Aug. 18, 1970 H. M. SCHILF ET AL 3,524,666

FLOOR CLIP

Filed Aug. 5, 1968

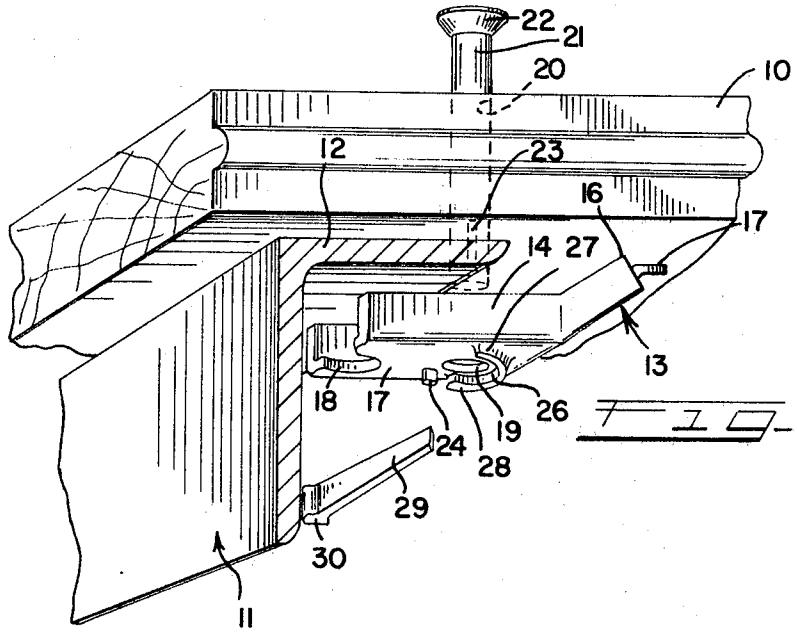


FIG. 1

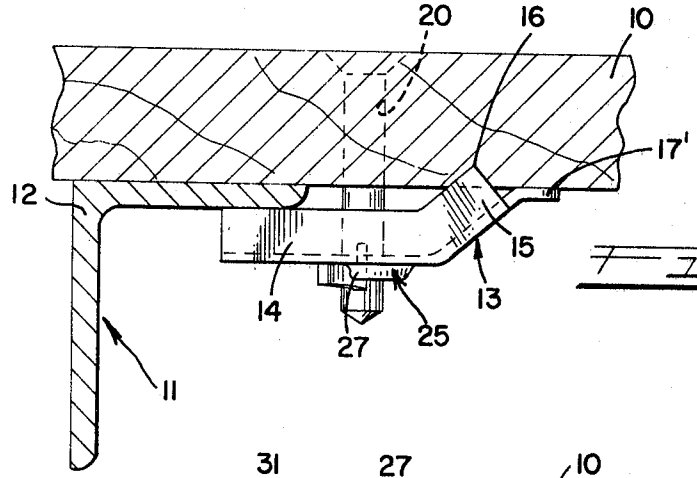


FIG. 2

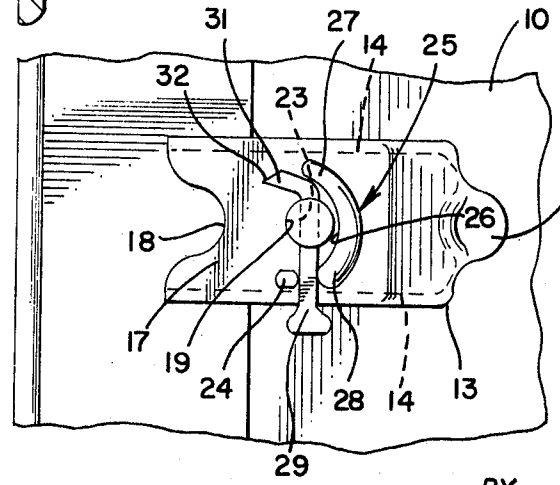


FIG. 3

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FLOOR CLIP

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U.S. Cl. 287—189.35 6 Claims

ABSTRACT OF THE DISCLOSURE

A floor clip for securing the wooden floor of a railway car to a stringer of the car underframe, the clip being attached by means of a headed pin having a traversely extending opening, the pin being disposed through an opening in the clip wherein the floor and stringer are secured together by the clip which is held in tightened position by means of a tapered wedge automatically clinched by a clinching arrangement on the clip when a wedge element is driven through the opening in the pin during assembly.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to railway cars and particularly to an improved floor clip arrangement for securing the car floor to the underframe of the railway car.

Description of the prior art

The prior art is best disclosed in the Rothfuchs Pat. No. 2,439,220 wherein a floor clip is described having a similar general configuration as shown in the present invention. The present invention is concerned with an improved construction of such a floor clip which permits greater speed of assembly and more positive securing of the clip in position.

