Dec. 17, 1929. G. C. FEDDERMAN 1,739,893

HOLDDOWN APPARATUS FOR FREIGHT CARS AND THE LIKE

Filed March 8, 1929

Fig. 1.

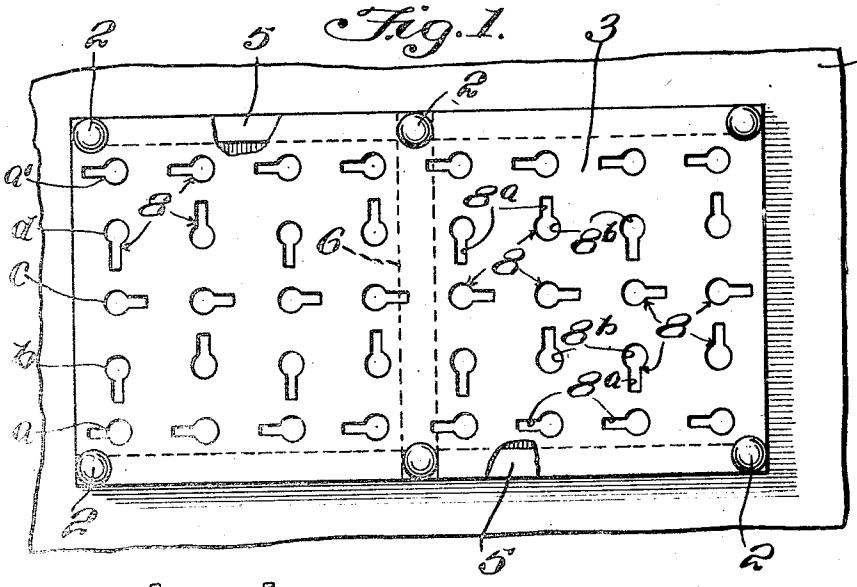


Fig. 2.

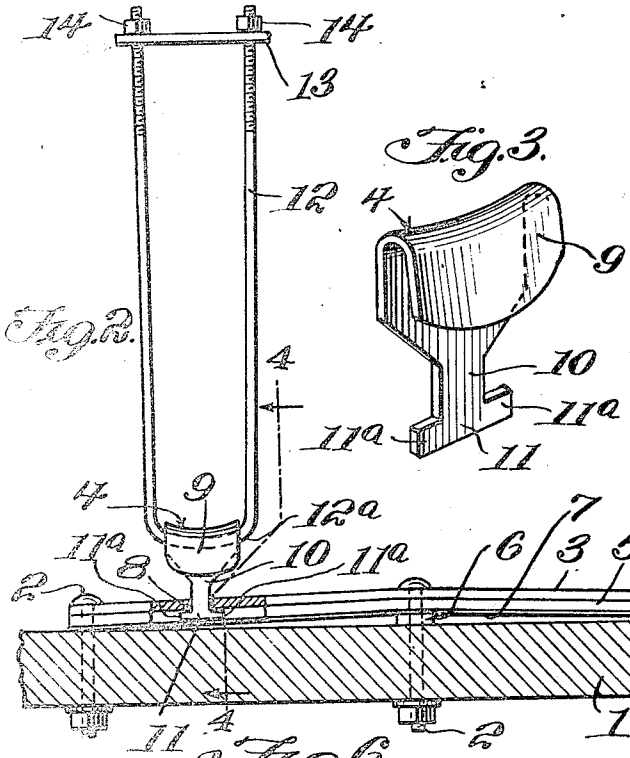


Fig. 3.

Fig. 4.

