March 1, 1966 L. H. MORIN 3,238,285

METHOD OF FORMING SCOOP STRUCTURES TO ACCOMMODATE SLIDERS OPERATING ON ONE FACE OF THE SCOOP STRUCTURES

Filed Feb. 19, 1963 2 Sheets-Sheet 1

FIG. 1.

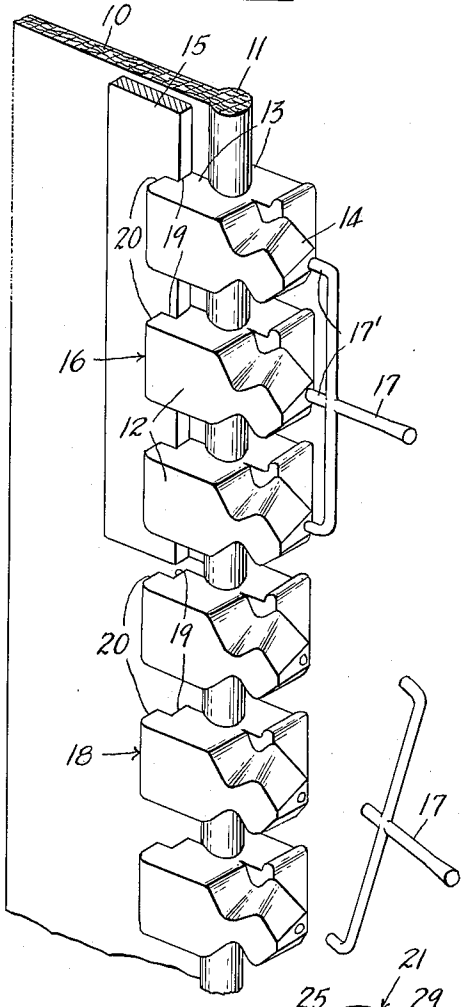


FIG. 2.

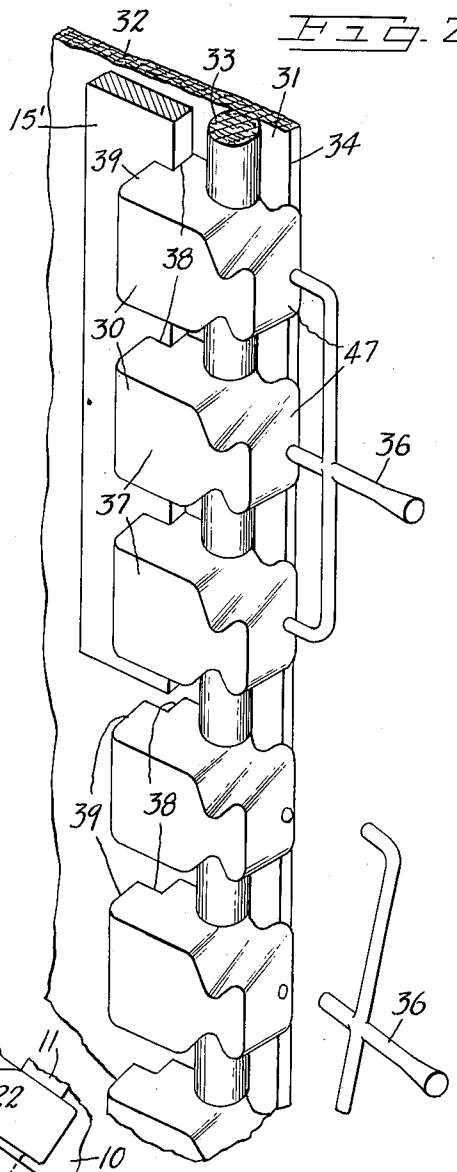
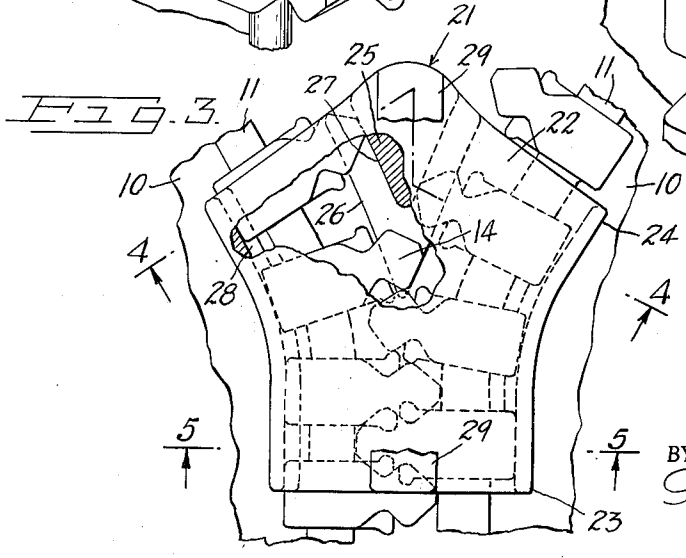


