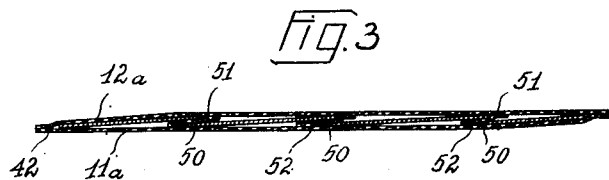
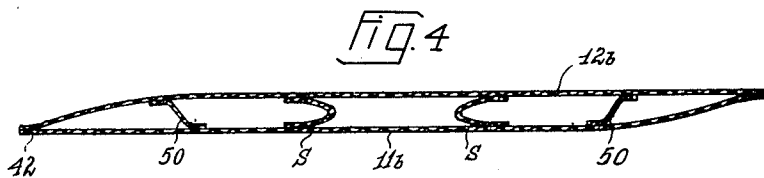
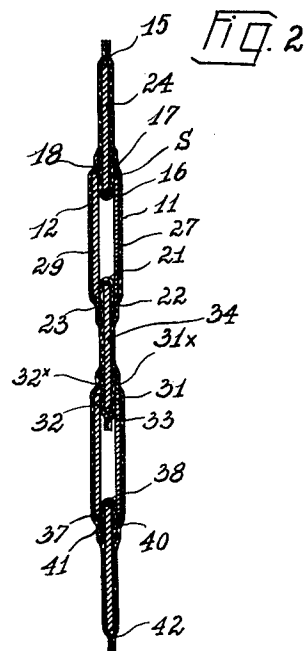
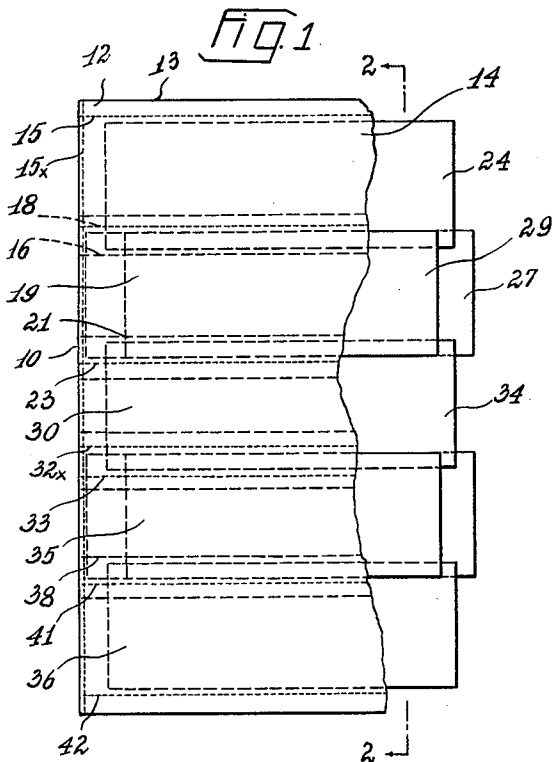


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B. SPOONER
PROTECTIVE ARMOR

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PROTECTIVE ARMOR

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4 Claims. (Cl. 109—82)

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This invention relates to bullet-resisting armor and is mainly adapted to guarding persons or objects subjected to perils of bodily harm and injuries by bullets fired from revolvers, pistols, rifles and the like or other weapons such as knives, daggers, bayonets and the like or flak shrapnel, grenades, grenade splinters, mine splinters, and the like during peace time as well as war time.

The structures heretofore used in this art have been found to possess many disadvantages in that they failed to furnish the complete protection for which they were designed and used. For example, in some cases fabric structures were so arranged that the severance of the seams forming the pockets frequently resulted in the separation of the plate members, or, in other cases, plates were so arranged that they would permit the penetration of a bullet into the body of the person wearing the armor. They were also bulky and rigid, the effect of which was to make them both burdensome and uncomfortable for wear and unduly restrictive in the movements of the person. They lacked the necessary flexibility demanded of a truly effective structure intended for the purpose of protecting the wearer and at the same time being inconspicuous. Their deficiency in adequate articulation about the wearer rendered them especially vulnerable when the attack came from the side.

Accordingly, the principal object of this invention is to create an armor affording the maximum protection coupled with the most necessary flexibility required to allow free natural movements of the individual parts of the body, and to safeguard against frontal and lateral attacks, the said armor being constructed so that it may be worn inconspicuously under the outer garments of the person.

Another object is to minimize the use of impact resisting material made possible by the unique construction of the armor, thereby reducing the weight while preserving such protective capacity for the more vital parts.

A further object is to provide a structure for holding special alloy plates accurately in position during or after attack, such position being achieved by the employment of a unitary web of fabric. The fabric should be moistureproofed and/or mildewproofed in order to keep the plates from corroding and to avoid the rotting and disintegration of the fabric.

In general, the objects of this invention are attained by the use of a unitary front and a unitary back interconnected by means of one or more

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narrow strips of material which form a series of pockets for receiving impact-resisting plates so that the narrow pocket-forming strips provide a hinging means which allows for articulation of the plates with respect to each other.

The foregoing, and other objects will become more evident from the fuller description of the invention taken in connection with the accompanying drawing, wherein:

Figure 1 is a front view of the armor, part of the fabric being broken away;

Figure 2 is a vertical view of the armor illustrated in Figure 1 and taken on the line 2—2 thereof, showing the arrangement of the elements forming the structure;

Figure 3 is a diagrammatic side elevational view showing a modification of the plate holding structure;

Figure 4 is a diagrammatic side elevational view showing another modification of the armor construction.