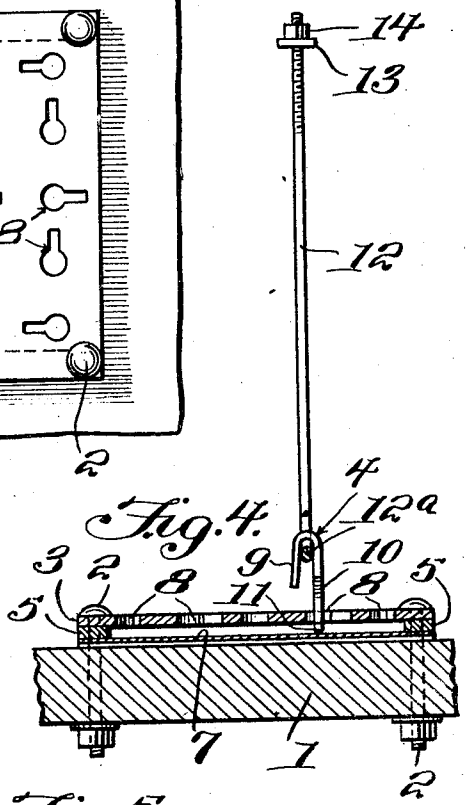


Fig. 5.

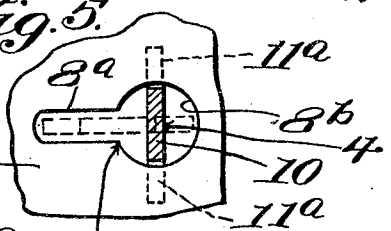


Fig. 7.

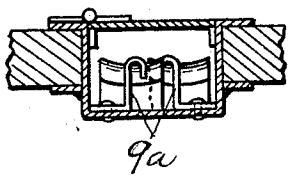
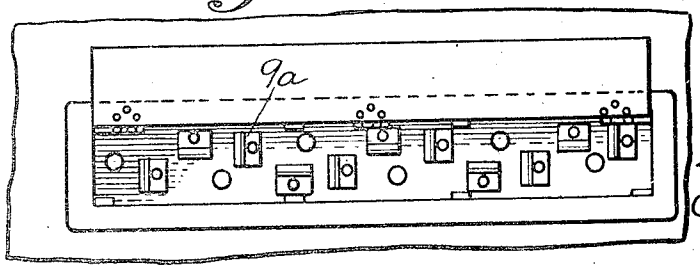


Fig. 6.



Inventor

G. C. Fedderman

By Spear, Middleton Donaldson & Hall

ATTORNEYS

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UNITED STATES PATENT OFFICE

GEORGE C. FEDDERMAN, OF DETROIT, MICHIGAN, ASSIGNOR TO AUTO LOADING DEVICE MANUFACTURING COMPANY, OF DETROIT, MICHIGAN, A CORPORATION OF MICHIGAN

HOLDDOWN APPARATUS FOR FREIGHT CARS AND THE LIKE

Application filed March 8, 1929. Serial No. 345,467.

The invention is designed particularly for use in freight cars for shipping automobiles.

In the accompanying drawings

Figure 1 is a plan view of the floor plate to be attached to the floor of the car.

Fig. 2 is a side view partly in section of the plate attached to the car floor and showing the hold down devices to be detachably connected with the plate.

Fig. 3 is a perspective view of the hook element of the hold down device.

Fig. 4 is a cross sectional view substantially on line 4—4 of Fig. 2.

Fig. 5 is a plan view of a part of the plate and with the shank of the hook in section.

Fig. 6 is a plan view of a modified form of floor plate.

Fig. 7 is a cross sectional view of Fig. 6.

In the drawings 1 is the car floor. To this is secured by bolts 2 a perforated plate 3 to which the hold down hooks 4 are detachably connected in the form shown in Figs. 1 to 3. This plate is raised slightly above the car floor and rests upon side bars 5 which are bent so that they are elevated slightly above the car floor at their middle portions.

A bottom plate 7 extends between the side bars on the undersides thereof and this plate likewise is elevated above the floor of the car at its middle portion. A cross bar 6 extends from side to side of the floor plate under the elevated middle portion thereof and thus forms a support for the elevated middle portion of the floor plate, the side bars and the bottom plate. The bolts go through the floor plate, side bars, bottom plate, and through the cross bar 6 as shown. The bottom plate inclines downwardly from its elevated middle portion to its ends which rest on the car floor so that any dirt or other material passing through the openings 8 in the floor plate 3 will be caught by the thin bottom plate and by reason of its inclined relation from its middle portion in opposite directions towards the car floor, the dirt or other material will pass down these inclined surfaces and will be discharged onto the car floor. This discharging action will be due to the jar and vibration resulting from the motion of the car along the tracks. In this way the floor plate will be automatically cleared of material which would otherwise clog the space beneath it and obstruct the openings 8 through which the hold down devices are inserted.

