April 25, 1967 R. H. VANDER JAGT 3,315,876

HANDLE CONSTRUCTION

Filed Oct. 21, 1965

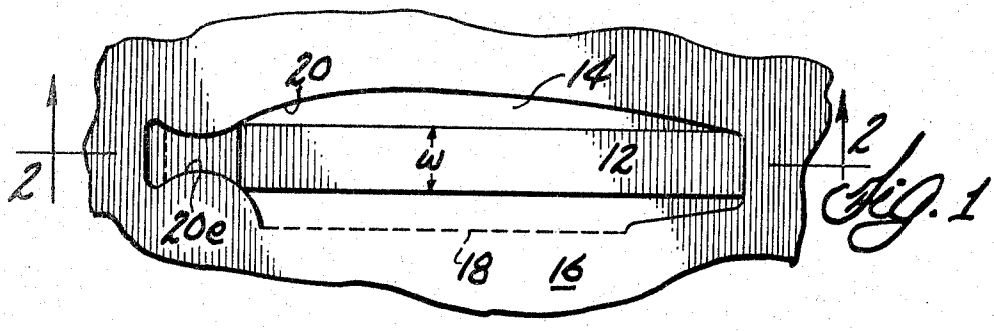


Fig. 1

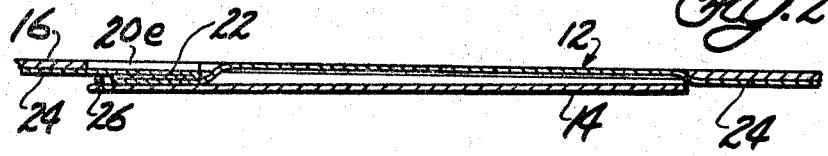


Fig. 2

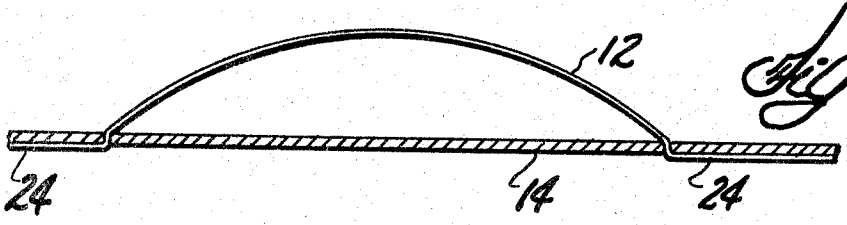
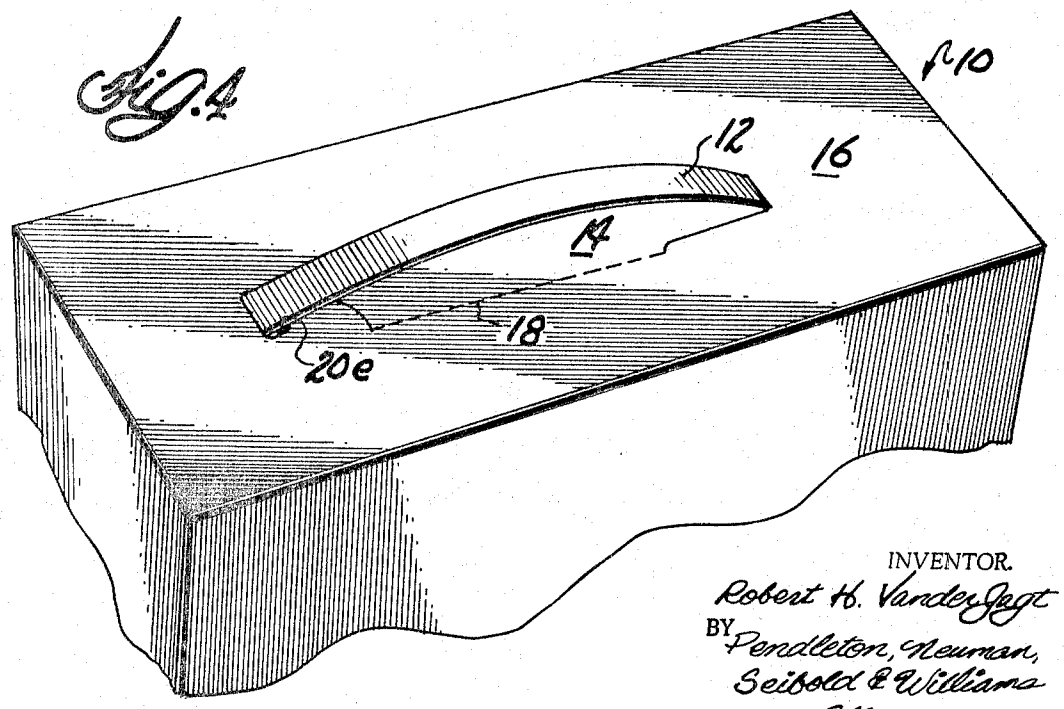


