Aug. 6, 1963 A. W. WETMORE ET AL 3,100,046

PACKAGE AND PACKAGING METHOD

Filed July 25, 1960 2 Sheets-Sheet 1

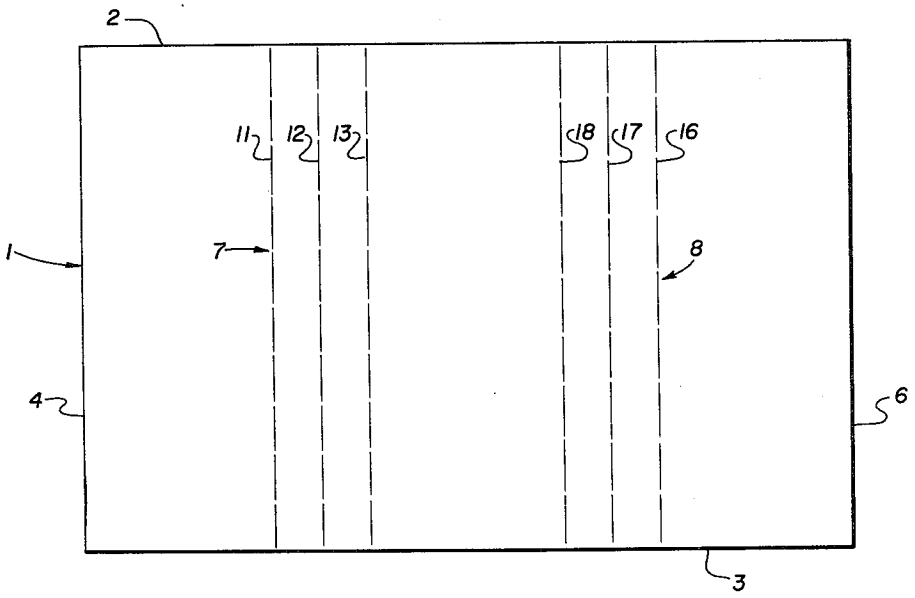


Fig. 1

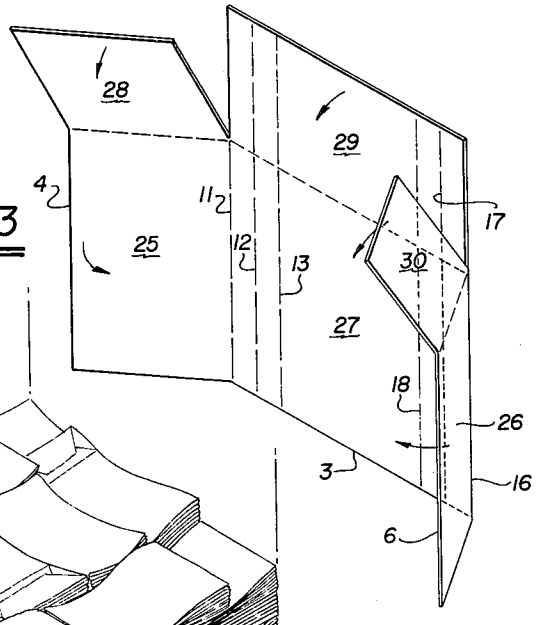
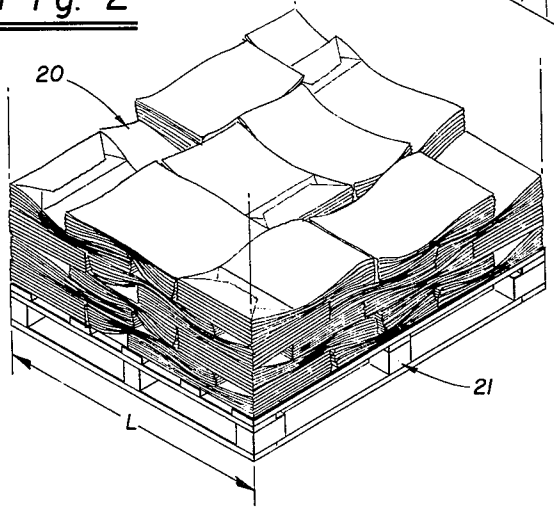


Fig. 3

Fig. 2



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Filed July 25, 1960 2 Sheets-Sheet 2

