

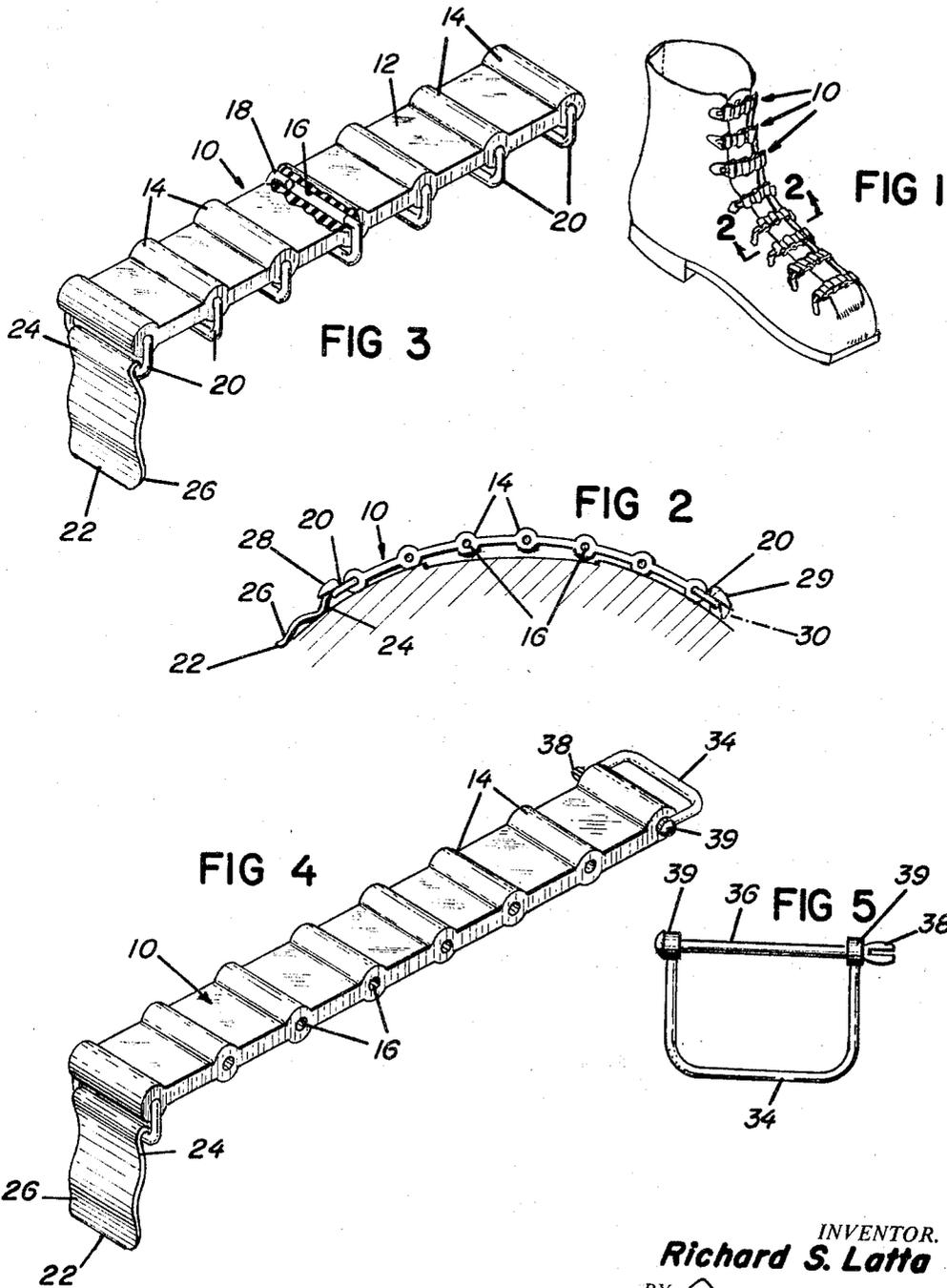
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ELASTIC CLOSURE FASTENER

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1

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ELASTIC CLOSURE FASTENER

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This invention relates generally to fastening devices and more particularly to an elastic fastener for any pair of adjacent, relatively movable edges such as ski boot and shoe uppers, tent flaps, etc., which are normally fastened by means of laces engaging lacing hooks positioned on such edges.

Devices of this general type are known in the art but none have been found suitable or practicable for use as replacements for laces because of an unsightly appearance, a difficulty in connecting the fasteners to or disconnecting them from the lacing hooks of the members to be fastened, a short life in use due to susceptibility of the elastic material to rapid weather deterioration and to undesirable and permanent stretching under continued tension, a lack of adjustability, and an excessive cost.

