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LADING BAND ANCHOR
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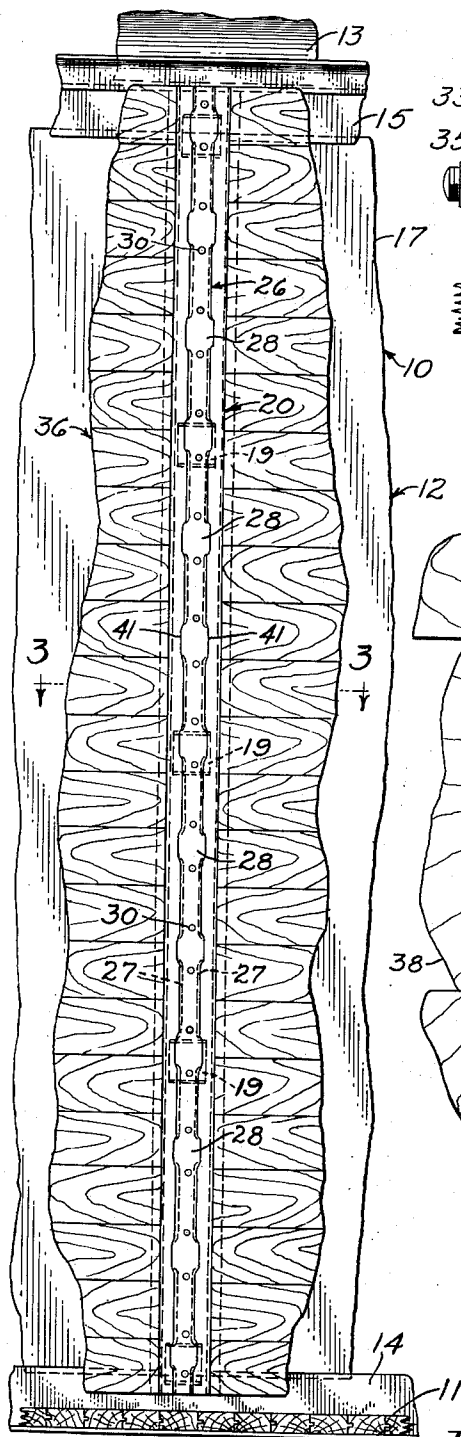


Fig. 1

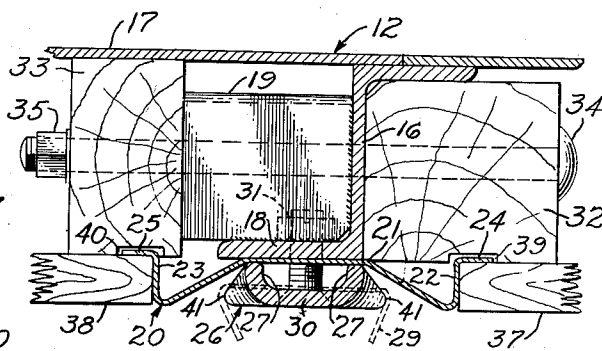


Fig. 3

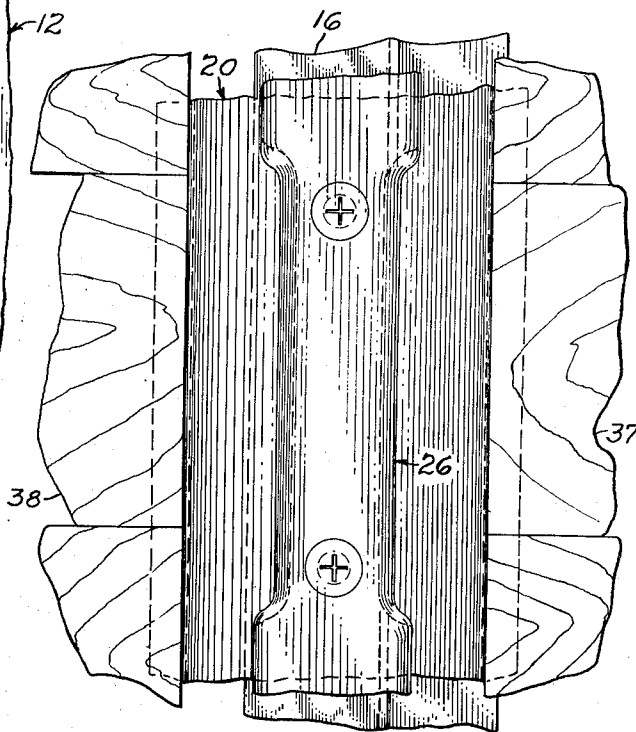


Fig. 2

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LADING BAND ANCHOR

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9 Claims. (Cl. 105—369)

