

Oct. 30, 1956

L. A. RUNTON  
PROTECTIVE COVERING  
Filed Oct. 25, 1955

2,768,420

*Fig. 2.*

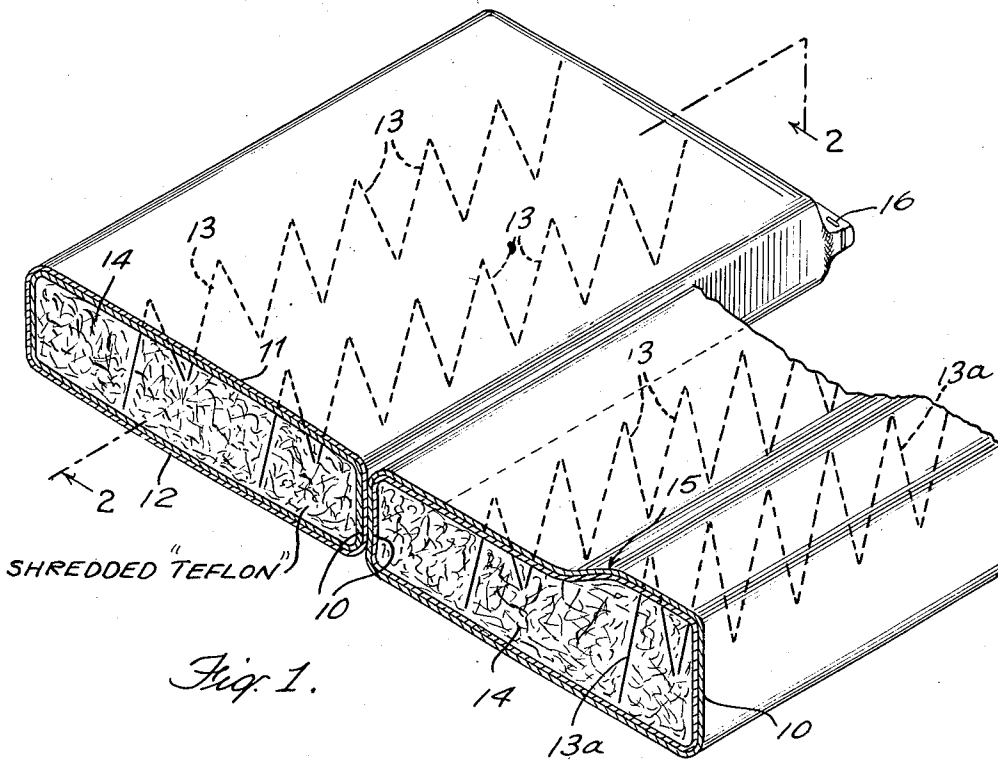
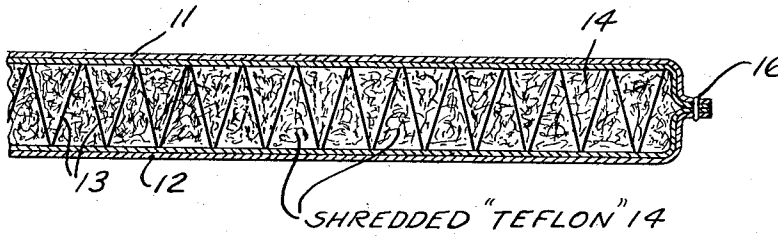


*Fig. 1.*

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2,768,420

## PROTECTIVE COVERING

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Application October 25, 1955, Serial No. 542,750

1 Claim. (Cl. 28—78)

This invention relates to protective armor or covering for mobile equipment and personnel and more particularly to a protective packing which is resistant to high temperatures.

An object is to provide a packing which can be readily installed and which conforms to various shapes of surfaces.

Another object is to provide such a packing which is adapted to be removed and replaced for purposes of inspection, service or repair.

Other objects and advantages will be apparent as the nature of the invention is more fully disclosed.

