May 31, 1960 D. D. RUTHERFORD 2,938,637

SPACER CLIP

Filed April 20, 1955

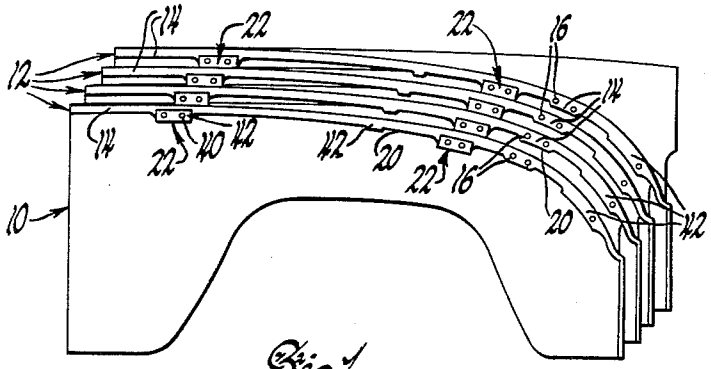


Fig. 1

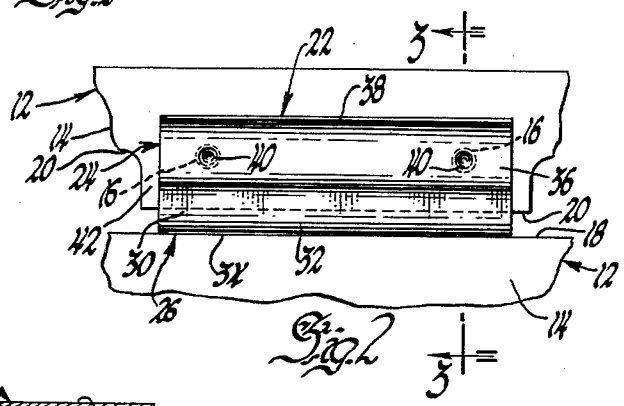


Fig. 2

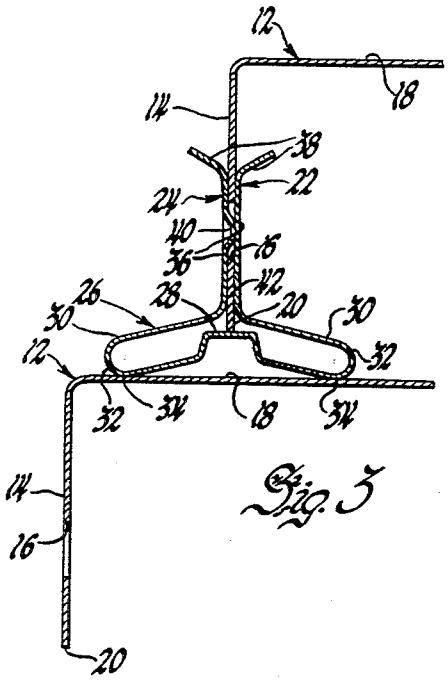


Fig. 3

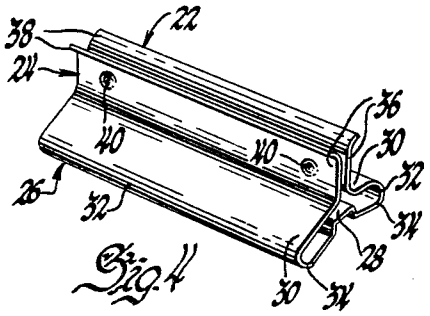


Fig. 4

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United States Patent Office 2,938,637 Patented May 31, 1960

2,938,637

SPACER CLIP

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Filed Apr. 20, 1955, Ser. No. 502,707

2 Claims. (Cl. 214—10.5)

This invention relates to a method and means for packing articles for storing and shipping, and more particularly to a method and means for packing similarly shaped articles in parallel or nested relation. Although the invention is not limited to this use, it has been found to be particularly adapted for protecting fender panels during shipping and storage.

In manufacturing, it is often necessary to transport various parts from plant to plant or between stations in a plant, and great care must sometimes be taken to protect these parts so that they will not be injured as a result of the rough handling they frequently receive. This is particularly true in the automobile industry where body panels must be transported from the stamping station to the painting station without marring or denting the surfaces to be painted.

