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(54) **Stretchable cover for receptacles**

(57) A cover (7) for a receptacle (1) comprising a flexible plastics sheet (8) which has first and second opposed longitudinal edges (9), said edges being folded onto at least a portion of the sheet (8) and held in a folded con-

dition by seals (13) formed across the corners (14) of the folded edges such that when the edges are held substantially at right angles from the sheet, the cover forms a shallow tray which is stretchable over the open top of the receptacle.

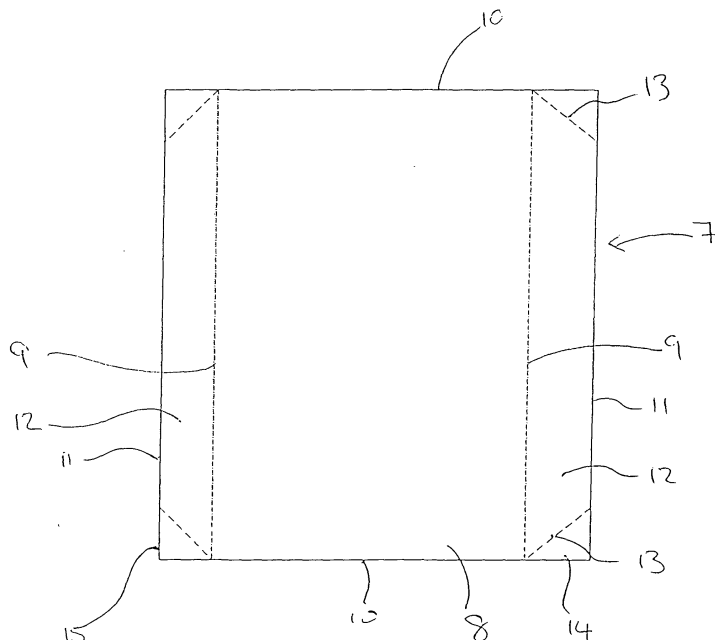


Figure 2

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Description

[0001] This invention relates to a cover for a receptacle and, more particularly, to a temporary cover for use on food bins particularly whilst transporting raw or unprocessed food from one location to another in order to limit the risk of contamination of the food products.

[0002] In the food production industry, the ingredients used in making the food product such as for example raw and unprocessed food, are generally stored within the food processing plant and moved from one location within the plant to another as the ingredients are required. The ingredients are generally stored within large receptacles which are often referred to as food bins. It is imperative that the integrity of the ingredients are preserved during this operation and care must be taken to ensure that the ingredients do not become contaminated with air-borne contaminants and also that nothing is allowed to fall into the bins from any of the processing operations being carried out in the processing plant.

[0003] Furthermore, many hotel and restaurant facilities receive bulk deliveries of raw or unprocessed foods such as meat or poultry on a daily basis in order to cater for the demand in their food outlets. These food products are generally delivered to the establishment in specially adapted vehicles which include refrigeration means to keep the food products at a safe temperature to prevent contamination of the food for example by air-borne micro organisms or insects.

[0004] Once the vehicle reaches its destination, the food products must then be transferred from the refrigeration means. It will be appreciated that in order to maintain a high level of hygiene in kitchen facilities in hotels and restaurants, the delivery access area for vehicles should not be adjacent the cooking or storage areas. However, this presents problems in how to transfer the raw or unprocessed food from the refrigerated vehicle to the kitchen for immediate processing or alternatively, to a storage area in the hotel or restaurant which is normally located close to the actual cooking area.

[0005] Once the food products have been transferred into the bin from the refrigerated vehicle, the bin is then taken to the desired location within the hotel or restaurant. This can involve the bin being pushed or pulled through a car park, corridor or service lift before the bin arrives at the food processing area.

[0006] The food bins used in these facilities, comprise a metal or plastics box with an open top. The sides of the bin may slope slightly from the open top to the bottom of the bin. A lip is provided around the open top. The bins are generally provided with wheels on the under side of the bottom of the bin to allow the bin to be manually pushed or pulled to the desired location. Depending upon the size of the bin, a braking means may be provided to allow the user to park the bin in position whilst loading or unloading is in progress.

[0007] Care must be taken to ensure that contamination of the food is avoided during this transfer period and

this has been addressed by providing a plastic shroud for the bin which is placed over the open end of the bin and progressively fed down the walls of the bin to the floor. Whilst this has gone some way to addressing the problem, such a shroud has introduced further problems in that the shroud must be carefully fed down the walls of the bin taking care not to rip the shroud which can lead to loss of integrity of the cover. Furthermore, once the cover is placed over the bin it reaches all the way to the floor and if it comes into contact with the ground this also leads to a further opportunity for contamination. This is particularly relevant when the bin is being transported through areas such as car parks for example. Also, the cover can become trapped under the wheels of the bin or around the braking means which can also lead to dirt being transferred from the ground to the shroud and from there onto the food in the bin or can lead to rupture of the shroud which also can lead to contamination of the food within the bin.

