Nov. 3, 1959 L. H. MORIN 2,910,754

WATERTIGHT SEPARABLE FASTENERS

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Fig. 1.

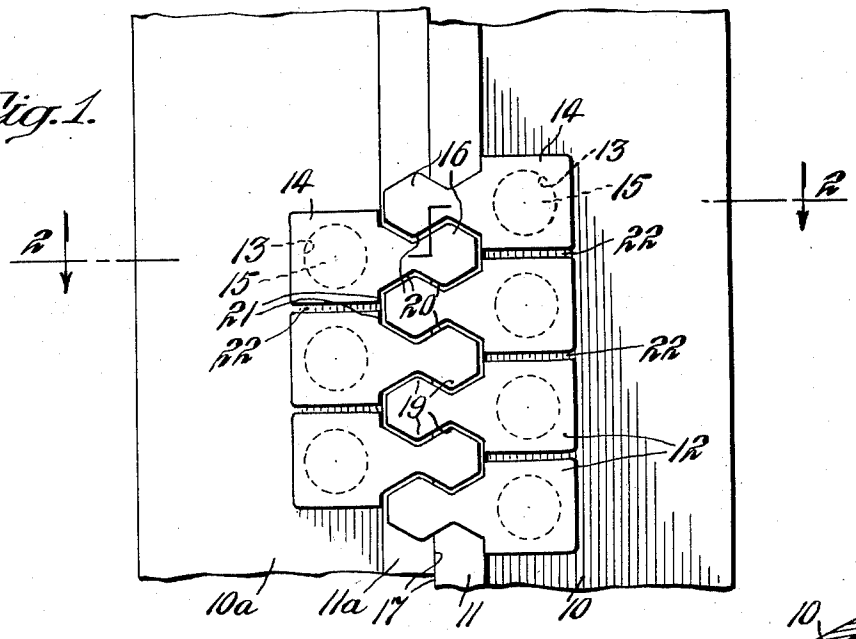


Fig. 2.

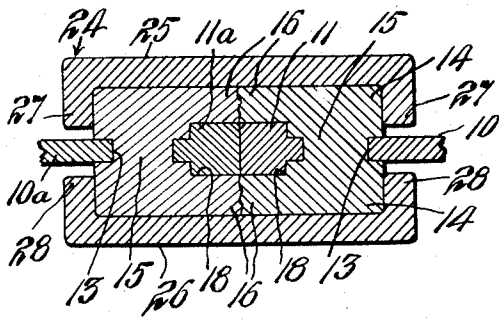
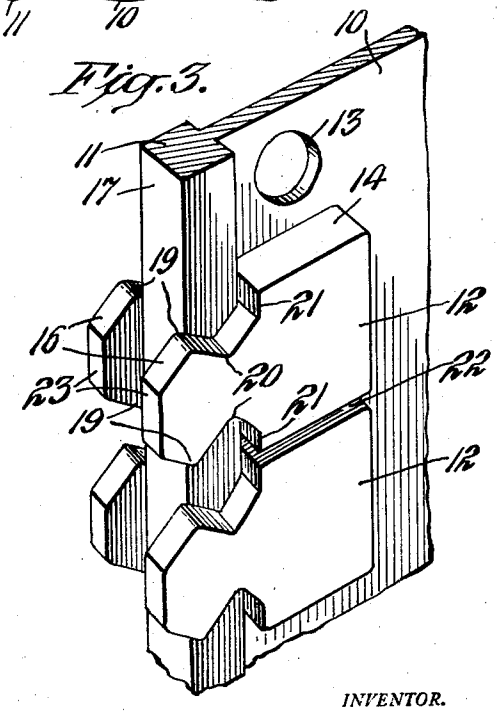


Fig. 3.



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Fig. 4.

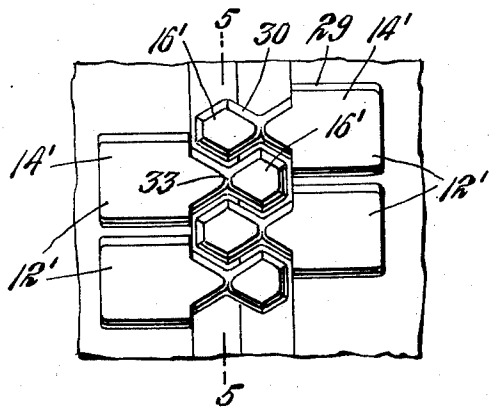


Fig. 5.

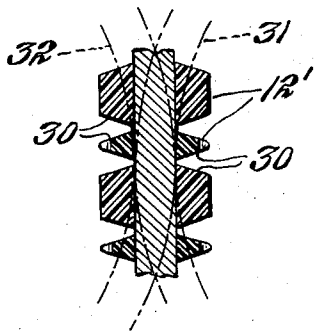


Fig. 6.

