Feb. 19, 1935. L. V. KEVICZKY 1,991,943

WATERPROOF CLOSING MEANS

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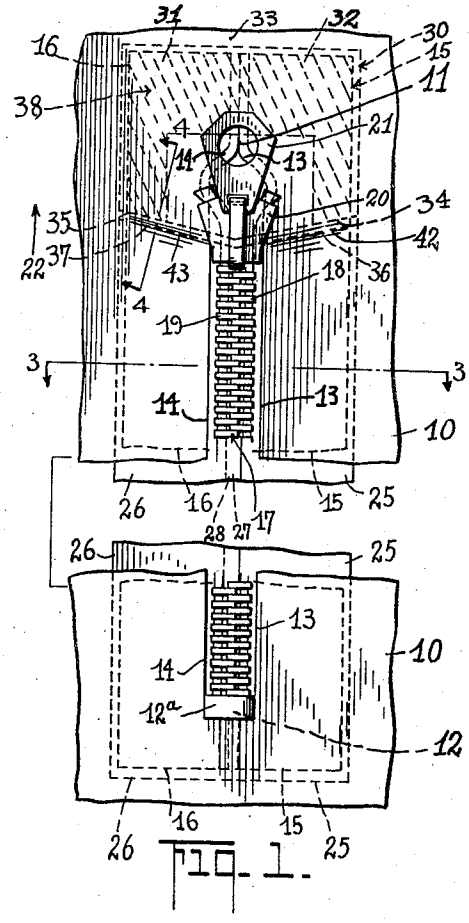


FIG. 1.

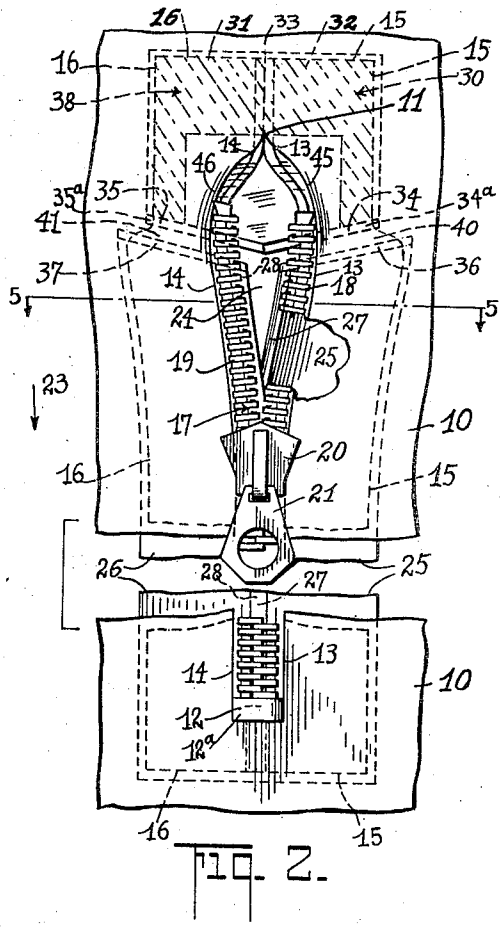


FIG. 2.

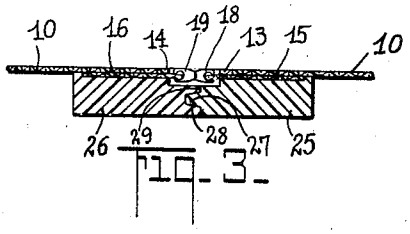


FIG. 3.

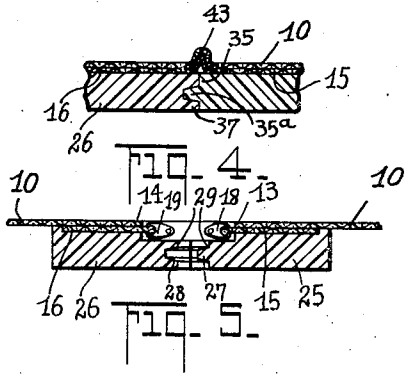


FIG. 4.

FIG. 5.

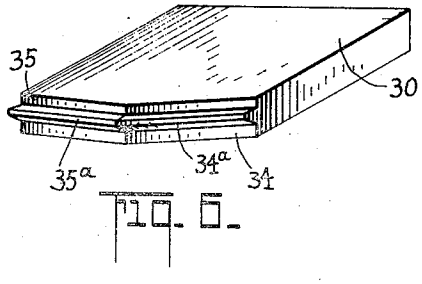


FIG. 6.

