

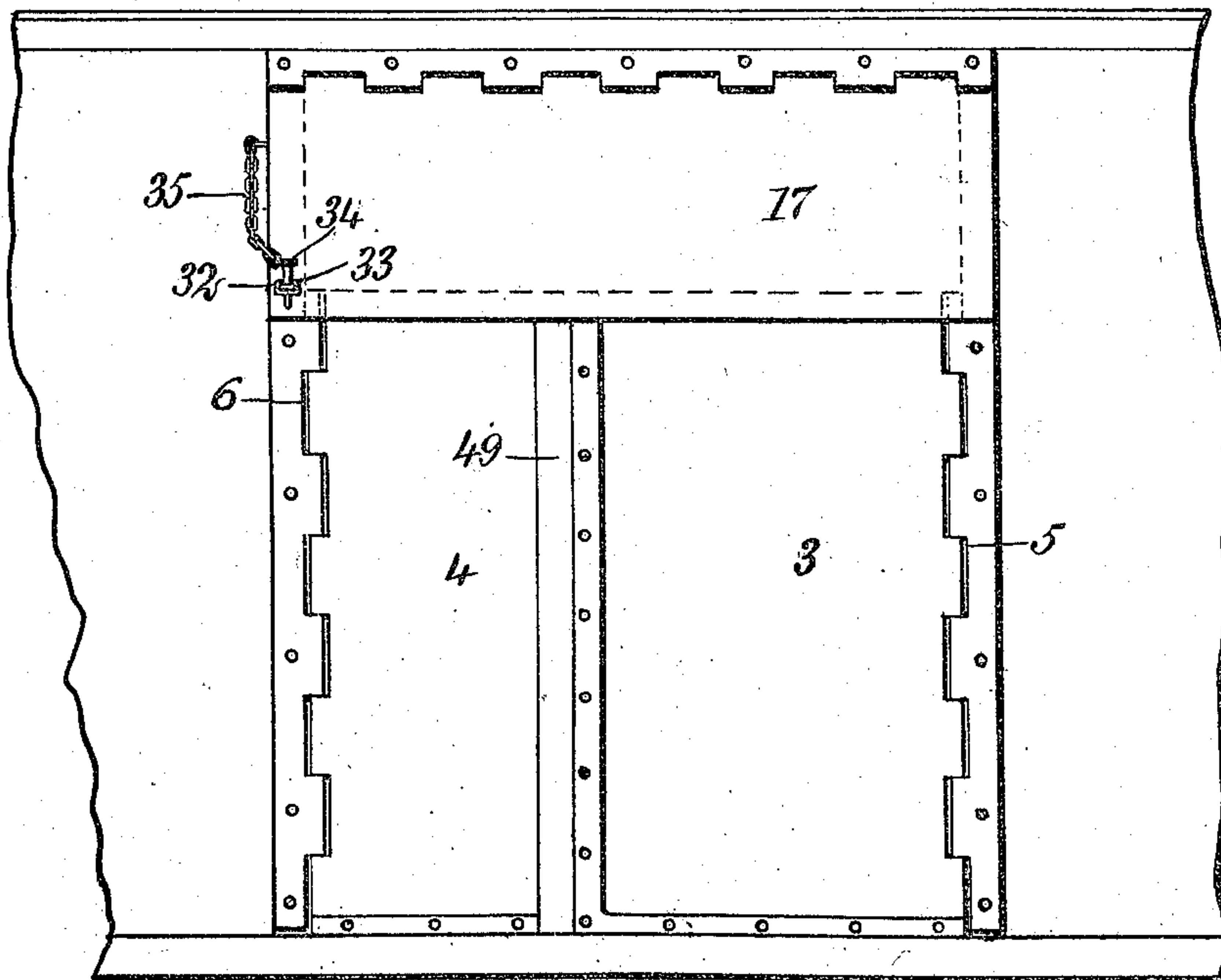