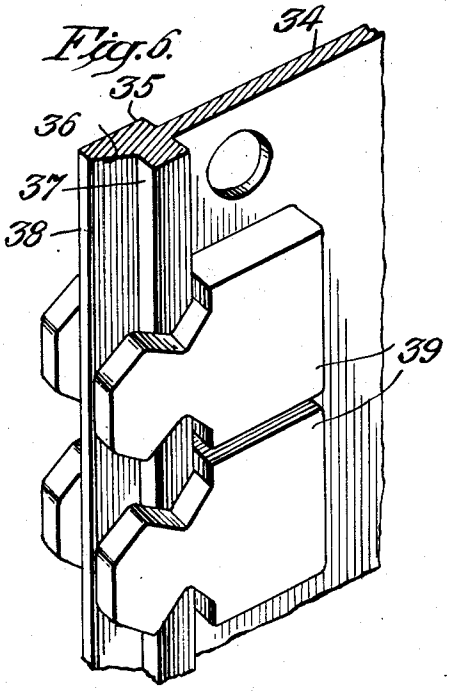


Fig. 7.

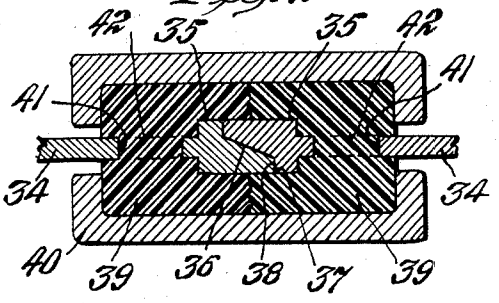
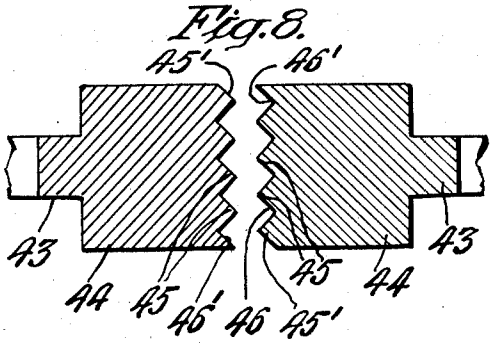


Fig. 8.



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Fig. 9.

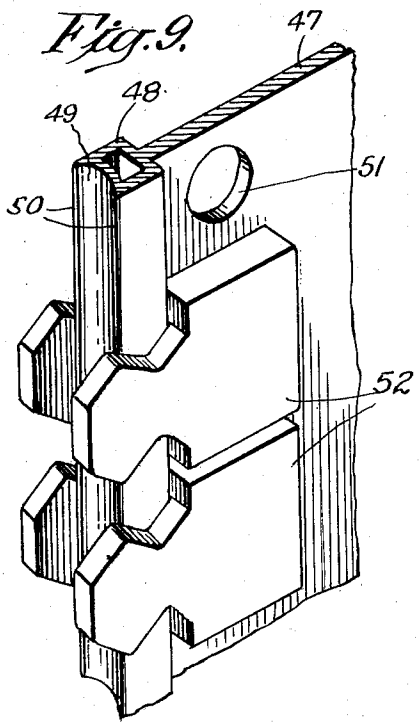


Fig. 10.

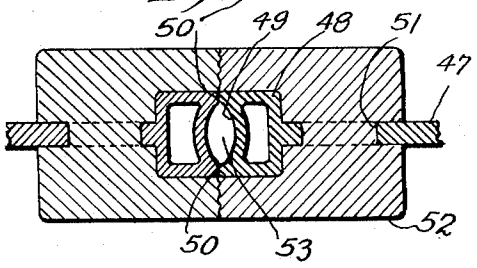


Fig. 11.

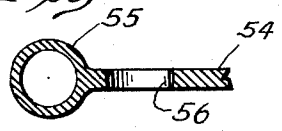
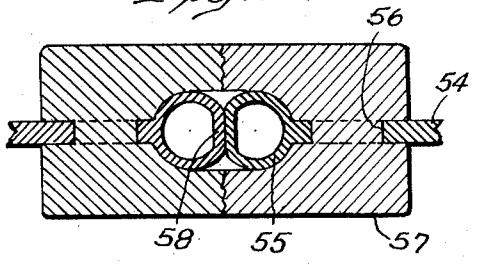


Fig. 12.



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2,910,754

WATERTIGHT SEPARABLE FASTENERS

Louis H. Morin, Bronx, N.Y.

