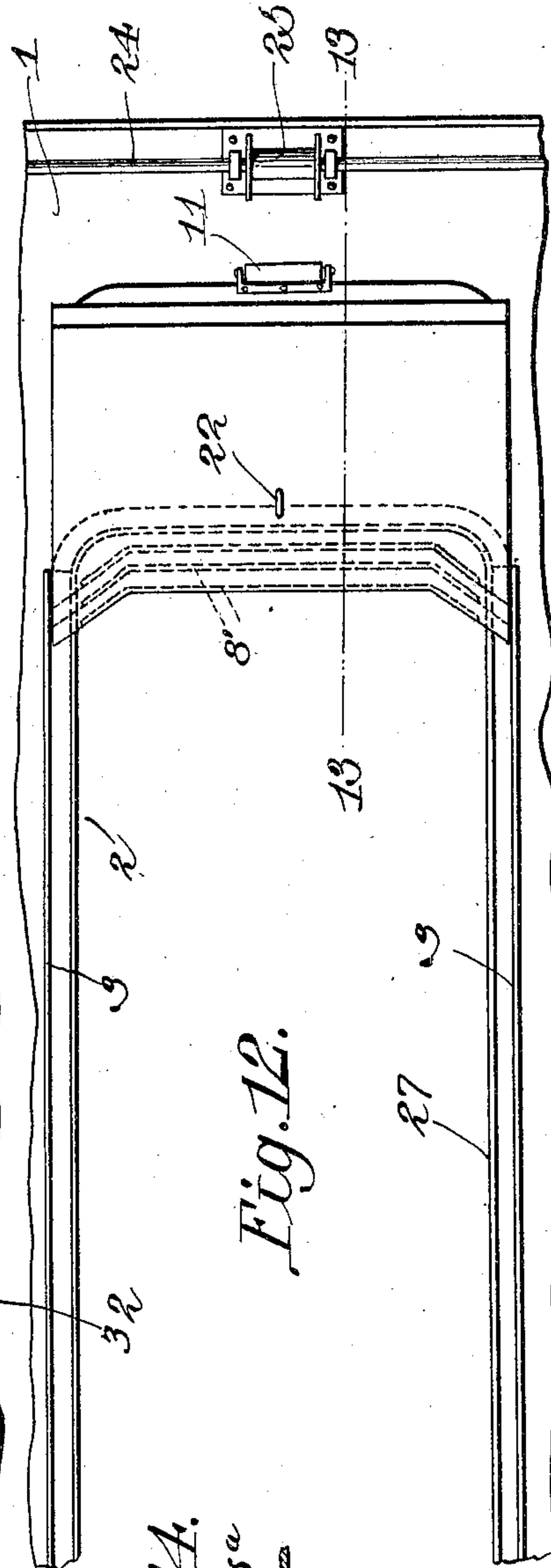


Fig. 12.

Fig. 14.