[0008] Once the bin is covered by the shroud, the bin is transported to its required location. This is generally done by the user gripping the bin along the lip around the top surface and pushing or pulling the bin. Alternatively, a foot plate may be provided adjacent to the bottom of the bin to enable the user to apply additional control to the steering of the bin. As the shroud sits over the bin, this can lead to the shroud becoming displaced, coming into contact with the foot of the user and either trailing on the ground or becoming tangled with the wheels. In each case, the integrity of the shroud is compromised.

[0009] The shroud may be used several times over different transfer operations and in each case, the same problems are faced. Indeed, with each transfer the problems increase as the shroud is removed from one bin and placed over another as any dirt which has been picked up by the shroud is then transferred onto the second and subsequent bins.

[0010] It has also been proposed to use a loose rigid cover similar to an upturned tray which may be formed in plastics or of metal. Such a rigid cover however requires cleaning after use and as it is only loosely mounted on top of the food bin it may be separated from the bin during transportation through a food processing facility. Furthermore, each time access to the bin is required to remove food products, the loose rigid cover must be removed and is often placed on the floor and then returned to the top of the bin once the required food products have been removed. This can increase the risk of contamination of food products remaining in the bin. The loose trays may also become damaged through use and unless they are inspected regularly this can also lead to further risk of contamination during use.

[0011] It is an object of the present invention to provide a cover for a receptacle such as a food bin which addresses the problems of contamination of the food products within the bin particularly during transfer of the food within a food processing facility or from a delivery vehicle to a food processing or storage area within a hotel or

restaurant. Furthermore, it is an object of the present invention to provide a single use, disposable cover for a food bin which is economic to produce and limits the amount of material required to cover the bin to prevent contamination.

[0012] It is a still further object of the present invention to provide a cover for a food bin which allows the user to direct the bin without compromising the integrity of the cover.

[0013] According to one aspect of the present invention there is provided a cover for a receptacle, which is preferably a food bin used for transporting raw or unprocessed foods from one location to another, which cover comprises a plastics sheet which has first and second opposed longitudinal edges, said edges being folded on to at least a portion of the sheet and held in a folded condition by seals formed diagonally across the corners of the folded edges such that when the edges are held substantially at right angles from the sheet, the cover forms a shallow tray which extends over the open top of the receptacle.

[0014] Preferably the shallow tray formed by the plastics sheet is slightly smaller in size than the open end of the receptacle such that in use the tray is stretched over the receptacle to ensure that it is held securely in position.

[0015] Preferably, integral handles are provided at the corners of the sheet adjacent the seals. The handles allow the cover to be easily handled when the cover is being placed onto the bin and also when it is being removed without compromising the integrity of the food products in the bin.

[0016] Advantageously the seals are provided by weld lines through the sheet and the folded edges.

[0017] Advantageously the sheet is transparent. This allows the user to see through the cover in order to check the contents of the bin without having to lift the cover and this reduces the risk of contamination of the food products within the bin.

[0018] Preferably the weld lines are provided at 45 degrees across the corners of the sheet.

[0019] Advantageously, each folded edge overlies about 15-20% of the sheet. This ensures that the sides of the cover only extend around the top edge of the bin in use and avoids any potential contamination problems with the cover coming into contact with the ground or the wheels or braking system of the bin.

[0020] Conveniently, the plastics sheet is formed of polyethylene film. Such material allows the cover to be stretched over the open top of the food bin to provide an effective seal over the bin.

[0021] According to a second aspect of the present invention there is provided a process for forming plastics covers for use on receptacles such as food bins used in the transporting of foods from one location to another, the process comprising the steps of providing a plastics sheet having the longitudinal edges folded onto at least a portion of the sheet, applying a sealing means on the folded edge of the sheet to provide two diagonal seals

across the fold; perforating the sheet across the width of the sheet between the two seals and providing a seal across the width of the cover on either side of the perforation.

5 **[0022]** Preferably the seal is made by a triangular sealing head.

[0023] Advantageously the sealing means provides a heat seal to form a weld across the folded portion of the sheet.

10 **[0024]** In accordance with one aspect of the present invention, the part of the folded portion of the sheet which is external to the seal may be removed either by the sealing means or may alternatively be removed during further processing of the sheet.