Fig. 3

Fig. 4



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United States Patent Office 3,315,876 Patented Apr. 25, 1967

3,315,876

HANDLE CONSTRUCTION

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Filed Oct. 21, 1965, Ser. No. 499,499
10 Claims. (Cl. 229—52)

This invention relates to a handle construction, and more particularly to a carton blank having a folded handle which is readily rendered operative when the blank is set up.

Handle constructions comprising an integral part of a carton construction are often subject to one or more objectionable features which are of varying degrees of seriousness. Thus, the handle-possessing blank portion of a carton may require special handling or packaging until ready for use. Such special treatment entails expense in form of necessary time and/or materials. In those instances in which adequate special precautions are not taken, the handle portion of the blank is oftentimes either damaged or rendered completely inoperative.

Handle constructions comprising portions of a carton blank often require assembly steps at the side of ultimate use. Even though requiring a minimum of time, such assembly steps may be extremely costly as when the buying public makes numerous individual purchases in a department store or the like during a holiday season. The time and effort necessary to assemble the handle is not only irritating to the sales personnel, but the delay is also annoying to the purchasers who are normally anxious to exit from the location of purchase once the transaction has been consummated.

An obvious desideratum for handle-containing cartons is of course inexpensive construction. A carton construction costing as little as a penny more per unit than competitive constructions creates a significant additional expense when such cartons are used in tremendous numbers as is oftentimes the case.

The handle construction of this invention is readily formed at time of blank formation, requiring a minimum amount of processing time and materials of fabrication. The provided handle merely requires the adhesive securing of a strap portion to a cut blank portion and dispenses with anchor straps and other handle components employed in other known constructions.

It is an object of this invention, therefore, to provide a blank having a handle construction integrally formed therewith which is relatively inexpensive in cost and in no way interferes with normal blank-handling and setting-up procedures.

It is another object of this invention to provide a handle construction integrally formed in a carton blank and which is instantaneously placed in the operative position even by individuals completely unfamiliar with the construction thereof.

It is another object of this invention to provide a handle construction which requires no processing time whatsoever by sales personnel or other persons dispensing the same in order to render the same operative.

The above and other objects of this invention will become more apparent upon proceeding with the following description when read in light of the accompanying drawings and appended claims.

In one embodiment of this invention a blank adapted to be readily set up into a cover for a bottom carton construction, such as is well known for carrying men's suits, has a flap portion punched from an edge panel in which the handle is to be located. The panel is punched so that the flap extends from a hinge connection with the normally hidden surface of the blank when set up.

The punched flap is of a particular configuration so

as to leave a mating opening in the edge panel with a narrow neck portion defining one end of the opening. A handle strap of tough paper or synthetic fibers is secured to opposed blank portions straddling the opening and underlies substantially the central longitudinal axis of the entire opening including the narrow neck portion. The strap is of greater width than the opening neck, but of lesser width than that of the remaining opening portion.

The strap is of a length greater than the opening and is doubled upon itself to form overlying layers or plies beneath the opening neck. When the flap is urged against the strap, the opening neck prevents passage of the overlapping strap portions through the panel openings. The strap portions are thus secured in place by means of the flap and the panel portions defining the flap opening.

When the carton is ready for use, the strap which possesses transverse flexibility is instantaneously pulled through the previously restricting neck of the opening and is ready for immediate use, as will hereinafter be explained in greater detail.

For a more complete understanding of this invention, reference will now be made to the drawings wherein:

FIGURE 1 is a fragmentary top plan view of a blank illustrating one form of handle construction made in accordance with the teachings of this invention in the collapsed position;

FIG. 2 is a sectional view taken along line 2—2 of FIG. 1;

FIG. 3 is a view similar to FIG. 2 illustrating the handle strap portion of a slightly modified construction in an extended position of use; and

FIG. 4 is a fragmentary perspective view illustrating a set-up carton construction employing the handle construction of this invention.

Referring now more particularly to FIG. 4, a set-up carton **10** is illustrated having a carrying or support strap **12**, illustrated in an extended position, whereby the same may be readily manually engaged for transporting the carton **10**. It is intended that the handle construction hereinafter described is to be adapted for use in all carton constructions which may be readily carried by hand, carton **10** being illustrative of such a carton as for instance, a rectangular two-piece box commonly employed for carrying men's suits.