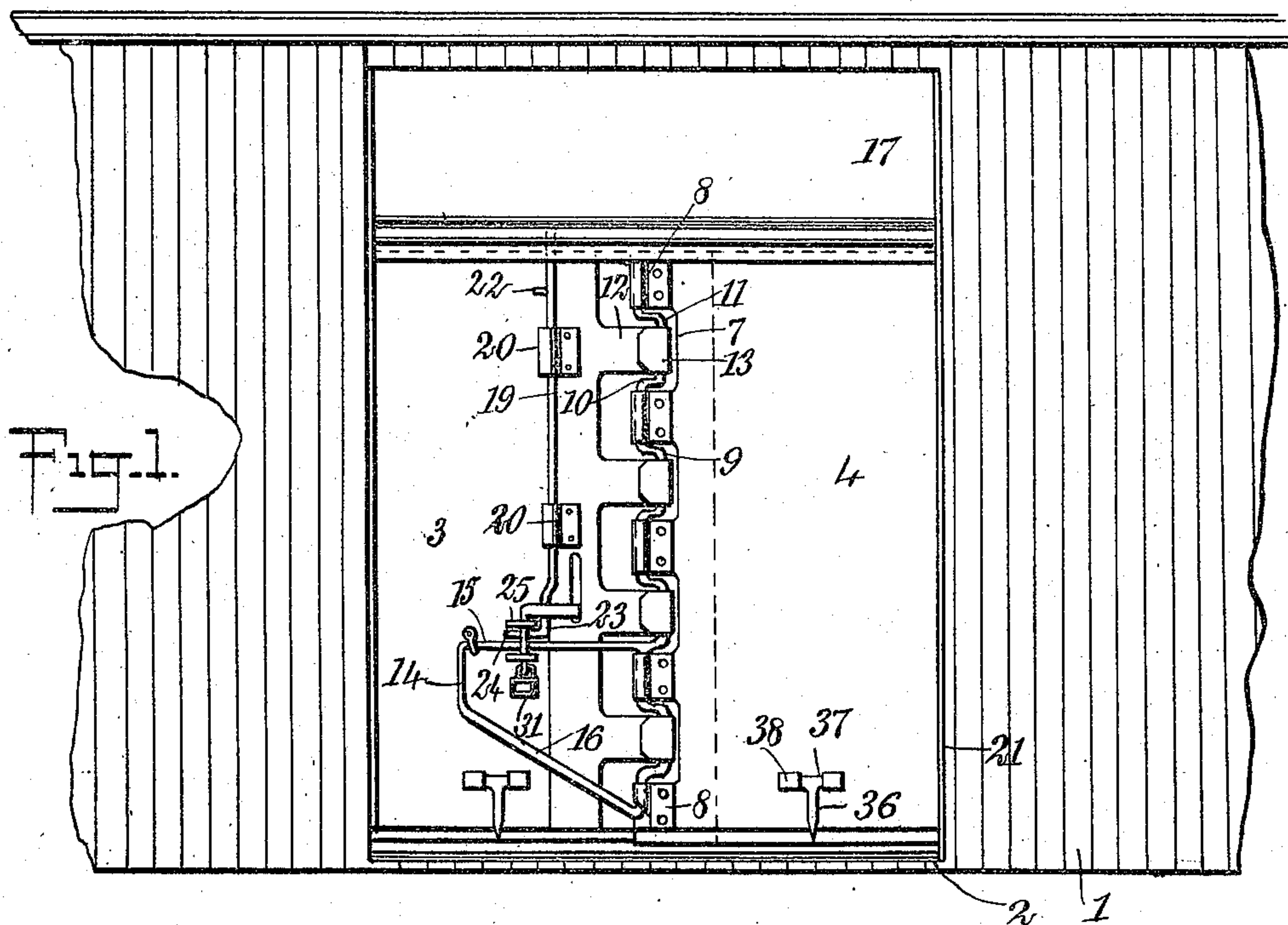
No. 881,798.

