Aug. 11, 1964 F. E. SINDARS 3,144,196

BOX CARRYING HANDLE

Filed July 26, 1962

FIG. 1.

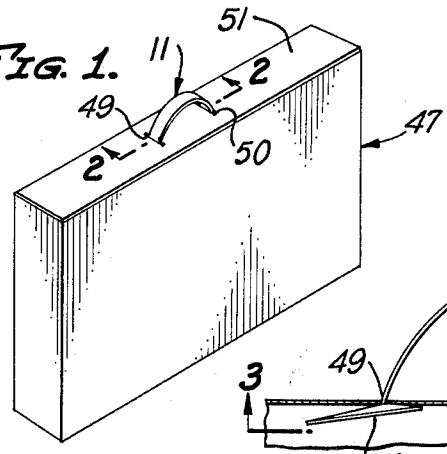


FIG. 10.

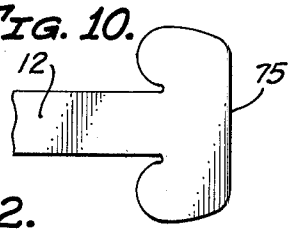


FIG. 2.

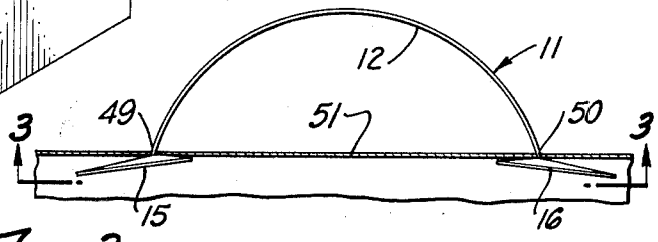


FIG. 3.

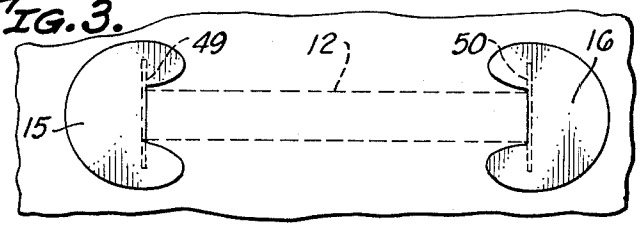


FIG. 5.

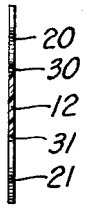


FIG. 4.

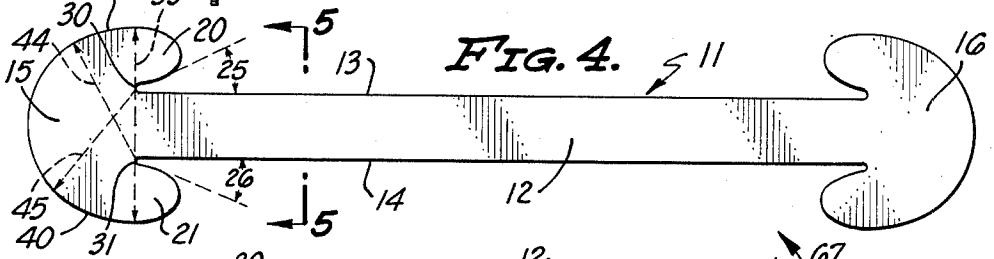


FIG. 6.

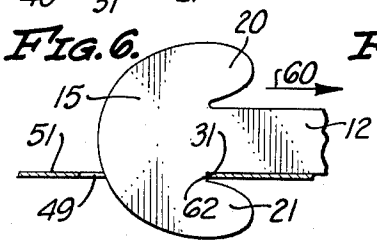


FIG. 8.

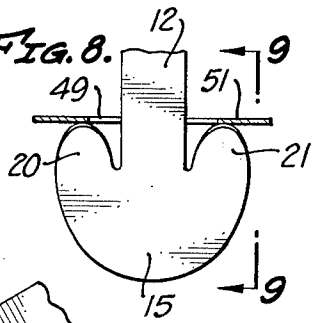


FIG. 9.

