Nov. 18, 1969 J. S. LUNDVALL ETAL 3,478,700

FLOOR LATCH STRIP FOR RAILWAY CARS

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Fig. 1

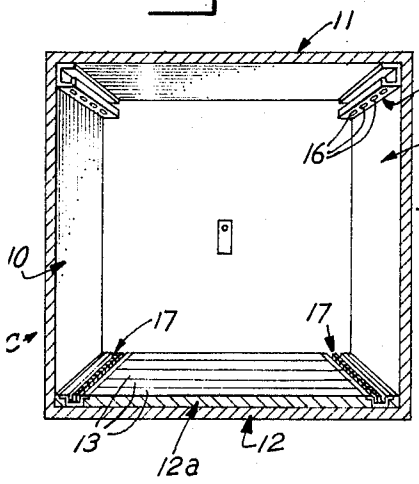


Fig. 2

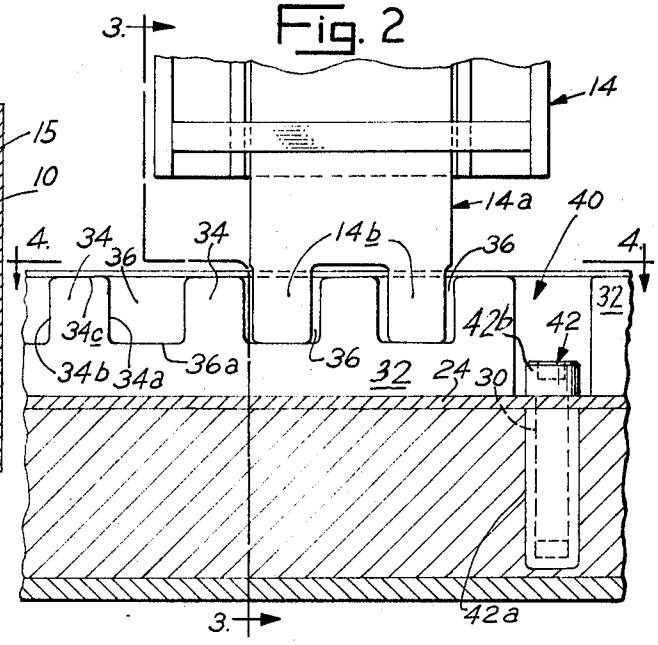
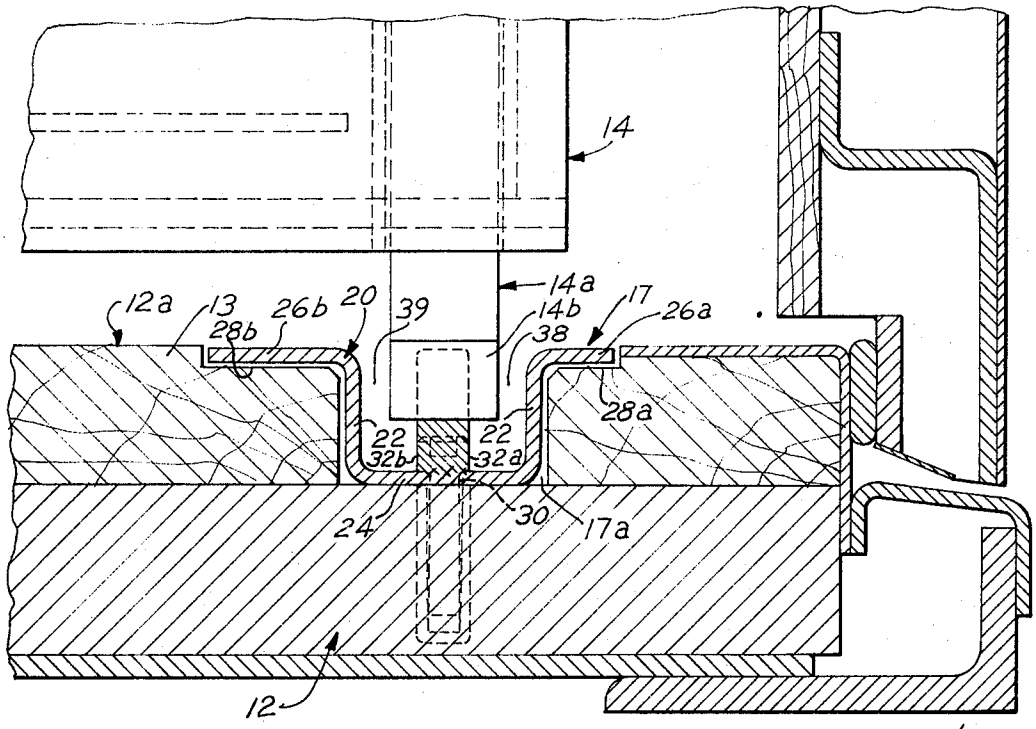