15 **[0025]** Embodiments of the present invention will now be described by way of example with reference to the accompanying drawings in which:

20 Figure 1 is a schematic view of a food bin for use in transporting food;

25 Figure 2 is a schematic view of a cover according to one aspect of the present invention for the bin of Figure 1;

Figure 3 is a schematic view of the cover of Figure 2 being placed over the top of the food bin of Figure 1;

30 Figure 4 is a schematic view of the cover of Figure 2 in place, and

35 Figure 5 is a schematic view of a process according to a second aspect of the present invention for forming the cover of Figure 2.

40 **[0026]** Turning now to the figures, there is shown in Figure 1 a food bin 1 of the kind previously described in relation to transporting of raw and unprocessed foods from one location to another within a food processing facility or alternatively from a refrigerated vehicle to a cooking or storage area within a hotel or restaurant. The food bin 1 may be formed of a metal or plastics material. The bin as shown is generally square in configuration and may be rectangular. The bin has four generally rectangular walls 2 with an open top 3 to form a receptacle to receive food products. The top of the bin is provided with an outwardly extending lip 4 which extends around the open top of the bin. The walls 2 of the bin may slope slightly from the top of the bin to the bottom such that the open top 3 of the bin is slightly larger in area than the bottom of the bin. The bin is provided with means to allow the bin to be easily moved from one location to another. In Figure 1 a single wheel 5 is shown on the bottom of the bin although additional wheels may be provided as required. This may depend upon the size of the bin. Additional, braking means (not shown) may also be provided on the bottom of the bin to allow the bin to be held securely in one position whilst the bin is loaded or un-

loaded with food products. In some cases, a foot plate 6 such as that shown in Figure 4 may be provided to allow additional control of the bin whilst in transit.

[0027] A cover 7 for the bin of Figure 1 is shown in Figure 2. The cover comprises a plastics film sheet 8 such as for example polyethylene. The sheet is substantially rectangular in configuration with opposed longitudinal edges 9 and opposed ends 10.

[0028] The edges 9 of the sheet are folded onto the sheet 8 about a fold 11 such that about 15-20% of each edge overlies the sheet to provide an overlying section 12. An angle seal 13 is provided across the corner 14 of the folded portion of the sheet. The angle seal 13 is preferably provided at about 45 degrees from the fold 11 of the sheet 8 to the end 10 of the sheet.

[0029] In the embodiment shown in Figure 2, an integral handle 15 is provided by the sheet material formed outside of the angle seal 13 between the fold 11 and the end 10 of the sheet. The function of the handle will be discussed further below.

[0030] In use, and as shown in Figure 3, the cover 7 is provided over the open top 3 of the food bin as will now be described. After raw or unprocessed food is placed into the food bin 1, one end 10 of the cover 7 is placed over the lip 4 which acts to retain the cover in position on the bin whilst the remainder of the cover is put in place. The cover 7 is stretched over the top of the bin such that the overlying sections 12 of the cover open and the opposed ends 10 of the cover are drawn together by the angle seals 13 to form a shallow tray which can be pulled over the open top 3 of the bin. When the second opposed end 10 of the cover is placed over the lip 4 of the bin this holds the cover in place. The handles 15 can be used to pull the cover firmly into position on top of the bin.

[0031] The cover is now fully in place on the bin as shown in Figure 4. It is clear that the overlying sections 12 of the sheet and the opposed ends 10 of the sheet 8 which form the sides of the shallow tray in use, only extend down over a substantially small part of the wall area of the bin in does not have to be fed down over the walls 2 of the bin as with prior art covers. Furthermore, as the cover 7 of the present invention can not come into contact with the ground, the wheels 5 of the bin or the user's foot when using the foot plate 6, this acts to further reduce the risks of contamination of the food in the bin during transport.

[0032] As the cover 7 is formed by a plastics film material which is stretched over the open top of the bin 3, this ensures that the cover provides a close fit with the top of the bin and prevents the cover from moving during transport of the bin which further reduces the risk of contamination.

[0033] When the bin reaches the desired location unloading of the bin takes place, the cover 7 can be simply removed from the open top 3 of the bin by gripping the handles 15 and pulling the cover 7 over the lip 4 of the bin. The cover can then be discarded to ensure that there is no carryover contamination between transport opera-

tions. As the cover 7 only extends over the top portion of the walls of the bin, and therefore minimum material is used for each cover, disposing of the cover after use does not lead to a substantial loss of material or increased operational costs. Indeed, the costs are reduced as less material is required to form the cover 7 of the present invention than with covers as previously known.

[0034] The preferred method of making the cover 7 as illustrated in the drawings will now be described with reference to the schematic diagram shown in Figure 5 using the same reference numerals where possible. A plastics film sheet 8 such as for example polyethylene which is the preferred material for the covers is prepared by folding the longitudinal edges 9 of the sheet about a fold 11 such that both sides of the sheet overlie at least a portion of the sheet. The material is then wound onto a reel 20.

