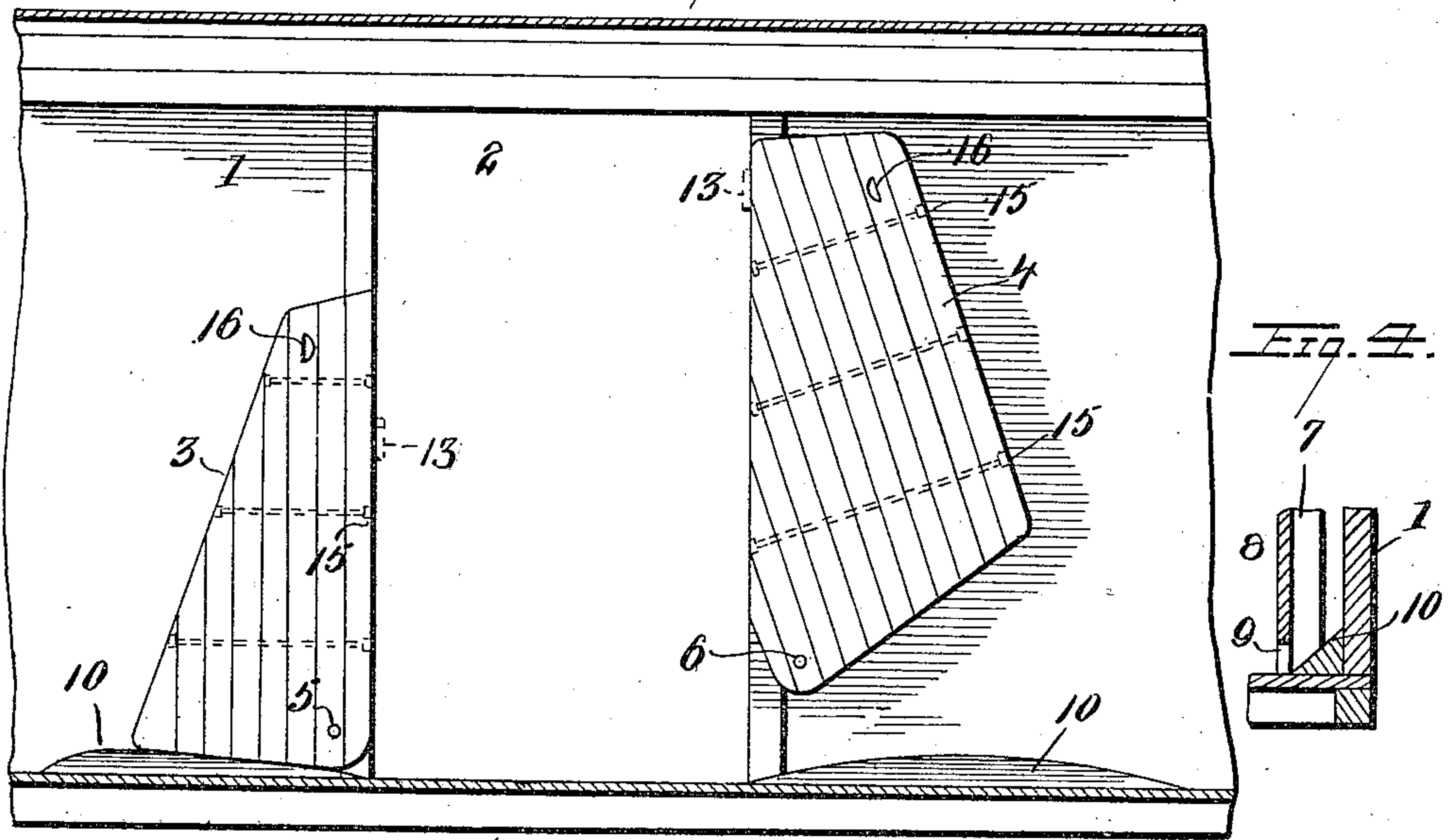
