

F. C. LAKIN.
SLIDING GRAIN DOOR FOR CARS.
APPLICATION FILED MAY 17, 1909.

958,140.

Patented May 17, 1910.

2 SHEETS—SHEET 1.

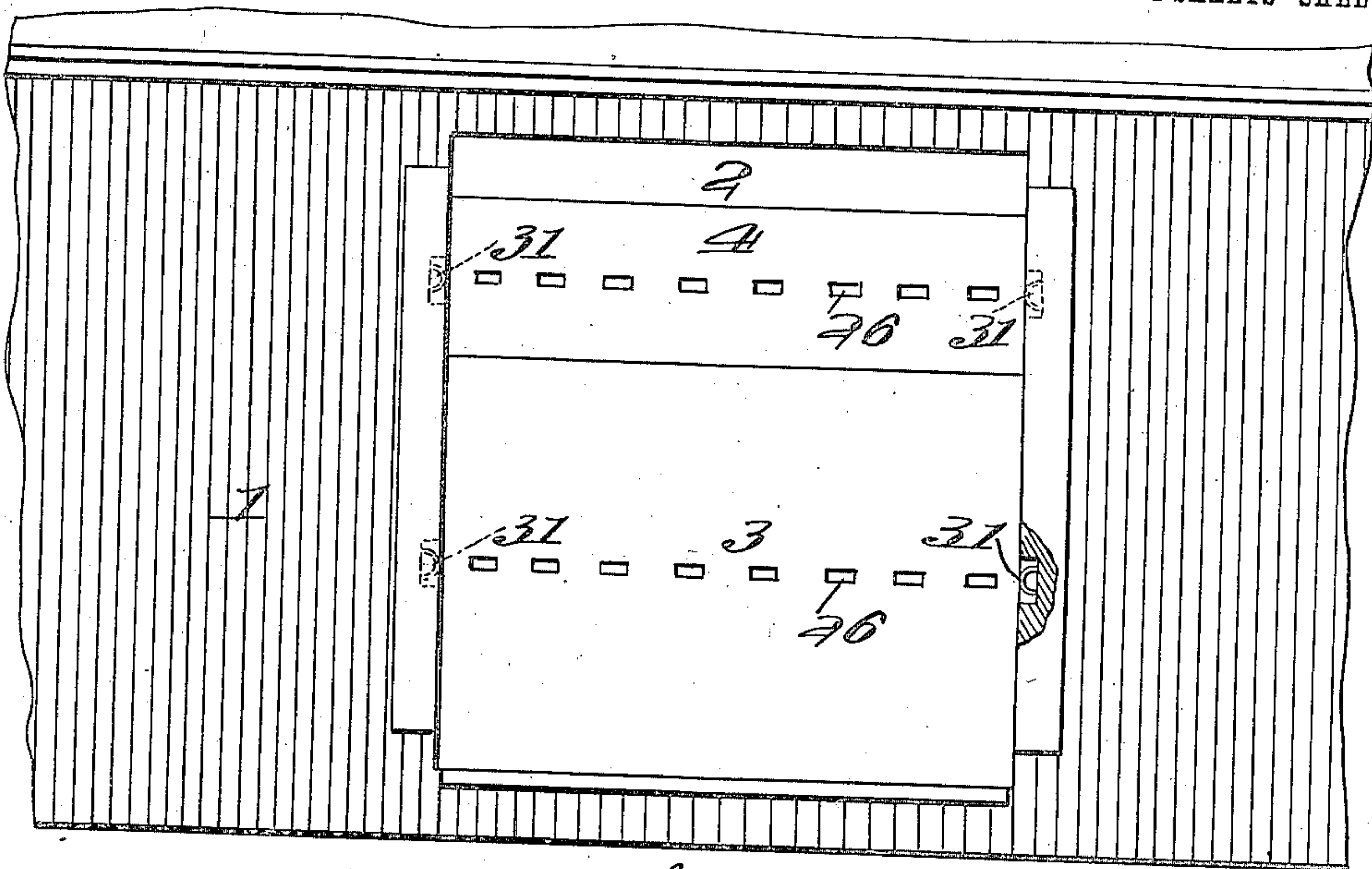


Fig. 1.

