United States Patent [19]

Gale

[11] **3,743,341**

[45] **July 3, 1973**

[54] **WEB CORNER PROTECTOR**

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[22] Filed: **July 26, 1971**

[21] Appl. No.: **165,901**

[52] **U.S. Cl.** **294/74**

[51] **Int. Cl.** **B66c 1/12**

[58] **Field of Search** ..... 294/67 E, 67 EA, 294/67 B, 67 A, 74; 248/222; 24/16 R, 115 K; 217/66

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[57] **ABSTRACT**

A corner protector having angularly arranged planar portions for engaging surfaces of an article adjacent to a corner thereof with outwardly extending portions provided with apertures through which a web extends. The protector has portions, adjacent the corner, offset outwardly to be spaced from the corner of the article. A slit extending from a side of the protector to a respective aperture permits the protector to be applied to a web intermediate the web ends.

1 Claim, 5 Drawing Figures

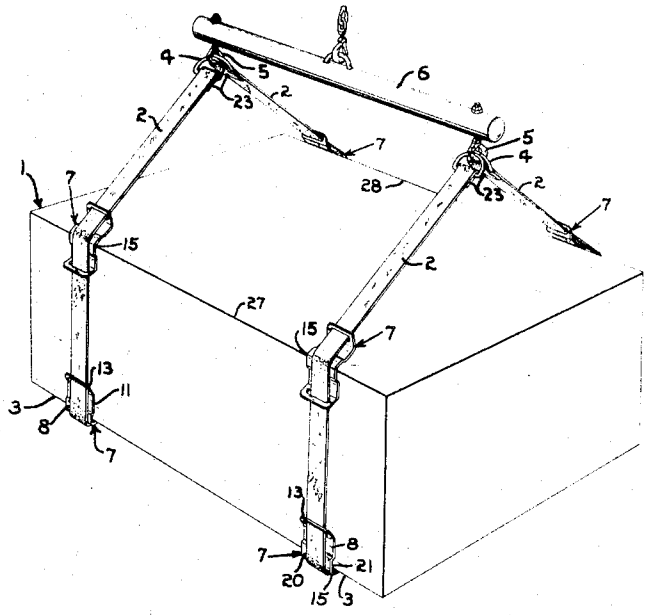


Fig. 1.

