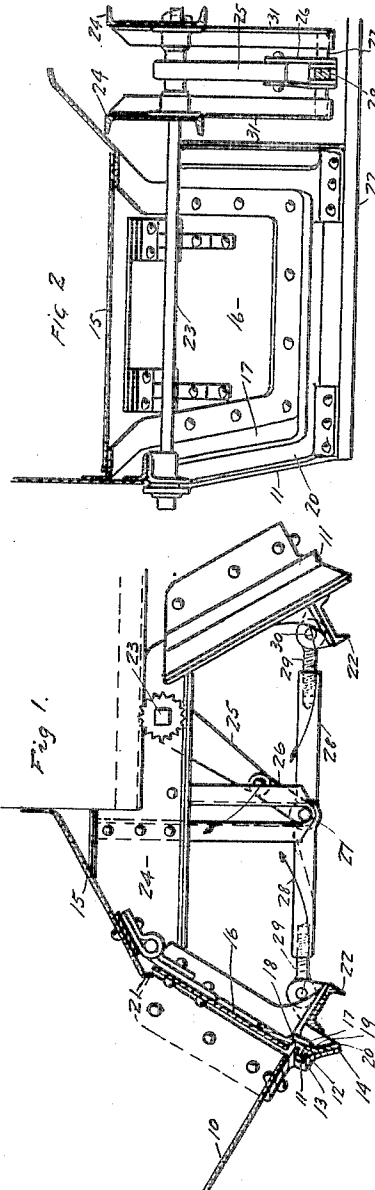
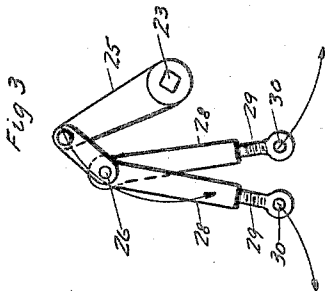


A. CAMPBELL.  
HOPPER BOTTOM CAR DOOR.  
APPLICATION FILED JULY 12, 1912.

1,068,103.

Patented July 22, 1913.



WITNESSES

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# UNITED STATES PATENT OFFICE.

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## HOPPER-BOTTOM-CAR DOOR.

1,068,103.

Specification of Letters Patent.

Patented July 22, 1913.

Original application filed April 5, 1912, Serial No. 688,590. Divided and this application filed July 12, 1912. Serial No. 708,977.

*To all whom it may concern:*

Be it known that I, ARGYLE CAMPBELL, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Hopper - Bottom - Car Doors, of which the following is a specification.

This application is a division of my application, Serial No. 688,590, filed April 5, 1912.

This invention relates to improvements in hopper bottom car doors and operating mechanism therefor.

An object of the invention is to provide means for forming a grain-tight closure or joint between the hopper doors and the edges of the hopper chutes.

My invention furthermore consists in the improvements in the parts and devices and in the novel combinations of parts and devices herein shown, described or claimed.

In the drawings forming a part of this specification, Figure 1 is a side view of a portion of a hopper bottom car, partly in section, to more clearly show the construction embodying my improvements. Fig. 2 is a partial, transverse section of a portion of a hopper bottom car embodying my improvements, and Fig. 3 is a detail view showing the door operating mechanism detached.

In said drawings, 10 denotes the chutes, each of which is provided with a casting 11 extending around the side and bottom edges of the opening in the chute, each of these members 11 being provided with a continuous groove 12, a projecting rib 13 and an outwardly extending flat flange 14.

Pivotally mounted on the under sides of the transverse hopper sheets 15 of the car are hopper bottom doors 16, said doors being mounted so as to swing oppositely, as clearly shown in Fig. 1, and being each provided with a member 17 adapted to cooperate with the member 11 on the corresponding chute, each of said members 17 extending around the side and bottom edges of the door and having a groove 18, in which is adapted to be seated the projection or rib 13, a rib or projection 19 which fits in the groove 12 of the corresponding member 11, and provided also with a flange 20 cooperating with its corresponding flange 14,

the flanges 14 and 20 being disposed at an angle to the plane of the doors 16, whereby the same are wedge acting as the doors are closed.

In the structure described, it will be apparent that a tight joint is formed between each door and its corresponding chute, which will prevent the leakage of grain or similar materials when the car is in motion, it being practically impossible for the grain to pass around the ribs 13 and 19.

Each hopper sheet 15 is provided with a depending flange or lip 21 extending over the upper edge of the door to prevent leakage at this point.

The doors 16 are arranged in pairs, one on each side of the longitudinal center sills of the car, and each pair is adapted to be operated simultaneously by means of a transversely extending bar 22 secured thereto, and each set of pairs of doors is adapted to be operated simultaneously by the following mechanism: An operating shaft 23 is arranged transversely of the car and is mounted in suitable bracing and secured to the shaft 23 between the center sills 24 of the car is a crank arm 25, having pivotally connected thereto at its outer end a link 26, the latter being pivotally mounted on a pivot pin 27, having mounted thereon toggle members 28, each of the toggle members 28 having an eye bolt 29 adjustably mounted in its outer end, each eye bolt being pivotally secured to the cross or connecting bar 22 by a pivot pin 30. In order to adjust the closing of either door at any time, the corresponding pin or pivot 30 is removed and the eye bolt 29 adjusted in its toggle member 28 in or out, as desired, after which the pivot pin 30 is replaced.

Secured to the center sills 24 are a pair of downwardly extending guide members 31, each being provided with a slot 32 in which reciprocates the extended ends of the pivot pin 27.

From the foregoing description, it will be seen that the means for preventing leaks of grain and similar material comprise few parts cheaply manufactured, and are so arranged that the tighter the doors are closed, the tighter will be the fit between the flanges of the members secured to the edges of the doors and the hopper chutes.

I claim:—

1. A hopper bottom car adapted to carry grain and similar material, and having a chute in the bottom thereof provided with an opening, a door hinged at its upper edge adjacent said opening and adapted to close the same, and operating mechanism for said door, said door and chute having cooperating grain leak preventing members, each of said members being provided with a groove, said members extending around the sides and bottom edges of and secured to the doors and chutes, each of said grooved members having a rib adapted to be seated in the groove of the other, and each having also an outer flat flange.

2. A car adapted to carry grain and similar materials, having a body portion provided with an opening in the bottom thereof, a hinged door for closing said opening, door operating mechanism, and cooperating grain-leak preventing members secured to the door and to the edges of the car surrounding said opening, said members being provided with interengaging ribs and grooves and having also wedge acting flanges, substantially as specified.

ARGYLE CAMPBELL.

Witnesses:

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