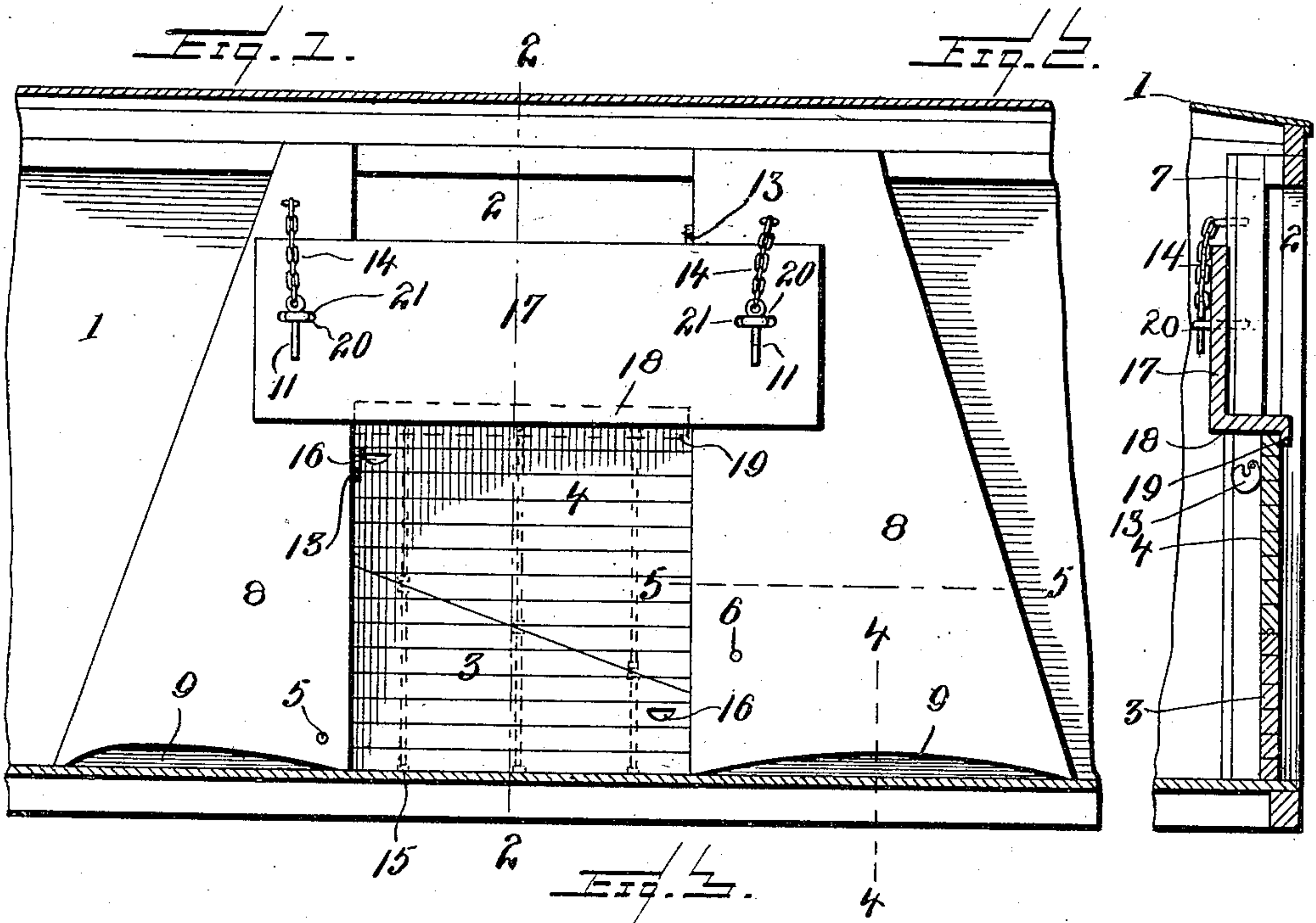