It will be noticed that sufficient space is left between the perforated floor plate 3 and the thin bottom plate 7 which latter is imperforate for the reception of the enlarged heads of the detachable hold down devices and for the passage of the dirt or other material to the ends of the floor plate. The bottom plate is quite thin, its only purpose being to catch the material passing through the floor plate 3 and deflecting it from beneath the same. The whole plate structure lies close to the floor and offers little or no obstruction to the use of the car in shipping goods other than automobiles, whether in bulk or otherwise.

I do not limit myself to the floor plate of the bent form described. The incline of the perforated plate also aids in keeping the openings clear of accumulated material because it will constantly tend to shed the material from its surface.

The floor plate is adapted to receive the hold down devices in a plurality of positions. For this purpose according to the form shown in Figs. 1 to 4, the floor plate is provided with openings of generally key-hole shape, having a narrow portion 8^a merging into an enlarged circular portion 8^b.

In one form the detachable hold down device comprises a flat plate member having a hook portion 9, a shank 10 and a head 11. The latter is formed by projections 11^a extending laterally from the shank, at each side or edge of the latter.

This head is adapted to be slipped into the

openings 8 by making the head register with the narrow part of the key-hole opening in the plate, and then the head is slipped along the opening so that one of its projections will lodge under the edge of the circular portion of the plate's opening.

This will locate the shank of the hook member in the circular opening of the key-hole formation and then the hook member is turned 90° to make its other projection also interlock with the plate, both projections now underlying the plate at the circular opening, and securely holding the hook member so long as it is maintained in the position just stated to which it has been turned.

The hook member is made from flat metal. The hook portion is broad and the shank and head are relatively narrow. The projections at the head extend in the same plane in which the shank and plate portion of the device lie flatwise. The hook member can be made cheaply by cutting it out of sheet metal and then bending the upper flat plate portion over to form the hook. This hook is slightly curved so as to receive the curved cross bar 12^a of the U shaped tie member 12. This is provided with a cross bar 13 at its upper ends between its screw threaded side bars, and nuts 14 are provided whereby the tie member may be attached to a suitable part of the vehicle.

The hook portion of the hook member is slightly curved so that the U shaped tie member may have rocking movement relatively thereto in its own plane, and of course it is free to have pivotal movement in said hook in a plane at right angles to the plane in which the plate portion of said hook lies.

When the parts are assembled the U shape tie member having been attached to the vehicle and therefore being held against turning movement about its own axis will serve to maintain the hook member against rotary movement in the enlarged or circular portion of the key-hole slot. In other words, when the parts are in use the tie member will hold the hook member in locked position with its lateral projections extending under the edge of the circular opening of the key-hole slot, it being noted that in order to remove the hook member from the floor plate it must be turned so that its shank and projections register with the narrow portion of the key-hole, and the hook member cannot be turned to this position so long as the U shaped tie member remains attached to the vehicle. Only by cutting the U shaped tie member or otherwise releasing it can the hook member be freed for turning into position for its removal from the perforated floor plate.

The key-hole slots in the floor plate extend in different directions.

I have shown as illustrative of any desired differential arrangement that these key-hole slots extend with all those in one row facing in the same direction, i. e. with their narrow portions in the same vertical plane and on the same side of their respective circular openings.

The holes of the next row *b* are arranged at right angles to those of the row just mentioned, and are alternately reversed in respect to each other. The holes of row *c* extend in the same direction relative to each other, but are reversed in respect to the openings of row *a*. Row *d* is like row *b* as to the disposition of its openings and row a^1 is like row *a*.