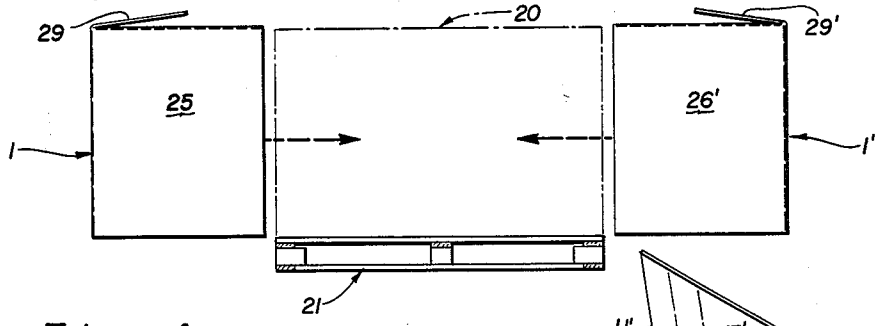


Fig. 4

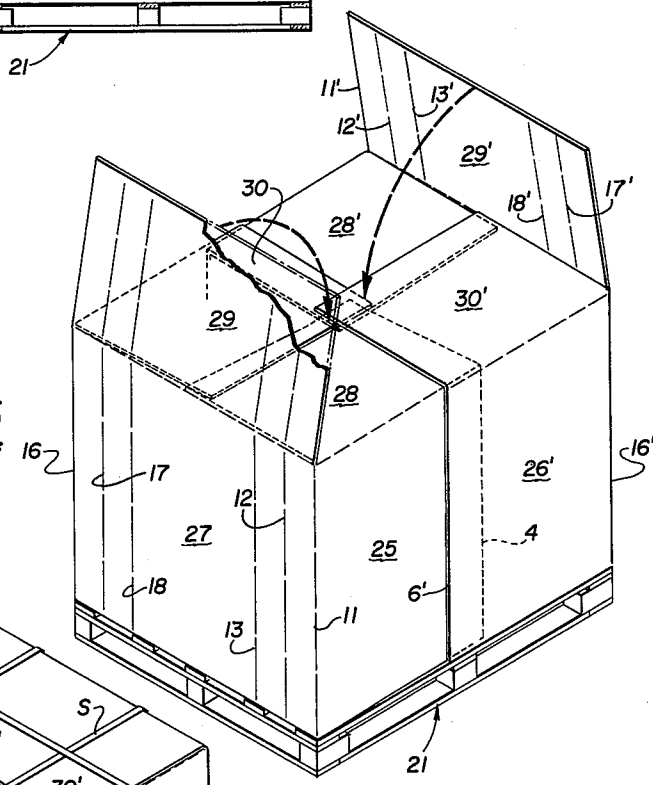


Fig. 5

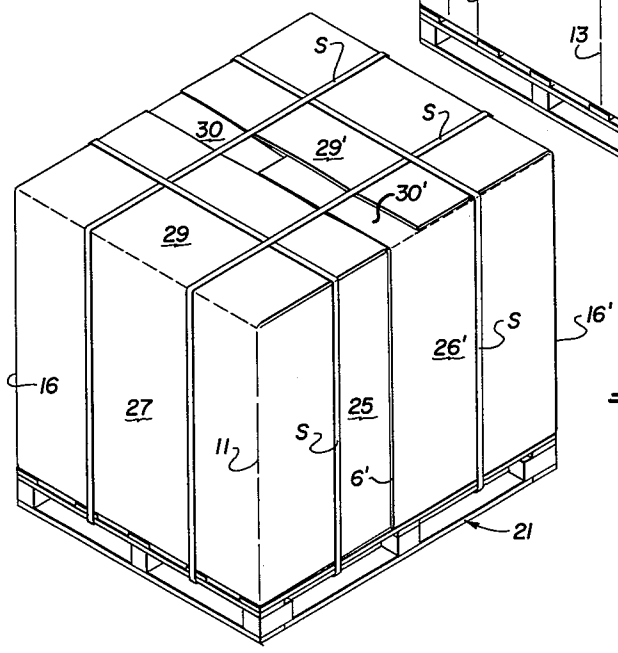


Fig. 6

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PACKAGE AND PACKAGING METHOD

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This invention relates generally to a package and a packaging method, and more particularly to a procedure for protectively covering articles positioned on pallets for transportation and storage and to the protective cover which is produced when such procedure is employed.