This invention relates to lading strap anchors for railway freight cars and is primarily concerned with lading strap anchors adapted to be secured to the posts on the vertically disposed walls of railway box cars.

The principal object of the invention is to provide a lading strap anchor in the form of a flat strip fabricated of metal which has a plurality of spaced pairs of opposite portions of its sides bent toward each other and which is adapted to be secured to the wall of a railway freight car, the anchor and the wall together forming openings adapted to receive lading straps.

Another object of the invention is to provide a lading strap anchor in the form of a flat strip fabricated of metal which has a plurality of spaced pairs of opposite portions of its sides bent toward each other in combination with a guide plate, the anchor and the guide plate being adapted to be secured to the wall of a railway freight car and the anchor and the guide plate together forming openings adapted to receive lading straps.

Another object of the invention is to provide in combination with a car wall, an intermediate side post, furring strips on opposite sides of the post, spaced sections of inside lining on opposite sides of the post, each section being secured to one of the furring strips, and a lading strap anchor assembly including a guide plate which is positioned between the anchor and the post and which has flanges abutting against the spaced sections of inside lining and which has flanges positioned between the respective furring strips and the sections of inside lining.

A further object of the invention is to provide in combination with a car wall, an elongated member secured to the wall, a flange on the elongated member, and an anchor secured to the flange, a reinforcing element secured between the elongated member and the flange and which reinforces the flange relative to the elongated member thereby preventing displacement of the flange under load to insure that the anchor will not be shifted from its normal position and to prevent the anchor from being distorted.

An important object of the invention is to provide in combination with a car wall, post, furring strips on opposite sides of the post, spaced sections of inside lining at opposite sides of the post and each section being secured to one of the furring strips, a flange on the post positioned at the space between the sections of inside lining, and an anchor positioned between the sections of inside lining and secured to the flange, a member extending between one of the furring strips and the post and secured to the post and the flange and which performs the multiple function of spacing said one furring strip from the post and reinforces the flange relative to the post thereby preventing movement of the flange to insure that the anchor will not be shifted from its normal position and to prevent the anchor from being distorted.

The foregoing and other objects of the invention are attained by the construction and arrangement illustrated in the accompanying drawing wherein:

Fig. 1 is a fragmentary view of the inner face of a side

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wall of a railway box car showing the novel lading strap anchor arrangement secured thereto;

Fig. 2 is a fragmentary view of an intermediate side post and inside lining with the guide plate and lading strap anchor secured together in assembled relation; and

Fig. 3 is a view taken on the line 3—3 of Fig. 1 looking in the direction of the arrows.

