July 14, 1953 L. H. MORIN 2,644,995

BLUNT NOSE DOUBLE-ACTION SCOOP FOR SEPARABLE FASTENERS

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Fig. 1.

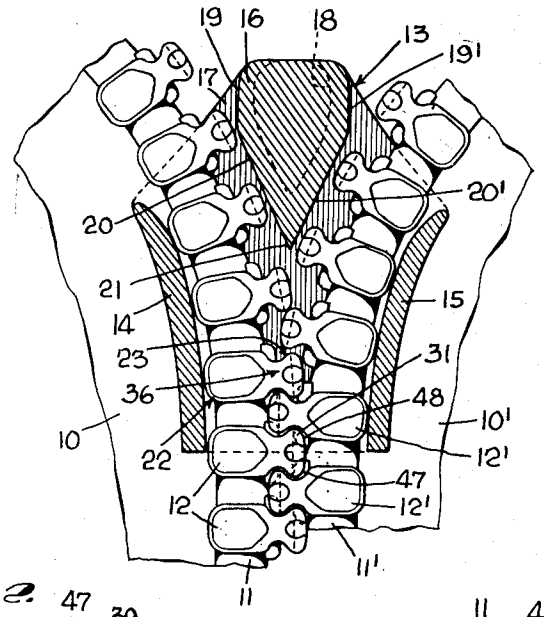


Fig. 2.

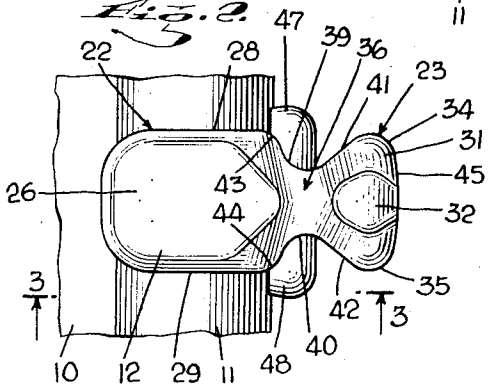
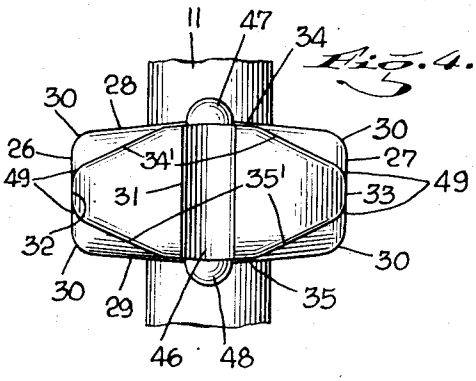


Fig. 4.



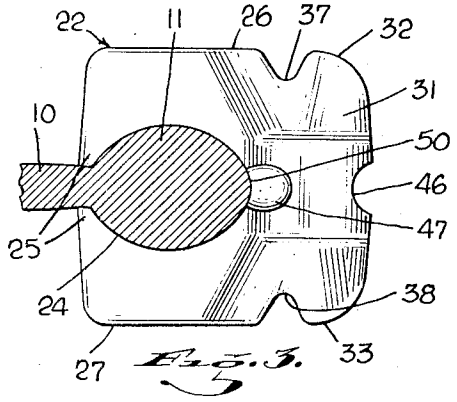


Fig. 3.

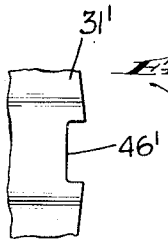


Fig. 5.

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BLUNT NOSE DOUBLE-ACTING SCOOP FOR SEPARABLE FASTENERS

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4 Claims. (Cl. 24—205.13)

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This invention relates to separable fasteners employing double acting scoops, that is to say, scoops which can be coupled and uncoupled by means of a slider headed in either direction with respect to the length of the stringers.

It is an object of the invention to provide a scoop construction which brings the tape edges of the stringers into closer proximity than has heretofore been possible for any given "size" or strength of scoop; so that, without loss of strength or effectiveness of coupling, stringers can be formed in which the over-all length of coupled scoops is materially reduced. This is not only advantageous from the standpoint of increasing the adaptability of the scoops to a variety of uses but, also, it permits the use of a narrower and hence less conspicuous slider which, at the same time, can actually be of stronger construction as compared with what has heretofore been standard practice.

The invention further deals with a scoop structure, wherein all edges are rounded and the coupling end portion tapered to facilitate coupling engagement of the scoops of stringers in producing a smooth and easy acting separable fastener.

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 a sectional plan view through the face of a pair of stringers, showing a slider mounted thereon, only part of the stringers being shown.

Fig. 2 is an enlarged detail view of one of the scoops arranged on a stringer.

Fig. 3 is a section on the line 3—3 of Fig. 2.

Fig. 4 is an edge view of the construction as seen in Fig. 2; and

Fig. 5 is a view similar to Fig. 3, showing only a part of the construction and showing a modification.