[0035] The reel holding the folded film sheet may then be fed through a series of rollers 21 which can for example place the sheet under tension or provide further preprocessing steps which are not considered essential to the present invention. The folded sheet 8 is then passed from the reel through a processing station 22 in which substantially triangular shaped heat sealing heads 23 press down upon the flat sheet 8, one on either side of the sheet. As shown in Figure 5, this puts two diagonal heat seals 13 into the overlying portion 12 of the sheet. The distance between the two triangular heat sealing heads 23 may be adjusted in order to lengthen or shorten the heat seals 13 formed on the sheet but it is preferable that the heat seal is formed from the fold 10 of the sheet across the overlying portion 12.

[0036] As the heat seals are being made, a perforation 24 may also be made along the width of the sheet between the two sets of heat seals 13 on either side of the sheet by a known perforating head.

[0037] The triangular heat sealing heads 23 may be set to form seals 13 in the overlying portions 12 of the sheet at any required separation along the length of the sheet.

[0038] Once the seals 13 are made, the sheet passes through a further series of rollers 25 to maintain the tension in the sheet and through a further sealing station 26 where a heat seal 27 is formed along the width of the sheet on either side of the perforation 24. This gives additional strength to the sheet in the areas of the overlying portions 12 in the area where the diagonal seal 13 meets the end 10 of the cover.

[0039] The sheet is then wound onto a take off reel from which it can be unloaded as required.

[0040] Individual covers 7 can be removed from the reel by separating the covers along the perforation 24. It is envisaged that the covers may be packaged individually or alternatively may be provided on a roll from which the user can remove a cover as and when required.

[0041] When the covers are to be used in the transportation of foodstuffs, it is envisaged that the covers will be formed of a plastics film material which has been coloured blue to ensure that the covers are highly visible

and to ensure that when they are discarded, this is done in a safe and hygienic manner.

[0042] The present invention provides for covers for receptacles, particularly food bins for transporting raw or unprocessed foods from one location to another whilst limiting the risk of contamination of the foods within the bin. The covers are both economic to produce and also to use and can be easily placed over the open top of the bin without having to extend over the entire sides of the bin thereby further reducing the risks of contamination.

[0043] Whilst the covers have been specifically described for use in covering receptacles intended to hold food products, it is envisaged that the cover may also be used with receptacles holding other items such as surgical instruments intended to be used in a hospital or health centre for example. Such a cover may be used to protect sterilised instruments or alternatively to cover used or discarded items during transport from one location to another.

Claims

1. A cover for a receptacle comprising a flexible plastics sheet which has first and second opposed longitudinal edges, said edges being folded onto at least a portion of the sheet and held in a folded condition by seals formed across the corners of the folded edges such that when the edges are held substantially at right angles from the sheet, the cover forms a shallow tray which is stretchable over the open top of the receptacle.
2. A cover according to either claim 1, wherein handles are provided at the corners of the sheet adjacent the seals.
3. A cover according to claim 2, wherein the handles are integrally formed in the corners of the sheet.
4. A cover according to any one of the preceding claims, wherein the seals are provided by weld lines through the sheet and the folded edges.
5. A cover according to any one of the preceding claims, wherein the sheet is transparent.
6. A cover according to any one of the preceding claims, wherein the weld lines are provided at about 45 degrees across the corners of the sheet.
7. A cover according to any one of the preceding claims, wherein each folded edge overlies about 15-20% of the sheet.
8. A cover according to any one of the preceding claims wherein the plastics sheet is formed of polyethylene film.
9. A method of forming plastics covers for use on receptacles such as food bins used in the transporting of foods from one location to another, the method comprising the steps of providing a flexible plastics sheet having the longitudinal edges folded onto at least a portion of the sheet, applying a sealing means on the folded edge of the sheet to provide two spaced apart seals across the fold; perforating the sheet across the width of the sheet between the two seals and providing a further seal across the width of the cover on either side of the perforation.
10. A method according to claim 9, wherein the fold seals are made by a triangular sealing head.
11. A method according to claim 9 or 10, wherein the sealing means apply heat to the plastics sheet to weld portions of the sheet together to form seals.
12. A method according to any one of claims 9 to 11, wherein the part of the folded portion of the sheet which is external to the fold seal is removed.