The invention proposes a lading strap anchor arrangement which is adapted to be secured to the intermediate side post of a railway box car. A vertically disposed elongated guide plate is adapted to be secured to the intermediate side post and the guide plate extends over a substantial portion of the height of the side wall of the car. A vertically disposed lading strap anchor in the form of a flat strip fabricated of metal is adapted to be positioned against the guide plate and is secured to the intermediate side post and the anchor extends substantially the full height of the guide plate. The flat strip has a plurality of spaced pairs of opposite portions of its sides bent toward each other and these bent portions are positioned against the guide plate. The remaining flat portions of the strip and the adjacent portions of the guide plate together form openings adapted to receive lading straps. With this type of lading strap anchor arrangement any width of lading strap can be used. The guide plate provides easy and unobstructed passage for the lading straps behind the anchor and the lading straps may be guided through said openings from either side of the anchor. The whole structure of the lading strap anchor arrangement has rounded edges, or corners to prevent damaging the lading straps. Further, this lading strap anchor arrangement provides a large number of places to put the lading straps, that is, the lading straps may be anchored close to the top of the side wall of the car or midway of the side wall of the car or close to the bottom of the wall, or at any place between the locations just named. This lading strap anchor arrangement is of simple two-piece design meaning the guide plate and anchor. The fact that the guide plate extends a substantial portion of the height of the side wall of the car provides a one-piece continuous design and the one-piece continuous designs of the anchor and guide plate reinforce the intermediate side posts so that the entire assembly acts together to resist stresses imposed by the lading straps. The guide plate and anchor can be easily applied to new cars. All that is necessary is to simply bolt the guide plate and anchor to the intermediate side post. Thus, bolting on the guide plate and anchor is quick and simple as compared to welding for example which is time consuming and difficult to apply. Since the anchor and guide plate are bolted onto the side post an anchor assembly can easily be removed and repaired and then reapplied or a new anchor may be installed. Further, this lading strap anchor arrangement can easily be applied to existing cars by providing holes in the side post and adding an additional furring strip.

The side walls of railway box cars generally are provided with an intermediate side post and a first furring strip positioned on one side of the post. With this invention a second furring strip is positioned on the other side of the post and a first section of inside lining positioned on one side of the post and secured to the first furring strip and a second section of inside lining positioned on the other side of the post and spaced from the first section of inside lining and secured to the second furring strip. The side post is provided with a flange which is arranged in parallel relation with respect to the side wall of the car and disposed at the space between the spaced sections of inside lining. The lading strap anchor is secured to this flange and is positioned between the spaced sections of inside lining. The invention further proposes in combination with the side post, furring strips, the sections of inside lining, the flange on the intermediate side post and

the lading strap anchor a spacer which extends between one of the furring strips and the post and is secured to the intermediate side post and the flange. This spacer spaces said one of the furring strips from the side post and reinforces the flange relative to the post.

In the drawings, 10 generally designates a railway box car having a floor 11, side wall 12, and a roof 13. The side wall 12 is comprised of a side sill 14, a side plate 15, elongated members or intermediate side posts 16 extending between and secured to the side sill and side plate and presenting a flush outer surface therewith to which an outer sheathing 17 is secured by welding. The elongated member or intermediate side post 16 has a flange 18 which is integral with the post and which is arranged in spaced parallel relation with respect to the side sheathing 17. A plurality of spacers 19 which also function as reinforcing elements or gussets are arranged in vertically spaced relation with respect to each other along the post 16 from the top thereof to the bottom thereof as best shown in Fig. 1. The spacers, reinforcing elements or gussets 19 are channel-shaped in transverse cross-section and each of the gussets 19 extends between one face of the flange 18 and the web of the side post 16 and the gussets 19 are secured to the flange 18 and the web 16 by welding. A vertically disposed elongated guide plate 20 is positioned against the other face of the flange 18 and this guide plate extends throughout a substantial portion of the height of the side wall 12. The guide plate 20 has a particular transverse cross-sectional shape comprising a guide section 21, a first flange 22 having one side integrally secured to one side of the guide section, a second flange 23 having one side integrally secured to the other side of the guide section, a third flange 24 having one side integrally secured to the other side of the first flange 22, and a fourth flange 25 having one side integrally secured to the other side of the second flange 23. A vertically disposed lading strap anchor 26 extends substantially full height of the guide plate 20 and the anchor 26 is in aligned relation with the guide plate and is positioned against the guide plate. The anchor 26 is comprised of a flat strip fabricated of metal and has a plurality of spaced pairs of opposite portions of its sides bent toward each other to a position of confronting relation with respect to each other and these bent portions are designated 27. The bent portions 27 may be bent at any angle between the limits of about 30 degrees to about 90 degrees, the accompanying drawing showing the bent portions bent at an angle of 90 degrees. The anchor 26 has a curved or channel-shaped transverse cross section at the places where the bent portions 27 are located and the portions 28 of the strip between pairs of bent portions 27 are flat in transverse cross section. The bent portions 27 are positioned against the guide section 21 of the guide plate 20 and the bent portions form legs to space the strip from the guide plate 20. The flat portions 28 of the strip and the adjacent portions of the guide section 21 of the guide plate 20 together forming openings adapted to receive lading straps 29 as best shown in Fig. 3. The guide plate 20 and the anchor 26 are both secured to the flange 18 of the post 16 by a plurality of spaced machine screws 30 which extend through the anchor 26 and the guide plate 20 and the flange 18. Nuts 31 are threaded onto the machine screws 30 and the threads on the screws between the nuts and the free end of the screw are distorted by a chisel or a minute weld may be made on the nut and on the adjoining threads so that the nut cannot possibly work loose. The machine screws 30 and the nuts 31 together form a means permanently securing both the guide plate 20 and the anchor 26 to the flange 18 of the post 16.