In separable fasteners of the kind under consideration, it has been customary to form the interlocking elements of the scoops in such fashion that the over-all length of the projecting or coupling end portions of the scoops have been required to be greater than the length of the so-called mounting end portions, that is, of the portions embracing the tape edges. Furthermore, the slider channels, which are required to be wide enough to accommodate the whole scoop length, have been of such a width as to restrict the permissible width and length (and hence the strength) of the frog portion of the slider.

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The present invention accomplishes its objects by such a re-organization of the coupling elements of the scoops as to permit of a quite different dimensioning of the scoops as a whole and quite a different proportioning of their parts.

In Fig. 1 of the drawing, I have shown at 10, 10' parts of two stringers, on the beaded edge 11, 11' of which are secured scoops 12, 12'. As each stringer is of the same construction, the brief description of one stringer and one scoop on the stringer will apply to all.

At 13 I have shown a slider, the slider being shown in section, the section being taken along the face of the stringers, so as to pass through the side flanges 14, 15 of the upper wall of the slider as these flanges are disposed upon upper edges of the stringer tapes 10, 10'. At 16 I have shown the frog which joins the upper and lower walls of the slider, the lower wall being indicated at 17.

In dotted lines, I have indicated at 18 the general contour of a frog as would be applied to a conventional type of slider, that is to say, a slider used on the standard type of stringer scoops of equivalent strength. By virtue of my improved blunt nose scoops, which will be specifically described below, it is possible to add to the structure of the frog 16 the greater width represented by the straight side walls 19, 19' and the bevelled walls 20, 20'. This greater width also gives greater length to the frog in extending to the contracted end 21 which reaches a point reasonably close to the longitudinal center of the resulting slider. It will, thus, be apparent that materially greater strength is provided in the slider structure by virtue of employing the blunt nose scoops hereinafter described.

It will also be apparent from a consideration of Fig. 1 that, by virtue of the blunt nose construction of the scoops, adjacent edges of the beads 11, 11' are brought into close proximity to each other.

Considering now Figs. 2, 3 and 4 of the drawing, here is shown in detail the structure of each of the scoops, a scoop 12 being shown. Each scoop has a mounting end portion 22 and blunt nose coupling end portion 23. The mounting end portion is formed with the recess 24 to receive the bead 11 and includes the end portions 25 which engage the tape 10 in close proximity to the bead.

In the construction shown and, in illustrating one adaptation of my invention, die cast scoops are illustrated, in other words, scoops which are formed directly upon the stringer tapes and the beaded edges thereon.

The surfaces 26 and 27 of the mounting end

portion 22 are substantially flat and these surfaces can be defined as side surfaces for purposes of description and, considering Fig. 4 of the drawing, the surfaces 28 and 29 can be regarded as upper and lower surfaces, which surfaces taper outwardly or are slightly contracted in the direction of the surfaces 26, 27 and join the latter surfaces in rounded corner portions 30, as clearly seen in Fig. 4 of the drawing.

The coupling end portion 23 comprises a blunt nose head 31 having sides 32 and 33, substantially in alinement with the sides 26 and 27, as clearly seen in Figs. 3 and 4, and upper and lower rounded surfaces 34 and 35, which are substantially in alinement with the surfaces 28 and 29.

At 36 is shown the female part of the coupling end portion 23 which part is defined at its sides by grooves or recesses, as at 37, 38 and on its upper and lower surfaces by deeply grooved and concaved, rounded surfaces or recesses 39 and 40. The surfaces 39 and 40 join the rounded portions 34, 35 in outwardly diverging walls 41 and 42. It will be noted that the side surfaces 28, 29 of the mounting end portion terminate substantially at the tape edge; or, otherwise stated, that the inner limits of recesses 39, 40 substantially coincide with the tape edges, where such recesses merge at 43, 44 into the side surfaces 28, 29.

The outer surface of the nose or head 31 is convexly rounded, as seen at 45 in Fig. 2 of the drawing and this surface has a curved groove 46 therein which extends the full height of said head and opens through the surfaces 34 and 35.

Arranged centrally of the female part 36 of the coupling end portion 23 are rounded key portions which extend beyond the surfaces 28 and 29, as seen at 47 and 48 in Fig. 2 of the drawing. These key portions are adapted to enter the recesses or grooves 46 of companion scoops when a pair of stringers are coupled together in the manner clearly illustrated in Fig. 1 of the drawing. The blunt head 31 of one scoop engages the upper and lower portions 47 and 48 of adjacent scoops on a companion stringer, as is clearly seen at the lower portion of Fig. 1.

Considering Fig. 4 of the drawing, it will appear that the surfaces 34 and 35 are sharply contracted in the direction of the sides of the scoop or in the direction of the surfaces 32, 33, as seen at 34', 35', respectively, and these contracted walls join the side walls 32, 33 in rounded corners, as at 49.

It will also appear from a consideration of Fig. 3 of the drawing that the key portions 47 and 48 have concaved surfaces 50 for reception of outer edges of the beads 11. This construction brings the beaded edges of the stringer tapes in close proximity to the outer surfaces 45 of the blunt noses 31, thus producing a relatively close seal between the coupled stringers, which construction is advantageous in many uses of devices of this type and kind.