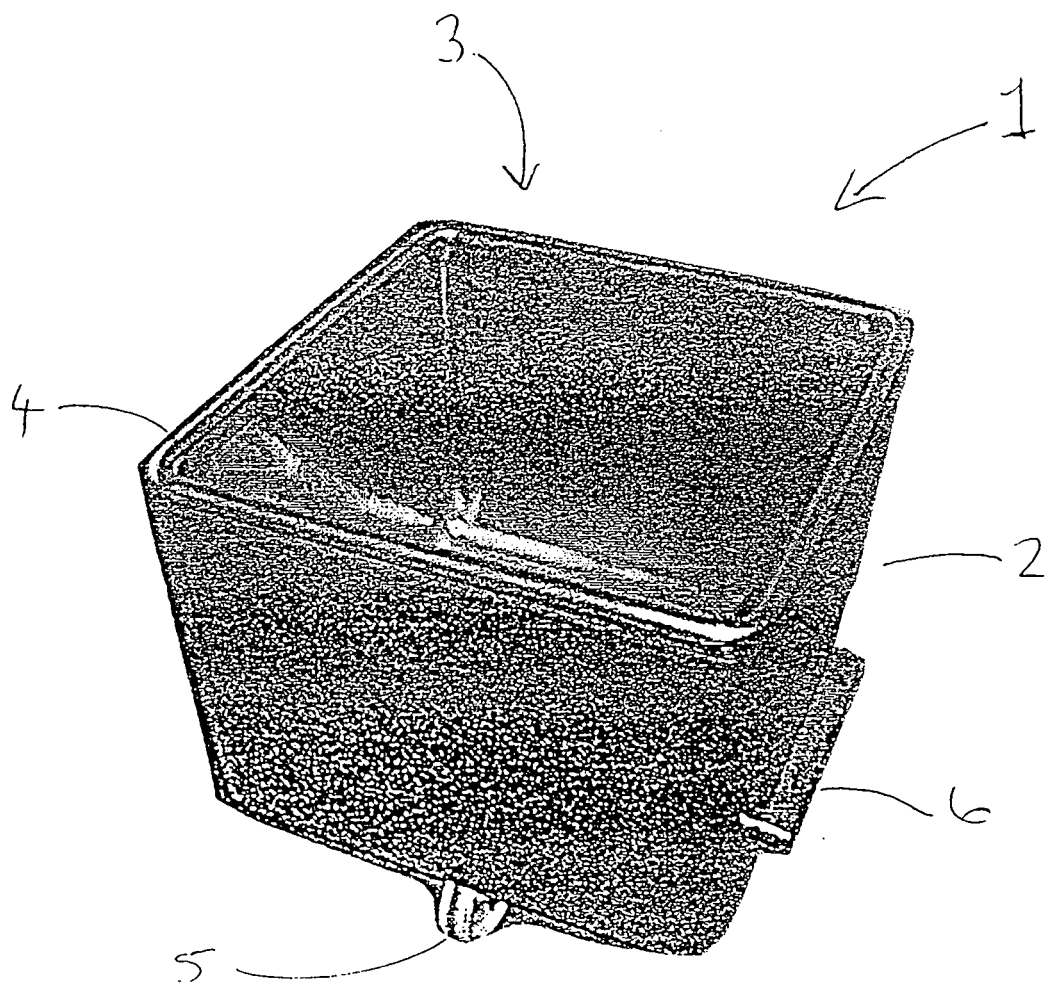


Figure 1