A first vertically disposed furring strip 32 extends substantially full height of the side wall of the car and is positioned on one side of the side post 16 and bears against the post. A second vertically disposed furring strip 33 extends substantially full height of the side wall of the car and is positioned on the other side of the post 16 and is

arranged in spaced side by side relation with respect to the post and bears against the spacers 19. The spacers 19 extend between the furring strip 33 and the post and are secured to the flange 18 as well as the web 16 of the post and serve a multiple purpose in that they space the furring strip 33 from the post and reinforce the flange 18 relative to the web of the post. A plurality of carriage bolts 34 are arranged in vertically spaced relation with respect to each other and each of the bolts 34 extends through the first furring strip 32 and the web of the side post 16 and the second furring strip 33 and is spaced above or below the adjacent one of the spacers 19 and has a nut 35 on the threaded end thereof. Each of the side walls 12 has an inside lining 36 which is comprised of separate sections 37 and 38. The first section 37 of inside lining is positioned on said one side of the intermediate side post 16 and against the first furring strip 32 and is secured to the first furring strip by nailing and the second section 38 of the lining is positioned on the other side of the post and against the second furring strip 33 and is secured thereto by nailing. The first flange 22 of the guide plate 20 is positioned against the adjacent end of the section 37 of the lining and the second flange 23 of the guide plate is positioned against the adjacent end of the section 38 of the lining. The third flange 24 of the guide plate is positioned between the furring strip 32 and the section 37 of the lining in the vertically extending recess 39 provided in the furring strip 32 and the fourth flange 25 of the guide plate is positioned between the furring strip 33 and the section 38 of the lining in the vertically extending recess 40 provided in the furring strip 33.

The mode of assembling the invention on a car is as follows: first, the spacers 19 are welded to each of the intermediate side posts 16 and its integral flange 18 and then the side wall of the car is fabricated in the usual manner, third, the guide plate 20 is positioned against the flange 18 of the intermediate side post 16 and the anchor 26 is positioned against the guide plate 20 and both are bolted to the flange 18 by means of machine screws 30 and nuts 31, sixth, the furring strips 32 and 33 are bolted to the post by means of carriage bolts 34 and nuts 35, and seventh, one section 37 or 38 of the inside lining is nailed to the furring strip 32 or 33 as the case may be and the other section of the inside lining is then nailed to the other furring strip.

Referring to Fig. 1 it will be seen that the flat portions 28 of the anchor 26 are wide so that the anchor and guide plate together will form wide openings permitting the use of many different widths of lading straps. The particular shape of the guide plate provides for easy and unobstructed passage of the lading straps behind the anchor and the lading straps may be guided through said openings from either side of the anchor. The side edges 41 of the flat portions 28 are rounded and since the lading straps pass around these flat portions the rounded sides will prevent the strip from cutting the lading straps. Moreover, both the guide plate and anchor have rounded sides, edges, and corners and this smooth contour of both the guide plate and anchor insures that the lading straps will not be cut and makes for ready insertion of the straps through the anchor. Again referring to Fig. 1 it will be seen that a large number of vertically spaced openings are provided so that any number of lading straps may be used and so that a specific lading strap or straps may be held at the desired elevation. The fact that both the guide plate and anchor extend over a substantial height of the side wall of the car provides a simple two-piece continuous design which reinforces the intermediate side posts so that the entire assembly acts together to resist stresses imposed by the lading straps. Since the surfaces joining the bent portions 27 of the strip with the flat portions 28 of the strip are downwardly inclined and the general contour of both the guide plate and anchor are smooth and without any pronounced surface irregularities the lading strap anchor arrangement is self-cleaning.