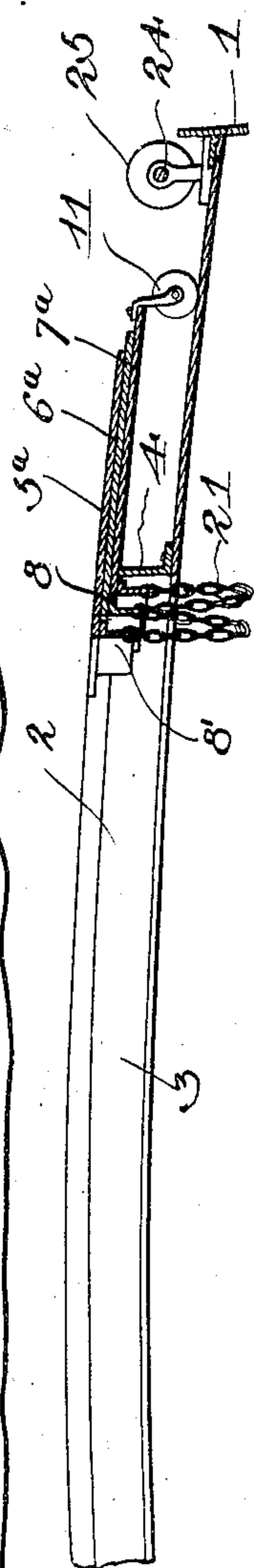
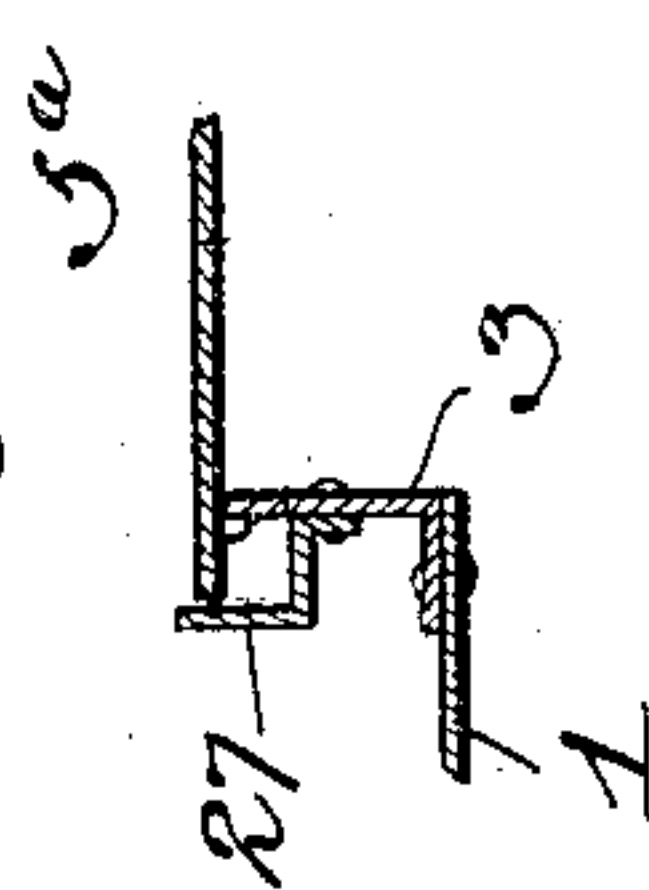


Fig. 13.

Witnesses  
E. C. Stewart  
J. E. Parker

Louis Williams,

Inventor.

by C. A. Snow & Co.  
Attorneys



# UNITED STATES PATENT OFFICE.

LOUIS WILLIAMS, OF SUPERIOR, WISCONSIN.

## HATCH.

SPECIFICATION forming part of Letters Patent No. 790,992, dated May 30, 1905.

Application filed December 16, 1903. Renewed November 22, 1904. Serial No. 233,887.

*To all whom it may concern:*

Be it known that I, LOUIS WILLIAMS, a citizen of the United States, residing at Superior, in the county of Douglas and State of Wisconsin, have invented a new and useful Hatch, of which the following is a specification.

This invention relates to certain improvements in hatches for covering the hatchways of vessels and other openings.

The principal object of the invention is to provide a novel form of hatch made up of a number of overlapping members, which may be moved with the headledges as supports to a position near the fore-and-aft coamings of the hatchway.

A further object of the invention is to provide a hatch of simple and economical construction and to so arrange the same that it may be moved to open and closed position by means of the deck-engine or winch, which all large vessels carry, the arrangement being such that where the vessel has a number of hatchways any desired hatch may be connected to the engine and opened or closed.

With these and other objects in view, as will hereinafter more fully appear, the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a deck plan of a vessel provided with hatches in accordance with the invention. Fig. 2 is a plan view of one of the hatches drawn to an enlarged scale. Fig. 3 is a longitudinal sectional elevation of the same on the line 3 3 of Fig. 2. Fig. 4 is a plan view of one end of a hatchway, showing the hatches in opened position. Fig. 5 is a transverse sectional view of the same on the line 5 5 of Fig. 4. Fig. 6 is a transverse sectional view on the line 6 6 of Fig. 2, drawn to a somewhat larger scale. Figs. 7 and 8 are views corresponding, respectively, to Figs. 2 and 3, illustrating a slight modification of the invention.