Application January 13, 1953, Serial No. 331,068

9 Claims. (Cl. 24—205.1)

This invention relates to separable fasteners of the type employing stringers having interengaging scoops for coupling and uncoupling the stringers. More particularly, the invention deals with fasteners of this kind, wherein the scoops of each stringer employ spaced coupling portions, between which is arranged the enlarged or beaded edge portion of the mounting tape or member, whereby these enlarged edge portions may be brought together into firm abutting relationship to each other when the stringers are coupled, to provide a positive seal between abutting edges of the stringers and, further, to dispose upon opposite surfaces of the abutting sealed edges of the stringers supporting walls comprising the coupled end portions of the scoops of opposed stringers. Still more particularly, the invention deals with a novel method of producing stringers of the kind under consideration and attachment of the scoops thereto. 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 side view of a part of two stringers shown in coupled relationship to each other, the illustration being purely diagrammatic, in that continuation of the scoops on the stringers has been omitted for sake of clarity.

Fig. 2 is a partial section on the broken line 2—2 of Fig. 1, and showing, in cross-section, a part of a slider, not shown in Fig. 1, for coupling the scoops together.

Fig. 3 is a perspective view of one edge portion of a stringer.

Fig. 4 is a view, similar to Fig. 1, showing a modification.

Fig. 5 is a partial section on the line 5—5 of Fig. 4.

Fig. 6 is a view, similar to Fig. 3, showing another form of construction.

Fig. 7 is a sectional view, similar to Fig. 2, of a pair of stringers, similar to that illustrated in Fig. 6 in assembled relationship.

Fig. 8 is a diagrammatic sectional view through spaced stringer portions only, illustrating a modified form of abutting engagement between the stringers.

Fig. 9 is a view similar to Fig. 3 showing a modification.

Fig. 10 is a central section through the scoops of two coupled stringers, similar to that shown in Fig. 9.

Fig. 11 is a sectional view through a modified form of tape which I employ; and

Fig. 12 is a sectional view through two coupled scoops arranged upon tapes, such as disclosed in Fig. 11.

This application is a continuation-in-part of my prior application Serial Number 568,502, filed December 16, 1944, and Figures 1 to 3 of the present application are reproductions of said prior application.

In the production of what is commonly referred to as watertight separable fasteners, where a seal is effected between adjacent abutting surfaces of the stringers, it has been customary to dispose the sealing strip of a stringer at one side of the scoop and, in such instances, the fastener becomes impractical, particularly where the fastener is subjected to pressures which would tend to separate the abutting edges of the stringers and, accordingly, break the seal. In overcoming this latter objection, two pairs of stringers have been used with a seal strip between the stringers. This method of procedure has resulted in increasing the cost of the fasteners, has necessitated a special slider to couple and uncouple the same; and has increased the bulk or thickness of the resulting assemblage comprising the two stringers and the sealing strip disposed therebetween.

I have now constructed a new type of scoop which may be slightly larger in thickness than that of a conventional scoop of a given size, wherein the coupling and portion of the scoop is made fork-shaped, or divided into coupling side portions, between which is a channel, in which is disposed the enlarged beaded or sealing edge of the stringer tape. This enlarged edge is made of sufficient depth so that the outer surface of this edge protrudes slightly beyond what might be termed the pitch line of the coupling end portions of the scoops, so that these surfaces of coupled stringers will be forced together under pressure, effecting a positive seal between the stringers. Furthermore, this construction automatically provides, at opposite sides of the enlarged portions of the stringers, reinforcing walls, which reinforce and firmly support the abutting edges of the stringers against transverse separation, while at the same time, providing free flexure of the stringers within predetermined limits.

My improved scoop construction further distinguishes from conventional scoop structures in dispensing with a binding wall between opposed side portions of the scoop at the outer surface of the bead or enlargement of the tape and utilizing instead, a binding wall portion extending through apertured portions of the tape arranged inwardly of the beaded or enlarged sealing edge. The scoops in question are in the form of die castings and are formed on the stringer tapes in accordance with the method more fully hereinafter described.

In Figs. 1 and 2 of the drawing, **10** and **10***a* represent portions of two separable fastener stringers having enlarged or beaded edge portions **11** and **11***a*, which in the construction shown, are substantially rectangular in cross-sectional form. As both stringers are identical in form and construction, the brief description of one stringer and the links or scoops thereon will be applied to both stringers, like references designating like parts.

In Fig. 3 of the drawing is shown diagrammatically a perspective view of the edge portion of the stringer **10**, and **12** represents the individual scoops secured to this stringer. In the method of constructing the stringer, the tape is fed through an automatic die casting machine which applies the scoops **12** to the stringer tape. This operation comprises first forming apertures **13** in the body portion of the tape, by suitable tools, inwardly of the enlarged or beaded edge **11**, as shown in Fig. 3 and, while the apertured portion of the tape is in close proximity to the dies employed for forming the die cast scoops **12**. In this way, a positive alinement of the apertures, with the die cavities forming the scoops, can be maintained.