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Thus, when grain or similar lading goes between the guide plate and anchor it will fall to the floor, and this action eliminates the danger of grain collecting in the lading strap anchor arrangement and avoids infestation with insects. The guide plate and anchor can easily be applied to new cars by simply bolting the guide plates and anchors to the side posts and this bolting on of the guide plate and anchor is quick and simple. Since the anchor and guide plate are bolted onto the intermediate side post the anchor can easily be removed and repaired and then fastened to the post again or a new anchor may be installed. This lading strap anchor arrangement can easily be applied to existing cars by providing holes in the flange 18 of the post and adding the second furring strip 33.

As before stated the spacers 19 perform a dual function by spacing the furring strip 33 from the post 16 and reinforcing the flange 18 relative to the post web 16. The spacers 19 are necessary to provide space between the furring strip 33 and the post web 16 so that the nuts 31 may be threaded on the machine screws 30 when installing the guide plate and anchor. A number of spacers 19 less than the number of anchor openings is sufficient so there will not be a spacer located adjacent every anchor opening but the spacers required and shown in the drawing are located behind certain of the flat portions 28 on the anchor which together with the guide plate form the anchor openings as best shown in Fig. 1. The spacers 19 will reinforce the flange 18 against displacement and they will also prevent any rotative movement of the flange with respect to the web 16 of the post which insures that the anchor will not be shifted out of its normal position.

From the foregoing it will be seen that there has been provided a lading strap anchor arrangement which accommodates any width of lading strap, provides for easy guiding of a lading strap therethrough, has all surfaces smooth and free of irregularities and does not project beyond the exposed face of the inside lining of the car preventing damage to the lading strap and lading, provides a multiplicity of anchor points, is of simple two-piece continuous design which in combination with the side post provides an assembly capable of resisting high lading strap loads, is self-cleaning, is easily applied to new cars, is easily removed from a car and repaired, and is easily applied to existing cars. Finally, there has been provided a spacer which spaces a certain furring strip from the web of the side post and reinforces the post flange, to which the anchor is attached, relative to web to prevent any movement of the flange.

What is claimed is:

1. In a freight vehicle having a wall, a guide plate positioned against said wall and secured thereto, a lading strap anchor comprising a flat strip fabricated of metal and having a plurality of spaced pairs of opposite portions of its sides bent toward each other and said bent portions being positioned against said guide plate, and means securing said lading strap anchor to said wall, each flat portion of said strip and the adjacent portion of said guide plate together forming an opening adapted to receive a lading strap.

2. In a freight vehicle having a vertically disposed wall, a vertically disposed elongated guide plate positioned against said wall and secured thereto and extending over a substantial portion of the height of said wall, a vertically disposed lading strap anchor comprising a flat strip fabricated of metal and having a plurality of spaced pairs of opposite portions of its sides bent toward each other and said bent portions of said lading strap anchor being positioned against said guide plate and said lading strap anchor having a height substantially the same as said guide plate, and means securing said lading strap anchor to said vertically disposed wall, each flat portion of said strip and the adjacent portion of said guide plate together forming an opening adapted to receive a lading strap.

3. In a railway box car having a side wall and an intermediate side post secured to said side wall, a vertically

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disposed elongated guide plate positioned against said post and secured thereto and extending substantially the full height of said side wall, a vertically disposed lading strap anchor comprising a flat strip fabricated of metal and having a plurality of spaced pairs of opposite portions of its sides bent toward each other and said bent portions of said lading strap anchor being positioned against said guide plate and said lading strap anchor being in aligned relation with and having a height substantially the same as said guide plate, and means securing said lading strap anchor to said post, each flat portion of said strip and the adjacent portion of said guide plate together forming an opening adapted to receive a lading strap.