No. 869,743.

PATENTED OCT. 29, 1907.

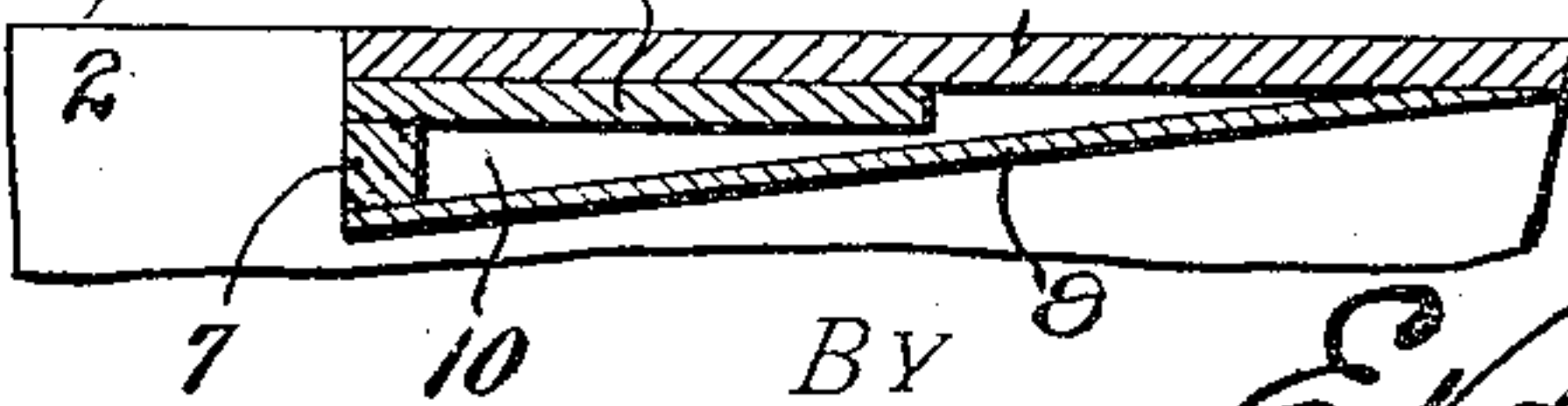
W. R. SMITH.
GRAIN CAR DOOR.
APPLICATION FILED JULY 26, 1906.



WITNESSES:

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Fig. 5.



BY

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UNITED STATES PATENT OFFICE.

WILLIAM R. SMITH, OF TOPEKA, KANSAS, ASSIGNOR OF ONE-FIFTH TO FRANK L. PARK, OF TOPEKA, KANSAS.

GRAIN-CAR DOOR.

No. 869,743.

Specification of Letters Patent.

Patented Oct. 29, 1907.

Application filed July 26, 1906. Serial No. 327,928.

To all whom it may concern:

Be it known that I, WILLIAM R. SMITH, a citizen of the United States, residing at Topeka, in the county of Shawnee, State of Kansas; have invented certain new and useful Improvements in Grain-Car Doors, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a grain car door, and particularly to a pivotally mounted sectional door.

The invention has for an object to provide a novel and improved construction of door sections, one being of greater area than the other and pivoted in a different horizontal plane whereby a door of the required height and strength may be provided which will swing upward within the space usually allowed in a car of this character.

A further object of the invention is to provide an improved construction and arrangement of casing for the door which will offer no obstruction to the emptying of the car by the usual steam shovel or other methods, and which will discharge into the car any grain entering the door casing.

Another object of the invention is to provide an improved construction and arrangement of auxiliary board or door adapted to be seated upon the upper surface of the permanent door when closed and to be secured in position so as to prevent the grain in the car from entering the door casing above the door.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawing:—Figure 1 is a longitudinal section showing the interior of a car with the door closed; Fig. 2 is a vertical section on the line 2—2, Fig. 1; Fig. 3 is a longitudinal section through a car with the door casing removed; Fig. 4 is a detail section on the line 4—4, Fig. 1, and Fig. 5 is a similar section on the line 5—5, Fig. 1.

Like numerals of reference indicate like parts throughout the several views of the drawing.