Fig. 9 is a sectional view showing hatches of the construction illustrated in Figs. 7 and 8 when adjusted to open position. Fig. 10 is a detail perspective view showing the manner in which the hatches may be locked and sealed. Fig. 11 is a detail plan view showing a slightly-modified construction of hatch in the closed position. Fig. 12 is a similar view with the parts in open position. Fig. 13 is a sectional elevation on the line 13 13 of Fig. 12. Fig. 14 is a detail sectional view of one of the transverse headledges on the line 14 14 of Fig. 11.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

In all vessels of ordinary construction the hatches are made in sections to permit their removal by hand, and where a great many hatches are used, as on the grain and ore carrying vessels, it requires considerable time and labor to remove and replace the hatches, and the hatches are more or less in the way and cumber the deck during the loading and unloading of the vessel. In carrying out the present invention the hatches are so arranged as to remain at all times on the headledges of the hatchway, each hatch being made in sections that overlap or telescope and provision being made for connecting the hatches to any one of the deck-engines or winches which are ordinarily used for making sail or warping the vessel.

In the accompanying drawings, 1 indicates the deck of a vessel, and 2 the hatches, each having transverse headledges 3 and fore-and-aft coamings 4.

The hatches are formed in two main sections that are slidable from the midship-line toward the opposite sides of the vessel, and each of such main sections is composed of a plurality of plates, three being shown in the present instance. Each of the plates 5, 6, and 7 is provided with a downwardly-bent flange at one edge, and such flange is preferably formed of an angle-iron, as indicated at 8. The three plates are each provided with clips 9, extending over the headledges and serving as guides for the outer edges of the plates when the latter are sliding to open and closed



position. The inner or flanged edge of each plate is guided by small rollers 10, that are carried by suitable brackets bolted to the angle-irons 8, and said rollers bear against the inner vertical walls of the headledges and serve to prevent unnecessary friction during the movement of the plates. The outermost plates 7 are each provided with hangers or brackets carrying rollers 11, that are adapted for contact with the deck during the time the plates are being moved to open the hatchway, and when the hatches are closed these rollers are preferably disposed in such manner as to be raised a slight distance above the deck-plates in order to provide for the free passage of dirt or water.

When in closed position, the flanged edges of the plates 5 abut, and the overlapping of the plates 5, 6, and 7 is sufficient to prevent the entrance of water, although the usual tarpaulins may be employed during rough water. When in open position, the two plates 5 and 6 rest on the plates 7, and the plates 7 are supported in part by the hatch-coamings and the roller 11, the roller traveling on the deck, so that the hatchway will be opened for practically its entire width.

All carrying vessels at the present time are provided with deck-engines or winches for making sail or warping the vessel and in some cases for loading and unloading. In the present instance the vessel is shown as provided with winches 12, disposed in alinement with the bitts 13. To the rail of the vessel are secured fair-leaders 14 in alinement with the winding-drums of the winches, and in alinement with the center of each hatchway the rail is further provided with eyes 15, to which may be attached snatch or gate blocks 16. The inner edges of the plates 5 are provided with eyes 17 for the reception of hooks 18, that are connected to wire ropes 19, leading to a wire or hemp rope 20, that is led through the snatch-block and fair-leader to the winding-drum of the winch.

When a hatchway is to be opened, the hooks 18 are inserted in the eyes 17, and the snatch-blocks are arranged in alinement with the hatchway. The winch is then operated and the plates 5 are moved toward the rail until their dependent flanges come into contact with the flanged edges of the plates 6, and thus transmit the movement to said plate 6, and this may be continued throughout any series of plates, a greater or less number being employed in accordance with the size of the vessel.

To permit the closing of the hatchways, the angle-irons 8 are connected together by chains or wire rope, as indicated at 21, and the operation is reversed, the plates 5 moving inboard until the first sections of chain are taut, and the movement is thus transmitted to the plates 6 and the plates move until the hatchway is closed.

In some cases the hatches may be simultaneously closed by moving the sections at the same or from the opposite sides of the hatchway. The plates 5 are therefore provided with eyes 22, to one of which may be attached a block 23, through which is reeved a line 24, one end of the line having a hook for engagement with one of the eyes 22 and the other being guided to the winding-drum of the winch. When the winch is operated, the two main sections of the hatchway are drawn at the same time from opposite sides toward the midship-line of the vessel.