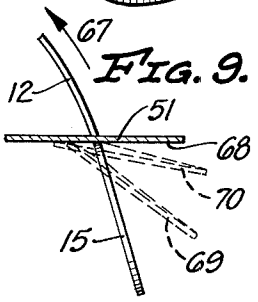
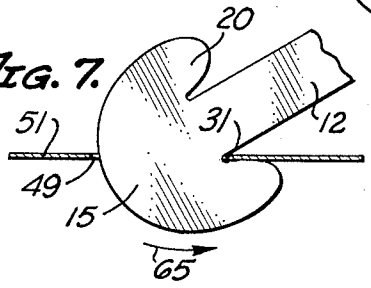


FIG. 7.



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BOX CARRYING HANDLE

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This invention relates to box carrying handles and more particularly to a new type of box carrying handle comprising a single strip of flexible material capable of being fastened to a box by one or more enlargements thereof which lock into one or more corresponding slots in the box.

In the marketing of goods packaged in pressboard or corrugated boxes, it is very desirable to have a carrying handle provided on the box. In modern packaging there is a need for a simple, inexpensive, easily applied, and effective box carrying handle. Such a handle would be of considerable convenience to the consumer in transporting the package. Such a handle would correspondingly increase the sales appeal of the box and the commodity contained therein. However, to date most paper boxes are not provided with handles because the cost of a conventional handle is usually out of proportion with the cost of the box itself.

It is an object of the invention to provide a box carrying handle which may be made from a single strip of flat flexible material. It is a further object to provide a fastening means which is a part of the strip material so that the strip may be secured to a box without the necessity of supplementary conventional fastening devices. Such a box carrying handle is very inexpensive since the additional cost of conventional fasteners and their installation is eliminated.

Another object of the invention is to provide a box carrying handle that has a capacity to hold considerable weight without tearing the material of the box or the handle.

Another object of the invention is to provide a box carrying handle which is convenient to use in that it may be quickly and easily fastened to a box.

Yet another object of the invention is to provide a box carrying handle which is neat and attractive in appearance so as to increase the sales appeal of the box and the commodity therein.

Still another object of the invention is to provide a box carrying handle which can be used to fasten a box in a closed position.

A further object of the invention is to provide a box carrying handle which can be used to fasten two boxes together into a unitized package with the invention providing a handle for the composite package.

Further objects and advantages of the invention will become apparent from the herein-contained description of preferred embodiments of the invention.

Referring to the drawings:

FIG. 1 is a perspective view of the preferred box carrying handle position on a box;

FIG. 2 is an enlarged fragmentary sectional view thereof in loaded position, taken along the line 2—2 of FIG. 1;

FIG. 3 is a fragmentary view taken along the line 3—3 of FIG. 2;

FIG. 4 is a plan view of the preferred box carrying handle;

FIG. 5 is a sectional view thereof taken along the line 5—5 of FIG. 4;

FIGS. 6, 7, 8 are fragmentary sectional views illustrating progressive stages of the insertion of an enlargement of the box carrying handle into a slot;

FIG. 9 is a sectional view taken along line 9—9 of FIG. 8; and

FIG. 10 is a fragmentary view illustrating an alternative enlargement shape.

Referring particularly to FIG. 4, the preferred box carrying handle comprises a normally-flat strip 11 of flexible material, preferably a plastic material such as polyethylene. Other examples of materials which may be utilized include polypropylene, vinyl acetate, copolymers of butadiene and styrene, etc. The proper thickness of the strip 11 should vary in accordance with the particular material selected. In the case of polyethylene, aproximately 1/32" has been found to be a desirable thickness.

The strip 11 is preferably of a shape suggested in FIG. 4 having a body portion 12 with substantially parallel sides 13 and 14 and enlargements 15 and 16 at its respective ends.

In the preferred embodiment enlargement 15 is substantially heart-shaped, providing lobes 20 and 21 located on opposed sides of the body portion 12 and extending toward the enlargement 16. Each lobe 20, 21 should preferably meet the respective side 13, 14 at an acute angle 25, 26 with the apex of each acute angle forming a hinge socket 30, 31 respectively. Segments 39 and 40 of the edge of enlargement 15 are substantially arcuate about hinge sockets 31 and 30 respectively. The maximum width of the enlargement 15 measured along a line transverse to the longitudinal axis of the body portion 12, indicated by the dotted line 35, is substantially greater than the distance between the hinge sockets 30 and 31 and is also substantially greater than the radii of the arcuate segments 39 and 40, indicated respectively by the dotted lines 44 and 45. The shape and relative dimensions of the enlargement 16 should be substantially similar to enlargement 15.