Fig. 3



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Fig. 4

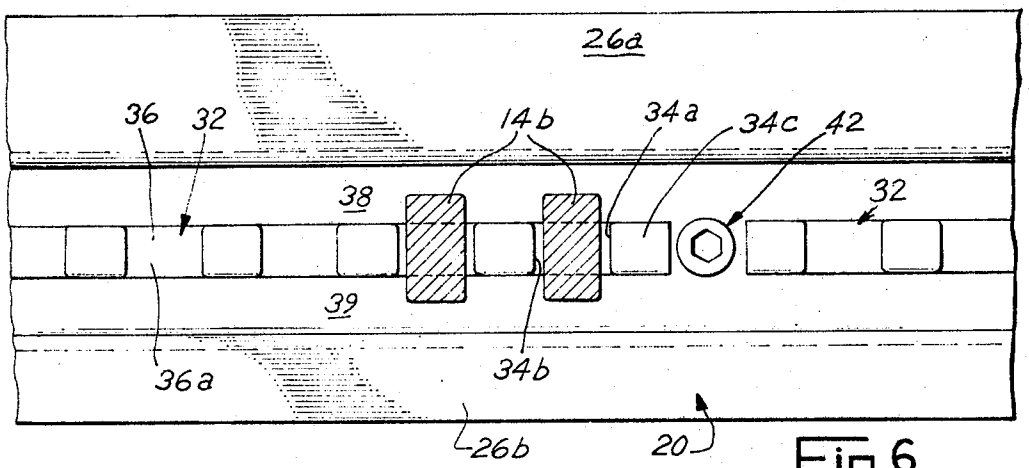


Fig. 5

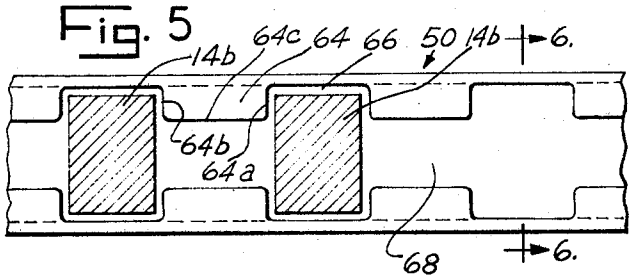


Fig. 6

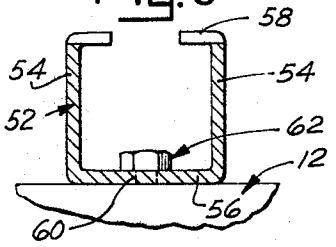


Fig. 7

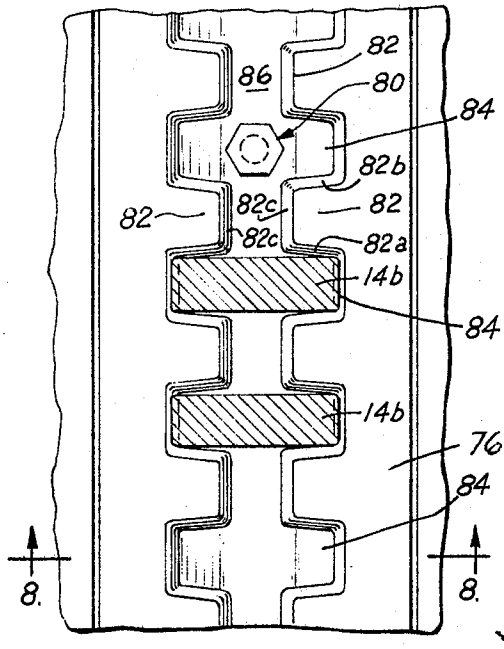
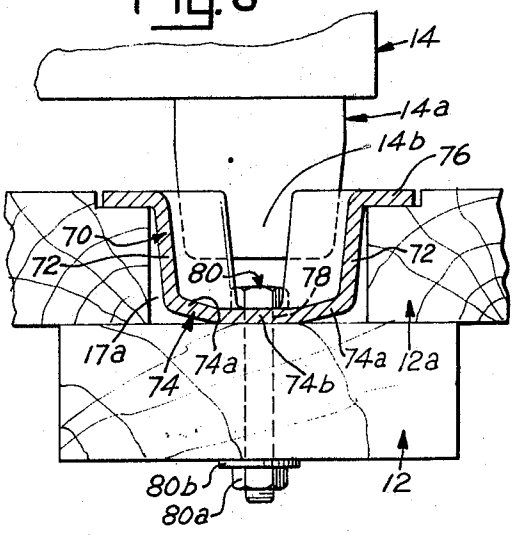


Fig. 8



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FLOOR LATCH STRIP FOR RAILWAY CARS

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Continuation-in-part of application Ser. No. 599,296, Dec. 5, 1966. This application Feb. 28, 1968, Ser. No. 708,957

Int. Cl. B61d 17/10, 45/00

U.S. Cl. 105—369 5 Claims

ABSTRACT OF THE DISCLOSURE

A floor latch strip for boxcars is provided with at least one continuous, open-topped, longitudinal channel therein which facilitates cleaning of the entire latch strip. The latch strip provides a series of spaced, transverse recesses that serve the latch-keeping function and which interconnect with and empty into the open-topped longitudinal channel to facilitate cleaning. The latch strip basically is channel-shaped. The transverse recesses are provided by means disposed either on the legs of the channel or on the web of the channel.

BACKGROUND OF THE INVENTION

This application is a continuation-in-part of our copending application, Ser. No. 599,296, filed Dec. 5, 1966, now patent No. 3,422,773, entitled "Floor Latch Strip for Railway Cars."

This invention relates to a floor latch strip for railway cars, and more particularly to a sanitary floor latch strip which can easily be cleaned.

In railways cars equipped with lading separators it is customary to secure the lading separators or door-like bulkheads in place by latching pins extending from the upper and lower edges thereof and engaging openings in latching strips or tracks in the car. Floor-mounted latch strips tend to collect dirt and become unsanitary so that ordinary, apertured strips of conventional construction that have heretofore been used cannot or should not properly be used in cars intended for use in transporting food of various types and similar materials.