FIG. 3.



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FIG. 4.

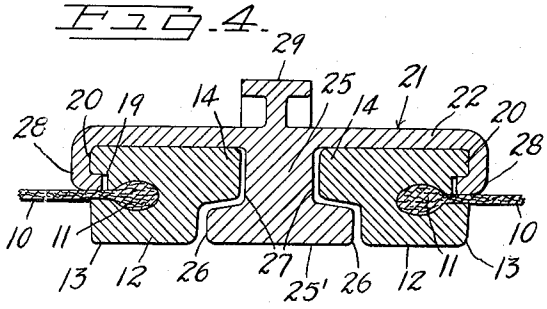


FIG. 5.

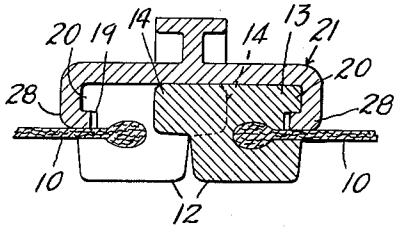


FIG. 6.

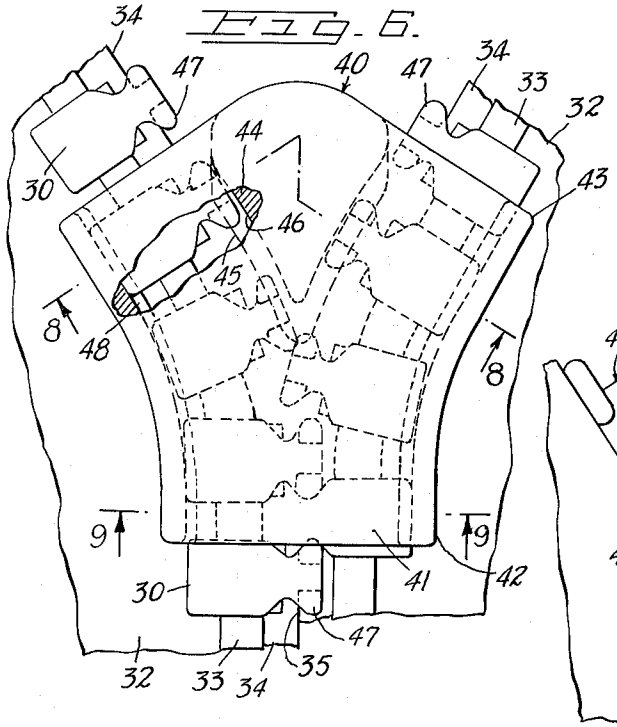


FIG. 7.

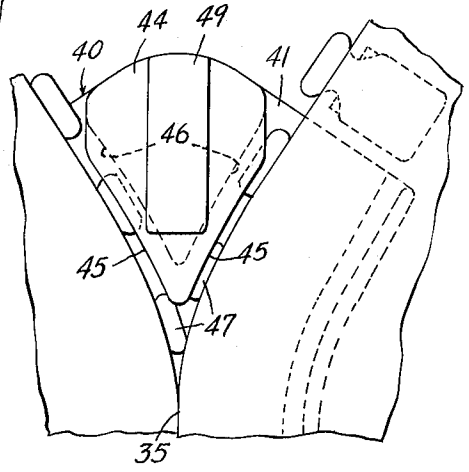


FIG. 8.