In forming the cast scoops **12**, each scoop will comprise mounting portions **14** disposed at opposite sides of the tape and joined by a portion **15**, which extends through the aperture **13** in the stringer tape. Each scoop also comprises independent side coupling portions **16** disposed at opposite sides of the enlarged portion or bead

11 and, extending beyond the outer surface 17 thereof, the surface 17 being normally disposed slightly beyond what might be termed the pitch line of the coupling portions 16 so that, when the stringers are coupled together, the surfaces 17 of opposed stringers will be held in abutting relationship under pressure. It will be clearly noted from a consideration of Figs. 2 and 3 of the drawing that the enlarged or beaded edge 11 is arranged in the recess 18, formed between the coupling portions 16. In this sense, the coupling end portions may be described as yoke-shaped in form, with the beaded edge 11 of the stringer arranged in the yoke of each scoop. The coupling portions 16 of the scoops form an elongated channel along the edge of the stringer interrupted only by spacing of the scoops.

Each coupling side 16 has substantially V-shaped projections 19 on upper and lower edges thereof, which projections are in common vertical alinement. Inwardly of these projections, each coupling side 16 has V-shaped recesses 20, also in vertical alinement. In coupling the scoops of opposed stringers together, the projections 19 of the scoops of one stringer enter the recesses 20 of the scoops of the opposed stringer. It will also be apparent that the mounting portions 14 of each scoop are of greater dimensions, longitudinally with respect to the tape, than the coupling portions 16, thus providing shoulders 21. This form of construction is desirable where the stringer tapes or the coupling end portions thereof are subjected to rather high pressures or otherwise require reinforcement. Where the question of pressure and reinforcement is not too great a factor, the mounting end portions may be substantially of the same dimensions as the greatest dimensions between the projections 19 of each coupling side. Where flexibility in the stringers is desired, a slight clearance, as at 22, will always be provided between the mounting end portions 14.

In the diagrammatic illustration of Fig. 1, a slight clearance, in this much enlarged view, between coupled stringers is shown. However, in actual practice, these slight clearances will be hardly visible and, to the contrary, an actual contact between the coupling portions of the scoops of adjacent stringers will prevail, so that a substantially complete wall structure will be provided along the beaded or sealing edge portions of the coupled stringers.

The slight clearances provided are to provide flexure of the stringers and, where a greater amount of flexure is required, the walls of the coupling portions, that is to say, the walls of the V-shaped projections 19 and recesses 20 will be tapered or converged outwardly, as well known in this art, to provide greater rocking movement of the stringers one upon the other and, in such instances, upper and lower edges of the mounting portions 14, when closely arranged, will also be correspondingly bevelled. There are other instances, however, where rigidity would be desirable and, in such instances, the clearances between adjacent coupled scoops would be extremely slight, so that, when the stringers are coupled together, a more or less firm wall structure would be provided throughout the length of the stringer.

In the method of forming the castings on the edge portions of the stringers, core members will be disposed at the outer surfaces 17 of the stringer tape and between the coupling ends 16. A branching or Y-gate will lead to the end portions 16 for supplying the casting material to the cavities which will define the complete scoop structure. As this general method of procedure in forming scoop die castings is known in the art, no specific illustration is herein given. In completing the stringers, the gates referred to above, which would normally extend from the outer ends 23 of the coupling portions 16, are severed or trimmed, producing the result which is illustrated in Fig. 3 of the drawing.

The stringer tapes may be constructed in many different manners, depending upon the uses for which the fastener is intended. These tapes may comprise a body of rubber of the crude or synthetic type, or may comprise a rubber coated fabric or tape, or may comprise a fabric or other tape chemically or otherwise treated to render the same moisture-proof, keeping in mind that there may be many types and kinds of stringer tapes employed. A tape body of plane cross-sectional contour is diagrammatically shown to clearly indicate that the particular structure of the tape may be varied and modified to suit the intended uses.

Considering Fig. 2 of the drawing, I have shown displaced upon the coupled links of the two stringers 10 and 10*a*, a slider 24, the top and bottom walls 25 and 26 of which will be of the conventional form and construction and these walls include inturned flanges 27 and 28, respectively. The ilustration in Fig. 2 is given primarily to show that the slider operates solely upon the metallic, plastic or other hard smooth surfaced scoops and not upon the mounting tape or the enlarged beaded and sealed edge portion thereof. In this respect, it will also be apparent that the usual frog of the slider, not shown, will operate upon the ends of the coupling portions 16 which extend beyond the enlarged or beaded edges 11. This prevents any wear upon the edges 11 of the stringer tapes and, further, prevents any frictional engagement which would otherwise retard and interfere with the free progress of the slider over the stringers, particularly when the enlarged edge portions 11 are composed of rubber or rubber-faced or rubber treated materials.