It is accordingly one of the objects of the present invention to provide a floor latch strip which can more easily be cleaned to maintain it in sanitary condition.

Another object is to provide a floor latch strip that is so formed that the locking recesses thereof are more open at all times so that they can more easily be cleaned.

The above and other objects and advantages of the invention will be more readily apparent from the following description when read in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a transverse perspective view of a railway car embodying the invention;

FIG. 2 is an enlarged, fragmentary sectional view showing latch pins of a lading separator engaged in one form of floor latch strip embodying this invention;

FIG. 3 is a cross-sectional view taken substantially on the line 3—3 of FIG. 2 and showing certain typical environmental portions of the construction of a freight-carrying vehicle;

FIG. 4 is a fragmentary top plan view taken substantially on the line 4—4 of FIG. 2;

FIG. 5 is a fragmentary top plan view of another form of floor latch strip embodying the invention;

FIG. 6 is a cross-sectional view taken substantially on the line 6—6 of FIG. 5;

FIG. 7 is a fragmentary top plan view of still another form of floor latch strip embodying the invention; and

FIG. 8 is a cross-sectional view taken substantially on the line 8—8 of FIG. 7.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

As shown in FIG. 1, the improved floor latch strip embodying the invention is to be incorporated in a conventional freight-carrying vehicle, such as a railway car C that includes spaced sides **10**, a roof **11** and a structural floor serving as sub-floor **12**. The sub-floor **12** is typically covered by a load-supporting deck **12***a* made up of planks **13** or the like that are secured to sub-floor in any desired manner well known in the art.

