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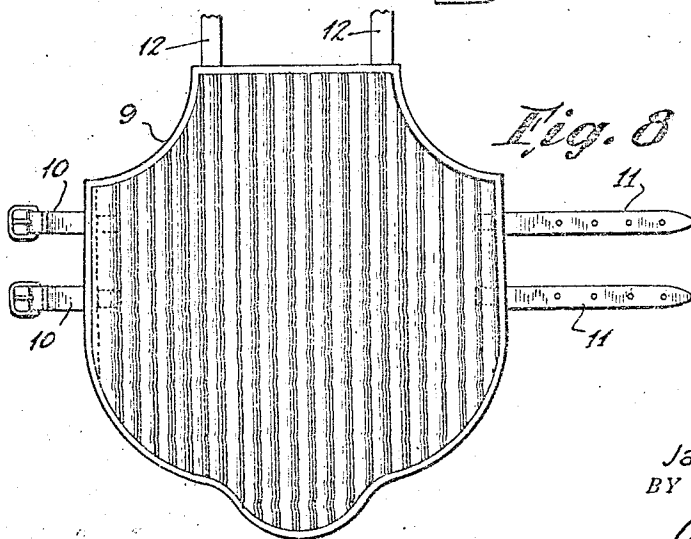
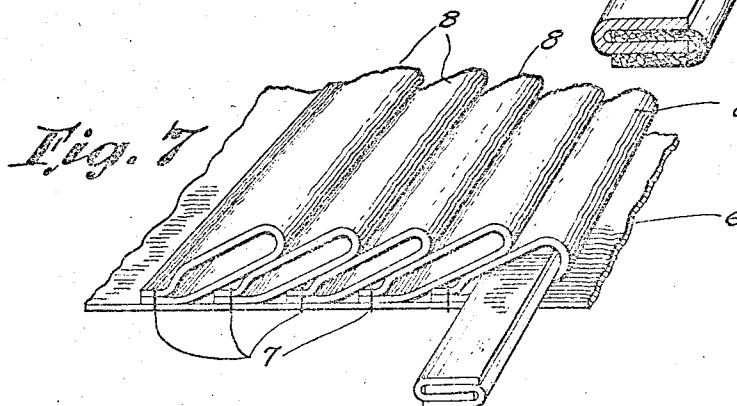
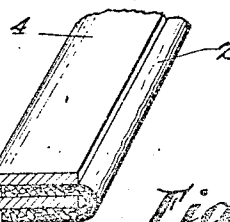
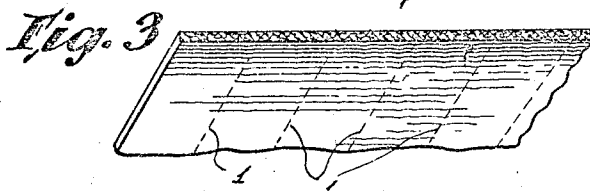
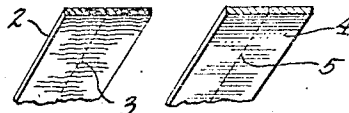
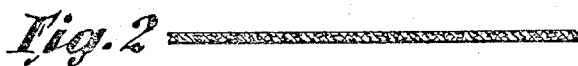
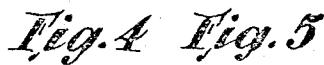
Feb. 23, 1926.

1,574,188

J. H. FRIEDMAN

PROTECTING DEVICE

Filed Dec. 18, 1924



INVENTOR.
Jacob H. Friedman,
BY *Jas. H. Griffin*
ATTORNEYS.

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UNITED STATES PATENT OFFICE.

JACOB H. FRIEDMAN, OF NEW YORK, N. Y.

PROTECTING DEVICE.

Application filed December 18, 1924. Serial No. 756,664.

To all whom it may concern:

Be it known that I, JACOB H. FRIEDMAN, a citizen of the United States, residing at New York city, county and State of New York, have invented a certain new and useful Protecting Device, of which the following is a specification.

This invention is a protecting device adapted more particularly to partake of a form of wearing apparent for the purpose of protecting those parts of the body which are covered thereby from the bullets of gun-shot and small arms and the object of the invention is to provide a construction which is light and can be comfortably worn without undue burden by policemen, soldiers and others who may be exposed to dangers of the character referred to.

In a broad sense, the invention consists in a protecting device constructed of metal, fabric, and metal impregnated fiber, the metal and fiber having an interlocked overlapping relation to render the construction relatively pliable while permitting freedom of movement of the body of the wearer, the parts being so fabricated as to withstand the impact of bullets discharged from rifles, as well as from small arms.

An important feature of the invention resides in its relatively light weight and flexibility and its usefulness in carrying out its intended functions without unduly encumbering the wearer.

The invention also includes the method of making the device, said method being highly novel and conducive to high efficiency in the finished article.

Features of the invention, other than those adverted to, will be apparent from the hereinafter detailed description and claims, when read in conjunction with the accompanying drawing.

The accompanying drawings illustrate one practical embodiment of the invention, but the construction therein shown is to be understood as illustrative, only, and not as defining the limits of the invention.

Figures 1 to 6 show consecutive steps in carrying out the method of this invention

and the different material used in the making thereof.

Figure 7 is a perspective view showing the method of assembly of the parts; and,

Figure 8 shows a chest protector constructed in accordance with the present invention.

In making a protecting device in accordance with this invention, I start with a suitable quantity of fiber, such as is known to the trade in general as wood pulp wool. This fiber is of a light and fluffy nature and of relatively open texture. A body of it is shown in Figure 1.