FIGS. 1 and 2 illustrate the strap **12** in a collapsed position. It will be noted from these latter two figures that the strap **12** overlies a flap **14**, readily punched from a handle-supporting panel **16** of a blank which may ultimately set up into the carton **10** of FIG. 4. It will also be seen from FIG. 2 that the flap **14** which is hingedly connected to the panel **16** along foldline **18** (see FIG. 1) is punched so as to pivot downwardly and extend from the surface of blank **16** which is inwardly disposed when set-up into the carton construction **10** of FIG. 4.

It is most clearly seen from FIG. 1 that the flap **14** as well as its mating opening **20** adapted to receive the flap, and formed in the panel **16**, has an end portion **20***e* of reduced width which is less than width *w* of the strap **12**.

Referring to FIG. 2, it will be noted that the portion of the strap **12** disposed beneath the portion of the panel **16** forming the neck **20***e* is doubled upon itself at **22** to form a Z-shaped layer arrangement. It is apparent, therefore, that although the strap **12** in FIGS. 1 and 2 extends in a substantially horizontal plane across the entire width of the opening **20** formed in the panel **16** as a result of the formation of flap **14**, the strap **12** is in fact longer than the length of the opening **20**, as is most apparent from FIGS. 3 and 4 which illustrate the strap **12** in an extended position of use.

In the normal course of handle formation, flap **14** is

punched from the panel **16** and bent downwardly away from the inner surface of the blank **16** enabling opposed longitudinal end limits of the strap **12** to be adhesively or otherwise secured at **24** to spaced portions of the blank **16** which straddle the opening **20**. The strap portion **12** extending over the opening **20** being of a greater length than the opening length is doubled upon itself at **22** to enable the strap to remain in a substantially horizontal position. Since opening portion **20***e* is of a lesser width than strap **12**, the strap is maintained in the retracted horizontal posiiton of FIG. 1 when the flap **14** urges the overlapping strap portions against the portions of the panel **16** defining neck **20***e*, as illustrated in FIGS. 1 and 2. In order to assure retention of the strap **12** and flap **14** in the position of FIGS. 1 and 2 until the strap is ready for use, a spot of adhesive **26** may be applied (see FIG. 2) between the undersurface of the strap **12** and the top surface of flap **14**, as seen in FIG. 2, thereby preventing inadvertent movement of the flap **14** along the hinge line **18**. The resiliency in the flap hinge **18** may render the adhesive unnecessary.

Also, the adhesive may be dispensed with by urging the flap **14** into frictional mating engagement with the panel opening **20**. The friction exerted between the flap and opening peripheral portions will assure retention of the flap and strap in desired horizontal position. Utilizing such frictional retention, the strap portion disposed over the wider opening portion will be forced above the plane **16** while the strap portion beneath neck portion **20***e* will slightly deform the neck-defining portions of the panel in an upwardly direction away from the flap **14**.

When a blank is in the process of shipment and in the process of being set-up, handle constructions such as are illustrated in the drawings will in no way interfere with blank handling or processing. Once the blanks containing the handle structures of FIGS. 1, 2 and 3 are in the set-up condition, as in FIG. 4, all that a user of the handle need do is engage the strap **12** and exert a generally outward pull, such as may be effected in the course of lifting the loaded carton **10** of FIG. 4, at the center of the strap when in the position of FIGS. 1 and 2. A minimum pulling force will rupture the adhesive bond effected by the spot **26**, if present, and allow extension of the strap **12** into the positions of FIGS. 3 and 4. The enlarged central portion of opening **20** facilitates manual engagement with the strap **12**.

It is preferred that the strap **12** be composed of strong paper fibers or synthetic plastic materials which will afford the desired strength necessary to serve as a handle. Such materials should have desired transverse flexibility so that upon outward urging of the strap **12** relative to the underlying flap **14**, the strap **12** will readily flex to a sufficient degree to allow passage through the neck portion **20***e* of the opening **20**. If an exceeding stiff strap material is employed, the blank portions defining neck **20***e* should be readily flexible to permit passage of the strap.

It is believed apparent that even if a purchaser totally unfamiliar with the above-described handle construction is presented with a carton such as carton **10** of FIG. 4, such purchaser would automatically manually engage the strap **12** and in the course of so doing, rupture the bond at **26**, if present, and extend the handle **12** into a desired position of use.