The latter two reasons are of particular importance in the application of elastic fasteners as replacements for the lacings of ski boots wherein eight to twelve pairs of lacing hooks are spaced from the toe area upwardly at increasing lateral distances to the tops of the uppers. Heretofore, a fastener of suitable length to connect the lacing hooks of the intermediate boot area was too long for the toe area and too short for the uppermost area, so that costly sets of various lengths of fasteners had to be purchased whether all were needed or desirable or not.

Accordingly, the main object of the present invention is to provide an improved and attractive elastic closure fastener as a replacement for laces and other lacing devices engaging lacing hooks which will obviate the above and other unsuitable and impracticable features characterizing known elastic fasteners.

An important object of the present invention is to provide an improved elastic fastener for use with lacing hooks which is formed of material which is unaffected by weather and which includes novelly incorporated reinforcing means so as to eliminate permanent deformation when maintained in tension over extended periods, and prevent its stretching beyond its elastic limit.

Another important object of the present invention is to provide an improved and attractive elastic fastener of the type described which is reinforced at spaced points and wherein loops for connecting the elastic strap or fastener to the lacing hooks are fixed to the strap at points of such reinforcement so as to enable the fastener to be applied to any pair of hooks regardless of their lateral spacing.

A further important object of the present invention is to provide an attractive elastic fastener of the type described which may be readily connected to spaced lacing hooks by stretching and quickly disconnected therefrom by the camming action of a pull tab or finger piece which effects adequate stretching for disconnection.

A still further important object of the present invention is to provide an attractive, elastic fastener of the type described which includes lacing-hook connector loops, and an operating finger tab, all being so formed as to not only conform readily to the curvature of a ski boot, etc., but to also be usable for the connection of a pair of laterally spaced lacing hooks in any area of the boot, regardless of their spacing.

Another object of the present invention is to provide an improved and attractive elastic closure fastener of the type described which is simple and convenient to fasten or unfasten; is strong, rugged and of long life in use; and which is susceptible of ready and economic manufacture.

2

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawings I have shown two embodiments of the invention. In these showings:

FIGURE 1 is a perspective view of a plurality of the elastic fasteners comprising the invention as applied to a ski boot to replace the normally used, hook-connecting laces;

FIGURE 2 is an elevational view thereof to an enlarged scale taken on the line 2—2 of FIGURE 1 and showing one of the fasteners connecting a pair of spaced hooks;

FIGURE 3 is a perspective view to a further enlarged scale of one embodiment of the elastic fastener comprising the invention.

FIGURE 4 is a similar view showing the fastener with a different form of lacing-hook-connecting loop; and

FIGURE 5 is an elevational view to a further enlarged scale of the different loop form and its detachable connecting pin.

While the invention has many and varied applications, for purpose of ready illustration it is herein disclosed as a fastener for pulling together and holding the upper portion of a boot, shoe, etc., in which application it functions as a replacement or substitute for the regular lacing. As is well known, the front area portions of a boot are provided with a plurality of vertically spaced and aligned, horizontally spaced pairs of hooks which facilitate the lacing of the boot by eliminating the eyes formerly used and through which the lacings had to be tediously passed.

Referring to the drawings, numeral 10 designates as a whole the elastic closure fastener comprising the present invention which is formed of substantially weather impervious rubber, rubberlike, or other elastomeric material and comprises an elongated strip 12 having reinforcing areas 14 of greater thickness located at its ends and other such areas 16 at spaced points between the ends.

The strip 12 may be of any desired cross-sectional shape such as round, square, etc., and for purposes of illustration is shown in the drawings as a flat band. Similarly, the spaced reinforcing areas may be of any desired shape such as spherical, circular, etc., and for purposes of illustration are shown in the form of ribs 14 extending transversely of the band or strip 12. Such structure ensures that the elastic extension of the strip 12 is in a plurality of increments between the respective strengthening areas or ribs instead of over a wide span. This ensures against exceeding the elastic limit of the strip, which is more likely in an unreinforced strip in which a single defective area would absorb the entire extension involved in fastening a closure and thus be extended beyond its elastic limit so as to be ineffective as a fastener or to simply fail and permit rupture of the strip.

The elastic strip 12 and its reinforcing areas or ribs 14 may be readily and economically molded of a selected elastomeric material, and in such process, the reinforcing ribs are provided with axially extending bores 16 into the ends of which the spaced ends 18 of lacing-hook encircling and engaging D-rings 20 are inserted so as to be strongly connected to the strip 12 and to comprise an important feature of the invention.

This combination of strongly secured D-rings or loops with the strip strengthening areas enables the use of a single length fastener 10 for all of the pairs of lacing hooks of a ski boot, etc., in that a shorter length portion of the strip 12 may be used in the toe or intermediate areas of a boot while the fastener 10 retains all its characteristics. The unused strip portion and its attached D-loops are of course, trimmed off and the then intermediate loops 20 removed with pliers or a wire cutter, after a proper fastening has been obtained in any boot area by placing

3

the left end loop (FIGURES 2, 3, 4) over the boot lacing hook and another intermediate D-ring or loop over its mate while stretching the strip 12 to a minimum to effect the connection and provide adequate tension.