The railway car C is adapted to have mounted therein one or more upright lading separators, which is a door-like body or bulkhead for dividing the interior of the car into compartments. Such lading separators may typically be of the general type as shown in U.S. Patent No. 3,168,055. In FIGS. 2 and 3, the lading separator is indicated as **14**.

In FIG. 1, the car C is equipped with means for suspending the separator within the car and such means are shown as tracks **15** mounted on the said side walls **10** adjacent the junctions of the side walls **10** and roof **11**. The tracks may be formed in their horizontal lower flanges with latching openings **16** adapted to receive therein latch pins carried by the bulkhead **14**. The bulkhead **14** carries thereon latching bars **14***a* which may be selectively thrust outwardly or withdrawn, depending upon whether the bulkhead **14** is to be latched in position in the car. A portion of a typical latch bar **14***a* is shown in FIGS. 2 and 3 and has thereon multiple latch teeth **14***b* for cooperation with a latching strip **17** carried in a longitudinal recess **17***a* defined in the floor of the car. What has thus far been described, except for the details of latching strip **17**, is well known in the art and forms no part of this invention but sets forth the environment for the invention hereinafter described.

The one form of floor latch-strip **17** shown in FIGS. 2–4 includes a channel-shaped body **20** having spaced upright legs **22** joined at their lower ends by a bight or web means **24** and connected at their upper ends to outwardly extending flanges **26***a* and **26***b*. The width of the channel-shaped body **20** is such as to enter into a longitudinal recess **17***a* defined in the deck **12***a*. The upper edges of deck **12***a* adjacent the recess **17***a* is recessed at **28***a* and **28***b* to respectively receive therein the flanges **26***a* and **26***b*, so that the upper surfaces of said flanges are substantially flush with the upper surface of the deck **12***a*. The web means **24** of the body **20** is provided with longitudinally spaced apertures **30** therein adapted for cooperation with a hold-down means hereinafter described.

Extending longitudinally along the axis or center of the channel-shaped body **20** is a dentated strip means **32** made up of elongated strip segments **32** which may conveniently be forged to the general shape indicated and providing thereon flat side walls **32***a* and **32***b*. The bottom edge of each strip **32** is machined to achieve a good fit against the bight **24** of the channel. Each dentated strip **32** defines alternate upstanding teeth **34** and spaces **36** with a tooth **34** at each end of each strip **32**. Each tooth **34** has a pair of spaced, parallel side surfaces **34***a* and **34***b*, and a top surface **34***c* which is disposed substantially in the horizontal plane through the upper end of body **20**. Each space **36** is bounded at its longitudinal ends by spaced surfaces **34***a* and **34***b* of adjacent teeth, and has a bottom surface **36***a*.

The spacing of side **32***a* from its facing upright leg **22** defines a channel **38** that is elongated and extends longitudinally of the body **20** and is open-topped. A similar channel **39** is defined between the side **32***b* of strip **32** and its facing upright leg **22**. As best seen in FIGS. 2

and 4, the adjacent ends of two strips **32** are spaced apart so as to provide a space **40** that is of the same length as a space **36** defined on the dentate strip **32**.

Each aperture **30** may be located in vertical alignment with a space **40**, and a bolt means **42** is provided tying down the longitudinal body **20** on the sub-floor **12**. The bolt means may be of any type, such as a through bolt as shown in FIGS. 7 and 8, or may be of an expansion bolt type for blind connection as in FIGS. 2 and 3, wherein the sub-floor is provided with a bottomed bore **42***a*, and a headed bolt **42***b* with tool-receiving socket therein is used with an expandable means in bore **42***a* for securement to the sub-floor **12**. Expansion bolts of the type generally suggested herein are well known in the art, and their details need no further description.