It is a well known and common practice to position loads of various articles on wooden or metal supporting pallets for transportation and storage. Generally such loads are bound to the pallets by metal straps or like fastening means to preclude shifting or separation thereof relative to the pallet. Heretofore, such palletized loads have been wrapped or otherwise covered with protective paper or preformed boxes to minimize the likelihood of damage to the articles during transportation and handling.

When the articles on the pallet are of a readily damageable nature, such as paper multiwall bags which are commonly transported and stored in quantity on pallets, it is highly desirable that a sturdy protective covering be employed to preclude damage to the bags. Because such multiwall bags are frequently used to hold bulk commodities, such as cement and other powdery materials, and because such commodities are generally filled into the bags under pressure, the presence of even small punctures in the bag walls, will result in undesirable leakage or sifting of the commodity from the bag during filling or thereafter. As a result, it is highly desirable that palletized loads of damageable articles such as multiwall bags be protected to the greatest possible extent to prevent damage to individual articles. Furthermore, because the size of palletized loads frequently varies, it is highly desirable that a covering is available which will accommodate different size loads.

While hereinafter reference will be directed primarily to a package which comprises a load or mass of paper multiwall bags positioned on a pallet for transportation or storage, it should be understood that this invention is equally well suited for protectively covering various and sundry other articles.

Generally large quantities of multiwall bags are stacked or positioned on a pallet in interlocking fashion so that a generally uniform mass of bags is provided which is substantially rectangular in horizontal cross-section and which is defined by four generally upright vertical walls and a generally flat top surface. Heretofore, because different bag loads frequently are of different sizes, heavy wrapping paper or the like was indiscriminately wrapped and secured around the bags purportedly to protect the same during handling. This method of covering was not only time consuming but was generally unsatisfactory because it failed to provide the amount of protection required for the bags due to the flimsy nature of the wrapping paper.

Additionally, preformed cartons of more sturdy paper board have been used for covering palletized loads heretofore. However, because frequently the dimensions of the load vary from load to load in line with the number of bags or the like stacked on a pallet, and because all pallets are not of the same size, the use of preformed protective cartons also has proved to be generally unacceptable because preformed cartons are not adjustable, which is necessary if the cartons are to accommodate masses of varying dimensions. As a result, if preformed cartons are to be employed, large stocks of such cartons each having varying dimensions must be made available.

This situation results in an expensive carton storage problem.

One further attempt that has been made heretofore to protect palletized loads which have varying dimensions has involved the use of multi-piece preformed cartons which are adjustable to accommodate varying size loads. However, such cartons leave much to be desired because they generally comprise many preformed carton corner sections which are interfittable to provide a complete carton. With such an arrangement because an unnecessarily large number of carton components are required difficulty in making up a carton is encountered. Also, a storage problem for the respective preformed components also results.

For the foregoing reasons, it is highly desirable that a uniform package and packaging method be devised which would adequately protect a load of bags during palletized handling irrespective of the size of the load. The present invention relates to an adjustable multi-use package and packaging method which employs only two cooperable parts to effect a protective covering for the four sides and top of a palletized load. Such protective cover is of extremely simple nature because the components thereof are flat bendable sheets. Because such sheets are flat and not preformed, the storage problem noted previously is greatly obviated with this development.

Accordingly, the subject invention has as its objects, among others, the provision of a simple, readily formable and adjustable package, and the provision of a packaging method by means of which masses of varying sizes can be readily protectively covered.

Other objects of the present invention will become apparent to one skilled in the art from a study of the following description.

In general this invention relates to and involves use of a pair of flat sheets of stiff, sturdy yet bendable sheet material, such as corrugated paperboard or the like, to provide a protective covering for a palletized load. The sheets are to be folded and cut on the job and are to be interfitted with each other to provide a protective covering for a palletized load irrespective of the size of the load, within reasonable limits.

Each of the bendable sheets is of generally rectangular configuration and is provided with two series of spaced preformed fold lines which extend in generally parallel relationship between opposite side edges of the sheet. Each series comprises a plurality of discrete spaced fold lines. As will be described, each of the fold lines provides a predetermined location extending across the sheet along which the sheet may be readily and easily bent on the job when the sheet is employed in providing a protective packaging cover.

Each sheet is to be folded on the job in accordance with the particular dimensions of the palletized load to be covered. In addition, each sheet is to be slit from an edge thereof to provide a plurality of flaps which are to be folded over the top of the mass being covered to protect the same.