G. O. HELVIG.
CAR DOOR.

PATENTED MAR. 10, 1908.

APPLICATION FILED MAY 9, 1907.

2 SHEETS—SHEET 1.



WITNESSES

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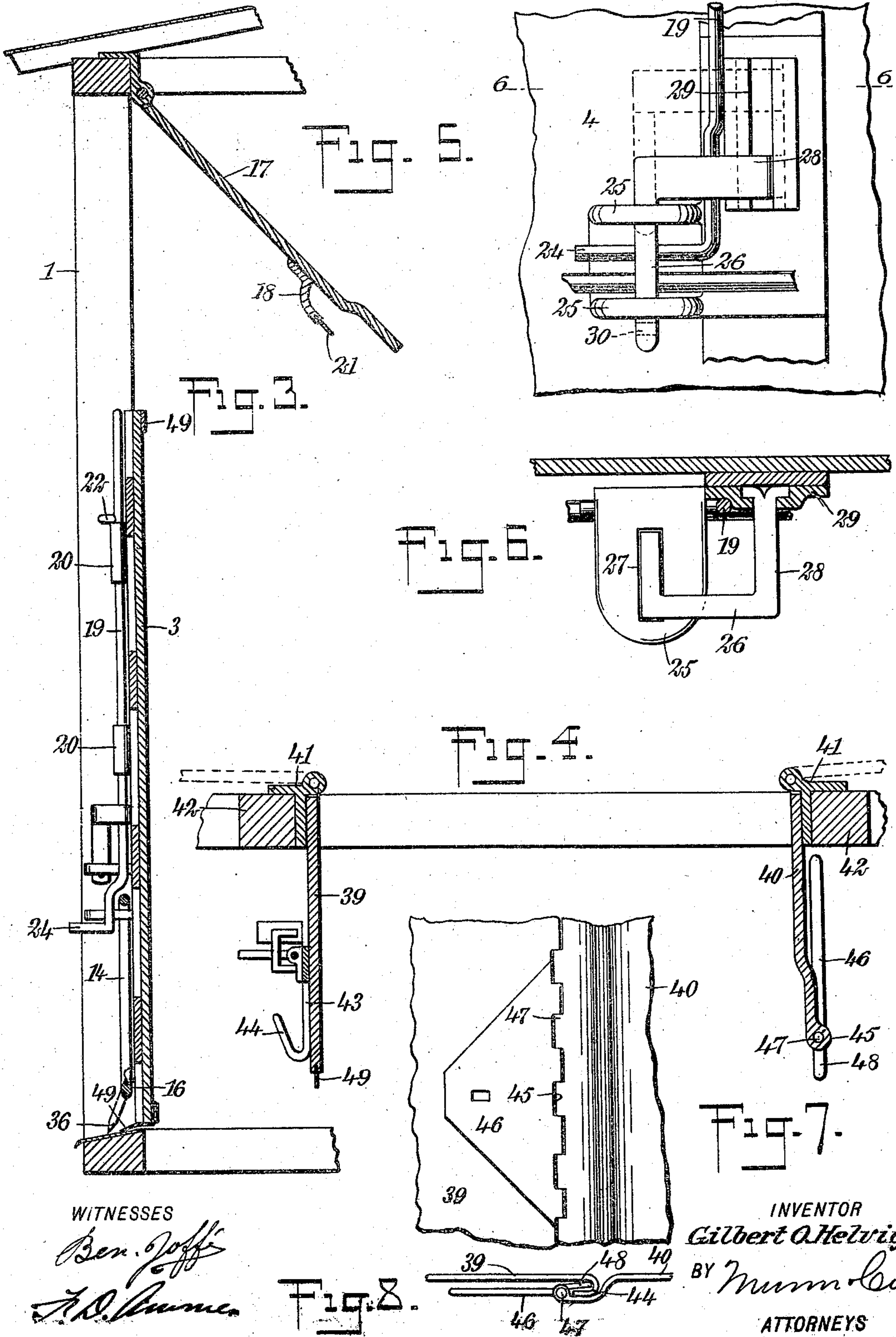
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

GILBERT O. HELVIG, OF DAWSON, MINNESOTA.

CAR-DOOR.

No. 881,798.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed May 9, 1907. Serial No. 372,655.