A fender panel is an example of a particularly bulky and awkward article having a laterally extending apertured bolting flange along the portions thereof where the fender is to be attached to the vehicle body. When a series of such fenders are stacked in nested relation, great care must be taken that the sharp edges of the bolting flange do not touch the outer surfaces of the adjacent fender. This has been done in the past by providing protective layers between the fenders at spaced intervals along the flange. Specifically, one method used was to apply material such as cardboard to appropriate portions of the flange of alternate fenders in a stack of fenders. These cardboard layers had to be cut and folded to provide a particular shape and taped or otherwise secured to insure that the protective layer could not be pulled off the flange. Considerable time was consumed in applying and removing such devices. Despite these precautions, such devices were often destroyed before the panels reached their destination, and the panels were scratched or dented as a result, or at least the protective devices were not reusable.

It is now proposed to provide a method and means for packing such articles for storing and transporting so that sharp edges on one article will not touch the adjacent article. The invention contemplates the use of an easily applied and removed reusable metal or other clip having a portion adapted to be attached to the flange or other portion of one of the articles and having another portion with smooth surfaces engaging the adjacent article. While the invention insures greater protection than former methods, it also provides a considerable saving over the former methods in that the reusable clip is ultimately less expensive to make and requires less handling time.

In the drawings:

Figure 1 is a side view of a method and means embodying invention of packing fender panels for storing or shipping.

Figure 2 is an enlarged fragmentary view of a portion of Figure 1.

Figure 3 is a cross-sectional view taken on the plane of line 3—3 of Figure 2 and looking in the direction of the arrows.

Figure 4 is a perspective view of the preferred embodiment of article spacing means shown by Figures 1–3.

Referring to the drawings in greater detail, Figure 1 illustrates a stack 10 of similarly shaped articles which have been packed for storing or transporting according to the invention. For purposes of illustration only, the articles shown are fender panels 12 having securing flanges 14 by which the fender panels may be fixed to a vehicle body, but it must be understood that the invention contemplates the packaging of articles other than panels. Figure 1 is a view toward the interior of the panels 12 illustrating clearly the fender securing flanges 14 having suitably located apertures 16 therein to receive threaded or other fasteners.

When a series of such panels 12 are nested so that the maximum number of panels may be stored in a minimum of space, the panels are preferably offset from one another so that the securing flange 14 of each panel extends normally to the surface 18 of the adjacent panel as shown by Figures 2 and 3 and would engage the same if permitted to do so. The free edges 20 of the securing flanges 14 usually have sharp corners formed by the stamping and shearing operations, and if permitted to engage the surface 18 of the adjacent panel 12 during storing or transporting of these panels they would seriously injure the surface of the adjacent panel to the extent that subsequent painting of these surfaces would not cover the scratches or dents.

In order to prevent the engagement of these flanges 14 with the surfaces 18 of the adjacent panels, a device such as the clip 22 shown in perspective by Figure 4 may be provided. Such a device may be formed from any desired material, although it is preferable that the material have some resilient properties.

The clip 22 shown may be formed to any desired length, depending upon factors such as the size and shape of the articles to be stacked and the number of clips to be applied to each article. However, the clip 22 is preferably formed to provide when viewed in cross-section a portion 24 adapted to receive the flange 14 and a portion 26 adapted to space the articles and having a smooth surface to engage the adjacent article.

Such a clip structure may be formed by suitably bending or otherwise forming a strip of material transeversely thereof and midway between its ends to form a raised flat abutment portion 28 and a reversely bent leg portion 30 extending from each side of the abutment 28, with the outer bight 32 of each leg portion forming a smooth base 34 to engage the adjacent panel. The remaining free ends of the leg portions are then formed to provide parallel object receiving portions 36, with the free ends 38 of the parallel portions being formed outwardly a sufficient distance to provide a smooth entry for objects over which the clip 22 is to be applied. Dimples 40 may be formed in one of the parallel sides 36, and where the clip 22 is constructed from spring material the depth of the dimples 40 determines the spacing of the parallel sides 36 in the free position of the clip.