In Fig. 5 of the drawing, I have shown a slight modification, wherein 31' represents the blunt nose coupling head end of a scoop and, instead of employing the concaved arc-shaped recess, as at 46, Fig. 3, a relatively square walled recess 46' is employed, with construction would provide greater freedom of action of the keying elements or portions 47, 48 in the recess. In the structure shown in Figs. 1 to 4, inclusive, the elements 47 and 48 fit freely but snugly in the recesses 46 in a nesting manner; the recesses 46 conform somewhat to the cross-sectional contour of said elements. This relationship can be fully appreciated from a consideration of the element 47 as compared with the recess 46, as seen in Fig. 3.

The opposed surfaces of the scoops which have been designed for descriptive purposes as upper and lower surfaces are of the same construction and each have male and female coupling portions for retaining the stringers against pull-apart and transverse separation. This construction produces what I term the double action-type of scoop which facilitates movement of a slider in any direction on the stringers. In other words, the slider can be reversed from the position shown in Fig. 1 in the use thereof on the stringers.

The described re-organization of the interlocking or coupling elements permits such a proportioning of the scoop components that, as illustrated, the width or thickness of the scoop (between surfaces 26—27 in Fig. 3) is approximately equal to the over-all length of the scoop; and the length of the coupling end portion is substantially less than that of the mounting end portion.

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

1. In separable fastener stringers employing scoops spaced longitudinally of the beaded edge of a stringer tape, each scoop comprising mounting and coupling end portions, the mounting end portion being slightly greater in length than the width of the beaded edge of the tape, the coupling end portion of the scoop comprising a blunt nose head joining the mounting end portion in a reduced neck, the neck forming recesses on opposed surfaces of the scoop for reception of the heads of scoops of a companion stringer, key elements arranged in the recessed portions of the scoops centrally with respect to scoop sides and projecting beyond upper and lower surfaces of the mounting end portion, the head of the scoop having an elongated recess in the outer surface thereof opening through said first named surfaces and adapted to receive the key elements of the scoops of a companion stringer, said key elements having concaved recesses for reception of the stringer bead to dispose the stringer bead in close proximity to the outer surface of the heads of scoops of a companion stringer, and the extension of the heads from the outer surface of the beaded edge being materially less than the length of said mounting end portions.

2. In separable fastener stringers employing scoops spaced longitudinally of the beaded edge of a stringer tape, each scoop comprising mounting and coupling end portions, the mounting end portion being slightly greater in length than the width of the beaded edge of the tape, the coupling end portion of the scoop comprising a blunt nose head joining the mounting end portion in a circumferentially reduced neck, the neck forming recesses on opposed surfaces of the scoop for reception of the heads of scoops of a companion stringer, key elements arranged in the recessed portions of the scoops centrally with respect to scoop sides and projecting beyond upper and lower surfaces of the mounting end portion, the head of the scoop having an elongated recess in the outer surface thereof opening through said first named surfaces and adapted to receive the key elements of the scoops of a companion stringer, said key elements having concaved surfaces for reception of the stringer bead to dispose the stringer bead in close proximity to the outer surface of the heads of scoops of a companion stringer, the extension of the heads from the outer surface of the beaded edge being mate-

rially less than the length of said mounting end portions, and said coupling end portions having rounded edges at junctures of upper, lower and side surfaces.

3. A scoop for a stringer tape having a beaded edge, said scoop comprising a mounting end portion and a coupling end portion, the mounting end portion being arranged on the beaded edge of the stringer, the coupling end portion comprising a blunt nose head of outside dimensions within boundaries of corresponding dimensions of the mounting end portion and of a length materially less than the mounting end portion, a circumferentially reduced neck joining the head with the mounting end portion closely adjacent said beaded edge, upper and lower surfaces of the head being contracted to side surfaces of the scoop, the outer surface of the head being convexly curved and joining upper and lower surfaces in rounded edges, the outer surface of the head being grooved, key elements extending upwardly and downwardly from the small diameter of the neck portion of the scoop onto the mounting end portion of the scoop and said beaded edge, and said key elements having concaved recesses for reception of the beaded edge of the tape.

4. A slide fastener stringer comprising a tape having a series of scoops thereon, each said scoop having a mounting end portion embracing the tape and terminating at the tape edge, a tapering neck adjoining such portion at the tape edge, the neck being formed by upper and lower concaved, curved recesses, the minimum vertical dimension of the neck being closely adjacent the tape edge, a head on the neck with which the said recesses merge, the said head exhibiting, in the plane of the tape, a section having a maximum vertical dimension substantially closer to the free end of the scoop than to said minimum vertical dimension of the neck, the minimum vertical dimension of the neck being closer to the tape edge than to said maximum vertical dimension of the head, integral tape edge engaging key members extending from said minimum dimension of the neck to positions projecting above and below the scoop, the end face of the scoop having a vertical key recess for receiving key members of scoops of a companion stringer, said neck, head and key members constituting the coupling end portion of the scoop, and said coupling end portion being substantially smaller in length than the length of said mounting end portion.

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