As a modification of the invention the outer plates 7 may be rigidly secured to the hatch-coaming, and the remaining plates rest thereon when the hatchway is opened. This construction is shown in Figs. 7, 8, and 9, wherein the plates 7' are shown as riveted to the coamings and the plates 5' and 6' slide thereon and rest on said plate 7' when the hatchway is open, this construction being employed where it is not necessary that the hatchways should be opened for their full width. The construction is advantageous in that it affords a ready means of locking and sealing the hatches, so that if necessary the whole may be sealed until the end of a trip. As shown in Fig. 10, the eyes 17 of the plates 5 are connected by a tie-wire 26, and this may be sealed in any ordinary manner.

By arranging the hatches in the manner described two deck hands, one at the winch and the other manipulating the snatch-blocks and the hooks 18, may open a large number of hatches in a few moments and without danger of falling through the hatchways.

In Figs. 11 and 12 is illustrated a further modification, the construction here shown being adapted especially for use in connection with hatchways having round corners and the parts being so constructed as to permit of opening of the hatchway to its fullest extent. In this case the plates 5<sup>a</sup>, 6<sup>a</sup>, and 7<sup>a</sup> are each provided with angle-iron flange-pieces 8', and both the angle-irons and the edges of the plates are arranged at an angle or otherwise so shaped as to permit the plates to be drawn out to the fullest possible extent, and thus enable the hatchway to be opened wider than if the perfectly straight angle-irons were used. This will be apparent on reference to Figs. 12 and 13, wherein the hatch is shown in the open position. In this construction it is necessary to employ an auxiliary filling-plate 32, that is provided with auxiliary angle-iron ribs 33 to fit down between the midship-plates 5<sup>a</sup> and cover the space formed between said plates.

Fig. 11 further illustrates a slight modification in the means for opening the hatchways, the vessel being provided with a shaft 24, arranged near the rail and extending, preferably, for the full length of the deck. At a point opposite each hatch is arranged a wind-



ing-drum 25, that is connected by a chain or wire 36 to the hatches 5<sup>a</sup>, so that when the shaft is revolved the hatches may be opened and closed, the tackle connections being arranged in any suitable manner.

Fig. 14 illustrates a preferred construction of the transverse headledges, each ledge 3 being provided with an angle-bar 27, so disposed as to form a drainage-channel, so that water may run off at the ends of the hatch.

Having thus described the invention, what is claimed is—

1. The combination with the headledges and coamings of a hatchway, of a hatch formed of a plurality of overlapping sections, and a supporting means carried by the outermost section for maintaining the outer edge of the hatch above the deck-level.

2. The combination with the headledges and coamings of a hatchway, of a hatch formed of a plurality of overlapping sections all movable on the headledges, and a roller carried by the outermost section and serving to support the sections above the level of the deck.

3. The combination with the headledges and coamings of a hatchway, of a hatch formed of a plurality of overlapping sections each having guiding means for engaging the headledges, and a pendent roller carried by the outer edge of the outermost section and serving as a support for the overlapped sections when the hatchway is opened.

4. The combination with the headledges and coamings of a hatchway, of a hatch formed of a plurality of overlapping plates of uniform length and each having a depending flange at its inner edge, antifriction-rollers carried by the flanges for engaging the headledges, and clips secured to the opposite ends of each plate

adjacent to the outer edge thereof and serving as guides for retaining the plates in proper position with respect to each other and the headledges.

5. The combination with the headledges and coamings of a hatchway, of a hatch formed of a plurality of overlapping plates, angle-irons secured to the plates and forming pendent flanges, chains connecting the several flanges, antifriction-rollers carried by the angle-irons for engaging the inner faces of the headledges, and clips secured to the plates and extending over said headledges, substantially as specified.

6. The combination with the headledges and coamings of a hatchway, of a hatch formed of a plurality of overlapping plates, angle-irons secured to each of the plates and forming a depending flange at the inner edge thereof, chains connecting the flanges to each other, antifriction-rollers carried by the angle-irons and engaging against the inner faces of the ledges, and clips secured to the outer edges of each plate and extending over said ledges, substantially as specified.

7. The combination with a vessel having round-cornered hatchways, of a hatch formed of a plurality of overlapping plates each having one edge arranged on angular lines following approximately the curvature of the hatchway-corners, and an auxiliary plate for filling the spaces between the midship hatch-plates.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LOUIS WILLIAMS.

Witnesses:

JAMES R. HILE,  
W. D. DUGAN.