From the construction thus far disclosed, it will be understood that the arrangement of parts provides in channel-body **20** two continuous open-topped longitudinal channels **38** and **39** through which cleaning of the elongated body **20** may be effected either by sweeping through such channels, or by jet fluid means which would be directed into the channels to eject waste from such channels. The arrangement of the dentated strips **32** within the body **20** also provides a series of spaced open-topped transverse recesses **36** which are at least partially bounded by spaced abutments **34**, and which have a width which bridges or spans the space between the open-topped channels **38** and **39**. These spaces **36** are adapted to receive therein the teeth **14***b* of the latch bars **14***a* as can best be seen in FIGS 2–4. Thus, the transverse recesses **36** are laterally offset from the vertical planes of the open-topped channels **38** and **39**, but nevertheless, such spaces **36** communicate with an adjacent open-topped channel so that waste that may become located in the transverse recesses **36** may be preliminarily moved transversely into an open-topped channel for subsequent removal from the channel. By locating the lower wall **36***a* of each transverse channel **36** above the lowermost wall **24** of an open-topped longitudinal channel, such as **38**, the waste in the transverse channels **36** is being caused to gravitate toward the longitudinal channel **38**, from whence a cleaning of the longitudinal channel may be conveniently accomplished.

While in the form of device of FIGS. 2–4 the apertures **30** for cooperation with hold-down means **42** are shown located axially aligned between two dentate strips **32**, it will be appreciated that for convenience of access to the headed bolt **42***b*, it may be desirable to offset the apertures **30** to a position in the vertical plane of one or the other, or both, of the longitudinal channels **38** and **39**. When apertures **30** are laterally offset from strips **32**, in order to balance the hold-down forces, bores **30** lengthwise of body **20** may be provided alternately in the vertical planes of the two channels **38** and **39**. While the body **20** is shown to be integrally formed, it will be appreciated that the shape of body **20** may also be formed by two Z-shaped sections which may then be welded along the length of their lowermost legs together, or to the underside of the dentate strips **32**. In providing a body **20** formed by two Z-shaped parts, one Z would include the flange **26***a*, its adjacent upright leg **22** and substantially one-half of what constitutes web means **24**, while the other Z-shaped part would include flange **26***b*, its associate upright leg **24** and the remaining half of web means **24**.

In a second form of construction as shown in FIGS. 5 and 6, the floor-latch strip, generally indicated at **50**, is formed of sheet metal and provides a channel-shaped body **52** having spaced upright legs **54** that have at their lower ends an interconnecting bight or web means **56**, and which have inwardly directed flange means **58** at their upper ends. The web means **56** has apertures **60** therein spaced longitudinally of body **52** for receiving therethrough the shank of a bolt-like, hold-down means **62**. The inwardly turned flange means **58** at the upper ends of each leg **54** defines therein alternate teeth **64** and spaces **66**. Each tooth **64** has a portion lying in the horizontal plane at the uppermost end of body **52** and has parallel edges **64***a* and **64***b* which serve as abutments for engagement with a tooth **14***b* of a latch bar **14***a* carried by a lading separator **14**. The inturned terminus **64***c* of a tooth **64** is spaced from another tooth **64** to define a centrally located, open-topped, longitudinal channel **68** through which cleaning of the channel body **52** may be effected. The edges **64***a* and **64***b* of teeth **64** cooperate with the inner surface of adjacent upright leg **54** to define the space **66** which communicates with, but is laterally offset outwardly from the vertical plane of the open-topped channel **68**, and which is arranged to receive therein a portion of tooth **14***b*.

In the form of floor-latch strip shown in FIGS. 7 and 8, there is a combination of certain features found in each of the two earlier described forms. The lading separator is again indicated at **14** and includes a latch bar **14***a* having downwardly extending spaced latch teeth **14***b* which are best seen in cross-section in FIG. 7. The boxcar's floor **12** and decking **12***a* are illustrated in FIG. 8, and a longitudinal recess **17***a* for the latch strip is shown. In FIGS. 7 and 8 the channel-shaped body is generally indicated at **70** and is shaped to provide spaced upright legs **72** which are non-planar. The lower ends of upright legs **72** connect to, or merge with, a bight or web means **74** that is shaped to include two downwardly and inwardly inclined, longitudinal, segments **74***a* and a lowermost central longitudinal segment **74***b*. The upper end of each leg **72** has an outwardly extending flange **76**. The central segment **74***b* of web means **74** is provided with longitudinally spaced apertures **78** for cooperation with the shank of a hold-down bolt means **80**. The hold-down bolt means **80** in this instance is shown of the through type with a cooperating nut **80***a* and lock washer **80***b* as is well known in such constructions.

