A. DEVAN.

DOOR FOR GRAIN CARS.

APPLICATION FILED SEPT. 22, 1910.

992,710. Patented May 16, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

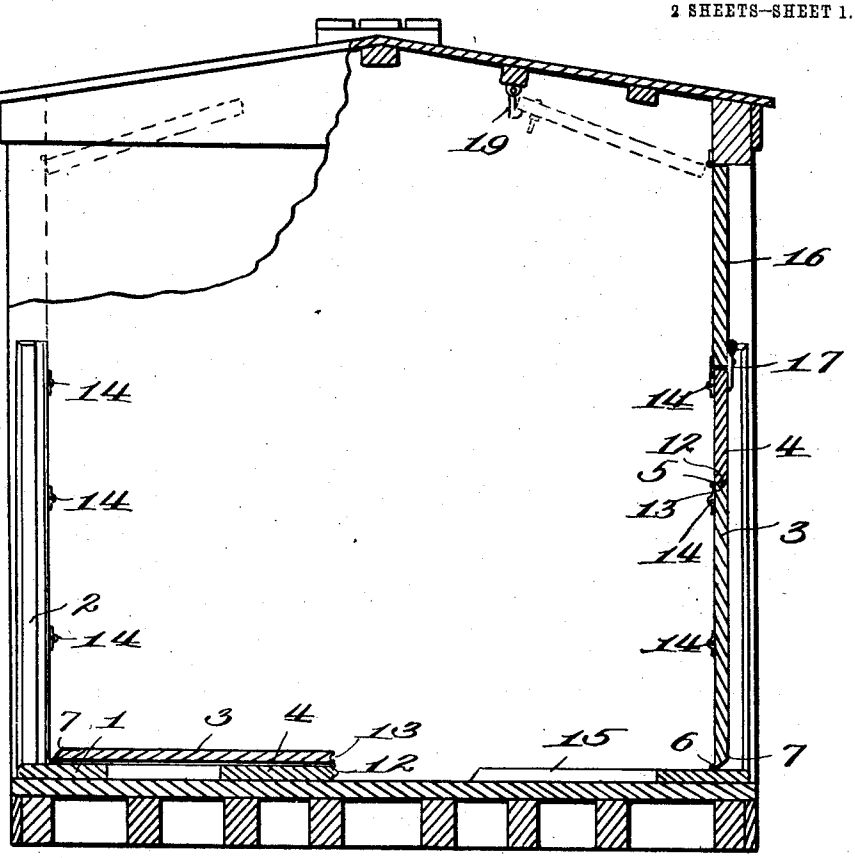
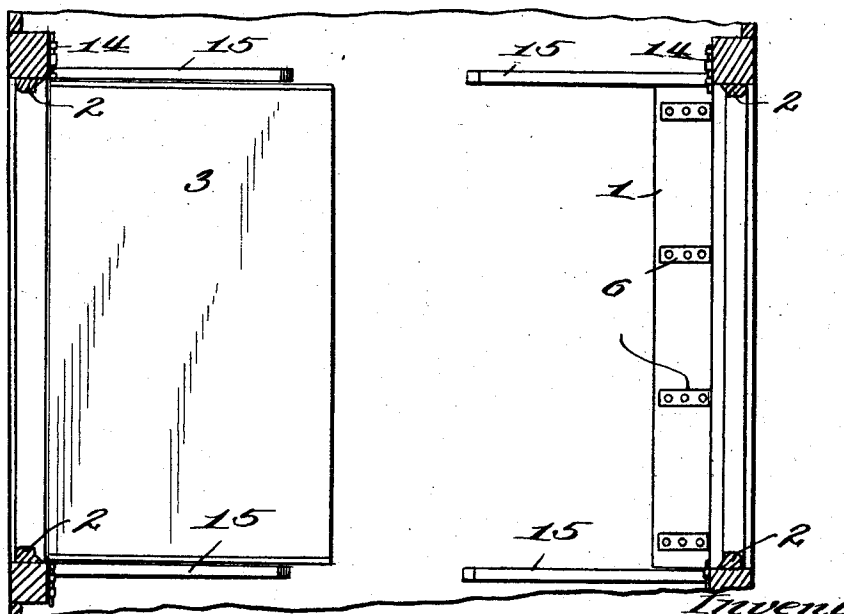