By telescopically and partially overlapping various sections of the respective sheets and the flaps formed therewith, the four sides and top of a palletized load may be completely covered and protected against damage. Desirably when the pair of sheets thus slit and folded are positioned around the load, the same is held in place therearound by a series of metal straps or other suitable types of bindings to preclude separation of the protective covering from the load and to preclude shifting of the load relative to the supporting pallet.

Because palletized loads of varying sizes and dimensions may be readily covered on the job with this invention, the need for stocking large quantities of preformed complete or partial containers is precluded.

Reference is directed to the accompanying drawings for an illustration of the subject packaging sheets and packaging methods.

FIG. 1 is a plan view of one of the flat sheets employed illustrating the spaced series of preformed fold lines extending thereacross.

FIG. 2 is an isometric view of a palletized load of paper bags which is to be protectively covered by the subject invention.

FIG. 3 is a more or less schematic view illustrating the manner in which a sheet of this invention may be folded and slit along a pair of predetermined fold lines to provide one-half of the protective covering.

FIG. 4 is a generally schematic view illustrating the manner in which a pair of folded and slit sheets may be positioned around the palletized load.

FIG. 5 is an isometric view which illustrates the protective sheets telescopically arranged to provide a protective cover.

FIG. 6 is an isometric view of the protected palletized load with fastening strap means extending therearound.

FIG. 1 shows one sheet to be employed in this invention. Such sheet **1** is of flat generally rectangular configuration. Only one sheet will be specifically described hereinafter but it should be understood that both sheets are substantially identical in construction.

Sheet **1** is defined by a pair of first parallel side edges **2** and **3** which are generally longer than and extend normal to a pair of second parallel side edges **4** and **6**. Extending between the longer edges are two spaced series of preformed fold lines **7** and **8**. Each fold line series comprises a plurality of spaced fold lines each of which extends generally parallel to the other lines in both series. In the embodiment illustrated three such lines are provided in each series but it should be understood that more or less than three lines could equally well be employed. For descriptive purposes, the lines of series **7** are identified as **11**, **12** and **13** while the lines of series **8** are identified as **16**, **17** and **18**.

While generally the fold lines for their intended purpose are suitable if the same are merely scored in a conventional manner in a surface of the sheet, because the sheet is intended to be slit from an edge thereof along the lines, if desired the lines may be of the cut-score type or may otherwise be weakened to facilitate the slitting operation. Desirably, however, it is preferred that the strength of the board not be impaired by cutting through the same.

While, as noted previously, pallets are available in various sizes, generally such pallets fall within several groups having standardized dimensions. Accordingly, the spacing between the series of fold lines and the spacing between the respective fold lines of each series of the protective covering sheets will be determined to a large extent by the dimensions of the pallets of the various groups with which the sheets are most likely to be employed. For example, and merely by way of illustration, it has been found that a suitable sheet usable with many pallet constructions may be provided with the inner fold lines **13** and **18** of each series spaced approximately 40 inches apart, while the respective fold lines of each series may be spaced from each other a distance of approximately 2 inches. The distance from the outermost fold lines **11** and **16** of the fold line series to the respective adjacent side edges of the sheet may vary as required as may the distance between the opposite longer side edges **2** and **3** thereof. In this latter regard, the overall length of the sheet and the overall width thereof will be determined in line with the average pallet length and average height of the load contemplated to be covered. By way of one specific illustration, however, such overall length may be approximately 128 inches while the overall width may be approximately 72 inches.

At this stage, it should be understood that each sheet which comprises the subject protective covering is intended to be folded into a generally U-shaped configuration and is to be slit a predetermined distance inwardly from an edge in the manner schematically shown in FIG. 3 to form two corners and half of the top of the protective covering.

Referring now to FIG. 2, it will be noted that the subject invention is well suited for covering a load **20**, such as a plurality of stacked and interfitted multiwall paper bags, positioned on a wooden or like pallet **21**. The bags are arranged in a mass which has a generally rectangular cross-section conforming generally to the lateral and longitudinal dimensions of the pallet. The top surface of the mass is generally flat.