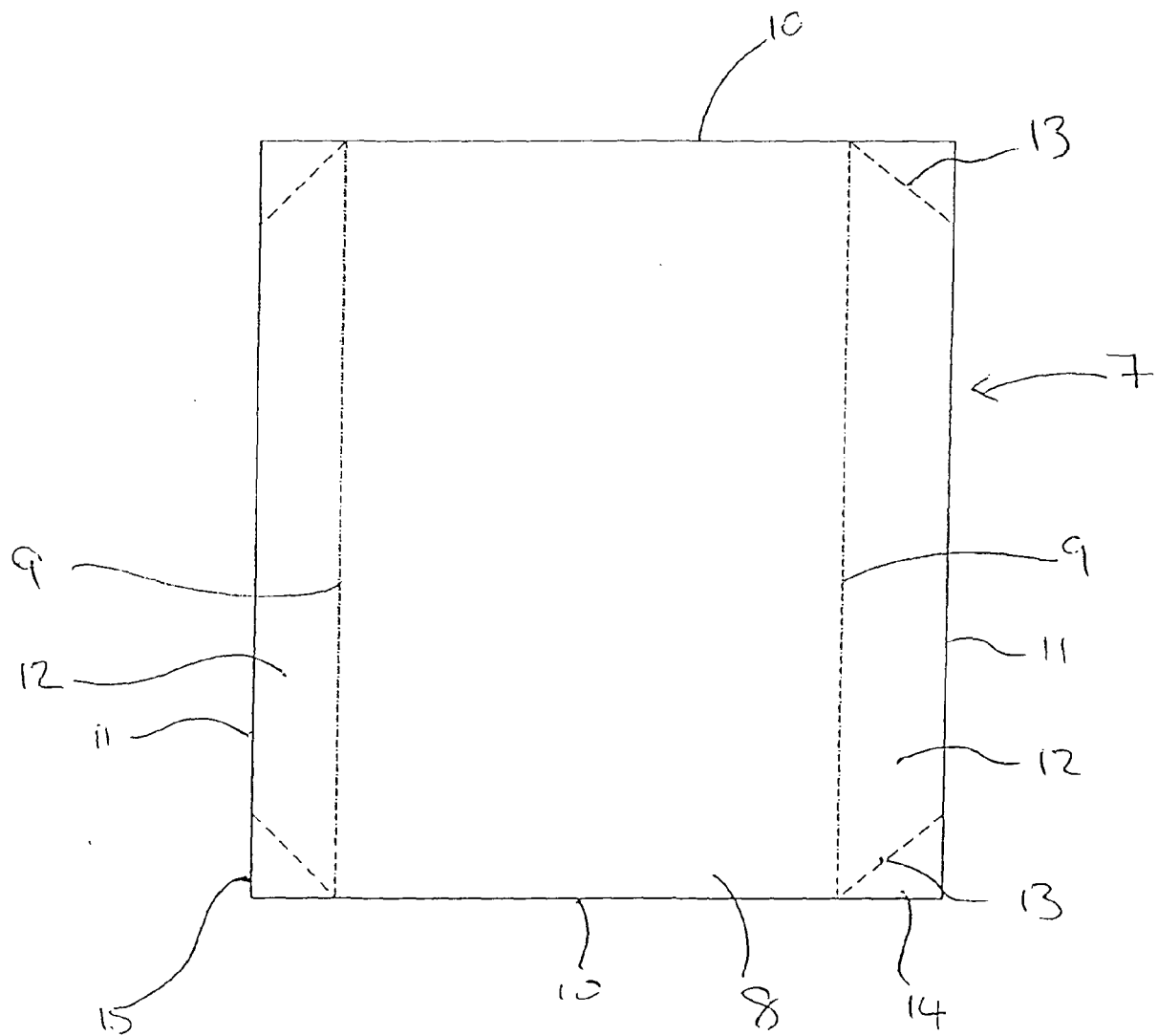


Figure 2

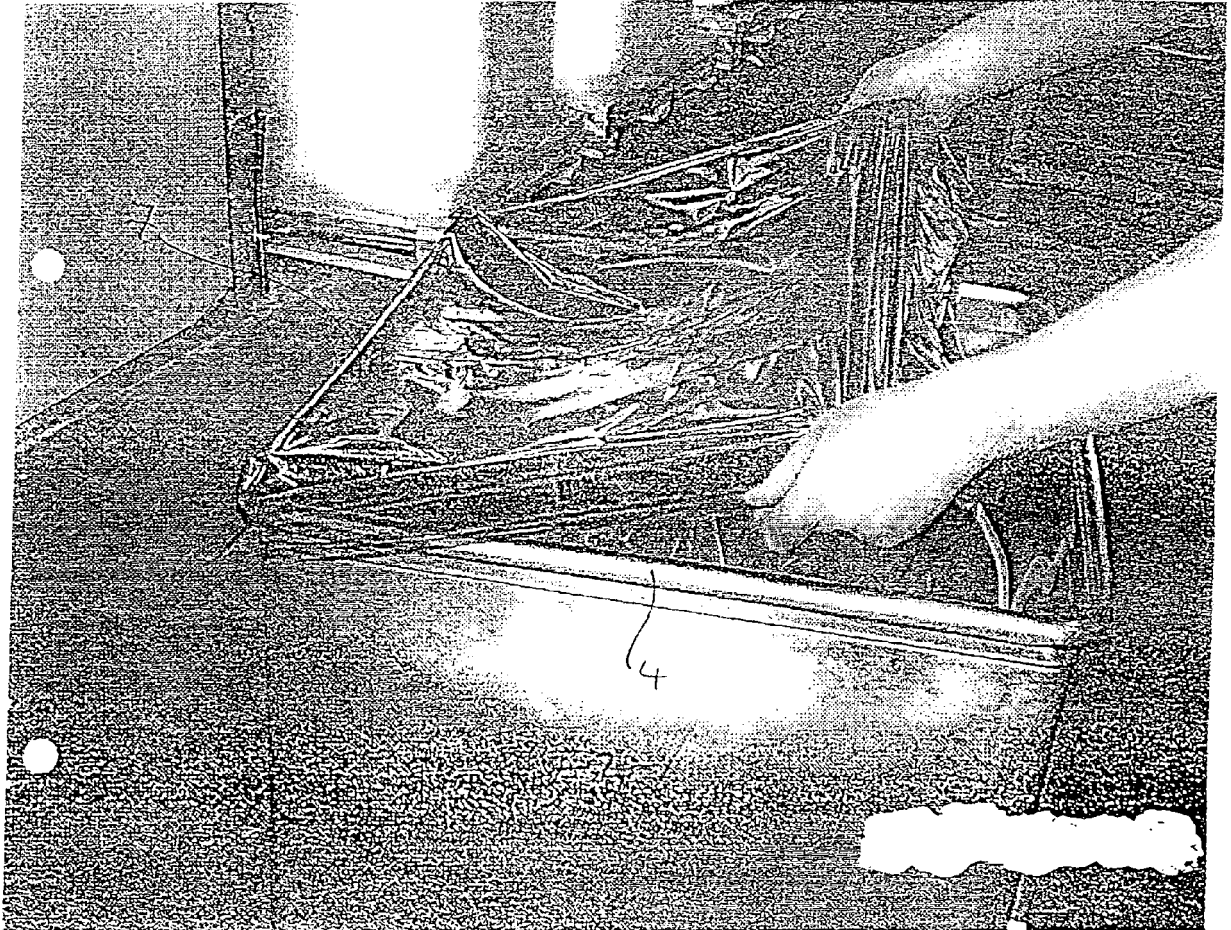