In Figs. 4 and 5 of the drawing is shown a slight modification of the structure shown in Figs. 1 to 3, inclusive, wherein scoops 12', generally similar to the scoops 12, are employed, the same having mounting end portions 14' and coupling portions 16'. The only difference in the structure shown in Figs. 4 and 5 is in bevelling the walls of the mounting end portion, as at 29, and the coupling end portion, as at 30, so as to provide clearance between adjacent surfaces of the scoops to facilitate bending of the stringers, as indicated by the dot-dash lines 31 and 32, respectively, in Fig. 5 of the drawing. In this figure, a section is taken through the enlarged head of the coupling end portion of one scoop and the neck portion 33, note Fig. 4, of the adjacent scoop. Aside from the foregoing modification, the structure of Figs. 4 and 5 is the same as that shown in Figs. 1 to 3 and, for this reason, no further detailed description or showing of the structure is provided.

In Figs. 6 and 7 of the drawing, I have shown a modified form of stringer structure, in which a stringer tape 34 is employed having an enlarged coupling edge portion 35 which differs from the coupling edge 11 in having a recessed outer surface formed by the bevelled wall 36 and the wall 37. In other words, one corner portion of the enlarged edge 35 is cut away and it will be seen, from a consideration of Fig. 7 of the drawing, that the bevelled edges 36 of two stringers abut and the walls 37 abut the outer surfaces 38 of the enlargements 35. This construction provides an effective seal between the two enlarged edges of the pair of stringers 34 when the scoops 39 of the stringers are coupled together, in the manner disclosed in Fig. 7 of the drawing. In this figure, a cross-section is shown through a slider 40 employed to couple the stringers together, the same as with the structure shown in Fig. 2 of the drawing. As the scoops 39 are of the same general structure as the scoop 12 shown in Figs. 1 to 3 or could be of the kind shown at 12' in Figs. 4 and 5, no detailed description of the scoops will be given. It might be said, however, that the tape 34 is apertured, as at 41, adjacent the enlargements 35 to facilitate anchorage of the scoops 39 on the tape by passage of the material through the apertures 41, as indicated at 42. In producing separable fastener stringers according to the teachings in Figs. 6 and 7, a single fastener stringer is produced and used in duplicate in producing the resulting fastener stringer.

This is also true of the structure shown in Figs. 1 to 3, inclusive.

In Fig. 8 of the drawing, I have diagrammatically shown adjacent edge portions of a pair of similar tapes **43** having enlargements **44**, like the enlargements **11** and **35**. Instead of having the recess defined by the bevelled walls **36** and the wall **37** in Figs. 6 and 7, the outer surface of the enlargement **44** has longitudinal extending and transversely spaced ribs **45**, between which are corresponding sockets or recesses **46** and these ribs and recesses are so arranged that a recess **46'** is disposed at one side edge of the enlargement **44** and a rib **45'** is disposed at the opposite side edge, so when two similar tapes are arranged one upon the other, the end rib **45'** is in registering alinement with the end rib **46'** of the companion tape. This construction will provide an effective seal between a pair of stringer tapes at the abutting edges of the enlargements **44**. In Fig. 8 of the drawing, the scoops are omitted to simplify the showing, but it will be understood that scoops, such as the scoops **12**, **12'**, or **39**, can be arranged upon the stringers **43** and the enlarged portions thereof.

While, in Figs. 5 and 7, the scoops have been indicated as being formed of plastic material, this is by no means a limitation, as both metal and plastic scoops can be formed.

In connection with the type of materials employed in the stringer tapes, it will be understood that, in some instances, where it is desirable simply to provide an air-tight or dust-tight closure between the stringers, the stringers may simply be composed of fabric and the enlarged portions **11** will be sufficiently yieldable to provide the firm pressure engagement with the edge of the companion stringer. In this connection, it will also be apparent that the stringers may be composed of not only closely woven fabrics, but fabrics of air-tight texture, such as felt and the like, or woven fabrics treated to be air-tight.

By reason of the construction employed, particularly in the scoops illustrated in the accompanying drawing, it will be apparent that a single stringer is produced in the formation of fasteners of the kind under consideration, in that the one stringer is adapted for assemblage with the companion stringer in any universal manner. There are no lefts and rights required and no care taken with respect to end portions, thus materially simplifying assemblage of the stringers in the supports to which they are attached. Furthermore, the scoops are of what I term double-action construction, which means that sliders may be moved along the stringers with the narrow single channel ends of the sliders arranged in two directions. This means that two sliders can be operated along the stringers with the contracted single channel ends arranged adjacent or with the wide diverging channel ends of the slider arranged adjacent. The reason for the foregoing is that both upper and lower edges of each coupling side **16** is of identical construction on all of the scoops.