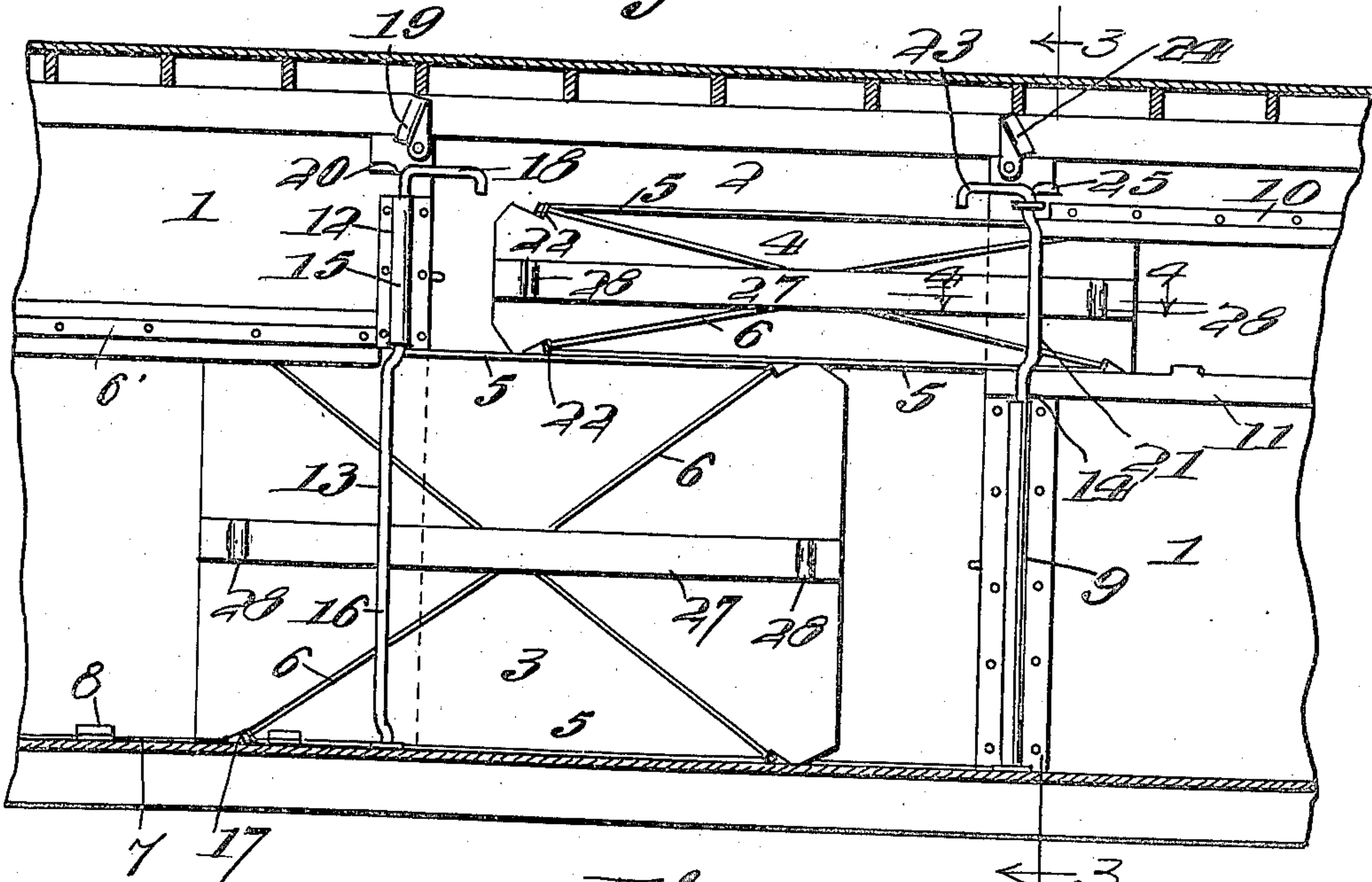


Fig. 2.