Figure 3

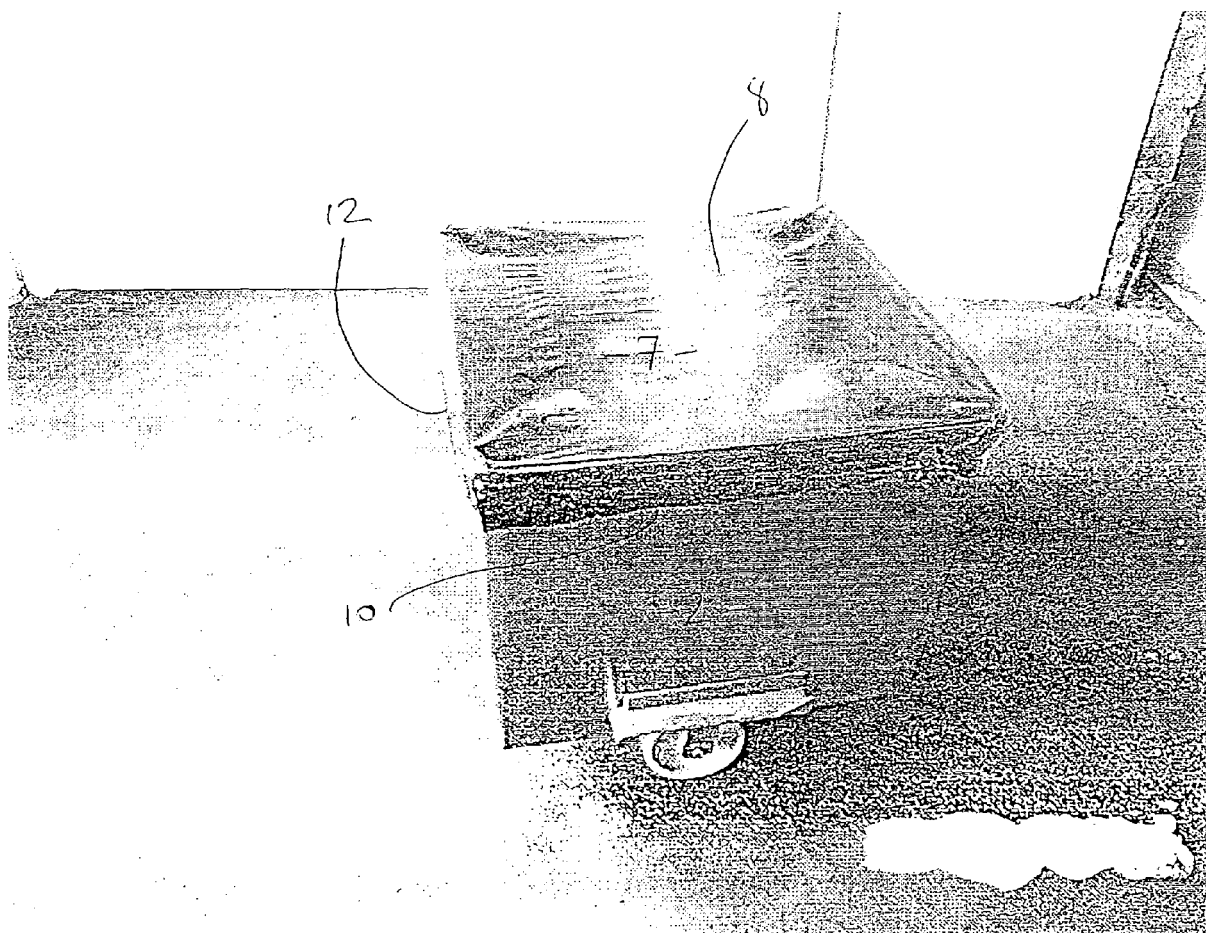