In some adaptations and uses of the invention, it will be apparent that there may be no need for an enlargement at the edge of the tape or mounting member. In other words, a sheet of a common thickness throughout the width thereof could be employed, which would result in reducing the overall depth of the scoops or in increasing the thickness of the coupling end portions. This type of construction will be particularly desirable where the strain tending to separate the fasteners is limited and where it is unnecessary to have the link or scoop engage an enlarged portion on the tape or mounting member to establish the holding strength.

With the different forms of construction shown, it will be apparent that the enlargement of the tape is in alinement with the extending attaching portion of the tape, that is to say, the portion which is utilized to secure the fastener to a support. Also, it will be noted that the mounting end portions of the scoops are arranged on opposed sides of the tape inwardly of the enlargement and includes an anchor portion extending through the tape. By virtue of this construction, it will be apparent that the coupling end portions of the scoop are entirely arranged on opposed sides of the enlargements and the coupling end portions of each scoop are integrally united through the anchor portion of the mounting end portions.

In Figs. 9 and 10, I have shown another adaptation of my invention in which a stringer **47**, generally similar to the stringer **10**, is employed and having an enlarged hollow beaded edge **48**, the outer edge of which has a concaved recess **49** to present two side bearing surfaces **50**. The tape **47**, inwardly of the enlarged edge **48**, has spaced apertures **51** and, on these apertures portions of the tape, scoops **52** are mounted, these scoops being similar in all respects to the scoops **12**, shown in Fig. 3 and thus no further detailed description thereof will be given.

It will be noted from a consideration of Fig. 10 of the drawing that the hollow enlarged or beaded edges **48** provide yieldable engaging members, the side edge portions **50** of the beaded edges being brought into abutting engagement to effect a seal and this leaves a chamber **53** between the abutting edges **50**.

In Figs. 11 and 12 of the drawing, I have shown another adaptation of my invention, wherein a tape **54** has an enlarged hollow or tubular beaded edge **55** and at **56** is indicated the aperture in the tape, on which the scoops **57** are secured to establish anchorage, as is clearly illustrated in Fig. 12 of the drawing. Here again, the structure of the scoop **57** will be the same as that shown at **12** in Fig. 3 and also illustrated in Fig. 1 of the drawing and, in coupling two scoops together, the rounded edges **55** will be forced together into a flattened engagement, as clearly illustrated at **58** in Fig. 12 of the drawing, this engagement effecting a seal between the coupled scoops, as shown.

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

1. A separable fastener of the waterproof type comprising a pair of tapes each having a series of scoops spaced along one edge portion thereof to form stringers, said edge portion of each stringer having an enlarged integrally formed sealing member of substantially square or rectangular cross-section, each scoop having spaced independent coupling end portions extending from a common mounting end portion, said independent coupling end portions of each scoop being disposed at opposite sides of the sealing member of the stringer to which said scoop is attached and extending substantially completely across the sealing member of the opposite stringer when the stringers are coupled together, the mounting end portion of each scoop being disposed on the stringer inwardly of the sealing member and comprising a leg on each side of the stringer, means extending through the stringer uniting opposed mounting end portion legs, the thickness of the mounting end portion of a scoop being greater than that of either of said coupling end portions such that the mounting end portions of adjacent scoops of a stringer extend closely toward each other to simulate a substantially continuous length of scoop surfaces inwardly of the sealing member and extending longitudinally thereof, each independent coupling end portion of a scoop having both a projection and a recess on both its upper and lower sides, the spaced coupling end portions of each scoop of one stringer being engageable with those of a companion stringer, such that the projections and recesses of the coupling end portions of one scoop closely interengage the recesses and projections of a scoop of said companion stringer, each scoop of a stringer being thus adapted to receive between the spaced coupling end portions thereof the enlarged sealing member of said com-

panion stringer in order to firmly support the sealing members of said stringers in abutting relationship to each other throughout the entire length thereof, the coupling end portions of the scoops serving to support, cover, and shield the abutting sealing members against injury throughout the length of the stringers, and each mounting end portion of a scoop having on each side of the stringer a shoulder bearing against the inner wall of the sealing member to aid in maintaining the sealing members in firm abutting engagement with each other.