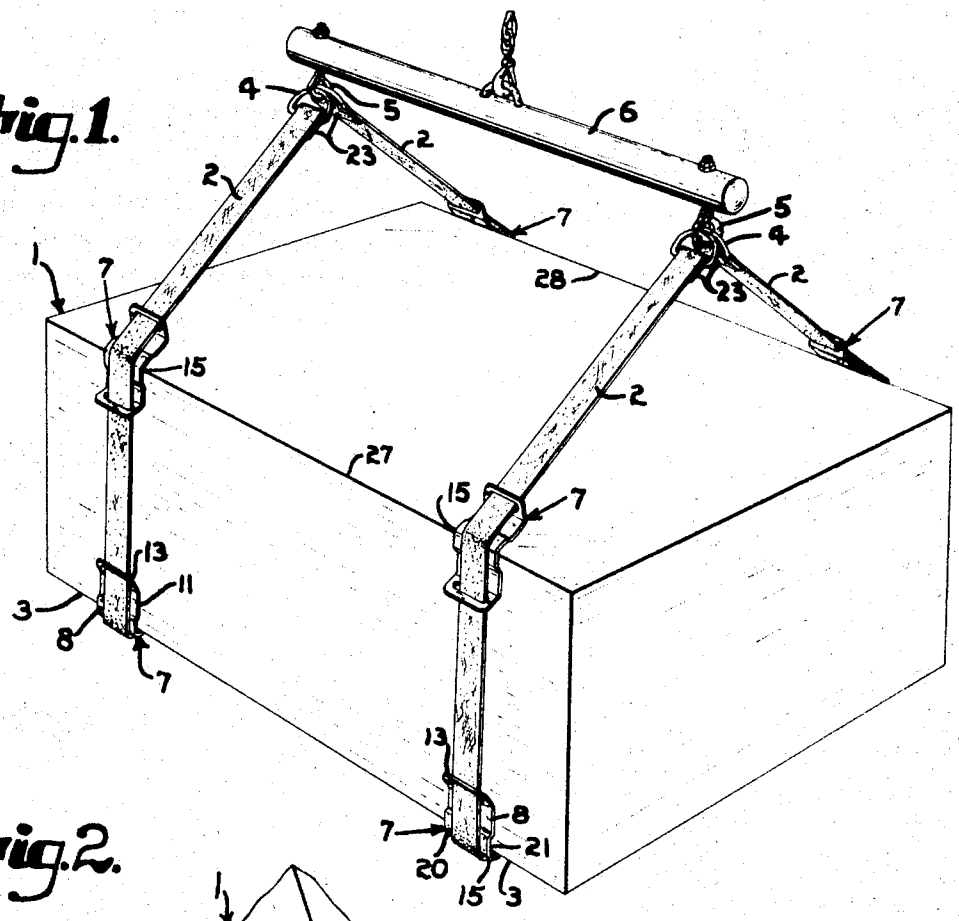
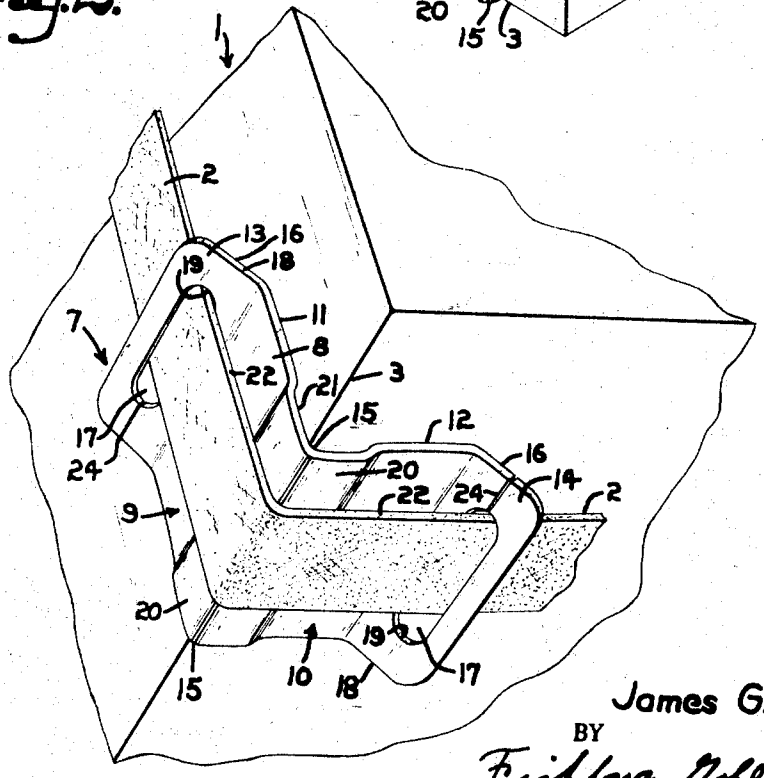


Fig. 2.



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Fig. 3.