4. In a freight vehicle having a wall and an elongated member secured to said wall and a first furring strip on one side of said elongated member and a second furring strip on the other side of said elongated member and a first section of lining on said one side of said elongated member positioned against said first furring strip and secured thereto and a second section of lining on said other side of said elongated member positioned against said second furring strip and secured thereto; a guide plate comprising a guide section, a first flange having one side secured to one side of said guide section, a second flange having one side secured to the other side of said guide section, a third flange having one side secured to the other side of said first flange, and a fourth flange having one side secured to the other side of said second flange; said guide section being positioned against said elongated member and secured thereto and said first flange being positioned against the adjacent end of said first section of lining and said second flange being positioned against the adjacent end of said second section of lining and said third flange being positioned between said first furring strip and said first section of lining and said fourth flange being positioned between said second furring strip and said second section of lining; and a lading strap anchor positioned against said guide plate and secured to said elongated member.

5. In a freight vehicle having a side wall having a side sheathing and an intermediate side post secured to said side sheathing and a first furring strip on one side of said intermediate side post and a second furring strip on the other side of said intermediate side post and a first section of inside lining on said one side of said intermediate side post positioned against said first furring strip and secured thereto and a second section of inside lining on said other side of said intermediate side post positioned against said second furring strip and secured thereto; a guide plate comprising a guide section, a first flange having one side secured to one side of said guide section, a second flange having one side secured to the other side of said guide section, a third flange having one side secured to the other side of said first flange, and a fourth flange having one side secured to the other side of said second flange; said guide section being positioned against said intermediate side post and secured thereto and said first flange being positioned against the adjacent end of said first section of inside lining and said second flange being positioned against the adjacent end of said second section of inside lining and said third flange being positioned between said first furring strip and said first section of inside lining and said fourth flange being positioned between said second furring strip and said second section of inside lining; and a lading strap anchor positioned against said guide plate and secured to said intermediate side post.

6. In a freight vehicle having a wall and an elongated member secured to said wall, a flange arranged in spaced parallel relation with respect to said wall and secured to said elongated member, a reinforcing element extending between one face of said flange and said elongated member and secured to said flange and said elongated member, and a lading strap anchor positioned against the other face of said flange and secured thereto, the

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reinforcing element being adapted to prevent displacement of the flange relative to the member by the anchor.

7. In a freight vehicle having a wall and an elongated member secured to said wall, a flange arranged in spaced parallel relation with respect to said wall and secured to said elongated member, a plurality of reinforcing elements arranged in spaced relation with respect to each other along said elongated member and each of said reinforcing elements extending between one face of said flange and said elongated member and secured to said flange and said elongated member, and a lading strap anchor positioned against the other face of said flange and secured thereto, the reinforcing elements being adapted to prevent displacement of the flange relative to the member by the anchor.

8. In a freight vehicle having a wall and an elongated member secured to said wall and a first furring strip on one side of said elongated member and a second furring strip on the other side of said elongated member and in spaced relation therewith and a first section of lining on said one side of said elongated member positioned against said first furring strip and secured thereto and a second section of lining on said other side of said elongated member positioned against said second furring strip and secured thereto, a flange arranged in parallel relation with respect to said wall and projecting toward said second furring strip and secured to said elongated member, a spacer extending between said second furring strip and said elongated member and one face of said flange and secured to said elongated member and said flange, said spacer spacing said second furring strip from said elongated member and reinforcing the connection of said flange to said elongated member, and a lading strap

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anchor positioned against the other face of said flange and secured thereto.

9. In a freight vehicle having a side wall having a side sheathing and an intermediate side post secured to said side sheathing and a first furring strip on one side of said intermediate side post and a second furring strip on the other side of said intermediate side post and in spaced relation therewith and a first section of inside lining on said one side of said intermediate side post positioned against said first furring strip and secured thereto and a second section of inside lining on said other side of said intermediate side post positioned against said second furring strip and secured thereto, a flange arranged in spaced parallel relation with respect to said side sheathing and projecting toward said second furring strip and secured to said intermediate side post, a spacer extending between said second furring strip and said intermediate side post and one face of said flange and secured to said intermediate side post and said flange, said spacer spacing said second furring strip from said intermediate side post and reinforcing the integral connection of said flange to said intermediate side post, and a lading strap anchor positioned against the other face of said flange and secured thereto.

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