The first step of the process consists in impregnating this fiber with some suitable substance which will have an adhesive effect between the individual fibers and after thus impregnating the material and while the adhesive substance is still in a wet or moist condition, said material is subjected to great pressure so that the material is pressed into the relatively thin layer shown in Figure 2. The adhesive in the material dries or hardens and maintains this relatively thin layer of substantially uniform thickness in this condition.

I next immerse this layer of material in a bath of molten aluminum and, because of the absorbent character of the material, the aluminum immediately penetrates the interstices thereof and forms in effect a homogeneous bond therewith. The immersion is of short duration and the layer is thereupon withdrawn from the molten metal in a condition wherein the material is impregnated with the metal and is covered with a surface coating of aluminum. A dipped sheet is shown in Figure 3.

At the conclusion of this operation, the sheet of Figure 3 is slit longitudinally along the lines 1 to form it into strips 2, one of which is shown in Figure 4, and each of these strips is bent upon itself along its medial line 3.

After having made a sufficient number of strips 2 and bent them in the manner described, I next take a sheet of an aluminum alloy of very light weight and tough texture.

The alloy, known to the trade as aluminum durrallio, has been found to give very excellent results and a sheet of this matter I cut into strips 4, such as shown in Figure 5, and bend each strip along its medial line 5 in the same manner as I previously bend the strips 2.

Having formed as many strips 4 as there are strips 2 and having bent them as described, I associate a strip 4 with the strip 2 after the manner shown in Figure 6, from which it will be seen that the bent strips interfit or interlock with respect to one another so as to form, in effect, four plies alternately metal and metal impregnated wood pulp wool. The combination assembly may be referred to as a protecting unit.

In accordance with the present invention a large number of these units are assembled with respect to one another in lapping relation and are mounted in any suitable and convenient manner in this relation so that they can be readily applied in the making of a garment to be worn by persons subjected to danger.

A very convenient manner of mounting is shown in Figure 7 wherein 6 is a piece of canvas or other suitable fabric to one surface of which is sewed by lines of stitches 7 a succession of overlapping sheaths 8, these sheaths being assembled on the fabric backing 6 after the manner of shingles. Into each of the sheaths is slipped one of the protective units and the sheaths serve to maintain said protective units in overlapped relation to one another, as will be clearly apparent from Figure 7. If desired, a layer of fabric may be placed over the sheaths and sewed down at the free ends thereof although, in practice, it is entirely satisfactory to leave the sheaths uncovered.

After forming the construction of Figure 7 in the manner described, it is cut to proper contour or in practice the backing 6 and sheaths 8 can be cut to proper contour before introducing the protecting units and the units cut to proper length before assembly. This is optional.

While the construction may be associated for different purposes, I have shown for illustration in Figure 8, the device as made into a chest protector. The same is provided with a suitable binding 9 around its edges which serves to produce a finished edge and to maintain the protecting units in position. Strap sections 10 and 11, the former of which is provided with buckles, are illustrative of any suitable means for attaching the device about the body and a neck strap 12 may be associated with the garment and when passed about the neck will support the garment against working down on the body.

It will of course be understood that if a back protector is desired in addition to the

chest protector, the same is formed in like manner with strap sections or other convenient attaching means and the lateral edges of the back sections secured to the lateral edges of the front section. I wish it understood, however, that the particular shape of the garment or the manner in which it is worn may vary within wide ranges without departing from the spirit of this invention, which is directed more particularly to the structural features of the assembly.

It will appear that in the finished article the elements of the construction have an interlocked overlapped relation which results in effectual protection against the penetration by bullets. The exterior surface has the appearance of bellow plaiting and is pleasing to the eye.

I have not attempted to specify particular thicknesses of the strips 2 or 4 as these thicknesses may vary without departing from the spirit of this invention. The material should, however, be sufficiently heavy to preclude penetration by bullets.

The foregoing detailed description sets forth the invention in its preferred practice form, but inasmuch as the construction is capable of changes in details without departing from the spirit of the invention, this invention is to be understood as fully commensurate with the appended claims.

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

1. In an assembly of the character described, the combination of a plurality of overlapping protecting units secured in overlapped relation and each of which units embodies a plurality of interfitted U shaped strips.

2. In an assembly of the character described, the combination of a plurality of overlapping protecting units secured in overlapped relation and each of which units embodies interfitted U-shaped strips of metal and metal impregnated fiber.

3. In an assembly of the character described, the combination of a plurality of protecting units mounted in overlapped relation to one another and each of which units embodies a metallic strip of U-shaped cross section interfitted with a metal impregnated wood pulp wool strip of U-shaped cross section.

4. In an assembly of the character described, the combination of a suitable backing, a plurality of protecting units mounted on the backing in overlapped relation and each of which units embodies a strip of metal and an interlocked strip of metal impregnated wood pulp wool.

5. In an assembly of the character described, the combination of a backing of flexible material, a plurality of sheaths

mounted on one face of the backing in overlapping relation to one another, and a protecting unit housed in each sheath and embodying interlocked strips of metal and metal impregnated wood pulp wool.

5 6. A protective garment embodying wood pulp wool impregnated with metal.

7. A protective garment embodying compressed wood pulp wool, the interstices of

which are filled with aluminum and which 10 wool is coated with aluminum.

8. A protective garment embodying interlocked and overlapping strips of metal and metal impregnated wood pulp wool.

In testimony whereof I have signed the 15 foregoing specification.

JACOB H. FRIEDMAN.