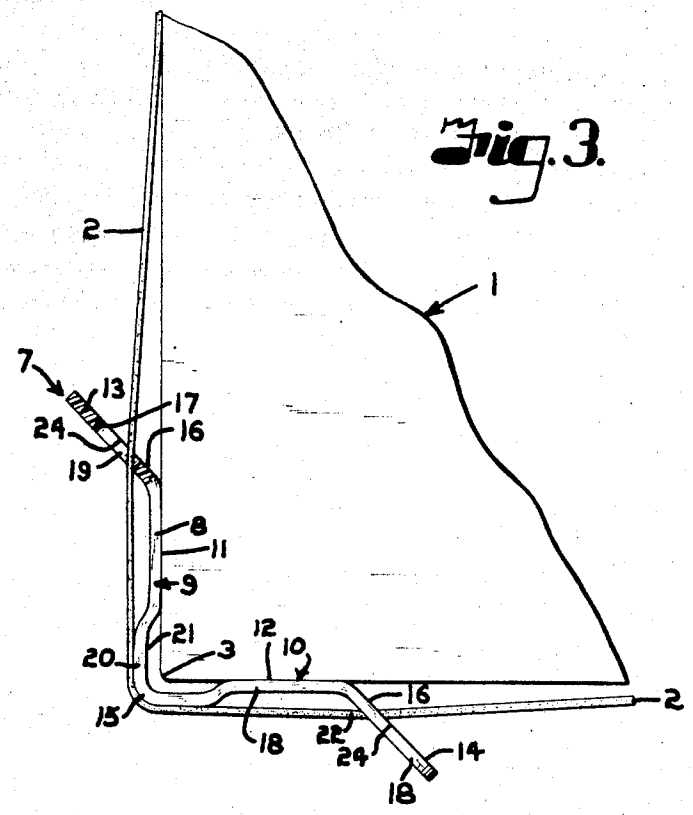


Fig. 4.

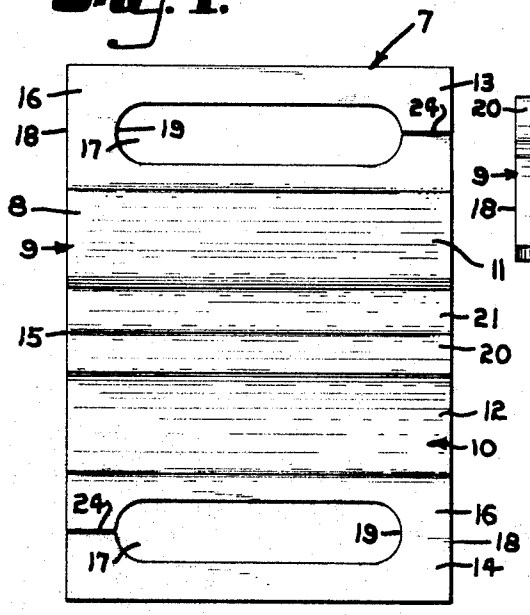
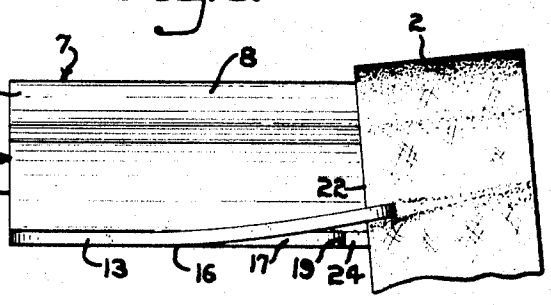


Fig. 5.



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WEB CORNER PROTECTOR

The present invention relates to apparatus for handling articles or stacks of articles or like cargo and particularly to a protective member used with webbing to protect corner portions of articles from the webbing during handling.

In the handling and securing of articles, including stacks thereof, containers and other items of cargo, strips of webbing as for example, woven nylon belt or the like may be used. While such web strips are less abrasive on articles than wire rope or the like, the force of the web on the corners of articles in supporting or securing a load can damage the corners. Web slings usually have elongate belt of webbing with D-rings or the like secured to the ends thereof. Attempts to use such slings with separate corner protectors has not solved the problem because of the time consumed in holding the protectors to position same on an article while a web is tensioned thereabout. Also such work is difficult and can require additional personnel.

The principal objects of the present invention are to provide a web corner protector that will eliminate the aforesaid problems; to provide such a web corner protector having surfaces engaging intersecting surfaces of an article to protect the corner thereof from webbing or strapping during handling; to provide such a protective member that is easily applied to a web intermediate its ends whereby the protectors may be easily moved along the length thereof to properly position same on an article to be handled; to provide such a protective member with outwardly extending flange portions having apertures therein through which the web or belt extend whereby the web is exteriorly thereof when the protector is engaged with an article of cargo; to provide such a protective member with outwardly offset portions at the corner whereby the protective member is spaced from the corner of the article; and to provide such a protective member that is economical to manufacture, durable in construction and particularly well adapted for the proposed use.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth by way of illustration and example certain embodiments of this invention.