A feature of the invention is the use of a shredded plastic which is resistant to high temperatures and is resistant to the impact of small objects such as bullets or shrapnel fragments. "Teflon" (polytetrafluoroethylene) a plastic sold by E. I. du Pont de Nemours is particularly suitable. It is available in blocks or strips that can be shredded into small fragments which are suitable for a filling or packing. Such shredded "Teflon" is resistant to temperatures of the order of 600° F.

In accordance with this invention the shredded "Teflon" is placed in bags or tubes woven from crimped nylon or crimped "Teflon" and held in form by threads extending between the front and back walls at spaced intervals.

The fabric bags are loosely filled with the shredded fibers and when used as an armor, for example on a jet engine or on the skin or surface of a plane or tank, the bag is first tucked into the space to be filled and the bag is then shaken to fill the space with the loose fibers. The walls of the bag are thus conformed to the space and hold the fibers in place. The whole bag can be removed as a unit for servicing and can be replaced as desired.

The bag may be made in the form of a long tube which can be cut into required lengths and can be wrapped around an external surface to be protected.

In the drawings:

Fig. 1 is a perspective view partly in transverse section of a pair of abutted armor bags embodying the invention; and

Fig 2 is a warpwise section taken on the line 2—2 of Fig. 1.

Referring to the drawing the bag is shown as composed of a two-ply woven fabric of a stretchable or pliable type such as crimped nylon or "Teflon." The crimped yarn is extensible and flexible so that the fabric of the bag can accommodate itself readily to irregular surfaces or corners. The filament may for example be

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crimped in a stuffer crimper of the type shown in Rainard Patent No. 2,575,839, dated November 20, 1951.

The bag is shown as woven in the form of a seamless tube with side walls 10, and with a front wall 11 and a back wall 12 which are secured together at intervals by warpwise threads 13. If the two walls are woven as a unit on a double shuttle loom the threads 13 may be woven into the walls as the fabric is made. If desired the threads 13 can be affixed after the bag has been formed.

The purpose of the threads 13 is to hold the walls of the bag in the desired shape, as in the form of a flat tube as shown. If the bag is to be used in an irregular space certain of the threads, indicated at 13a in Fig. 1 may be made longer so as to form a wide section 15 at one side of the bag. Of course the shape may be otherwise modified as required to fit the surface to be protected.

After the bag is made as above described the end is closed by stitching 16 and the shredded "Teflon" fibers 14 are inserted and shaken into place until the bag is loosely filled. The open end is then closed and the bag is ready for use. If made in the form of a long tube it may be rolled for shipment.

To insert the armor in a confined or irregular space the proper length of the tube is cut off and closed to form a bag which may be held by one end and shaken to move the fibers to the other end and leave the upper end substantially empty. This end is then pushed into the space to be protected and the other end of the bag is lifted and shaken to fill the first end with fibers and cause them to be packed into the selected space of irregular conformation. To protect an outside surface the tube can be wrapped spirally around the surface or two or more tubes can be abutted as shown in Fig. 1.

The shredded plastic forms a protective coating for the armored part but is confined by the bag so that the entire packing can be removed as a unit when desired.

The threads 13 serve to prevent migration of the loose fibers during continued use and also to prevent displacement of the fibers due to an impact. The entire length is thus available to resist the penetration of a bullet or metal fragment.

"Teflon" is useful for the protection of high temperature parts such as jet engines as it withstands elevated temperatures.

Various other forms may also be used as will be apparent to a person skilled in the art.

What is claimed is:

A protective covering adapted to conform, irregular surfaces subjected to elevated temperatures comprising a closed fabric bag composed of a stretchable crimped synthetic yarn and having front and back walls spaced to form a closed chamber and joined at spaced points by interlaced threads to prevent said walls from spreading, and a mass of shredded temperature resistant polytetrafluoroethylene fibers closely filling said chamber and held against substantial displacement by said interleaved threads.

## References Cited in the file of this patent

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