A. HOILAND.

FREIGHT CAR DOOR.

APPLICATION FILED APR. 21, 1913.

1,100,566.

Patented June 16, 1914.

2 SHEETS—SHEET 1.

Fig. 1.

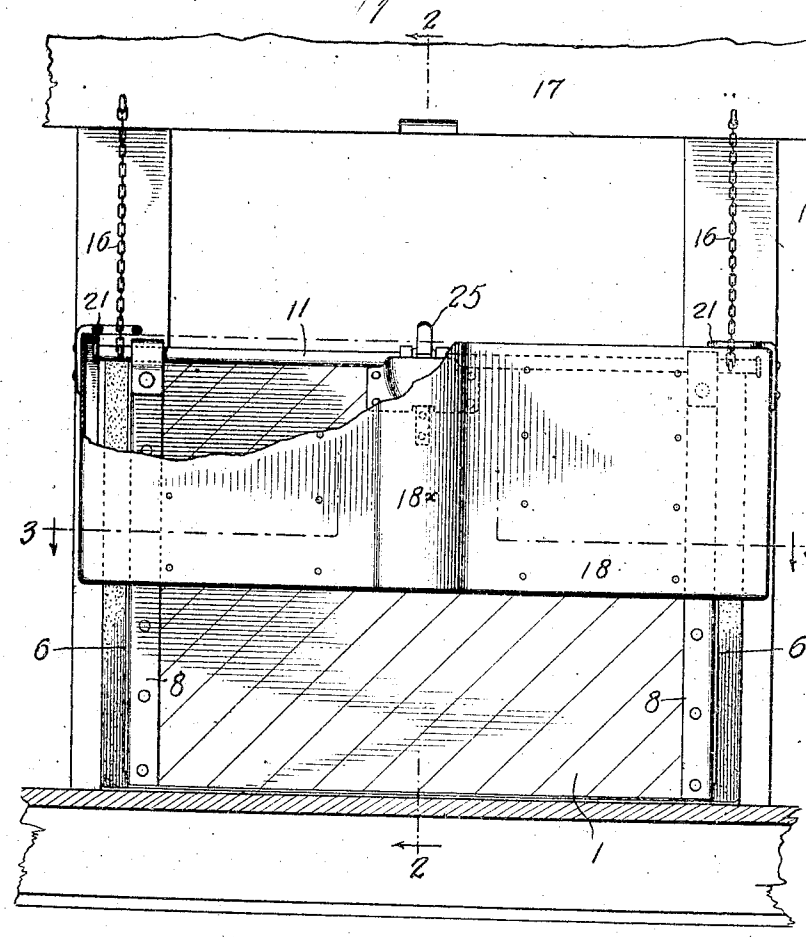

Fig. 2.

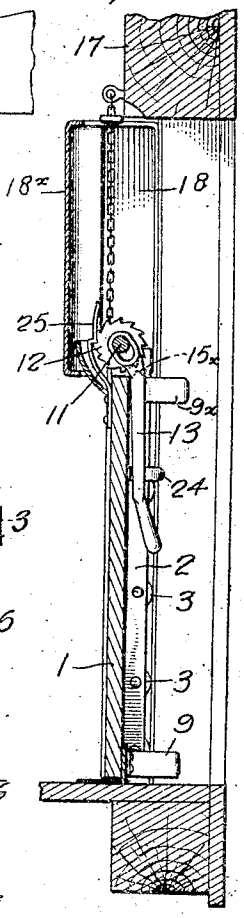

Fig. 3.