The drawings constitute a part of this specification and include an exemplary embodiment illustrating various objects and features of the protective member of the present invention.

FIG. 1 is a perspective view of an article being lifted with web slings and protective members embodying the features of the present invention.

FIG. 2 is an enlarged perspective view of a protective member engaged with a corner portion of an article.

FIG. 3 is a partial end elevation of an article with a protective member engaged with one edge thereof.

FIG. 4 is an elevational view of an interior side of the protective member.

FIG. 5 is an end elevational view of a protective member with a portion moved for insertion of a web into the aperture thereof.

Referring more in detail to drawings:

As required detailed embodiments of the present invention are disclosed herein, however, it is to be understood that the disclosed embodiments are merely exemplary of the invention which may be embodied in various forms, therefore, the disclosure hereof is presented only as a representative basis for teaching one skilled in the art to variously employ the present invention in virtually any appropriate detailed structure.

In the disclosed embodiment of the present invention the reference numeral 1 generally designates an article or stack of articles to be moved or secured by means of webs or belts 2 adapted to extend around the article 1 whereby it could engage corners 3 thereof. In the structure illustrated in FIG. 1 a pair of web slings extend around the article on load 1 and each end of each web has suitable loops such as D-rings 4 secured thereto for engagement with hooks 5 mounted on a lifting device such as a beam 6 adapted to be raised by a crane or the like. The reference numeral 7 generally designates corner protective members embodying the present invention and adapted to be positioned between the web belts 2 and the corners 3 of the load or article 1 being handled as illustrated in FIG. 1.

The protective member 7 has a generally L-shaped body 8 having two angularly disposed outwardly extending arms 9 and 10 formed integrally therewith. The arms 9 and 10 preferably are planar portions with interfaces 11 and 12 of the respective arms forming surfaces of substantial area with an inside corner angle adapted to be seated against a selected corner portion 3 of a load or article 1 to be handled. The arms 9 and 10 of the protective member have outwardly extending flanges 13 and 14 respectively spaced from the corner or point of intersection 15 of said arms. The flanges 13 and 14 preferably are arranged with inner faces 16 defining an obtuse angle with the respective inner faces 11 and 12 of the arms. Each flange has an elongate aperture 17 of a size transversely of the arms to accommodate the width of a web or belt 2 adapted to be used therewith. The protective member is of a width substantially greater than the width of the web 2 whereby the material between the sides 18 of the protective member and the ends 19 of the respective apertures is ample to provide suitable strength in the use and handling of the protective members. Each of the arms 9 and 10 have portions 20 adjacent the point of intersection 15 offset outwardly as at 21 whereby the adjacent portions define a corner spaced outwardly from the surfaces 11 and 12 to thereby eliminate any contact between the protector and the corner 3 of an article 1 being handled.

In the illustrated structure the arms 9 and 10 are diverging members whereby the planar surfaces 11 and 12 are at an angle of 90°. It is to be understood that the structure may be such that the angle between the diverging members will accommodate a particular angle of surfaces defining the corner of an article to be handled or secured as for example, if the article is hexagonal, the angle of divergence would be substantially 120°.

It is preferred that the apertures 17 be of a size whereby the protector is slidable along a web 2 to selectively position same. To accomplish this there is suitable clearance between the side 22 of the web and the ends 19 of the aperture. However, the clearance is limited whereby the web 2 is substantially centered in the width of the protector. It is preferred that the protector be capable of installation on a web sling intermediate the ends thereof and be removable for other use of the sling. A completed sling having a web 2 with D-rings 4 thereon presents a larger portion 23 at the ends thereof. It is preferred that the aperture 17 be smaller

than the portion 23 and in order to permit installation and removal of the protector members the sides of the flanges are provided with slits 24 extending from one end of an aperture to the adjacent side of the protector. And, it is preferred that as shown in FIG. 4 the slit from one aperture extends to one side and the slit 24 from the other aperture extends to the other side of the protector so as to prevent opposing lateral forces on the web and protector effecting removal of the protector.