In this particular form of floor-latch strip, the upright legs **72** of the channel-shaped body are formed with a sinuate inner periphery which is best seen in FIG. 7, and which is shaped to define alternate inwardly-extending teeth **82** and latch-tooth receiving spaces **84**. Each tooth **82** has spaced apart transverse edges **82***a* and **82***b* and an innermost edge **82***c* which is spaced from a corresponding tooth **82** on the opposite leg **72** of the channel-shaped body, so that there is formed between said inwardly extending teeth **82** a continuous, open-topped, longitudinal channel **86** through which cleaning of the body **70** may be effected. Each of the spaces **84** is an open-topped transverse recess that extends transversely outwardly of channel **86** and that is at least partially bounded by the abutment walls **82***a* and **82***b* on the teeth **82**. Each recess **84** is adapted to receive therein a portion of a tooth **14***b* of a latching bar **14***a*. Although the transverse recesses **84** are laterally offset from the vertical plane of the open-topped channel **86**, nevertheless they all communicate with the open-topped channel **86** so that any waste which enters the transverse recesses **84** may preliminarily move laterally into the open-topped channel **86** for subsequent removal. To facilitate such preliminary movement of waste, the inclined web segments **74***a* which are at least in part above web segment **74***b* and which bound the lower end of each transverse recess **84** operate to cause such waste to gravitate toward the lowermost web section **74***b* which bounds the lower end of open-topped channel **86**.

While there has been shown and described a particular embodiment of this invention, it will be obvious to those skilled in the art that various changes and modifications may be made therein without departing from the invention and, therefore, it is intended in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. A floor latch strip for use in a freight-carrying

vehicle that is equipped with a lading separator carrying downwardly projecting latch elements, said floor latch strip comprising an elongated body with an integral bottom and spaced side walls above the bottom for confining waste in said body and having uppermost portions located in a substantially horizontal plane, and means secured to said bottom and spaced between said side walls to define two spaced, continuous, open-topped, longitudinal channels for receiving and holding therein waste which enters the body and only along which cleaning of the body is to be effected, said means on said bottom comprising between said open-topped channels a series of longitudinally spaced, open-topped, transverse recesses at least partially bounded by spaced abutments extending transverse to the length of the open-topped channels and adapted to receive therein the latch elements carried by a lading separator, said transverse recesses being located between the vertical planes of said open-topped longitudinal channels and communicating with both said open topped channels, the transverse recesses including a lower wall spaced above said bottom so that waste in said transverse recesses may be preliminarily moved into and held in the open-topped channels for subsequent removal.

2. A device as in claim 1 wherein the elongated body has an outwardly extending longitudinal flange at the uppermost portion of and integral with each side wall and adapted to seat on the floor of a freight-carrying vehicle.

3. A device as in claim 1 wherein the elongated body is channel shaped, with the legs of the channel providing the side walls extending upwardly from the bottom of the channel and the means defining the spaced open-

topped transverse recesses is in an elongated member having parallel longitudinal sides and with one longitudinal edge thereof engaging the bottom of the channel, said elongated member being spaced from both legs of the channel and having the transverse recesses defined in the other longitudinal edge thereof.

4. A device as in claim 1 including spaced bolt means located only in the region between the two spaced open-topped, longitudinal channels and extending downwardly through the bottom of the elongated body for attaching the elongated body to the floor of a freight-carrying vehicle and so as to leave said longitudinal channels unobstructed to a sweeping action for removal of waste therefrom.

5. A device as in claim 1 wherein the elongated body is channel shaped, with the side walls extending upwardly from the bottom, an outwardly extending longitudinal flange at the uppermost edge of at least one of the side walls of the channel, said flange being adapted to seat on the floor of a freight-carrying vehicle.

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U.S. Cl. X.R.

105—376