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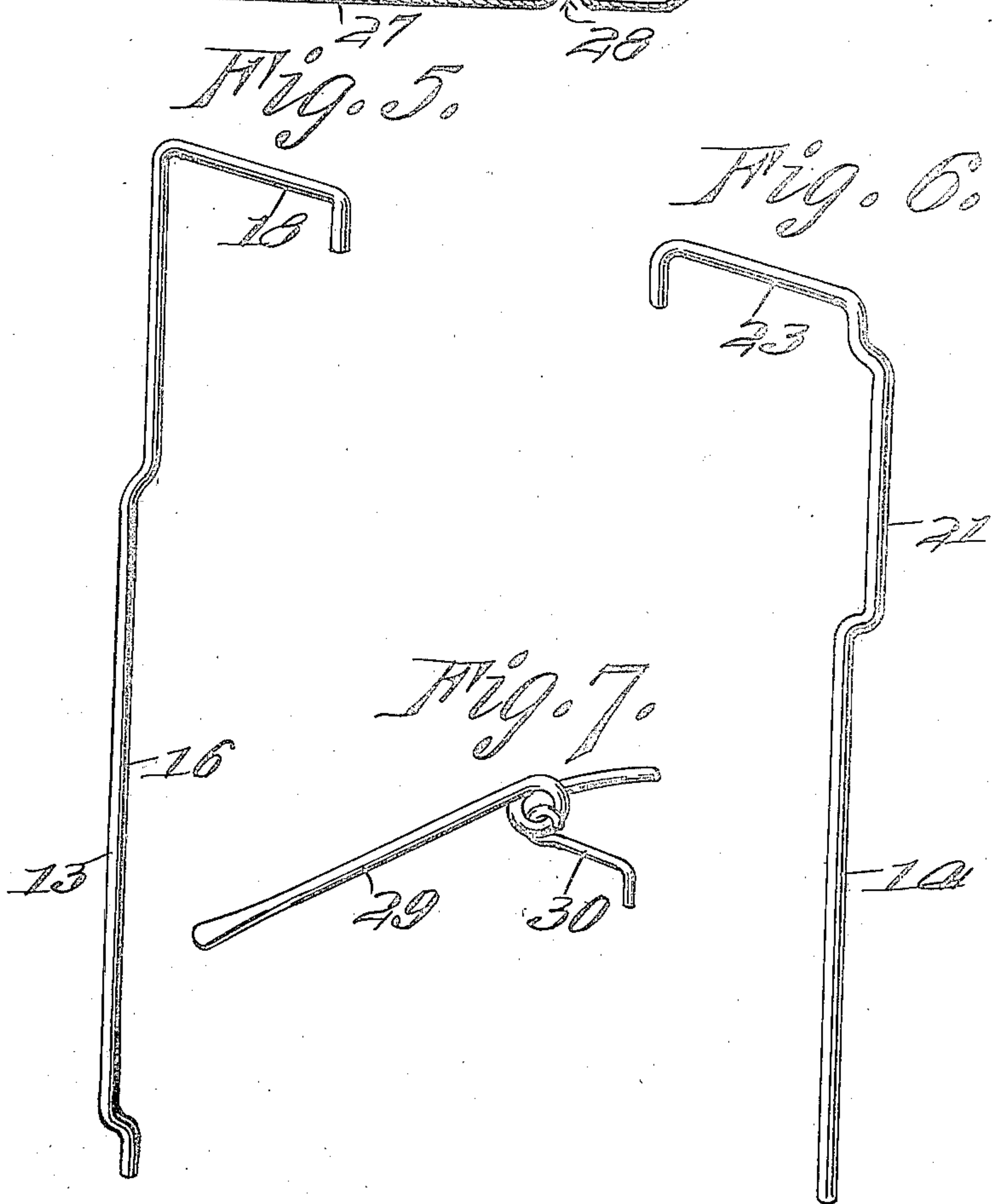
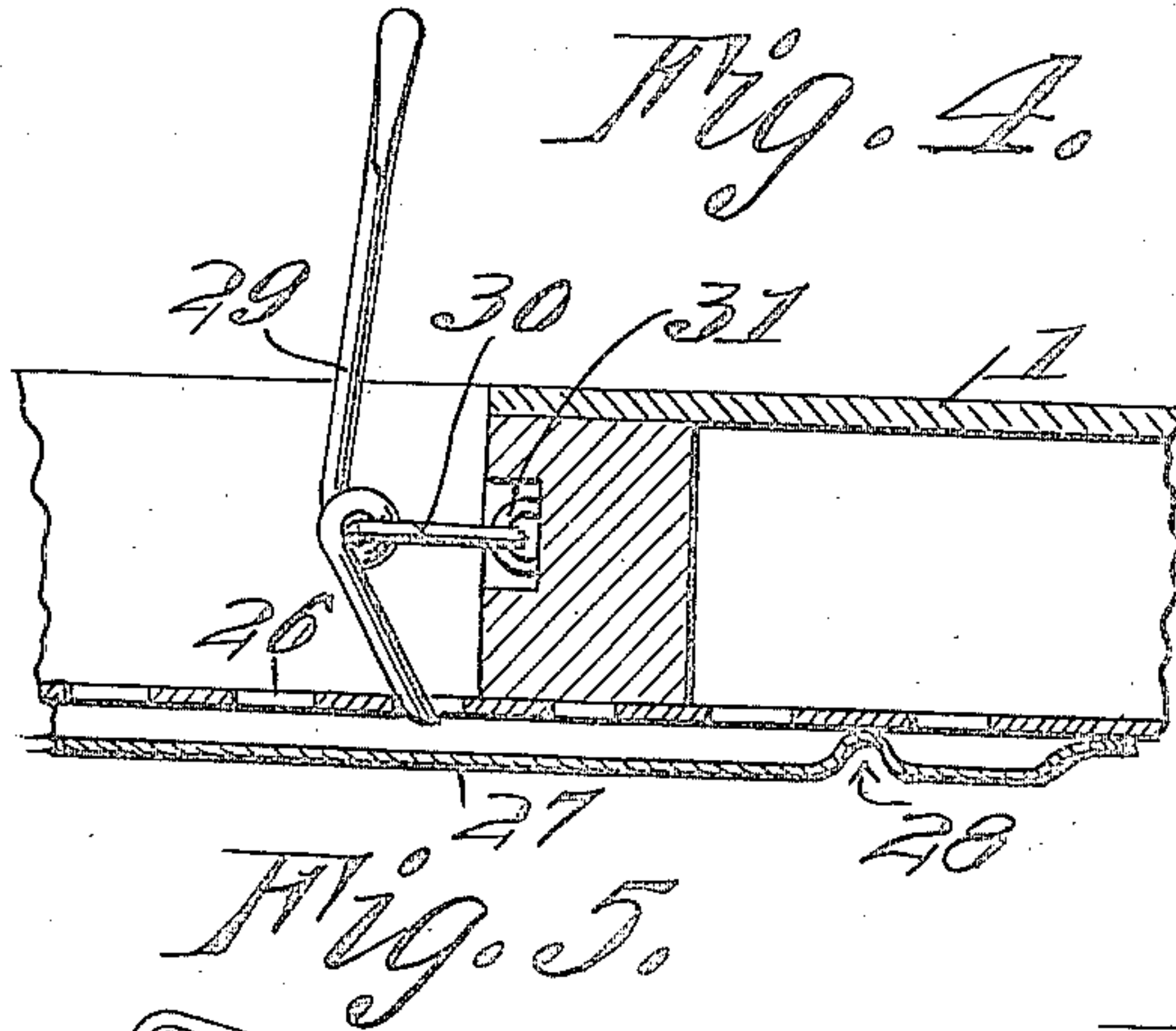