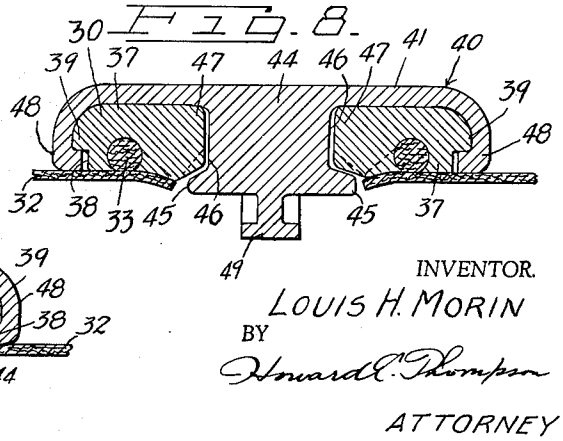
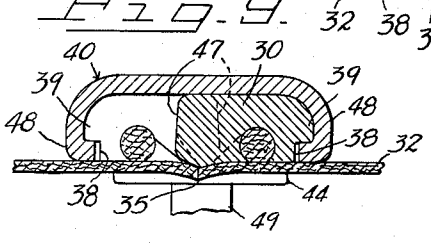


FIG. 9.



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3,238,285

METHOD OF FORMING SCOOP STRUCTURES TO ACCOMMODATE SLIDERS OPERATING ON ONE FACE OF THE SCOOP STRUCTURES

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Filed Feb. 19, 1963, Ser. No. 259,584
4 Claims. (Cl. 264—252)

This invention relates to scoops of separable fastener stringers formed on the stringers in a manner to provide offset slider engaging shelves on the heel or mounting end portions of the scoops to accommodate sliders which operate basically on one face only of the scoops in coupling and uncoupling the stringers, the sliders having inturned or hook-shaped side flanges engaging the offset shelves in coupling and uncoupling the scoops of the stringers. More particularly, the invention deals with a method of forming mounting end portions of various types of scoops to provide thereon the offset slider engaging shelves in the operation of casting the scoops directly upon the beaded edges of the stringer tapes.

Still more particularly, the invention deals with the provision of novel slider structures for operation in conjunction with scoops of the type and kind defined.

The novel features of the invention will be best understood from the following description, when taken together with the accompanying drawing, in which certain embodiments of the invention are disclosed and, in which, the separate parts are designated by suitable reference characters in each of the views and, in which:

FIG. 1 is an enlarged diagrammatic perspective view illustrating the method of forming one type of scoop on the beaded edge of a stringer so as to provide on the heel or mounting end portions of the scoops projecting slider engaging shelves.

FIG. 2 is a view, generally similar to FIG. 1, illustrating the method as applied to formation of another type of scoop.

FIG. 3 is an enlarged diagrammatic plan view of a slider illustrating engagement of a pair of stringers of the type and kind shown in FIG. 1, with the part of the construction broken away and with parts of the construction broken away and in section.

FIG. 4 is a diagrammatic sectional view on the broken line 4—4 of FIG. 3.

FIG. 5 is a diagrammatic sectional view on the line 5—5 of FIG. 3.

FIG. 6 is a view, generally similar to FIG. 3, but illustrating stringers with scoops similar to that shown in FIG. 2, with parts of the construction broken away and in section.

FIG. 7 is a view, generally similar to FIG. 6, showing the other surface of the stringers and the slider and showing only part of the construction.

FIG. 8 is a diagrammatic section on the broken line 8—8 of FIG. 6; and

FIG. 9 is a similar section on the line 9—9 of FIG. 8.

In illustrating certain adaptations of my invention, I have shown diagrammatically in FIGS. 1, 3, 4 and 5 of the drawing scoops of the center ledge type, as generally disclosed in my prior Patent Number 2,942,317; whereas, in FIGS. 2 and 6 to 9, inclusive, I have diagrammatically shown scoops of the type and kind arranged solely upon one surface of a stringer tape and more generally illustrated in my prior application Serial Number 104,736, filed April 21, 1961, now Patent No. 3,114,952.

With respect to the method diagrammatically illustrated in FIGS. 1 and 2 of the drawing for the formation of scoops and use of core members upon which the scoops are formed and in use of the core member to move formed scoops from a casting station to a trimming station and in positioning the next successive portion of the stringer tape at a casting station to receive the next formed scoop, or groups of scoops, reference can be made to Patent Number 1,975,966, granted October 9, 1934.