2. In separable fastener stringers having scoops spaced along one enlarged edge portion thereof, the improved scoop structure comprising a scoop having spaced independent coupling end portions extending from a common mounting end portion, said independent coupling end portions being disposable at opposite sides of said edge portion and extending substantially completely across the edge portion of a companion stringer when the stringers are coupled together, the mounting end portion of said scoop being disposed on the stringer inwardly of the edge portion and comprising a leg on each side of the stringer, means extending through the stringer and uniting opposed mounting end portion legs, the thickness of the mounting end portion of said scoop being greater than that of either of said coupling end portions such that the mounting end portions of adjacent scoops of a stringer extend closely toward each other to simulate a substantially continuous length of scoop surfaces on the stringer inwardly of the edge portion, each independent coupling end portion of said scoop having both a projection and a recess on both its upper and lower sides, the spaced coupling end portions of each scoop of one stringer being closely engageable with those of a scoop of a companion stringer such that the coupling end portions of the scoops of a pair of coupled stringers serve to support and substantially completely cover the edge portions of the coupled stringers, and the mounting end portion of said scoop having on each side of the stringer a pair of shoulders bearing against said enlarged edge portion of the stringer.

3. A separable fastener of the waterproof type consisting of two couplable stringers, each stringer comprising a tape having scoops spaced along one edge portion thereof, said edge portion of each tape comprising an enlarged integrally formed sealing member in alinement with the tape, said sealing member having top and bottom sides and outer and inner edges, said tape being integrally joined to the inner edge of the sealing member, said top and bottom sides of the sealing member respectively extending above and below a plane formed by the tape, each scoop having spaced coupling ends extending from a single common mounting end, said coupling ends of each scoop being disposed at opposite sides of the sealing member and extending outwardly beyond the sealing member and substantially completely across the sealing member of the opposite stringer when the stringers are coupled together, the mounting end of each scoop being disposed on the tape inwardly spaced from the sealing member and extending longitudinally of the tape toward the mounting ends of adjacent scoops of a stringer so as to simulate a substantially continuous length of scoop surfaces inwardly of the sealing member, each coupling end of a scoop having projections and recesses on its upper and lower sides which are engageable with corresponding recesses and projections of opposed scoops, each scoop of one stringer receiving between the spaced coupling ends thereof the sealing member of the other stringer to firmly support the sealing members of said stringers in abutting relationship to each other throughout the entire length thereof, thereby forming a seal between said stringers, said mounting end of each scoop of one stringer abutting the inner edge of the sealing member of said stringer at a plurality of places to help support said sealing member and to reinforce said seal, said coupling ends of the scoops substantially entirely covering the sealing members throughout the length of the coupled stringers, thereby protecting the sealing members against wear and injury, and said plane of the tape of one stringer passing through the scoops and sealing members of the coupled stringers and also through the tape of the other of said said coupled stringers.

4. In a separable fastener of the waterproof type comprising a pair of stringers, each stringer comprising a tape having scoops spaced along one edge portion thereof, said tape terminating in an enlarged, integrally formed, longitudinally extending sealing member in alinement with the tape, each scoop comprising two longitudinal halves spaced apart throughout a major portion of their length, each scoop having spaced coupling ends disposed at opposite sides of the sealing member and extending outwardly beyond the sealing member and substantially completely across the entire width of the sealing member of the opposite stringer when the stringers are coupled together, each scoop having a mounting end spaced inwardly of the sealing member and having a height, measured longitudinally of the tape, greater than that of said coupling ends such that the mounting ends of the scoops of a stringer simulate a substantially continuous length of scoop surfaces, on the tape inwardly of the sealing member, the spaced coupling ends of each scoop of one stringer being engageable with those of a companion stringer such that the coupling ends of the scoops substantially entirely cover the sealing members, thereby protecting the sealing members against wear and injury, the scoops of each stringer receiving between the spaced coupling ends thereof the enlarged sealing member of the other stringer to firmly support the sealing members of said stringers in abutting relationship to each other, and said stringers when coupled together having the tapes thereof, the sealing members, and the coupled scoops all lying in the same plane, said plane passing through the space which divides each scoop into said longitudinal halves.

5. In a separable fastener comprising a pair of stringers, each stringer comprising a tape having scoops spaced along one edge portion thereof, each tape terminating in an enlarged, longitudinally extending sealing member in alinement with the tape, said sealing member having top and bottom sides and outer and inner edges, said tape being integrally joined to the inner edge of the sealing member, each scoop having spaced coupling ends disposed at opposite sides of the sealing member and extending outwardly beyond the sealing member and substantially completely across the entire width of the sealing member of the opposite tape when the stringers are coupled together, each scoop having a mounting end disposed on the tape inwardly of the inner edge of the sealing member, each mounting end having a portion which abuts the inner edge of said sealing member thereby aiding to support the latter, the spaced coupling ends of each scoop of one stringer being engageable with those of a companion stringer such that the coupling ends of the scoops substantially entirely cover the sealing members, the scoops of each stringer receiving between the spaced coupling ends thereof the enlarged sealing member of the other stringer to firmly support the sealing members of said stringers in abutting relationship to each other, and said stringers when coupled together having the tapes thereof, the sealing members, and the coupled scoops all lying in the same plane.