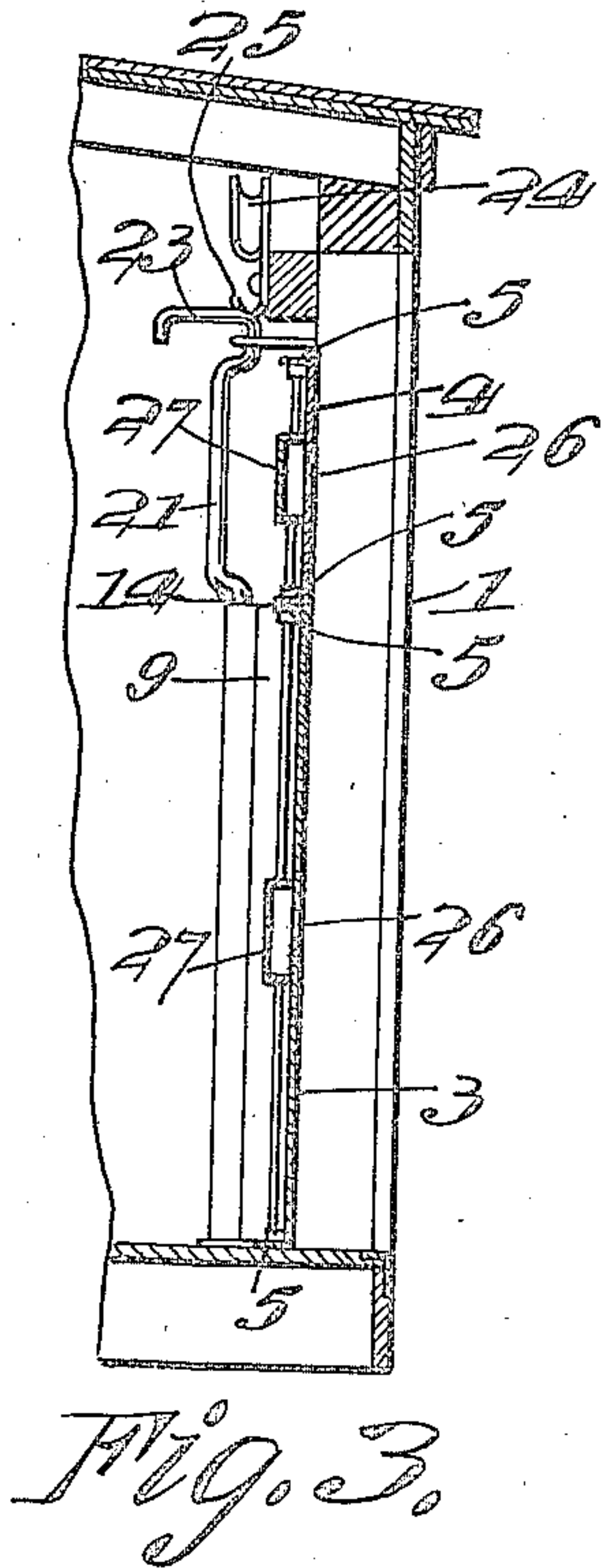
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C. H. Griesbauer.