It will be understood, in this connection, that the present method is modified to the extent that a different type and kind of core is utilized in formation of the shelves on the heel or mounting end portion of the scoops.

Considering FIGS. 1 to 5, inclusive, it will appear that each stringer **10** of the separable fastener has a beaded edge **11**, upon which scoops **12** are cast. The scoops in the present illustration are of what I term the center ledge type and include mounting end portions **13**, sometimes referred to as heels, formed on the tape and engaging both side surfaces of the tape, as will clearly appear from a consideration of FIGS. 4 and 5. At **14** is shown the coupling end portion of each of the scoops which are disposed primarily on one side of the scoop, as will be clear from a consideration of FIGS. 4 and 5.

Considering FIG. 1 of the drawing, in illustrating one adaptation of the method of producing the stringer tapes, a rectangular core **15** is employed and disposed upon one surface of the tape **10** inwardly of the bead **11** at the casting station **16** defined by the three scoops **12**, which are formed upon the core **15** as said core is positioned at the casting station **16**. **17** represents diagrammatically the sprue with branches **17'** directed to the three scoop cavities for formation of the group of three scoops on the tape **10**, as well as on the core **15**. After the group of scoops have been formed, the core **15** is moved downwardly to position the three group of scoops, as well as the tape upon which they are secured at a stripping and trimming station **18**, after which, the core **15** is stripped from the group of scoops at the station **18** and suitable trimming tools, not shown, strip and remove the gate in the manner diagrammatically illustrated. In the above operation, it will be apparent that the next section of the tape has been positioned in the dies when **15** is returned to the position shown in FIG. 1; whereupon, the next successive casting operation takes place and another group of three scoops are formed and the above operations are repeated in producing stringer lengths of the scoops, in manners known in the art.

By location of the core **15**, as diagrammatically seen in FIG. 1, it will be apparent that recesses **19** will be formed in portions of the mounting ends or heels **13** of the scoops adjacent the surface of the tape **10**, thus leaving projecting shelves **20** on the heels **13** and spaced with respect to the surface of the tape **10**.

Considering FIGS 3, 4 and 5 of the drawing, with stringers made according to the teachings in FIG. 1 of the drawing, special type of sliders **21** will be employed to couple and uncouple the stringers. These sliders have one wall **22**, having a contracted end **23** and a wide or flared end **24**, note FIG. 3 of the drawing. The wall **22** has centrally of the wide end portion thereof a frog or web **25**, partially shown in section in FIG. 3 of the drawing, the web **25** including laterally extending flanges **26**, clearly seen in FIG. 4 of the drawing, which extend into the slider body beyond the inner contracted end of the web **25**, as will clearly appear from a consideration of FIG. 3 of the drawing. The flanges **26**, in conjunction with the wall **22**, form scoop guiding recesses **27** at opposed sides of the web **25** for reception of the coupling end portions **14** of the scoops **12**, as clearly noted in FIG. 4 of the drawing. It will be noted that the surface **25'** of the web is in alinement with exposed surfaces of the scoops **12**, as clearly noted in FIG. 4 of the drawing.

Each side of the wall **22** has inturned or hook-shaped flanges **28** which are adapted to extend into the recesses **19** and engage the shelves **20** in guidance of the slider **21** along the scoops of the stringers in coupling

and uncoupling the same. The outer or exposed surface of the wall **22** includes suitable channelled means, as at **29**, for coupling a pull with the slider for operation of the slider along the stringers. The means **29** can be of any type and construction, as well known in the art and part only of this means is illustrated in FIG. 3 of the drawing.

Considering FIGS. 2 and 6 to 9, inclusive, here is illustrated another adaptation of my invention as applied to scoops, such as **30** attached to one surface **31** only of a stringer tape **32**. This surface of a stringer tape **32** also includes a bead **33**. It will also appear that the tape **32** extends beyond the bead **33**, as indicated at **34** and edges of these extensions **34** are adapted to be brought into abutting engagement with each other, as indicated at **35** in FIGS. 6, 7 and 9 of the drawing.