Figure 4

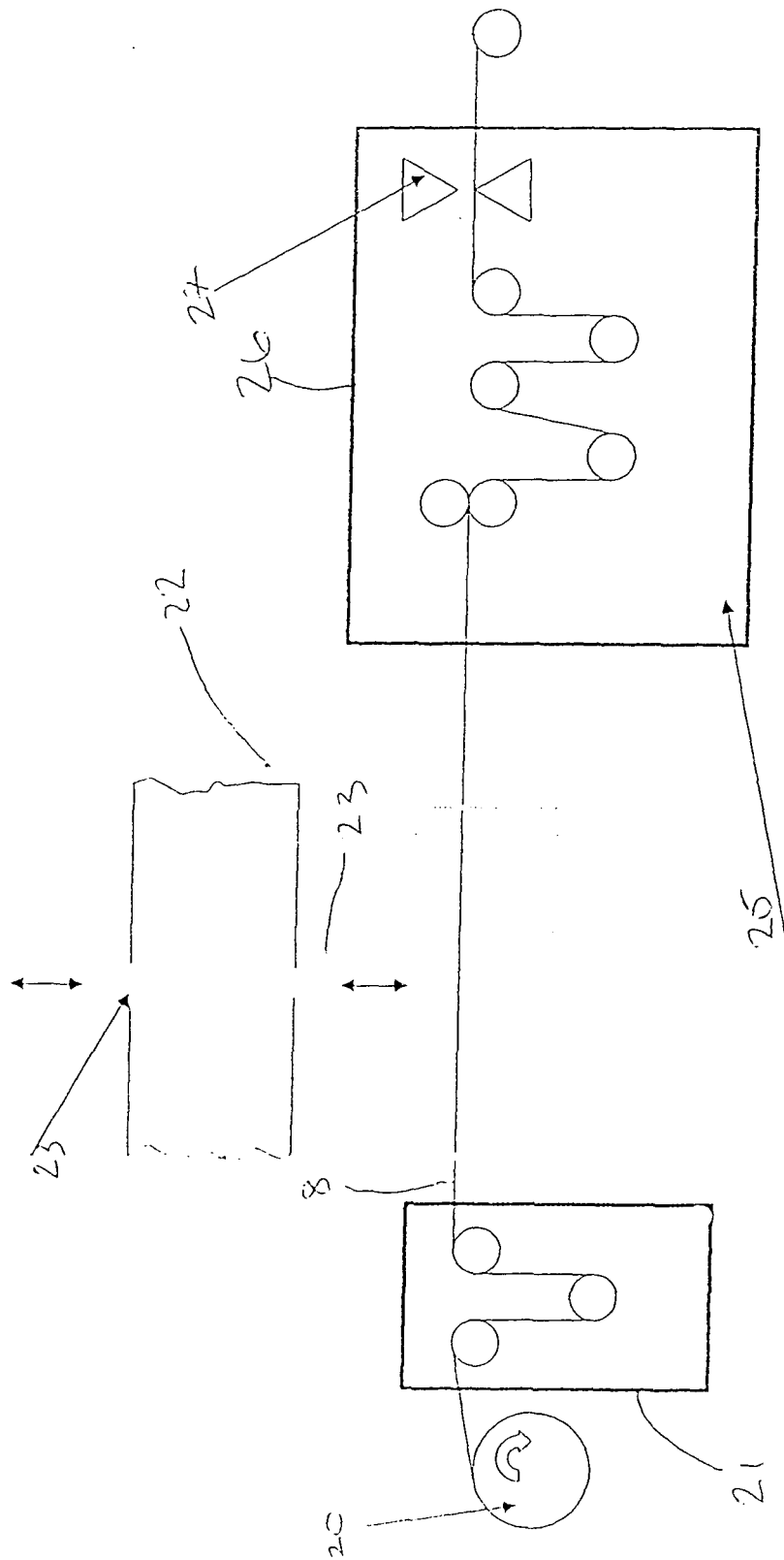


Figure 5