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UNITED STATES PATENT OFFICE.

FRANK C. LAKIN, OF MANCHESTER, ILLINOIS.

SLIDING GRAIN-DOOR FOR CARS.

958,140.

Specification of Letters Patent. Patented May 17, 1910.

Application filed May 17, 1909. Serial No. 496,365.

To all whom it may concern:

Be it known that I, FRANK C. LAKIN, a citizen of the United States, residing at Manchester, in the county of Scott and State of Illinois, have invented certain new and useful Improvements in Sliding Grain-Doors for Cars; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in sliding grain doors for cars.

The object of the invention is to provide a door of this character having an improved construction of fastening mechanism for bracing and holding the sections of the door in closed position.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side view of a portion of a car showing my improved door applied thereto; Fig. 2 is an inner side view of the same, showing the upper section of the door partially opened; Fig. 3 is a vertical cross section through the side of the car and door on line 3—3 of Fig. 2, showing the fastening device of the upper section of the door in released position; Fig. 4 is a horizontal section of the same on the line 4—4 of Fig. 2, showing the manner in which the doors are opened; Fig. 5 is a perspective view of the fastening bar of the lower section of the door; Fig. 6 is a similar view of the fastening bar for the upper door; Fig. 7 is a similar view of the door opening lever.

Referring more particularly to the drawings, 1 denotes the side of the car having formed therein the usual door way or opening 2.

My improved door is formed in two or more slidable sections, the same being here shown as constructed of a lower section 3 and an upper section 4. The lower section 3 is of considerably greater width than the upper section. The sections of the door are preferably constructed of heavy sheet metal and have their upper edges bent inwardly to form bracing flanges 5. The sections of the door are also further braced on their inner sides by diagonally arranged cross brace

rods 6, the opposite ends of which are secured in the upper and lower flanges 5, as shown.

The lower section of the door is slidably engaged with upper and lower tracks 6' and 7. The upper track 6' is preferably in the form of a channel shaped bar, while the lower track 7 comprises a flat plate having formed thereon at suitable intervals upwardly projecting guide lugs 8. By constructing the lower track, as shown and described, the grain is prevented from lodging in the same and interfering with the movement of the door. On the inner side of the car, adjacent to one edge of the opening 2, is a stop plate 9 which is preferably V-shaped in cross section and is adapted to receive the end of the door section 3, when in closed position.

The upper section 4 of the door is slidably engaged with upper and lower tracks 10 and 11 which are constructed similarly to the tracks 6 and 7 of the lower section of the door and are suitably secured to the inner side of the car, as shown.

The upper and lower sections of the door slide and are opened in opposite directions and on the inner side of the car, adjacent to the edge of the opening 2 opposite to the edge having the stop plate 9, is arranged a stop plate 12 for the upper section of the door. Said stop plate is constructed in a similar manner as described in connection with the plate 9.