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WATERPROOF CLOSING MEANS

Laszlo V. Keviczky, New York, N. Y.

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2 Claims. (Cl. 24—205)

This invention relates to separable fasteners and has for its main object to provide means in connection with such devices which will make the same tightly sealed when closed, substantially being tight against liquids, air, moisture and vapors.

Another object of this invention is to provide sealing means of the character mentioned which will automatically close or open with the corresponding movement of the fastener to which they are applied.

Still a further object of this invention is to provide sealing means in connection with separable fasteners adapted to seal in a substantially water, air and moisture-proof manner the terminations of the elements which are secured to one another by separable fasteners.

Still further objects of this invention will be apparent as the specification of the same proceeds, and among them may be mentioned: to provide sealing devices along the meeting lines of elements to be secured by separable fasteners, as well as for the termination of such meeting lines, which will be adapted to be easily applied to existing separable fasteners without any change in their structure, application or operation, which will be efficient in use, simple in construction, and inexpensive to manufacture.

In the drawing forming a part of this specification and accompanying the same:

Fig. 1 is a fragmentary plan view of separable fastening means applied along the severing line of a textile fabric or the like, my invention being applied to said fastener;

Fig. 2 is a plan view of the device shown in Fig. 1 in a partly open condition;

Fig. 3 is a sectional elevation, the section being made on the line 3—3 of Fig. 1, while

Fig. 4 is another fragmentary sectional elevation of Fig. 1 on the line 4—4, and

Fig. 5 is a sectional elevation on the line 5—5 of Fig. 2;

Fig. 6 is a perspective view of the element used in my device to tightly seal the termination of the separation lines of the elements to be fastened together.

Referring to the drawing more specifically, by characters of reference, the numeral 10 indicates a textile fabric of the character tight and proof against liquids, like water, and also possibly, when necessary, against air or other gases or vapors, like the material of which my life preserver suit is made, for which I obtained a patent of the United States, granted on December 31st, 1918, No. 1,289,476. An opening is provided in the material 10, as is the case in my life preserver suit of said patent. In said suit said opening is for the purpose of permitting entry into the garment or for taking the same off the body of the wearer, and it is one of my objects to use my water-tight sealing means, to be described hereinafter, in connection with closing the opening in said life preserver suit.

The opening or slit in the material 10 in the drawing starts at 11, at its upper end, and terminates at 12, as its lower end, the right and left hand side marginal edges of the material so separated being indicated by the numerals 13 and 14, respectively. To the portions adjacent to the edges 13 and 14 of the material 10, I secure two strips of fabric, 15 and 16, which carry the separable fastener elements generally indicated by the numeral 17 and having a right hand and left hand row of elements 18 and 19 respectively. The construction, use and operation of such separable fastener elements of various types are well known in the art, and the detailed construction and operation thereof will not be described in the present application, not being part of my invention. In the embodiment shown, I illustrate a certain type of such separable fastener which is the invention of G. E. Prentiss et al., and which has been patented on February 7th, 1928, under the title "Separable fastener", No. 1,658,392.

As is well known, such separable fasteners are provided with a slider member 20 operated by a catch or grip 21, and as said slider 20 is pulled upwardly, as indicated by the arrow 22 in Fig. 1, it will cause the individual elements of the two rows of fasteners 18 and 19 to securely engage one another and so fasten the edges 13 and 14 to one another, said edges being the two elements which it is desired to fasten together. When, however, slider 20 is pulled downwardly, as indicated by arrow 23 in Fig. 2, the individual fastener elements 18 and 19 will be separated from one another and a gradually lengthening opening 24 will be provided between the elements 13 and 14.

Such separable fasteners, and particularly the one illustrated here and described in said patent, provide an extremely reliable securing means between the two elements to be secured together, and, at the same time, the units of such fastening means may be caused to engage one another in an easy and quick manner and they may be disengaged and the two elements separated in a quick, easy and expedient way, therefore, such separable fastening means are highly desirable

in many places where two elements are to be secured or opened in a speedy and efficient manner, like in said opening in my mentioned life preserver suit, and in many other instances.

One disadvantage of applying such quick separable fastening means between two elements lies in the fact that such elements will not provide a water, liquid, or, much less, vapor or gasproof connection between the two elements, and it is the main purpose of my invention, as has been pointed out hereinbefore, to provide means in connection with such separable fasteners whereby the same may close on one another with substantially tight sealing effect.