The box carrying handle may be manufactured by manually cutting it out of a large sheet of material to the shape suggested in FIG. 4. Or if it is desired to produce the invention in large quantities at a low unit cost, it may be preferable to punch or stamp it from a large sheet or strip of the material or to employ a suitable press molding process.

In the operative position illustrated in FIG. 1, the box carrying handle is fastened to a box 47 by the enlargements 15 and 16 being inserted into a pair of slots 49 and 50 through a face or flange 51 of the box. Although the slots 49 and 50 may be mere cuts through the face 51, preferably they should be slots of a width substantially equal to or slightly greater than the thickness of the sheet 11.

It is also preferable that the length of each slot be substantially less than the maximum width of the corresponding enlargement, but yet be so related to the other dimensions of the enlargement that the enlargement is capable of insertion into the slot.

A suggested method of insertion of an enlargement into a corresponding slot is as follows. When the strip 11 is in a lateral position the lobe 21 may be inserted into the slot 49. The strip 11 may then be pulled in a longitudinal direction, indicated by arrow 60 in FIG. 6, until the hinge socket 31 comes in contact with an end 62 of slot 49. From this position the enlargement 15 may be angularly displaced in a counterclockwise direction, indicated by arrow 65 in FIG. 7, about hinge socket 31 as an approximate center until the other lobe 20 has passed through the slot 49 as illustrated in FIG. 8. In this connection the radius 44 of the arcuate segment 39 should be approximately equal to or slightly less than the length of the slot 49 in order for the enlargement 15 to be capable of insertion into slot 49 in the hereinbefore described manner. Although it is not imperative that the segment 39 be arcuate, in all instances the maximum distance between the hinge socket 31 and the segment 39 should be about equal to or

slightly less than the length of the slot 49, i.e., this distance should be substantially equal to the slot length.

After an enlargement has been inserted into a slot, it locks therein, fastening the body portion 12 to the box 47. This locking action is due in large part to two features of the invention; i.e., the maximum width of an enlargement being substantially greater than the length of the corresponding slot with the enlargement still capable of insertion into the slot, and the heart-shaped nature of the enlargement comprising the two integral lobes. As the body portion 12 is pulled in a direction away from the face 51, indicated by the arrow 67 in FIG. 9, the lobes 20 and 21 engage an inner surface 68 of the box face 51 and tend to deform out of the plane of the body portion 12 toward the plane of the inner surface 68. The initial deformation is indicated by the dotted line 69. At least a portion of the face of each lobe 20 and 21 will thus be in surface contact with the inner face 68. When the force exerted on the body portion 12 is increased the lobes 20 and 21 tend to deform more toward the plane of the inner surface 68, as indicated by the dotted line 70, causing a greater area of the face of each lobe to come in surface contact with the inner surface 68. In this manner the lobes 20 and 21 form load-distributing pressure pads as the box 47 is suspended from the body portion 12, with this load-distributing feature greatly reducing the possibility of the box face 51 tearing at the slots.

Although a substantially heart-shaped enlargement is preferred and has been found very successful, other enlargement shapes having a similar locking effect can be employed. For example, FIG. 10 illustrates an alternative enlargement wherein an end 75 of the enlargement is substantially straight and transverse to the longitudinal axis of the body portion 12, other dimensional and shape relationships being generally similar to those previously described.

A desirable feature of the invention arises from the fact that it may also be used to fasten a box in a closed position. With a box made of telescoping sections, aligned slots may be cut through the material in each of two overlapping flanges so that an enlargement may be inserted therethrough. Likewise in other types of boxes providing adjacent or overlapping flanges aligned slots can be cut in each. In all such instances the box carrying handle of the invention will serve the additional function of locking the box sections or flanges together and thus fastening the box in a closed position until removal of the handle or cutting of the exposed body portion 12 to sever the adjacent enlargement.

The invention can also be used to fasten two boxes together into a unitized package, with the invention providing a handle for the composite package. This can be accomplished by inserting each enlargement into a slot in a face of each box respectively, so that the body portion connects the two boxes and operates as a handle for the unit. This application of the invention may be very desirable in situations where a commodity is marketed in groups of two.