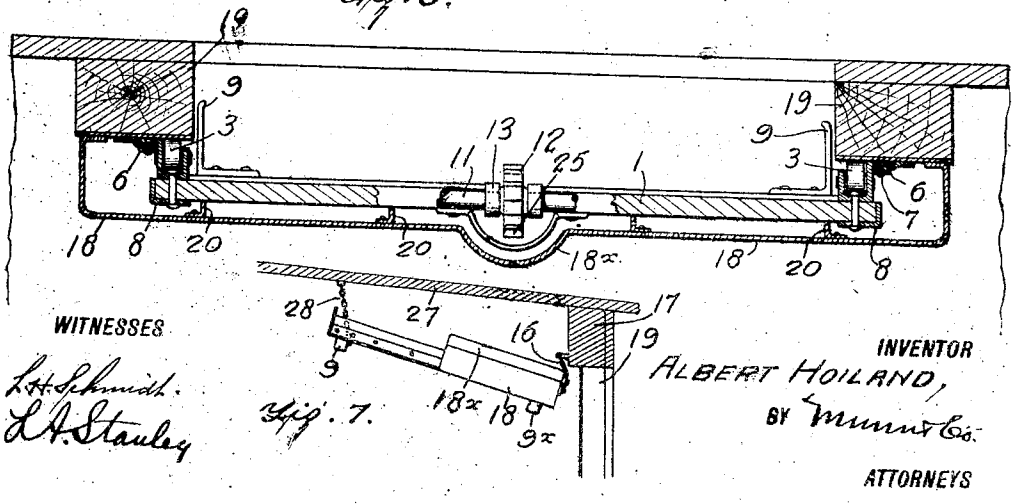

Fig. 7.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

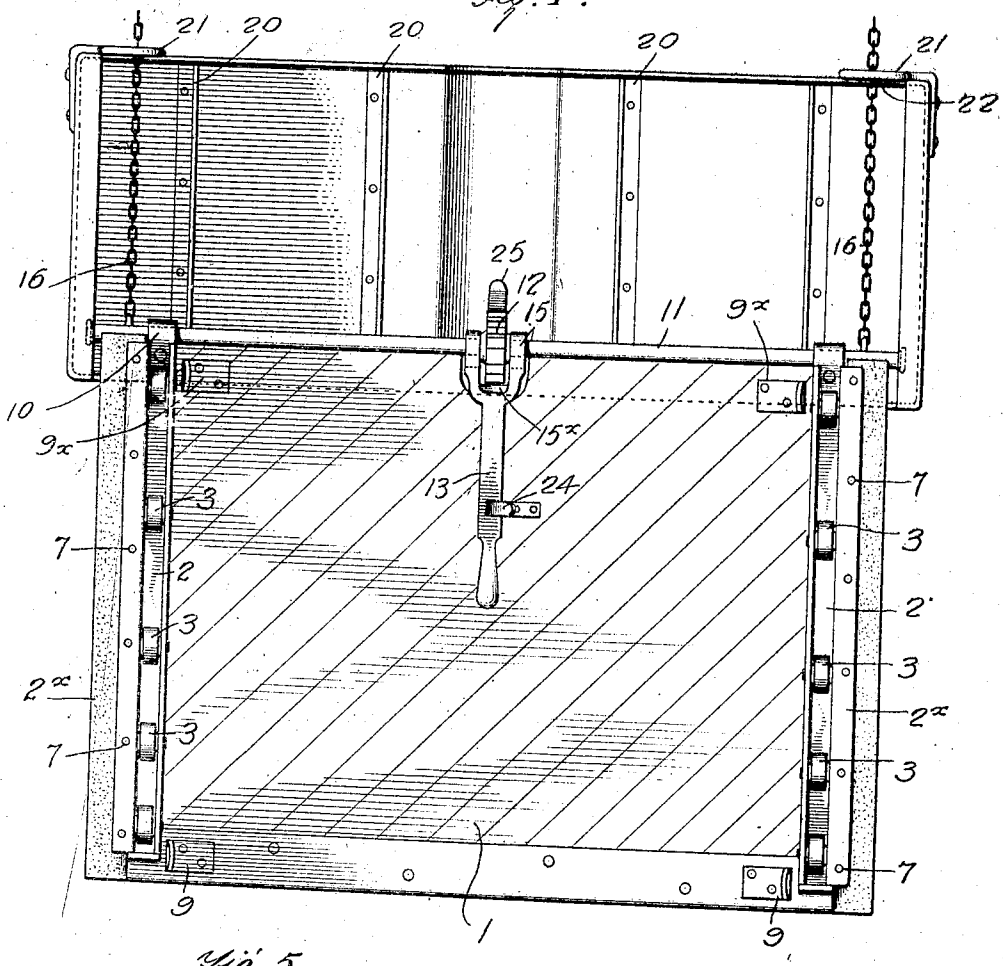


Fig. 5.