For this purpose, in the embodiment selected as illustrative in this application, I secure left hand and right hand elastic strips of material 25 and 26, respectively, underneath and to the fastener strips 15 and 16, said elastic strips preferably being made of appropriate rubber material, and in the embodiment shown, the right hand one being provided with a longitudinal projection 27, while the left hand one will be provided with a corresponding and registering depression 28. When the mentioned fastener means connect the elements 13 and 14 they also will cause the two rubber strips 25 and 26 to tightly engage one another along their separation line 29 and to make this sealing effect more secure, the projection 27 and depression 28 have been provided, the projection entering said depression and being tightly pressed thereinto (Fig. 3), while when the separable fasteners are opened, as indicated in a portion of Fig. 2, the rubber strips 25 and 26 will also be disengaged, as indicated in Fig. 5. The lower end 12 of the opening or slit 24 in the material 10 is permanently and tightly closed by any appropriate means 12*a* well known in the art, while I employ a piece or sheet of rubber material 30 to tightly seal the upper end of said opening or slit in the material 10, when it is so desired, namely, when the two edges 13 and 14 are tightly closed together.

Said rubber piece 30 is secured underneath the upper ends 31 and 32 of the fastener strips 15 and 16, which, at the upper portion thereof, are devoid of the separable fasteners 18 and 19 and are also secured to the intact adjacent portion 33 of the material 10, or in case two separate pieces of material are to be secured together then to the similarly located portions of each of them. The lower end of the rubber piece 30 shows two inclined sides 34 and 35, at the right and left sides thereof, and the sealing rubber strips 25 and 26 have similarly inclined terminations or upper edges 36 and 37 in co-operatively adjacent relation to said sides 34 and 35. The edges 34 and 35 carry wedge shaped projections 34*a* and 35*a* which may engage similarly shaped depressions in the edges 36 and 37 of the strips 25 and 26 so that said sides of the rubber piece 30 and said ends of the rubber strips 25 and 26 may engage one another in a tightly sealing manner when the separable fastener means are completely closed and their securing action reaches said ends 36 and 37 of the rubber strips 25 and 26. The rubber piece 30 is tightly secured to the undersides of the fastener strips 15 and 16 and to the respective portion 33 of the material 10 thereabove, but only on about a surface indicated by the dotted cross-hatching lines 38 so that when the ends 36 and 37 of the rubber strips are closed upon the sides 34 and 35 of the rubber piece or block 30 a complete sealing effect will be provided for the upper end of the slit 24. For a smoother working of the closing of the rubber strips 25 and 26 on the rubber block or piece 30 or for their easier disengagement therefrom some superfluous or added materials 40 and 41 may be provided in fastener strips 15 and 16, respectively, which, in the opened position of the two element are illustrated in Fig. 2, as stretched downwardly and outwardly underneath the material 10 which also may be somewhat increased at these places. In the closed position of the parts, as illustrated in Figs. 1 and 4, said increased or superfluous materials will show in wrinkles 42 and 43. In a similar manner, the upper free portions of the edges 13 and 14 may adjust themselves in some wrinkles 45 and 46 when in an opened position (Fig. 2).

It will be understood that changes and variations may be made in the parts and combinations of my device and I hereby reserve all my rights to any and all such changes as are within the spirit of the invention and the scope of the appended claims.

What I claim as new, is:

1. In combination with means adapted to secure together two adjacent elements or to permit them to separate, an elastic strip of material secured to each of said elements adjacent to the fastening means thereon, the two elastic strips on said two elements tightly engaging one another when the elements are secured together and so to provide a substantially air, gas liquid and moistureproof sealing along the separation line of said two elements, a cross piece of elastic material at the termination of the separation line of said two elements being tightly secured to both of said elements and engaging each of said elastic strips of material for tightly sealing the termination of said separation line, said cross piece having inclined sides adjacent to said strips of material and said strips having correspondingly inclined ends to engage said inclined sides.

2. In combination with means adapted to secure together two adjacent elements or to permit them to separate, an elastic strip of material secured to each of said elements adjacent to the fastening means thereon, the two elastic strips on said two elements tightly engaging one another when the elements are secured together and so to provide a substantially air, gas liquid and moistureproof sealing along the separation line of said two elements, a cross piece of elastic material at the termination of the separation line of said two elements being tightly secured to both of said elements and engaging each of said elastic strips of material for tightly sealing the termination of said separation line, said cross piece having inclined sides adjacent to said strips of material and said strips having correspondingly inclined ends to engage said inclined sides, said inclined sides and ends also having respective depressions and projections drawn into tight engagement with one another when said two elements are closed and fastened together.

LASZLO V. KEVICZKY.