The sections of the door are fastened in their closed positions by means of fastening or clamping bars 13 and 14. The clamping bar 13 is mounted to turn in suitable bearings formed in the tracks 6 and 7, arranged at or adjacent to the inner end of the lower section of the door, as shown. The upper portion of the bar 13 is also engaged with a bearing flange 15, formed on the stop plate 12 of the upper section of the door. In the portion of the bar 13, opposite to the lower section of the door is formed an offset or clamping projection 16 which, when the bar is turned to a locking position, is adapted to engage notches or recesses 17 formed in the flanges 5 of the lower section of the door, when the latter is in a closed position, thereby clamping or fastening the door. On the upper portion of the fastening bar 13 is formed a right angularly projecting downwardly turned operating handle 18 which also forms a detent or locking member which

is adapted to be engaged by a catch 19 which is pivoted on the inner side of the door and is adapted to drop over or into engagement with the upper right angularly formed end 18 and into engagement with a keeper 20, thereby locking the fastening bar in operative engagement with the door, thus securing the latter in closed position.

The fastening bar 14 is mounted in suitable bearings at the opposite side of the door opening 2 and is constructed in a similar manner to the bar 13 except that the offset door clamping portion 21 is formed in the upper portion of the bar opposite to the upper section of the door whereby when said upper section is closed, the offset portion 21 may be turned into engagement with locking notches 22 formed in the flanges 5 of the upper section of the door. The bar 14 is provided with a locking member 23 similar to the locking member of the bar 13 and said locking member 23 is adapted to be engaged by a latch 24 which is pivotally mounted on the inner side of the car in position to drop into engagement with the member 23 and with a keeper 25, thus locking the bar 14 in operative engagement with the upper section of the door to hold the latter in closed position. The fastening bar 14 while primarily extended to fasten the sections of the door in closed position, also serves as a vertical brace for the inner sides of the door sections.

The sections of the door are provided through their center with a series of lever engaging apertures 26, said apertures being covered on the inner side of the door by a suitable casing or housing 27 to prevent the escape of grain through the apertures. The housings or casings 27 are provided with notches 28 to receive the offset portions of the fastening bars when the latter are turned to operative positions. With the apertures 26 is adapted to be engaged the tapered end of the door opening lever 29 to which is connected a fulcrum hook 30 adapted to be hooked into engagement with eyes 31 arranged in the edges of the door opening 2, opposite the rows of apertures 26, in the sections of the door. The eyes 31 are preferably set into recesses in the edge of the door frame so that the outer ends of the eyes will be flush with the edges of the frame and therefore do not present obstructions in the door opening. When the end of the lever 29 is engaged with the apertures 26 in either section of the door and the fulcrum hook 30 is engaged with the respective eye 31, as shown in Fig. 4 of the drawings, the door sections may be readily moved to an open position or forced into engagement with their stop plates when in a closed position. By inserting the door opening lever 29 through the space between

the upper section of the door and the top of the doorway and engaging the handle end of the lever with the latches of the fastening bars, said latches may be disengaged from the handle ends of the bars and the latter turned to unfasten the doors from the outside of the car.

From the foregoing description, taken in connection with the accompanying drawings the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.

Having thus described my invention, what I claim is:

1. A car door formed of a plurality of slidable sections arranged one above the other, guide tracks to slidably support said door sections, longitudinally extending housings on said doors, having transverse indentations adjacent their ends, fastening bars mounted in suitable bearings, door engaging off-sets formed in said fastening bars, and adapted to be turned into engagement with the indentations of the housings on said sections of the door to hold the same in closed position, detents formed on the upper ends of said bars, and catches adapted to be engaged with said detents to hold the bars in operative position.

2. A grain door for cars formed of a plurality of slidably mounted apertured sections, guiding and supporting tracks adapted to receive said sections of the door, longitudinally extending housings over the apertures, having transverse indentations adjacent their ends, independent fastening bars mounted to turn in suitable bearings on said guide tracks, offset portions formed in said bars and adapted to be turned into operative engagement with the indentations in the housings on the door sections to clamp the sections in closed position, right angularly bent handles formed on the upper ends of said bars, pivotally mounted catches adapted to be engaged with said handle ends to hold the bars in operative engagement with the door sections, keepers to receive said catches when in operative engagement with the fastening bars, and means to engage the apertures, whereby the sections of the door may be opened.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRANK C. LAKIN.

Witnesses:

F. F. CLARK,
J. S. WEIS.