The left end loop or D-ring referred to is provided with a rigid finger tab 22 pivoted thereto which forms another important feature of the invention. As illustrated in FIGURES 2-4 and particularly in FIGURE 3, the finger tab is provided with a downwardly sloped portion 24 and terminates in an upwardly sloped portion 26 which latter facilitates the insertion thereunder of a finger.

As is clearly illustrated in FIGURE 1 a plurality of fasteners 10 are shown holding the front of a boot closed with proper tension; and, as further shown in FIGURE 2, the fasteners nicely conform with the boot curvature. Each fastener 10 is simply and easily disconnected from a pair of the boot lacing hooks 28 and 29 by merely lifting its rigid finger tab 22 which cams its sloping portion 24 against the lacing hook 28 which automatically effects a stretching of the elastic fastener 10, and it is thus disengaged without necessity of a lateral pull on the tab 22. After disconnection, each of the fasteners 10 for convenience may be retained on one of its proper boot lacing hooks 29 by merely bending the hook downwardly to the dotted line position 30.

The embodiment of the invention shown in FIGURE 4 and 5 differs from that described above only in that the elastic fastener 10 is provided with a single D-ring 34 having a removable, headed pivot pin 36 with its other end 38 split so as to also function as a retaining head while being compressible to enable the insertion of the pin through the eyes 39 of the D-ring 34 and through the bore 16 of one of the reinforcing areas or ribs 14.

It will be apparent that, in use, the proper length of the elastic fastener 10 to be used to connect a pair of boot lacing hooks such as 28, 29 is determined and the remainder of the strip to the right of the adjacent reinforcing area 14 is trimmed off. The retaining pin 36, which may be formed of nylon or other strong material not adversely affected by the weather, is removed from the D-ring eyes 39 which are aligned with and placed adjacent the ends of the right-hand reinforcing area bore 16 and the pin is inserted all the way through by compressing the split end 38, which is then released to retain the pin in the position shown in FIGURE 4.

It is to be understood that the forms of the invention herewith shown and described are to be taken as preferred examples of the same and that various changes in the shape, size, and arrangement of parts may be resorted to without departure from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. The combination with a closure having spaced lacing hooks to be connected to each other; of a fastener comprising an elastic strip of elastomeric material having reinforcing areas of greater thickness at its ends and spaced therebetween, and loops connected to said reinforced areas for selectively encircling and connecting the lacing hooks.

2. The combination recited in claim 1 wherein said strip is a flat band and said reinforcing areas comprise transversely extending ribs thereon.

3. The combination recited in claim 2 wherein the ends of the ribs are apertured to receive portions of said hook-encircling loops.

4. The combination recited in claim 1, and a rigid finger tab pivoted to one of said end connected loops and

4

operable as a lever against a lacing hook when said one loop encircles it, to stretch said strip and release said tab connected loop from said hook.

5. The combination recited in claim 4 wherein said strip is a flat band and said reinforcing areas comprise transversely extending ribs thereon.

6. The combination recited in claim 5 wherein the ends of said ribs are apertured to receive portions of said hook-encircling loops.

7. A fastener for closure having spaced hooks to be connected to each other comprising, in combination, an elastic strip of elastomeric material having reinforcing areas of greater thickness at its ends and spaced therebetween, a first loop for encircling a hook connected to one of said end reinforcing areas, a rigid finger tab pivoted to said first loop and operable as a lever against the hook encircled by said first loop to stretch said strip and release said tab connected first loop from said hook, and a second hook encircling loop detachably connected to another of said reinforcing areas.

8. The combination recited in claim 7 wherein said strip is a flat band and said reinforcing areas comprise transversely extending ribs thereon.

9. The combination recited in claim 8 wherein the ends of said ribs are apertured to receive portions of said hook-encircling loops.

10. The combination with a closure having a pair of spaced hooks adapted to be connected to each other by a fastener; of a resilient strip having spaced reinforcing areas of greater thickness and a loop for encircling one of said hooks connected to each of said areas to enable any two thereof and said strip to connect said hooks under elastic tension regardless of their spacing.

11. The combination with a closure having a pair of spaced hooks adapted to be connected to each other by a fastener; of a resilient strip having spaced reinforcing areas of greater thickness and a loop for encircling one of said hooks connected to one of said reinforcing areas, and a second loop detachably connectible with any other of said reinforcing areas and engageable with the other of said hooks to encircle it to complete the connection of said hooks.

12. The combination recited in claim 10 wherein said strip is a flat band and said reinforcing areas comprise transversely extending ribs thereon.

13. The combination recited in claim 12 wherein the ends of said ribs are apertured to receive portions of said hook encircling loops.

14. The combination recited in claim 1 wherein one of said loops includes means for detachably connecting it to one of said reinforced areas.

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