As above noted, if the paperboard material from which the flap **14** is formed is of proper strength and resiliency, such resiliency alone may be adequate along the fold line **18** to retain the overlying layers of the strap **12** against the portions of the panels **16** defining the opening **20***e* without the necessity of employing an adhesive, as at **26** in FIG. 2 or a frictional mating flap engagement as illustrated in FIG. 3.

In certain instances it might be desirable to utilize an adhesive backing or membrane, not shown, which is adapted to be applied to the concealed surface of the carton panel carrying the handle. In such an arrangement, the flap **14** will be held in a position such as shown in FIG. 2 whereby the double-up portion **22** of the strap **12** is sandwiched between the narrow neck segment **20***e* and flap **14**. In such an arrangement the glue spot **26** may be omitted. The backing may of such size as to cover the peripheral portion of the opening formed by flap **14**, and thus seal the panel portion against dirt or other foreign matter finding its way into the interior of the carton which is subsequently set up. In addition the backing may facilitate the handling of the carton blank, carrying the handle, prior to the blank being set up to form a carton. The backing might also reinforce the adhesive bond between the ends of the strap and the panel.

It is believed obvious from the foregoing that a handle construction has been provided which although simple in nature and inexpensive to fabricate functions efficiently when placed in use, although when in the retracted position, it provides no hindrance whatsoever to the normal handling and processing of the blank of which it comprises a part.

While several embodiments of this invention have been described above, further modifications may be made thereto and it is contemplated, therefore, by the appended claims, to cover any such modifications as fall within the true spirit and scope of this invention.

I claim:

1. In a carton blank, a handle construction comprising a handle-supporting panel, a flap formed from said panel and joined to a contiguous panel portion by means of a hinge connection, a support strap secured to opposed panel portions and straddling said flap, said flap being receivable in a mating opening in said panel which is wider than said strap for a major portion of said opening length; said opening having a narrow neck portion of lesser width than said strap at one opening end portion, said flap lying beneath said strap when viewed from the normally outer surface of said handle-supporting panel; said flap being prevented by said strap portion underlying said opening neck portion from moving about said hinge portion into the narrow neck portion of said opening while said strap portion lies beneath said neck portion.

2. The blank of claim **1** in which the portion of said strap lying beneath said opening narrow neck portion is folded upon itself whereby said strap portion disposed along the length of said opening is extensible to a length in excess of the length of said opening.

3. The blank of claim **1** in which an adhesive bond is disposed between said flap and said strap whereby movement of said flap and strap relative to each other is substantially prevented until said bond is broken.

4. The blank of claim **1** in which said strap has sufficient transverse flexibility to be pulled through the narrow neck portion of said opening.

5. In a carton blank, a handle construction comprising a handle-supporting panel, a flap formed from said panel and joined to a contiguous panel portion by means of a hinge connection; elongate, extensible support means secured to opposed panel portions defining the length of the opening mating with said flap and interposed between said flap and said mating opening, said opening having a narrow portion of a width less than that of said support means whereby said flap in the course of moving about said hinge connection into mating engagement with said opening urges said support means against opening-defining portions of said panel; said support means and the panel portion defining said opening narrow portion being sufficiently flexible whereby said support means may be manually pulled through said narrow opening.

6. The blank of claim **5** in which said support means comprises a strap which is folded upon itself beneath the opening narrow portion.

7. In a carton blank, a handle construction comprising a handle-supporting panel, an opening having a narrow portion formed in said panel, strap means traversing said

opening secured at opposed end portions of said opening, said strap means having a transversely flexible portion disposed beneath said opening narrow portion which is of a greater width than said opening narrow portion, and means integrally formed with said panel urging the strap means portion beneath said opening narrow portion into engagement with panel portions defining said narrow portion.

8. In a carton blank, a handle construction comprising a handle-supporting panel, an opening having a narrow portion formed in said panel, strap means traversing said opening secured at opposed end portions to panel portions adjacent opposite end portions of said opening, said strap means portion traversing said opening being of a greater length than that of said opening and having a portion thereof doubled upon itself to form a substantially horizontal strap portion traversing said opening; the strap doubled-up portion being disposed beneath said opening narrow portion and having a width greater than that of said opening narrow portion; and flap means integrally formed with said panel and hingedly connected

to a portion of said blank defining said opening engaging the undersurface of said strap means whereby said strap means is retained in a substantially horizontal plane between said flap and said panel portion containing said opening.

9. The blank of claim **8** in which the resiliency in the flap means hinged connection to said panel urges said strap means against said panel.

10. The blank of claim **8** in which the hinged flap means is punched from said opening and frictionally mates with peripheral portions of said opening whereby said strap means is retained in place.

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