Again referring to FIG. 3, it will be noted that each sheet is to be folded along a predetermined pair of fold lines the spacing between which is determined by the lateral dimension L of the pallet and the width of the mass positioned thereon (FIG. 2) into a generally U-shape defined by two sheet end sections **25** and **26** which extend generally normal to a central sheet section **27**. When the sheet subsequently is slit along such predetermined fold lines, three bendable flaps **28**, **29** and **30** are provided which are to be folded over the top surface of the pallet load to cover the same.

The manner in which the two folded and slit sheets are positioned around the load is schematically illustrated in FIG. 4. In this connection, and with reference to FIGS. 5 and 6 as well, sections and flaps of the second sheet which are similar to the above described sections and flaps of the first sheet are identified in the drawings by similar reference numerals primed.

As seen in FIG. 5, the two folded and slitted sheets are positioned around the palletized load so that the end sections of the U-shaped sheets partially overlap and are arranged in telescoped relationship relative to each other while the three flaps adjacent the top edge of each sheet are folded inwardly and downwardly and interfitted with each other to completely cover the top surface of the load. It should be apparent that the amount of overlap between the respective sheet sections and flaps will be determined by the size of the palletized load. If desired the overlapped seams could be taped but such action is not necessary.

With the cover structure disclosed the entire top surface and the four substantially vertical sides of the generally rectangular mass are completely covered and protected. After the two sheets have been positioned around the mass, the sheets and the mass may be subjected to downwardly directed pressure by any suitable mechanical or manual means to compress the load if the same is of a compressible nature, such as a quantity of bags, to insure a compact palletized load when the load is secured to the pallet.

In this connection, desirably a plurality of metal straps S are extended around the covering sheets and the load and beneath the pallet (FIG. 6) to maintain the sheets around the load and to maintain the load securely on the pallet for handling in the well known manner. If the pallet is of two tiered wooden construction as shown in the drawings, the straps S desirably are extended between the upper and lower tiers thereof. However, in other types of pallets the straps obviously could be positioned beneath the pallet if so desired.

If desired, means to preclude damage to the load may be positioned beneath the straps to prevent the same from cutting into the load. In this conection halves of paperboard tubes (not shown) have been found suitable for this purpose.

From the foregoing, it should be understood that only two bendable sheets of the type described are employed for providing a protective covering which is adjustably formable in all three dimensions, i.e. height, width and length, so as to be usuable on the job for covering palletized loads of various dimensions whereby the need for stocking large quantities of preformed containers is precluded. To effect such a protective covering with the

two preformed sheets, it merely is necessary to determine the width of the pallet and its supported load and to bend the sheets into generally U-shape along two predetermined fold lines the spacing between which is determined by such width. In this connection, with the sheets illustrated, which include six fold lines in two series, the sheets may be folded along lines in various combinations to accommodate loads of five different widths.

When the sheets have thus been folded, it is merely necessary to slit the sheets from their upper edges a distance determined by the height of the mass on the pallet to provide the three bendable flaps described for protecting the top of the load. Each sheet is slit from one edge thereof to a predetermined location determined by the height of the load. That is, the bottom portion of the sheet is retained intact and unslitted for a distance from its opposite edge substantially equal to the height of the mass positioned on the pallet.

The slitting of the sheets may be effected in any suitable manner such as by employing a hand knife or the like. Alternatively, as mentioned previously, the fold lines may be of the cut-score type. In this latter regard, the sheets would be tearable by the person positioning the same around the load so that the use of the cutting blade would be unnecessary.

While one embodiment of this invention has been disclosed, it should be understood that modifications which become apparent to one having skill in the art are contemplated as falling within the purview of the invention and the same should be interpreted in light of the appended claims.

We claim:

1. A palletized package comprising a supporting pallet, a mass which is generally rectangular in horizontal cross-section positioned on and supported by said pallet, protective covering structure surrounding said mass on its four sides and its top, and means maintaining said mass on said pallet and said covering structure around said mass; said covering structure comprising a pair of sheets of bendable material each of which has a plurality of generally parallel preformed fold lines extending between opposite edges thereof, each sheet including a portion of generally U-shape comprising three sections defined by a predetermined pair of said fold lines, two of said sections extending generally normal to the third, each of said sheets including a pair of slits which extend inwardly from one of said edges along said predetermined pair of fold lines a distance determined by the height of said mass, said slits providing three bendable flaps in each sheet adjacent such edge thereof, said sheets being arranged around said mass in partially overlapping telescopic relationship with the respective sections of said sheets engaging and covering the four sides of said mass and with the respective flaps of said sheets overlying and covering the top of said mass.