Although the preferred embodiment of the box carrying handle includes two enlargements, this is not essential since the locking action of a single enlargement can sometimes be used. For example, a suitable box carrying handle could be made by eliminating one enlargement and permitting the box to be carried from the body portion 12 acting as a handle or one enlargement can be grasped as a handle or replaced with a loop or other type of handle. With such an arrangement the slot can be disposed near the center of a box face or near a corner of the box.

It is to be understood that although preferred embodiments of the invention have been presented herein, various changes and modifications can be made without departing from the spirit of the invention as defined in the accompanying claims.

I claim as my invention:

1. In combination with a box having a top face with two spaced slots therethrough transverse to an axis connecting the centers of the slots, each slot being bounded by continuous peripheral walls of said top face maintaining the peripheries of said slots substantially in the plane of said top face, the ends of said slots forming hinge areas, a box-carrying handle having enlarged ends insertable respectively into said slots when disposed laterally of said axis with said handle tipped sidewardly, said enlarged ends locking beneath said top face when said handle is swung to an upright position, said handle comprising a strip of plastic material having a body portion and two enlargements at its respective ends forming said enlarged ends, each enlargement providing two lobes respectively on opposite sides of said body portion and meeting same at an angle with the apex of said angle forming a hinge socket engageable with a hinge area of a corresponding slot when said handle is tipped sidewardly and the lobe adjacent said hinge socket is inserted into such slot, the maximum distance between each hinge socket and the peripheral edge of the lobe on the opposite side of said body portion being substantially equal to the length of the corresponding slot to permit swinging of said handle about the engaged hinge area and hinge socket to upright position to thereby swing the opposite lobe into such corresponding slot to a position beneath said top wall, the maximum width of each enlargement measured along a line through said hinge sockets transverse to the longitudinal axis of said body portion being substantially greater than the length of the corresponding slot.

2. A combination as defined in claim 1 in which each lobe has a peripheral edge portion extending from said line in a direction away from said body portion, said peripheral edge portion being arcuate about the hinge socket of the opposed lobe.

3. A combination as defined in claim 2 in which each lobe has a return portion extending from said line toward the center of said body portion, said return portions being resiliently deformable out of the plane of said body portion and lying below said top face in engagement therewith in the space between said slots when said box is supported by said handle.

4. A combination as defined in claim 3 in which said angle is an acute angle, in which each enlargement is substantially heart shape, and in which the return portion of each lobe has a smoothly curved edge facing toward the center of said body portion with one end of such curved edge being a smooth continuation of said peripheral edge portion of the lobe and its other end forming said acute angle with said body portion and ending at the corresponding hinge socket.

5. A combination as defined in claim 4 in which each hinge socket is bounded by a small-radius curved surface smoothly joining the adjacent edge of said body portion and said curved surface of the adjacent return portion.

6. In combination with a box having a top face and a slot therethrough transverse to an axis lying along said top face, said slot being bounded by continuous peripheral walls of said top face to maintain the peripheries of said slot substantially in the plane of said top face, the ends of said slot forming hinge areas, a box-carrying handle having an enlarged end insertable into said slot when disposed laterally of said axis with said handle tipped sidewardly, said enlarged end locking beneath said top face when said handle is swung to an upright position, said handle comprising a strip of plastic material having a body portion and an enlargement at its end forming said enlarged end, said enlargement providing two lobes respectively on opposite sides of said body portion and meeting same at an acute angle with the apex of said angle forming a hinge socket engageable with a hinge area of said slot when said handle is swung

sidewardly about said axis and the lobe adjacent said hinge socket is inserted into such slot, the maximum distance between each hinge socket and the peripheral edge of the lobe on the opposite side of said body portion being substantially equal to the length of said slot to permit swinging of said handle about the engaged hinge area and the hinge socket to upright position to swing the opposite lobe into said slot to a position beneath said top wall, the maximum width of said enlargement measured along a line joining the opposed hinge sockets being substantially greater than the length of the slot, each lobe having a peripheral edge portion immediately outwardly of said line toward the end of said enlargement, said peripheral edge portion being arcuate about the hinge socket of the opposed lobe, each lobe having a return portion extending from said line toward the center of said body portion, such return portion having a smoothly curved edge one end of which is a smooth continuation of said peripheral edge portion of the lobe and the other end of which forms said acute angle with said body portion and ends at the corresponding hinge socket, said return portions lying below said top face and being resiliently deformable out of the plane of said body portion to form load-distributing pressure pads engaging the inner surface of such top wall when the box is supported by said handle.

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