6. A sealable separable fastener comprising a pair of stringers, each stringer comprising a tape terminating in an enlarged edge portion and having scoops spaced therealong, said enlarged edge portion being integral with the tape and being engageable with the corresponding edge portion of a companion stringer to form a seal, each scoop having spaced independent coupling ends disposed at opposite sides of said enlarged edge portion and extending outwardly beyond the edge portion and substantially completely across the enlarged edge portion of said

companion stringer when the stringers are coupled together, said scoop having a mounting end disposed on the tape inwardly of the edge portion and comprising a pair of oppositely disposed sides each having a tape-engaging face, a joining member connecting said faces and passing through the tape, said joining member being spaced from each edge of each face and having a cross-sectional area substantially less than the area of each said face, thereby providing each face with a substantial tape-engaging surface, the dimension of the mounting end of said scoop, measured longitudinally of the stringers, being greater than the corresponding dimension of either of said coupling ends, the spaced coupling ends of each scoop of one stringer being engageable with those of a scoop of a companion stringer such that the coupling ends of the scoops of a pair of coupled stringers support and substantially completely cover the edge portions of the tapes, and said mounting end of said scoop having shoulders above and below the coupling ends thereof for receiving the coupling ends of a pair of adjacent scoops of a companion stringer.

7. A sealable separable fastener consisting of two similar stringers, each stringer comprising a tape having a series of scoops spaced along one edge portion thereof, said edge portion of each tape comprising a sealing member in alinement with the tape, said sealing member having inner and outer edges with the tape joined to said inner edge, each scoop having two spaced coupling end portions disposed at opposite sides of said sealing member, each scoop having a mounting end portion disposed on the tape and spaced inwardly of the sealing member, said mounting end portion comprising a pair of oppositely disposed sides each having a tape-engaging face, a joining member connecting said faces, said tape being apertured inwardly of the sealing member to receive said joining member, said joining member being spaced from each edge of each face and having a cross-sectional area substantially less than the area of each said face, thereby providing each face with a substantial tape-engaging surface, the spaced coupling end portions of each scoop of one stringer receiving therebetween the sealing member of the other stringer during coupling engagement of the stringers, whereby the coupled scoops shield the sealing members and support the latter in abutting position relatively to each other, said mounting end portion of each scoop of one stringer abutting the inner edge of the sealing member of said stringer at a plurality of places, thereby aiding to support said sealing member and to reinforce both sealing members in their abutting position, and said stringers when coupled together having the tapes thereof, the sealing members, and the coupled scoops all lying in the same plane.

8. A sealable separable fastener comprising a pair of similar stringers, each stringer comprising a tape having a series of scoops spaced along one edge portion thereof, said edge portion of each tape comprising a sealing member having a free outer side, each scoop comprising two longitudinal halves spaced apart throughout a major portion of their length, each scoop having spaced coupling ends disposed at opposite lateral sides of said sealing member and having a mounting end disposed on the tape, said mounting end having an outer side in contact with said sealing member, each scoop of said stringer thereby engaging the sealing member on three sides of the latter leaving said outer side of the sealing member free for sealing engagement with the corresponding side of the sealing member of the other stringer, the coupling ends of the scoops of one stringer engaging those of the other stringer to firmly support the sealing members of said stringers in abutting relationship to each other throughout the entire length thereof, said coupling ends of the scoops of one stringer extending substantially completely across the sealing member of the other stringer when the stringers are coupled together, thereby protecting the sealing members against wear and injury, and said stringers when coupled together having the tapes thereof, the sealing members, and the coupled scoops all lying in the same plane, said plane passing through the space which divides each scoop into said longitudinal halves.

9. A sealable separable fastener comprising a pair of similar stringers, each stringer comprising a tape having a series of scoops spaced along one edge portion thereof, said edge portion of each tape comprising an enlarged sealing member in alinement with the tape, said sealing member having top and bottom sides and outer and inner edges, said tape being integrally joined to the inner edge of the sealing member, each scoop having spaced independent coupling ends disposed at opposite sides of said sealing member, each scoop having a mounting end disposed on the tape inwardly of the inner edge of the sealing member, the mounting ends of the scoops of each stringer each having a forward side which, with said coupling ends, forms a channel in which said sealing member is disposed, said channel being interrupted longitudinally thereof by the spacing of the scoops on the stringer, the coupling ends of the scoops of one stringer engaging those of the other stringer to firmly support the sealing members of said stringers in abutting relationship to each other throughout the entire length thereof, and said stringers when coupled together having the tapes thereof, the sealing members, and the coupled scoops all lying in the same plane.

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