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

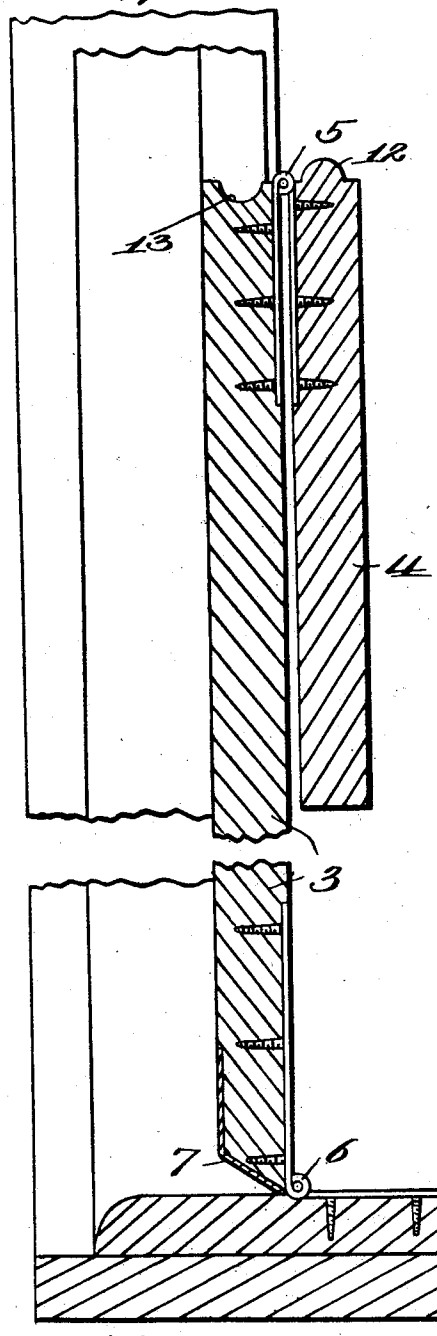


Fig. 4.

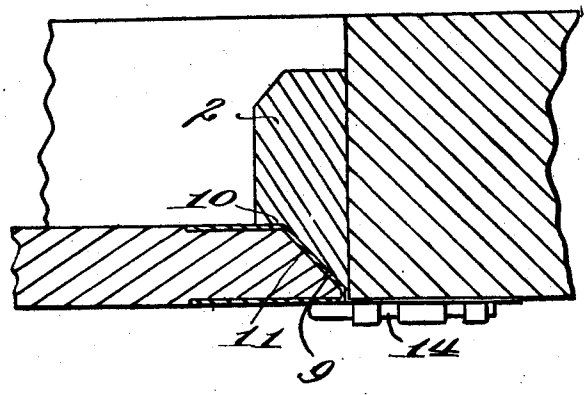
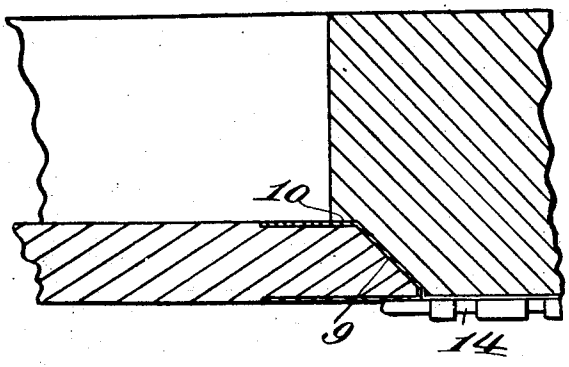


Fig. 5.



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DOOR FOR GRAIN-CARS.

992,710. Specification of Letters Patent. Patented May 16, 1911.

Application filed September 22, 1910. Serial No. 583,275.

To all whom it may concern:

Be it known that I, ANDREW DEVAN, a citizen of the United States, residing at Sandpoint, in the county of Bonner and State of Idaho, have invented new and useful Improvements in Doors for Grain-Cars, of which the following is a specification.

This invention relates to improvements in doors, more particularly for grain cars or houses.

The invention proposes a door of such construction that in its closed relation a tight fit between the door and the door frame is provided and crevices or interstices of such character as would promote the packing of grain under or at the sides of the door, and its escape from the car are eliminated.

The invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a vertical sectional view showing the door in its application to a grain car and in open position; Fig. 2 is a horizontal sectional view of the same; Fig. 3 is an enlarged detail vertical sectional view showing the closed position of the door; Fig. 4 is an enlarged detail horizontal sectional view of the same; and Fig. 5 is a similar view wherein the side posts of the door frame are constructed to constitute door stops.