Referring to FIG. 2, the scoops **30** are formed in the same manner as the scoops **12** in FIG. 1 and upon a core **15'**, similar to the core **15**, the gates of the scoops **30** being illustrated at **36** and are otherwise the same as the gate **17**. The core **15'** forms on the mounting end portion or heels **37** of the scoops **30** recesses **38**, similar to the recesses **19**, and shelves **39**, similar to the shelves **20**.

In FIGS. 6 to 9, inclusive, a slider **40** is shown for use in coupling and uncoupling stringer tapes having scoops **30** thereon, the slider consisting of a wall **41**, having a contracted end **42** and a flared end **43**, the latter including a frog or web **44** having flange portions **45**, generally similar to **26** in FIG. 4, forming recesses **46** at sides of the web **44** for reception of coupling end portions **47** of the scoops extending beyond the extensions **34** of each of the tapes **32**.

The sides of the slider **40** include inturned or hook-shaped flanges **48** which extend into the recesses **38**, as clearly noted in FIGS. 8 and 9 of the drawing, and engage the shelves **39** in movement of the slider **40** along the scoops of the stringers to couple and uncouple said scoops.

Considering FIGS. 7 and 8 of the drawing, it will appear that the web **44** includes projecting channelled means **49** for coupling a pull therewith for movement of the slider along the stringers, as with other devices of this type and kind.

It will be apparent, from a consideration of FIG. 7 of the drawing, that, with a structure as shown in FIGS. 6 to 9, inclusive, the scoops of the stringers will be fully concealed at the outer exposed surface of the stringer tapes by virtue of abutment, as at **35**, and that the pull, not shown which operates the slider, is operable over such exposed surface.

It will be apparent from the foregoing that scoops of the two distinct types and kinds referred to, that is to say, scoops arranged on both surfaces of a stringer tape as in FIG. 1 or scoops arranged upon one surface only of a stringer tape, as in FIG. 2, can be of any desired structure from the standpoint of establishing coupling engagement with each other but, in both instances, the mounting end portion or heels of the scoops are fashioned in accordance with my novel method to form slider engaging shelves spaced with respect to the surface of the stringer tape to be engaged by hook-shaped flanges on

sliders employed to couple and uncouple pairs of stringers having this novel formation thereon. It will be apparent from the foregoing that the sliders are mounted primarily on one surface portion of the scoops and retained against displacement therefrom. From a standpoint of description, the engagement of the scoops in both forms of construction with the hook-shaped flanges of the sliders may be said to keep the sliders on track and, further, to maintain alinement of the scoops in their final coupling engagement at the narrow end portion of the slider body. It will also be interesting to note that, in sections taken through the sliders as in FIGS. 4 and 8 of the drawing, the sliders may be said to have a modified T-cross-sectional contour. In other words, in both instances, the walls **22**, **41** include the depending web **25**, **44**, the web having the laterally extending flanges, as at **26** and **45**, respectively. It will also be noted, from a consideration of FIG. 4 of the drawing that the coupling end portions of the scoops are disposed primarily on the sides of the scoops, including the projecting shelves engaged by the hook-shaped members of the slider, thus concentrating the force establishing coupling of the scoops in direct alinement with said coupling end portions.

Having fully described by invention, what I claim as new and desire to secure by Letters Patent is:

1. The method of forming scoops of the character defined which comprises casting a scoop at a casting station on a beaded edge portion of a stringer tape and upon a core arranged upon a surface of said tape at said station, shaping the mounting edge portion of a scoop on said surface of the tape and said core to form upon completion of the casting a recess in the inner edge of the mounting edge portion of the scoop and a projecting shelf at said edge overlying said core, utilizing said core to feed the cast scoop and stringer from the casting station to a core stripping and scoop trimming station, and returning the core to the casting station for reception of the next successive cast scoop.

2. A method as defined in claim **1**, wherein the scoop is formed in its entirety upon one surface of the stringer.

3. A method as defined in claim **1**, wherein the scoop is formed to include mounting end portions on both surfaces of the stringer tape, and forming on the scoop a coupling end portion in alinement with the mounting end portion having the recess and shelf.

4. A method as defined in claim **1**, wherein the stringer tape includes a bead inwardly of an edge portion of the tape, and forming on the scoop a coupling end portion partially overlying said edge portion of the stringer tape.

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