Referring in greater detail to the drawing, there is shown at 10 an armor construction which comprises a web of fabric 11 forming the front or outside thereof, and another web of fabric 12 forming the inner or body contacting member. The webs 11 and 12 may be formed of two separate pieces of fabric or of a single piece folded upon itself, as for example, along the upper edge 13. Intermediate the layers of the fabric, there are formed a plurality of plate retaining members or pockets for holding alternately one unit of one or more plates and two units comprising one or more plates, the latter being arranged in unique relationship with respect to the first mentioned unit.

As shown in Figures 1 and 2, the uppermost of the pockets 14 is a single pocket formed by stitching the webs 11 and 12 along the line 15, and by stitching to the said webs a narrow folded strip 16 of the same material, folded at 16, along the lines 17 and 18. The succeeding pocket 19 is a double pocket formed by stitching to the said webs another folded strip of the fabric, folded at 21, and sewn along the lines 22 and 23. It will be apparent that a plate 24, or plurality of plates, may be inserted horizontally into the uppermost pocket 14, the elongated edges of which are held in secure alignment with the inside of the seam formed by stitch line 15 and within the inside of the fold line 16. The sides of the plate are encased snugly by the fabric 11 and 12.

In the succeeding double pocket 19, there may be inserted a plate 27, or a plurality of plates, the height of which is arranged so that it is held in

secure alignment with the insides of the seam formed by stitch lines 17 and 22 and the strips S. Another plate 29, or plurality of plates, is similarly inserted into the other compartment of pocket 19 so that it is securely held in corresponding relationship between the insides of the seams formed by stitch line 18 and stitch line 23.

The next pocket 30 is a single pocket formed by stitching a narrow strip 31 to the web 11 at 31x and narrow strip 32 at 32x to the web 12, and joining said strips by stitching them together as at 33. A plate 34, or plurality of plates, may be inserted into this pocket, and it will be held securely in alignment by the encasing elements of the fabric structure.

Succeeding double and single pockets may be formed as at 35 and 36. Pocket 35 is formed by means of the folded narrow strip 37, folded at 38, and stitched to the webs 11 and 12 as at 40 and 41 in the same manner as the strips S are sewn at 17 and 18, and 22 and 23. The lowermost pocket 36 is formed by stitching the webs 11 and 12 at 42. Into the pockets 35 and 36 there may be inserted, a series of plates in units of one or more, arranged alternately in the same manner as plates 27 and 29 and 24. When all the plates have been inserted the structure may be closed by lateral stitching as shown at 45x.

In the modification shown in Fig. 3 the armor is formed from unitary webs and narrow pocket-forming strips sewn together so as to provide for a structural arrangement in which the units of one or more plates overlap each other at their marginal edges. Although an arrangement whereby a series of plates overlap each other has heretofore been proposed, the improvement of my new structure resides in the complete encasement of the plates between unitary webs, the plates separated from each other by the narrow strips 50 attached to the webs 11a and 12a by means of stitching 51 and 52.

In the modification of Fig. 4 there is shown a plate holding structure which embodies a combination of the means for arranging the plates in one armor in accordance with the principles of Figs. 2 and 3. Thus, the embodiment of Fig. 4 comprises the unitary webs of fabric 11b and 12b and narrow pocket forming strips.

This invention provides an armor having markedly improved articulation between the adjacent plates. The arrangement shown creates an armor in which the entire structure constitutes a series of plates having the suppleness of a plurality of plates hinged to each other at their marginal edges.

Various other changes in the construction of the armor may be made without departing from the spirit of my invention. The foregoing description and drawings are to be deemed illustrative only and the scope of the invention is defined in the appended claims.

Having thus described my invention, I claim:

1. A bullet-resisting armor comprising: a flexible encasing structure for holding a series of overlapping impact-resisting plates in articulated relationship; a plurality of strips connected to the front and back of said encasing structure forming an arrangement of a single pocket and adjacent double pockets therein, the single pocket containing an impact-resisting unit extending into the adjacent double pockets; and the double

pockets containing two impact-resisting units each positioned against the wall of the encasing structure and kept separated by the positioning of the single unit in the single pocket.

2. A bullet-resisting armor comprising: a flexible encasing structure for holding a series of overlapping impact-resisting plates in articulated relationship; a plurality of strips connected to the front and back of the structure, the strips being folded and one thereof being sewn to the front and to the back and a succeeding strip being folded in oppositely disposed direction and sewn to the front and back, thereby forming an arrangement of a single pocket and adjacent double pockets, the single pocket containing an impact-resisting unit extending into the adjacent double pockets and the double pockets containing two impact-resisting units each positioned against the wall of the encasing structure and kept separated from each other by the positioning of the single unit in the single pocket.

3. A bullet-resisting armor comprising: a flexible encasing structure for holding a series of overlapping impact-resisting plates in articulated relationship, said structure comprising a plurality of strips connected to the front and the back of said structure forming an arrangement of single pockets and adjacent double pockets, one of said pocket forming strips being a single folded strip sewn to the front and to the back of the structure and the other of such pocket forming strips being formed of two separate strips, each of which is respectively sewn to the front and back of the structure; the single pocket containing an impact-resisting unit extending into the adjacent double pocket; and the double pocket containing two impact-resisting units, each of such units being positioned against the wall of the encasing structure and kept separated by the positioning of the single unit in the single pocket.

4. A bullet-resisting armor comprising: a flexible encasing structure for holding a series of overlapping impact-resisting plates in articulated relationship; a plurality of strips of folded material, one fold thereof being connected to the front and the other fold to the back of the encasing structure, the fold line of the strips being oppositely disposed to each other; a series of impact-resisting plates positioned within the pockets formed by an oppositely disposed pair of strips; and a series of impact-resisting plates positioned against each wall of the encasing structure and kept separated by the positioning of the impact-resisting plates positioned within the pockets formed by the oppositely disposed pair of strips.

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