To all whom it may concern:

Be it known that I, GILBERT O. HELVIG, a citizen of the United States, and a resident of Dawson, in the county of Lac qui Parle and State of Minnesota, have invented a new and Improved Car-Door, of which the following is a full, clear, and exact description.

This invention relates to car doors, and the object of the invention is to produce a door which can be opened and closed with great facility, and which will operate effectively to prevent the loss of grain or similar produce which sometimes occurs through the cracks or small openings at the doorways of cars.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the middle portion of a car body, representing the door constructed according to my invention and in a closed position; Fig. 2 is an inside elevation of the door and contiguous parts of the car body; Fig. 3 is a vertical central section through a door constructed according to my invention, and showing contiguous parts of the car body; Fig. 4 is a horizontal cross section through the doorway of a car and a door of a modified form; Fig. 5 is a front elevation upon an enlarged scale and illustrating the locking mechanism for the door of the preferred form; Fig. 6 is a horizontal cross section taken on the line 6—6 of Fig. 5, and further illustrating the locking mechanism; Fig. 7 is a front elevation of a portion of the modified form of door illustrated in Fig. 4; and Fig. 8 is an edge view of the same, looking downwardly.

Referring more particularly to the parts, 1 represents the body of a car having a doorway 2. In the preferred form of my invention, I provide two hinged doors 3 and 4, the former of which is connected by a hinge joint 5 to the rear face of the door jamb, while the door 4 is similarly attached by a hinge joint 6 at the other side of the door jamb. The edges of these doors are adapted to overlap, as indicated in Fig. 2. The free vertical edge

of the door 4 is cut away so as to form a plurality of notches 7 located between the projecting ears 8. These ears 8 are formed with bearings for a locking bar 9; this locking bar 9 is formed with wrists 10 which are rotatably mounted in the ears 8, and between the ears 8 at the notches 7 the locking bar is formed with cranks 11. The opposite edge of the door 3 is formed with projecting tongues 12 which are opposite the cranks 11 and the ends of these tongues 12 are bent over so as to form hooks 13 adapted to be engaged by the cranks. Near the lower edge of the door the locking bar 9 is formed with a laterally projecting lever 14 which is formed with a horizontal extension 15 and connects integrally with an inclined extension 16, as shown. The cranks 11 are substantially in the same plane as the lever 14. This arrangement enables the locking bar to be rotated so as to enable the cranks 11 to be engaged with the hooks or disengaged therefrom, as desired. When the lever 14 lies against the face of the door 3, as indicated in Fig. 1, the cranks are in engagement with the hooks so that the door 3 is latched against the door 4.

At the upper side of the doorway a transom or upper door 17 hinged, as shown, so as to swing inwardly as indicated in Fig. 3. The lower edge of this door overlaps the upper edges of the doors 3 and 4.

On its outer face the transom 17 is provided with an upwardly projecting hood 18 which constitutes a keeper for a vertically sliding bolt 19 which is attached in guides 20 secured to the outer face of the door 3 as shown. The lower edge of this hood is provided with a downwardly extending flap 21, of leather, rubber or similar material, which constitutes a protection for the upper edge of the doors 3 and 4, from the weather. When the doors 3 and 4 are latched together as indicated in Fig. 3, the bolt 19 may be shot upwardly so that its upper end projects under the keeper 18 and in this way the transom or upper door 17 may be also latched in position.

Near the upper end of the bolt 19 a laterally projecting finger 22 is provided, which is adapted to strike the uppermost of the guides 20 so as to limit the downward movement of the bolt. The lower end of the bolt