SUMMARY

The present floor clip arrangement includes clinching elements contained on the floor clip which permit a wedge-shaped element to be driven through a securing pin for effectively tightening the floor clip against the stringer and the wooden floor plank whereupon the wedge-shaped element is automatically clinched upon driving of the same.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective view disclosing the invention and the manner in which a floor clip is assembled to a railroad car floor and car under-structure;

FIG. 2 is a cross-sectional view showing a floor clip in assembled position; and

FIG. 3 is a view from underneath the railroad car floor showing a floor clip in assembled relation with a stringer of the car underframe.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the drawings, **10** represents a wooden floor member which is to be secured to a stringer **11** provided on a railroad car underframe. The stringer **11** includes a horizontal flange **12** on which the floor member **10** is to be secured. A floor clip is generally designated at **13** and is of channel-shaped construction including upwardly extending flanges **14**. One end of the floor clip **13** is provided with an upwardly inclined portion **15** the upper ends of which provide rotation-preventing prongs **16** formed by the ends of the flanges **14**. The clip **13** is provided with a web **17** having at one end an integral flange **17'**. A recess **18** is provided in one end of the web **17**. A vertical

opening **19** is provided in the web **17** and is in alignment with an opening **20** in the floor **10**. A pin **21** is adapted to be inserted in the opening **20** and includes a head **22**. The pin **21** also includes a transversely extending slot **23**. As best shown in FIG. 3 a guide element **24** projects downwardly from the web **17** and is in laterally spaced relation with respect to a clinching member **25** integrally formed with the floor clip **13** and projecting downwardly with respect thereto. The clinching member **25** is formed with an arcuate surface **26** and is provided at one end with a clinching portion **27** and at its other end with a guide portion **28**.

A tapered key element **29** includes a head **30** and as shown in FIG. 3 in the assembled position is provided with a clinched end **31**.

As best shown in FIG. 1, in assembly the pin **21** is inserted through the opening **20** and through the opening **19** of the clip **13**. With the opening **23** of the pin **21** being disposed below the web **17** the tapered element **29** is then inserted through the opening or slot **23**. During this insertion the guide portions **24** and **28** guide the pin **21** into the slot **23** and the assembler then drives the tapered element **29** into the clinched position shown in FIG. 3. The clinching portion **27** is in the path of movement of the tapered element **29** as it is driven through the slot **23** and the clinching end **31** is provided with a tapered surface which, as it engages the clinching portion **27**, is bent into the clinched position shown in FIG. 3. The tapered element **29**, while it is being driven into position, also tightly draws the clip **13** against the underneath side of the flange **12** and the floor plank **10** is securely drawn into the assembled position. The prongs **16** serve to penetrate into the underneath surface of the floor plank **10** as shown in FIG. 2, the distance of penetration being limited by means of the integral flange **17'**. The guide portions **24** and **28** also serve to restrain the tapered element **29** and pin **21** against rotation which is of course necessary to achieve the bending or clinching operation as shown in FIG. 3.

It is thus apparent that an improved combination for securing a floor clip has been disclosed. The tightening of the parts in their combined relation and the clinching of the tapered key or element **29** is simultaneous upon the tapered element **29** being driven through the slot **23** by a single hammer blow. This permits assembly to be accomplished rapidly and it is unnecessary to insert lock washers in combination with bolt and other conventional securing arrangements. The present invention provides for continued locking and requires no subsequent tightening or maintenance as might be required with other securing means over the life of the railway car. If the floor is to be replaced it is a simple matter to withdraw the tapered elements **29** from the clinched relation.

What is claimed is:

1. In a floor clip for securing together a sill and a floor board supported thereby, a channel-shaped member having a generally horizontally disposed web and generally vertically extending flanges, a securing pin, an opening in the web for receiving said securing pin to clamp the sill between said clip and the floor board, said flanges providing upwardly extending end prongs for penetrating said floor boards, the improvement comprising:

means for securing said clip including a transversely extending pin opening in said pin, and wedge means movable through said pin opening and engaging said web,

said wedge means including a key element, and clinching means on said clip engageable with said key element during driven insertion through said opening for clinching the end of said key element and limiting rotation of said pin relative to said clip,

said clinching means including a clinching element projecting from said web and being disposed in the path of movement of said key element as it is driven through said pin opening,

said key element being tapered to draw said pin through the floor and force said pin down as said key element is driven through said pin opening with said clip prongs being forced into said floor in preventing rotation of said clip relative to said floor.

2. The invention according to claim 1, and

said clip including a guide element projecting from said web and being disposed to one side of a centerline through said pin opening and on one side of said pin,

guide means projecting outwardly from said web including a projecting portion disposed on the other side of said centerline on the one side of said pin adjacent to said guide element whereby said key element is guided into said pin opening.

3. The invention according to claim 1, and

said clinching element projecting from said web and having an arcuate surface, one end of which is disposed in the path of movement of said key element as it is driven through said pin opening and the other end having means engageable with said key element for restraining the same and said pin against rotation.

4. The invention according to claim 3, and

said key element having a chamfered end portion adapted for engagement with said one end of said

arcuate surface as the key element is driven through the pin opening whereby the end of the key element is bent at an angle to prevent removal of the key element from the pin.

5. The invention according to claim 1, and

said clinching element being arcuate shaped and providing for strength reinforcement of said clip web.

6. The invention according to claim 4, and

the one end of the arcuate surface being substantially in the path of the opening in the pin and in the path of substantially the entire key element,

said clinching element being engageable with the one end of the arcuate surface so as to bend the clinching element at an angle to prevent removal of the clinching element.

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U.S. Cl. X.R.

52—483; 85—8.1