The protector may be made of any suitable material but it is preferably formed of a suitable plastic such as polyethylene, polypropylene or other strong wear resistant plastic. The particular structure is such that it can be manufactured as by extrusion of long lengths which are then cut to give a desired width of the protector and the apertures 17 and slits 24 then formed in the respective flanges. It is also such that it is adapted to be formed from sheets or strip heated and bent or pressed to the desired shape. It is also adapted for production by injection molding. I have found that use of high density type plastics with such manufacturing methods provides economical manufacture and the protector is tough, resisting breakage, absorbs shock and is rust proof.

In using protective members constructed as illustrated and described a web 2 is moved to present an edge at a slit 24 of a flange 13 and then the outer portion of the flange bent or flexed to open the slit to permit the web 2 to pass therethrough into the respective aperture 17. The other side edge of the web 2 is presented to the slit of the other flange 14 and the outer flange portion flexed to permit the slit 24 to open sufficiently for the web 2 to pass into the respective aperture. This assembles the protector 7 on the web 2 of the strap or sling and said protector can be moved longitudinally thereof. A desired number of the protectors 7 are placed on the web 2 and then the web and protectors are moved to an article to be moved or lifted. The protectors are moved on the web to present the inner surfaces 11 and 12 to engage a bottom surface 25 and side surface 26 of the article 1 at a corner 3. Another protector 7 is arranged at the opposite corner to engage the corresponding surfaces defining same. With this arrangement the web is exteriorly of the protector and the surfaces adjacent the corner are spaced from the corner 3 of the article so as to prevent contact and damage thereto. Force is applied to the ends of the web 2 to pull same tight and apply desired force to the article as for example, if the web is a sling the D-rings 4 may be connected to a hook 5 for lifting purposes. If the web extends substantially vertically from the sides of the article the two protectors on the lower corners may be sufficient. However, if the web extends inwardly from the upper corners it is desirable to apply protectors 7 on the web 2 at the corners 27 and 28 so as to also protect same. When the use of the protectors is completed they may be removed from the web 2 by flexing end portions of the flanges whereby the slits 24 are spread or open and the web moved therethrough. It is to be understood that the corner protector in addition to protecting corners of cargo or like articles during handling is also usable for securing loads and the like as for example, the plurality of articles loaded on a truck or the like may be secured in place by a web and protectors substantially as in the same manner as described.

It is to be understood that while I have illustrated and described one form of my invention it is not to be limited to a specific form or arrangement of parts herein described and shown.

What I claim and desire to secure by Letters Patent is:

1. A web corner protector for protecting corners of articles from web straps and the like during handling comprising:

a. an angularly shaped one piece member of synthetic resin having two interconnected right angular planar portions with inner surfaces adapted to engage surfaces of an article adjacent a corner thereof, said planar portions being wider than a web to be received thereby;

b. said planar portions each having outwardly offset portions at the inter-connection of the planar portions whereby when the planar portions are engaged with article surfaces adjacent the corner, said offset portions and corner formed thereby are spaced from the corner of the article;

c. outwardly inclined flanges on terminal portions of said planar portions, inner surfaces of said flanges being in a plane making an obtuse angle with the plane of the respectively planar portion, said planar portions and flanges being of substantially uniform thickness;

d. elongate apertures in said flange portions with an inner edge spaced from the planar portion and aligned with the offset portion of the respective planar portion, said aperture being of suitable size to pass a strip of webbing whereby the planar portions and offset portions thereof are between the web and an article engaged by the planar portions;

e. each flange having a slit extending laterally from the respective aperture therein to a side thereof, the slit in one flange extending from the respective aperture outwardly to one side of said member and the slit of the other flange extending outwardly from the respective aperture to the opposite side of said member whereby a flange portion outwardly of the respective slit is movable to provide an opening permitting a web to pass into the respective aperture and the protector applied to a web intermediate the ends thereof.

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