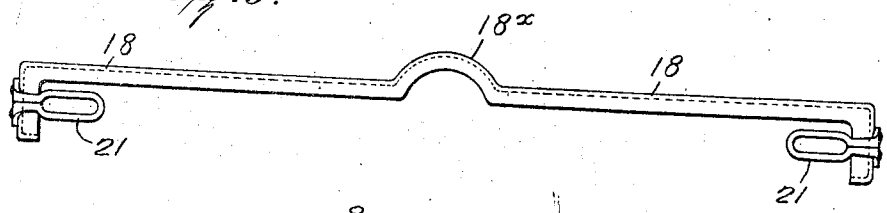
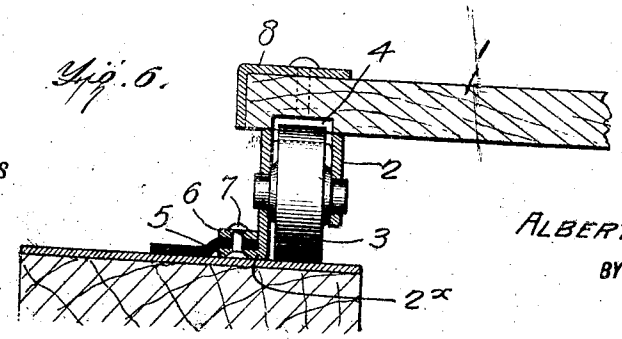


Fig. 6.



WITNESSES

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ALBERT HOILAND, OF NOME, NORTH DAKOTA.

FREIGHT-CAR DOOR.

1,100,566. Specification of Letters Patent. Patented June 16, 1914.

Application filed April 21, 1913. Serial No. 762,528.

To all whom it may concern;

Be it known that I, ALBERT HOILAND, a citizen of the United States, and a resident of Nome, in the county of Barnes and State of North Dakota, have made certain new and useful Improvements in Freight-Car Doors, of which the following is a specification.

My invention relates to improvements in freight car doors, and it consists in the combinations, constructions, and arrangements herein described and claimed.

An object of my invention is to provide a door which may be easily opened even when the car is filled, and which may be swung up in position out of the way so as to facilitate the loading or unloading of the car.

A further object of my invention is to provide a telescopic door having an extension which may be used when the car is being filled with grain or other light material.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming part of this application in which—

Figure 1 is a view of the door from the inside of the car, Fig. 2 is a section along the line 2—2 of Fig. 1, Fig. 3 is a section along the line 3—3 of Fig. 1, Fig. 4 is a view of the outside of the door showing the roller bearings, Fig. 5 is a plan view of the upper telescopic section, Fig. 6 is a detail section through one of the roller bearings, and Fig. 7 is a detail view showing the manner of suspending the door near the ceiling or roof of the car.

In carrying out my invention I provide a main body portion 1 which is made of any suitable material. The body portion is provided at its edges with metal bearing frames 2, which are preferably U-shaped in cross-section, and which carry roller bearings or other anti-friction means 3. The body portion 1 is preferably recessed at 4 to give the roller bearings 3 plenty of play, as shown in Fig. 6. One edge of the U-shaped bearing frame 2 is extended to form a flange 2^x and a resilient strip 5 of leather, felt or other suitable material is held between the flange 2^x and a plate 6 by any suitable holding means, as by rivets 7. The outer edge of the doors may be protected by the L-shaped plates 8 (see Fig. 6).

On the inner side of the door near the bottom thereof are L-shaped guide plates 9 for centering the door and preventing lateral movement. Similar plates 9^x may be provided at the top. The top of the door is provided with bearings 10 which are preferably integral with the roller bearing frame 2. A rod 11 is carried by these bearings and is provided at its center with a ratchet 12. A lever 13 has a forked end 15 which is loosely mounted on the rod 11, the central portion of the fork having a shoulder 15^x arranged to engage the teeth of the ratchet 12 when the lever is pushed toward the rod 11.