2. For use in providing an adjustable protective covering for a palletized mass which is defined by four sides and a top, a generally rectangular flat sheet of bendable material, said sheet in its flat condition being free of cuts and folds and having two spaced series of preformed fold lines which extend thereacross between opposite edges thereof, each of said series comprising a plurality of said fold lines each of which extends generally parallel to the other lines of each series, said sheet being foldable along a predetermined pair of said lines determined by the transverse dimension of said mass so that said sheet will cover fully one side of said mass and will partially cover the other opposite sides of said mass when said sheet is engaged therewith, said sheet being slittable along said predetermined fold lines from one edge thereof a distance determined by the height of said mass to provide three flaps which are foldable over the top of said mass to cover at least partially the same, said sheet being usable in partially overlapping telescoped fashion with only one other similar sheet to provide said protective covering for said mass which overlies and covers said mass on its four sides and top.

3. In combination, a cooperating pair of bendable sheets of paperboard or like material for providing a partially overlapped telescoped protective covering for a palletized mass which is generally rectangular in horizontal cross-section, each of said sheets comprising three sections defined by a pair of spaced fold lines, two of said sections of each sheet extending generally normal to the third, the distance between said fold lines of each sheet being substantially equal to the transverse dimension of a pair of opposite sides of such mass whereby the third sections of said sheets will cover such sides of such mass when the other two sections thereof are positioned to cover in at least partially telescopic fashion other opposite sides of said mass when said sheets are positioned therearound, each of said sheets having slits extending inwardly from an edge thereof along said fold lines a predetermined distance determined by the height of said mass whereby three foldable flaps are provided, the flaps of each sheet being arranged in overlapping fashion and being cooperable with each other in covering the top of such mass when said sheets are positioned therearound, said sheets being employable for covering masses of various and varied dimensions upon folding the same along lines the spacing between which is determined by the transverse dimension of said mass and upon slitting the same along such lines a distance determined by the height of said mass.

4. In combination with a transporting pallet, a mass of material which is generally rectangular in horizontal cross-section secured to said pallet for transportation, said mass having four generally vertical sides extending upwards from said pallet and a substantially flat top, an adjustable protective cover surrounding said mass on its four sides and top, and strap means extending around said cover and said mass and beneath said pallet and maintaining said cover about said mass and said mass on said pallet; said protective cover comprising only two bendable one piece paperboard or like sheets arranged in partially overlapped telescopic relationship about said mass, each of said sheets comprising a lower portion which includes three sections defined by a pair of a plurality of predetermined spaced lines, the spacing between such pair of lines being determined by the transverse dimension of a first pair of opposite sides of said mass, each of said sheets including a pair of slits which extend inwardly along said pair of predetermined lines a distance from an edge thereof determined by the height of said mass whereby three foldable flaps are provided on each sheet, said sheets extending about said mass with the flaps thereof interfitted with each other and covering the top of said mass and with the respective sections thereof engaging and covering the four sides of said mass, pairs of certain of said sheet sections partially overlapping each other and cooperating in covering a pair of opposite sides of said mass.

5. A palletized package combination comprising a generally rectangular supporting pallet, a mass supported on said pallet which is defined by two opposite pairs of generally vertical sides, a bottom, and a generally flat top and which is generally rectangular in horizontal cross-section, a cover structure surrounding said mass on its four sides and top and being free of engagement with the bottom of said mass, and a plurality of straps positioned beneath said pallet and around said cover structure and engaged therewith, said straps maintaining said cover structure around said mass and said mass on said pallet whereby said pallet and said mass may be transported as a compact unit; said cover structure consisting of two sheets of sturdy bendable material; each of said sheets comprising a lower U-shaped portion which is free of slits and which is defined by three angularly related hingedly connected sections two of which extend generally parallel to each other and normal to the third, and an upper portion comprising three overlapping flaps defined by

a pair of slits extending into said sheet from an edge thereof; said sheets extending around said mass with said parallel lower sections overlapping each other and cooperably covering a first pair of opposite sides of said mass, and with said third lower sections engaged with and covering the other pair of opposite sides of said mass, said flaps of said sheets overlying and covering the top of said mass in interfitting fashion, whereby said two sheets of said cover structure completely cover said mass on its top and four sides.

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