This differential relation of the attaching means of the floor plate may be carried out in other ways. For instance, as shown in Fig. 6 instead of having openings to receive hooks and making these attaching means, i. e. the openings, face in different directions the hooks themselves of the form shown at 9^a may be permanently attached to the floor plate and face in different directions.

This differential facing of the attaching means, whether these be openings or permanently attached hooks, enables the floor plate to be used with tie down members, i. e. the U shaped members facing in different directions according to the position on the vehicle to which the tie must extend and the direction in which it must face, in order to make connection therewith.

The holes or permanently attached hooks are sufficiently numerous to meet any variety of conditions that must be met.

While I prefer to employ the slots in the floor plate of key-hole form, it will be understood that other forms of holes may be used which will permit the insertion and removal of the hook member or tie down member in one position, and will lock the same when turned to another position.

I claim:

1. In apparatus for holding vehicles in freight cars, a floor plate, having a plurality of similar attaching means but facing in various directions, and tie means for detachable connection therewith.

2. In apparatus of the class described, a floor plate, perforated for detachably receiving vehicle holding means, a bottom plate beneath, inclined downwardly and spaced apart from the floor plate, and means for attaching the plates to a car floor, the said bottom plate automatically discharging material passing through the perforated floor plate to a position to leave the perforation in the floor plate clear for the insertion of the vehicle holding means, substantially as described.

3. Apparatus according to claim 2 in which the bottom plate inclines in opposite direction from the middle region of the perforated plate.

4. Apparatus according to claim 2 in which both the perforated plate and its spaced apart

bottom plate incline in opposite directions from the middle portion of said plates, substantially as described.

5. Apparatus according to claim 2 in which both the perforated plate and the bottom plate are inclined relative to the car floor, substantially as described.

6. Apparatus according to claim 2 in which the bottom plate is elevated at its middle portion and a support at said middle portion.

7. Apparatus according to claim 2 in which side bars are interposed between the perforated plate and bottom plate, and a cross bar supports the bottom plate and side bars elevated at their middle portions from which point said side bars and bottom plate incline downwardly to their opposite ends.

8. In apparatus for holding vehicles in freight cars, a floor plate having a plurality of similar attaching means facing in various directions and consisting of key-hole slots, substantially as described.

9. Apparatus for holding vehicles in freight cars comprising a floor plate having a key hole slot, a hook member having a shank and a head, the latter having lateral projections of a thickness to pass through the narrow portion of the slot for the insertion or removal of the hook member, the shank of said hook being turnable in the circular portion of said slot to lock the hook in place with its projections engaging below the edge of the circular portion of the key-hole slot.

10. A hold down hook of sheet metal having a broad hook portion, a reduced flat shank, in the same plane as the body portion of the hook, and lateral projections extending from the edges of the flat shank and in the plane thereof, substantially as described.

11. In apparatus of the class described, a floor plate having a key-hole slot, a hook having projections to pass through the slot and when turned to interlock under the edge of the enlarged portion of said slot, and a tie member detachably engaging the hook and having means for attachment to the vehicle, said tie member when so attached holding the hook member against turning to such position relative to the slot to permit its removal therefrom.

12. In apparatus of the class described, a floor plate having means to permit the attachment of said hold down thereto when in one position and to lock said hold-down in place when turned to another position, and means for attaching the hold-down to the vehicle and to prevent it from being turned to the position first mentioned, at which said hold-down may be removed.

13. In apparatus of the class described, a floor plate having a key hole slot, a hold down member insertible into and removable from said slot when turned into a certain position relative thereto, and to lock in said slot when turned to another position, and means for attaching the hold-down to the vehicle in position to prevent its turning into such position as will permit its removal from the said slot.

14. In apparatus of the class described, a floor plate having a noncircular opening, a hook member having a head insertible into and removable through said opening when in one position and to lock in said opening when turned to another position, and means for connecting said hook to the vehicle, said means when attached to the vehicle holding the hook against turning from its locked position.

In testimony whereof, I affix my signature.

GEORGE C. FEDDERMAN.