19 is formed with an offset extension 23 which is bent laterally to form a handle or finger 24. By means of this finger the bolt may be rotated so that the finger may lie against the face of the door 3, as shown in Fig. 1. In this way the finger 24 and the horizontal extension 15 of the lever 14 may be brought close together and in parallelism, both lying on the face of the doorway. When in this position these parts lie between guiding ears 25 which project outwardly from the face of the door. Through these guiding ears a locking bolt 26 slides, as indicated, through alining openings 27 formed in the ears, as indicated in Figs. 5 and 6. This locking bolt 26 is formed upon a slide 28, the inner end of which is slidably mounted in a tee-slotted plate or guide 29 attached to the face of the door. When this slide 28 is slid upwardly, the locking finger or bolt 26 is withdrawn from before the finger 24 and part 15, so as to enable these pieces to be moved. The lower extremity of the locking finger 26 is provided with an opening 30 which enables a seal 31 to be applied, as indicated in Fig. 1. When the car is to be used for shipping valuable freight, a seal will be applied at this point, and if it is injured or removed, it will indicate that the door has been opened or tampered with. When the car is being used to carry grain, the upper door or transom 17 may be left open; that is, it will be swung inwardly and supported at its free edge from the roof or rafters of the car. It may be desired to lock the transom in a closed position independently of the doors 3 and 4; for this purpose the lower edge of the transom is provided at one end thereof with an opening 32. This opening is disposed over the door jamb as indicated in Fig. 2, and the jamb is provided with an outwardly projecting stud 33 which is adapted to project through the transom when the same is closed. This stud 33 is provided with an opening to receive a pin 34 which holds the door closed. This pin for convenience, is attached by a small chain 35 to the door jamb.

On the outer sides of the doors 3 and 4, near the lower edges thereof, I provide downwardly projecting spurs 36 having horizontal bodies 37 rotatably mounted in bearings 38 projecting outwardly from the face of the door. These spurs are sharpened at their lower ends and lie adjacent to the sill of the door and near the car floor when the doors are opened inwardly. It will be observed that the doors 3 and 4 may be swung inwardly or outwardly to open them.

In Figs. 4, 7 and 8, I illustrate a modified construction of door which I may employ for latching the side doors together. Referring to these Figs. 39 and 40 represent respectively the left-hand and right-hand

swinging doors, and these doors are attached by hinges 41 to the door jambs 42 as shown. To the outer side of the door 39 near the free edge thereof, I attach a hook plate 43, the edge whereof is bent rearwardly to form a flange or hook 44. On the opposite edge 45 of the door 40 which overlaps the door 39, a locking plate 46 is attached by a hinge joint 47. This locking plate 46 has a projecting toe 48.

The edge of the door 40 is offset outwardly, so that the doors are adapted to overlap each other, as indicated in Fig. 8. When they are being brought into this overlapped position, the body of the locking plate 46 is rotated from right to left so that the toe 48 engages under the hook 44. In this way the doors are practically latched together, with the body of the plate 46 lying against the face of the door 39. This plate may be then secured to the door 39 in any suitable manner.

In both forms of the invention, the edges of the doors are provided with weather strips 49 which tend to keep out the driving rain.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In combination, a pair of swinging doors overlapping at their free edges when closed, a rotatable locking bar attached to one of said doors and affording means for latching said doors together, a third door cooperating with said first doors to close the opening of the doorway, a locking bolt for latching said third door, and a member for locking both said locking bar and locking bolt against movement.

2. In combination, a swinging door having a hook plate near the free edge thereof, a second swinging door overlapping the first, a rotatable locking bar attached to said second door and having cranks adapted to engage said hook plate, a third door overlapping the upper edges of said first doors, a sliding and rotatable bolt mounted on one of said first doors and engaging said third door to lock the same, said locking bolt having a lateral finger, a lever carried by said locking bar, and means moving over said finger and said lever and locking the same against movement.

3. In combination, a swinging door having a hook plate near the free edge thereof, a second swinging door meeting the first, a rotatable locking bar attached to said second door and having cranks adapted to engage said hook plate, a third door attached to the upper edge of the doorway and meeting the upper edge of said first door; a sliding and rotatable bolt mounted on said first door and engaging said third door to lock the same, said bolt having a handle adapted to

lie against the face of said first door, a lever
carried by said locking bar and adapted to
lie against the face of said first door ad-
jacent to said handle, and a sliding member
5 attached to said first door and affording
means for holding said handle and said lever
against the face thereof.

In testimony whereof I have signed my
name to this specification in the presence of
two subscribing witnesses.

GILBERT O. HELVIG.

Witnesses:

ARTHUR W. EWING,
ANNE G. EWING.