Chains 16 are secured to the upper portion of the door frame 17 and the opposite ends of the chains are secured to the projecting portions of the rod 11 as shown in Figs. 1 and 4. These chains are adapted to be wound upon the rod 11 when the ratchet is rotated by the lever 13.

The body portion 1 of the door does not extend the full height of the door opening. In order to completely cover the door I provide a telescopic door member 18 which is disposed on the inside of the door member 1. The member 18 is provided with a curved portion 18^x arranged to clear the ratchet as shown in Fig. 3. The ends of the curved portion 18^x are bent laterally and bear upon the sides 19 of the door frame. The L-shaped angle irons 20 are provided for spacing the door member 18 from the body portion 1 of the main door section. The door portion 18 is provided at its top with guide loops such as those shown at 21 in Fig. 5. The chains or suspending members 16 are designed to pass through the loops 21, so as to guide the telescopic member 18 in its movement.

From the foregoing description of the various parts of the device the operation thereof may be readily understood.

When it is desired to fill the car with grain or other light material the telescopic section 18 may be raised to its full height and supported from the chain 16 by means of a pin such as that shown at 22 which may be passed through one of the links of the chain just beneath the guide loop 21. The pressure of the grain on the telescopic member 18 is resisted by the engagement of the

ends of the member 18 with the door frame, as shown in Fig. 3, while the pressure of the grain against the body portion 1 is resisted by the engagement of the rollers 3 with the door frame 19. Now when it is desired to open the door the lever 13 is disengaged from the hook 24, pushed inwardly until the portion 15x engages the teeth of the ratchet 12 and the lever is lifted, thereby turning the rod and the ratchet 12 and winding up the chain, thus lifting the door portion 1. A spring locking dog 25 (see Fig. 2) prevents the reverse movement of the ratchet. It will be noted that the body portion 1 of the door will rise, the two sections 1 and 18 forming telescopic members for permitting this movement.

In case the car is to be loaded with coal or other heavy material and only the lower portion of the door used the pins 22 may be removed and the upper portion may be let down into the position shown in Fig. 1. When in this position the movement of the lever 13 for opening the door will raise both sections. In some instances the upper section may be left off entirely where heavy material such as coal is being transported.

It will be noted that the lever and ratchet forms a powerful lifting agent to overcome the pressure of the material behind the door. Furthermore the rollers 3 make the act of lifting the door comparatively easy since the friction is greatly reduced and the door is therefore lifted with comparative ease. The flexible strip 5 prevents any loss of grain between the door and the door frame.

In Fig. 7 I have shown the body portion of the door and its telescopic extension as being swung up out of the way and being fastened to the roof 27 of the car by means of a hook 28 or any other suitable means. The unloading or loading of the car may thus be facilitated since the door is out of the way.

I claim:

1 A freight car door comprising a main body portion having roller bearing members carried by the door at the side edges thereof and arranged to bear against the door frame, means for raising and lowering said body portion, an auxiliary door member having a portion arranged to lie next to the inner side of said main body portion and having spacing lugs arranged to bear on said body portion, said main body portion being movable with respect to said auxiliary door portion, and the ends of said auxiliary door portion being bent toward and being arranged to bear against the side members of the door frame.

2. A freight car door comprising a main body portion having roller bearing members carried by the door at the side edges thereof and arranged to bear against the door frame, means for raising and lowering said body portion, said means comprising a rotatable shaft carried by said body portion, chains secured to the door casing and adapted to be wound around the shaft, means for rotating the shaft, and an auxiliary door member having a portion arranged to lie next the inner side of said main body portion and having spacing lugs arranged to bear against said main body portion, said main body portion being movable with respect to said auxiliary door portion, and the ends of said auxiliary door portion being bent toward and being arranged to bear against the side members of the door frame.

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Witnesses:
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