Similar characters of reference designate corresponding parts throughout the several views.

The door frame consists of a substantially flat sill 1 and side strips 2. The door is designated by the numeral 3 and is usually provided with an extension 4 which is connected to the upper edge of the door 3 by hinges 5 and which may be folded against the rear face of the door as shown in Fig. 3, or which may be disposed in coincidence with the door as shown at the right hand side of Fig. 1, so as to form in effect a continuation thereof. The door 3 is joined to the upper face of the sill 1 by strap hinges 6, and its bottom edge face is forwardly and upwardly beveled and provided with a metal facing 7. The strips 2 have their inner faces formed with bevels 9 and with shoulders 10 extending from the bevels, and the side edge faces of the door 3, as well as of the extension 4, when the latter is employed, are beveled to correspond to the bevels 9 and are provided with metal facings 11 in order that the side edges of the door may fit tightly and conformably against the beveled and shouldered faces of the strips 2. The extension 4 has its edge face adjacent the hinge joint 5 provided with a transverse bead 12 which has a convexly curved face and the upper edge face of the door 3 is provided with a transverse recess 13 in which the bead 12 has a tight fit when the extension 4 is disposed in coincidence with the door.

The door is held in closed position by means of bolts 14 which are arranged on the inner face of the door frame and which may be engaged over the inner face of the door at the edge thereof, as shown more particularly in Fig. 4.

When the door is in open position it is folded inwardly and lies parallel to the floor of the car, as shown in Fig. 1.

In case the extension 4 is used, said extension is folded under the door in coincidence with the sill 1. It is preferred in this connection to employ strips 15 which are secured to the floor of the car extending transversely thereof and inwardly from the sill 1, and which define a sort of a pocket in which the extension 4 is confined in the folded relation of the door.

Whereas in Fig. 4 the stops for the door comprise the strips 2 which are attached to the door frame, in Fig. 5 the door frame itself is constructed to afford the door stops, and has the bevels 9 and shoulders 10 formed directly thereon.

In addition to the door constructed as above described, there is also provided a panel 16 which is hinged to the upper bar of the door frame and which may be dropped to a position in the same plane as the door when the latter is in closed position, being then retained by a suitable bolt 17, or which may be supported in a position adjacent the roof of the car, as by a suitable catch 19.

When the door is in closed position as shown more particularly in Fig. 3, a clearance intervenes under the beveled lower edge face which prevents the packing of grain between the door and the sill. At the same time, the extreme lower edge of the door has such close association with the sill as to efficiently prevent the escape of grain. The provision of the beveled lower edge surface not only affords a clearance which provides against such packing of grain as would tend to put stress upon the hinges but,

when the door is moved from open to closed position, as well, provides for displacing any grain that may have collected on the sill. The interstices intervening between the side edge faces of the door and the strips 2 or their equivalents are of such character as to prevent the packing of grain at the side edges of the door or the escape of grain from the car. Furthermore the manner of fitting the door against the frame when the door is closed provides that the stresses due to the lateral pressure or side shifting of the load shall be taken up by the door frame and not by the hinge joints or such other fastenings as may be employed. The construction is withal of simple and inexpensive nature.

Having fully described my invention, I claim:

1. A grain car door having its lower edge face beveled forwardly and upwardly, in combination with a substantially flat sill to the upper face of which the lower edge portion of the door is hinged, the sill having close association with the extreme lower edge of the door in the closed relation of the latter, and side strips against which the side edge portions of the door are held when the door is closed.

2. A grain car door having its lower edge face beveled forwardly and upwardly, in combination with a substantially flat sill to the upper face of which the lower edge portion of the door is hinged, the sill having close association with the extreme lower edge of the door in the closed relation of the latter, and side strips against which the side edge portions of the door are held when the door is closed, the side strips having their inner faces beveled and shouldered and the side edge portions of the door being correspondingly shaped to conformably fit against the beveled and shouldered faces of the strips.

3. A grain car door having its lower edge face beveled forwardly and upwardly, in combination with a substantially flat sill to the upper face of which the lower edge portion of the door is hinged, the sill having close association with the extreme lower edge of the door in the closed relation of the latter, side strips against which the side edge portions of the door are held when the door is closed, the side strips having their inner faces beveled and shouldered and the side edge portions of the door being correspondingly shaped to conformably fit against the beveled and shouldered faces of the strips, and metal facings associated with the lower and side edge portions of the door.

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

ANDREW DEVAN.

Witnesses:
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G. W. FRANCE.