It will be noted that the securing flanges 14 in the fender panel structure may have wider portions 42 at the location of the apertures 16 for receiving threaded fasteners and the like and that these apertures 16 may be provided in pairs.

In practicing the invention, a device such as the clip 22 described above may be applied over the free edge 20 of the securing flange 14 at any desired point so that the securing flange is received between the parallel portions 36 of the clip and so that the free edge 20 of the flange 14 engages the flat abutment portion 28 of the clip. The abutment portion 28 is preferably disposed normal to the plane of the flange 14 it supports so that the flange may not slip to either side of the clip and

the weight thereof will be distributed to legs **30**. Such weight in turn biases flange receiving arm portions **36** together. The dimples **40** may be spaced the same distance apart as the apertures **16** in the flange **14** so that when the clip **22** is fully applied, the dimples **40** seat themselves in the apertures **16** and prevent the unintended removal and rotation or shifting of the clip **22** on the flange **14**. As many such clips as are necessary, depending upon the size and shape of the panels **12**, may be applied to the flange **14** so that no part of the flange will engage the surfaces **18** of the adjacent panel.

The shape of the clip **22** may be varied to accommodate the particular shape of the articles being spaced. For instance, the direction of slope of the reversely bent leg portions **30** with respect to the parallel object receiving portions **36** may be varied to increase or decrease the distance of the abutment portion **28** from a line connecting the article engaging base portions **34**, and certain conditions may require that the clip not be symmetrical in cross-section. Also, the length of the leg portions **30** may be varied, although it is preferable that these portions be sufficiently long so that they may flex to a limited extent and take up shock. However, the normal flexure permitted should, of course, not exceed the height of the abutment portion **28** from the base portions **34**.

Other changes may be made without departing from the scope of the invention which broadly contemplates a method of packing articles in a manner so that they may not damage themselves by contact with one another, the method including the use of a simple, inexpensive and reusable spacing device adapted to be removably secured to one article and to engage the adjacent article.

What is claimed is:

1. A clip adapted to protect certain surfaces of articles having apertured flanges extending laterally from these surfaces when said articles are stacked such that the articles are slightly offset and the free ends of the flanges would otherwise engage the surfaces to be protected, comprising a strip of sheet metal formed to provide three pairs of spaced legs, each of two pairs of said legs being joined at their outer ends by a bight and the adjacent legs in said two pairs of legs being joined by a flat portion disposed normally to the third pair of legs, the outer ends of said third pair of legs comprising the free ends of said strip and being turned outwardly away from one another to provide means for guiding one of the apertured flanges between said third pair of legs, one of said third pair of legs having dimples formed therein, said last mentioned legs being normally spaced apart by the depth of said dimples, said dimples adapted to enter the apertures in one of the apertured flanges when said clip is applied thereto to prevent said clip from shifting thereon.

2. A spacer clip for use with members having depending flanges and which includes oppositely extended first and second depending leg portions having a connecting plane surface portion therebetween, third leg portions extending upwardly over said plane surface portion and spaced apart to receive a depending flange of one of said members, the flange adapted to rest on said plane surface portion for distributing the weight of the member to said first and second legs and spread said first and second legs to bias said third legs in engagement with the flange, said spacer clip being formed from one continuous strip of spring metal, said third leg portion including the free ends thereof and said first and second legs being formed by reverse bending of intermediate parts thereof, and dimples formed in one of said third leg portions for normally engaging and spacing the other of said third leg portions apart therefrom to initially receive the flange.

References Cited in the file of this patent

UNITED STATES PATENTS

307,382	Elsen	Oct. 28, 1884
487,959	McDonald	Dec. 13, 1892
1,681,925	Anderson	Aug. 28, 1928
1,731,692	Weindel	Oct. 15, 1929
2,100,077	Harrison	Nov. 23, 1937
2,380,114	Kurillo	July 10, 1945
2,467,604	Tinnerman et al.	Apr. 19, 1949
2,530,088	Smith	Nov. 14, 1950
2,551,374	Hansen	May 1, 1951
2,602,978	Clark	July 15, 1952