The numeral 1 designates a car structure which may be of any desired size or configuration and provided with the usual door opening 2 therein. At opposite sides of this opening the door sections 3, 4 are pivotally mounted, preferably in different horizontal planes, for instance, the section 3 is pivoted at 5, while the section 4 is pivoted at 6 in a higher horizontal plane, and one of these sections is of greater area than the other. This difference in area of the sections effects an important advantage in permitting the door to be constructed of the desired height, and provide a proper amount of material to receive the strain applied to a grain car door. In ordinary practice the upper section 4 of this door is of twice the area of the lower section 3, and will swing upward, as shown in Fig. 3, to clear the roof line of the car. In order to protect these doors

and provide a casing which will offer no obstruction to the unloading of the car by the use of the ordinary steam shovel, or other means a studding 7 is disposed within the car at the inner face of the door, and an inclined wall extends therefrom to the car side in order to form a casing in which the door is disposed. This wall 8 is provided next the car floor with the cutaway portion 9 for the purpose of discharging any grain which may enter the door casing, and this discharge is materially assisted by the inclined bottom 10 disposed in the casing opposite the opening therethrough. The door sections when swung upward may be secured in position by any desired means, for instance, by the pivoted cam plate 13.

The doors when closed as in Figs. 1 and 2 are held against upward movement by the left cam 13 bearing against the side of the upper door, while when swung within the casing they are retained therein by the cam plates 13 which are mounted upon the casing frame and swing by gravity into the path of travel of the doors to engage the edges thereof.

The doors may be formed in any desired manner, for instance, the strips forming the door may be secured together by bolts 15 extending therethrough, and each of the doors is provided with a hand hold 16 for lifting the same.

The structure of door hereinbefore described is adapted for ordinary uses of the grain car, but in carrying certain material the load line is much higher than that of others so that an auxiliary door or board 17 is provided for application above the permanent door. This door is provided with a lateral flange 18 adapted to seat upon the top of the door section 4 and having a depending lip 19 to prevent displacement thereof. The board is secured in position by means of staples 20 carried by the casing 8 and extending through openings 21 in the extended ends of the board, said staples being adapted to cooperate with the bolts or pins 11 which are secured against loss by chains 14, as shown.

In the operation of the invention it will be seen that when the car is to be used for grain the doors may be swung downward to the position shown in Fig. 1, and in this position provide the height necessary for the usual load line, while if material of a lighter character is to be transported and consequently a higher load line used in the car, the auxiliary door or board is applied as shown in Fig. 2, and when in position effectually prevents the escape of the grain or other material into the open portion of the casing above the permanent door by resting thereon, while the extended ends of this board are secured in position by the staple fastening shown. The construction of the door in two sections of different area or size and pivoted in different horizontal planes permits the use of a door of proper strength at the free ends and of height which can be swung upward within the space allowed beneath the

roof of the car thus permitting the use of a door six feet long by five feet high which will clear the roof of the car when opened into the position shown in Fig. 3.

The structure of the door casing permits the discharge
5 of all grain which may enter the same onto the floor of the car and also obviates any obstruction to the use of the shovel or other unloading device.

It will be obvious that this invention presents a simple, efficient and economical construction of grain car
10 door.

Having now described my invention and set forth its merits, what I claim and desire to secure by Letters Patent is:—

1. In a grain car door, a casing provided with an end
15 opening, a door section pivoted at its lower portion within

said casing to travel through said opening, and a pivoted retaining device disposed upon a fixed part at one side of said section and having a cam face to swing laterally into contact with the side of said section and automatically across the end opening in said casing. 20

2. In a car door, door sections at opposite sides thereof, a casing within which said sections are adapted to enter, and a cam shaped pivoted plate disposed upon a fixed part laterally and at one side of one of said sections to engage the side face of the free end of an opposite section or swing
25 across the path of travel of another section to retain it within said casing.

In testimony whereof, I affix my signature in presence of two witnesses.

WILLIAM R. SMITH.

Witnesses:

C. R. GRAHAM,
THOS. H. DIXON.