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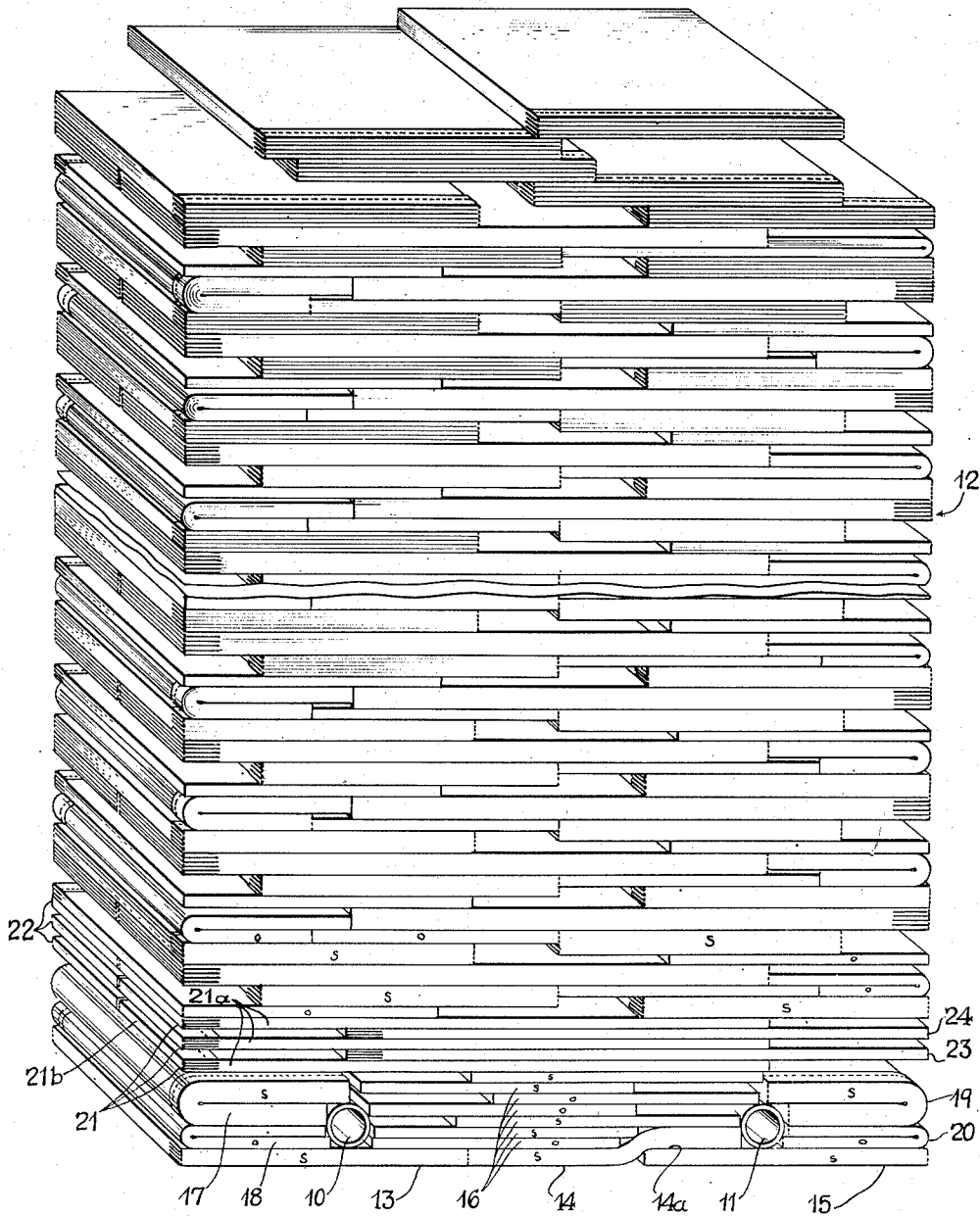
2,609,923

BAG PACKAGE WITH FORK-LIFT HANDLING MEANS

Filed Oct. 27, 1949

2 SHEETS—SHEET 1

Fig. 1.



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2 SHEETS—SHEET 2

Fig. 3.

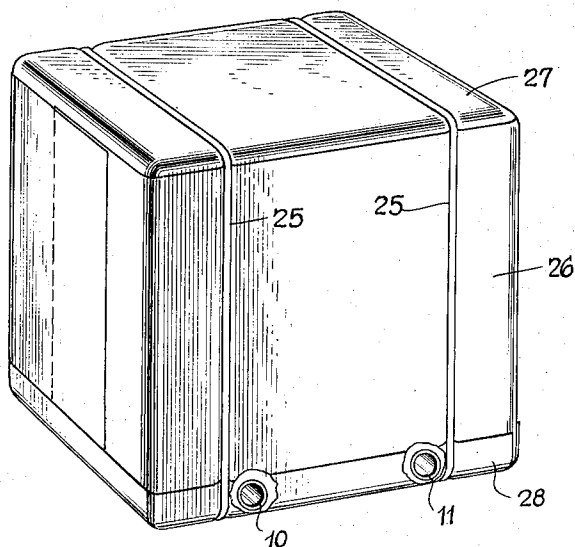
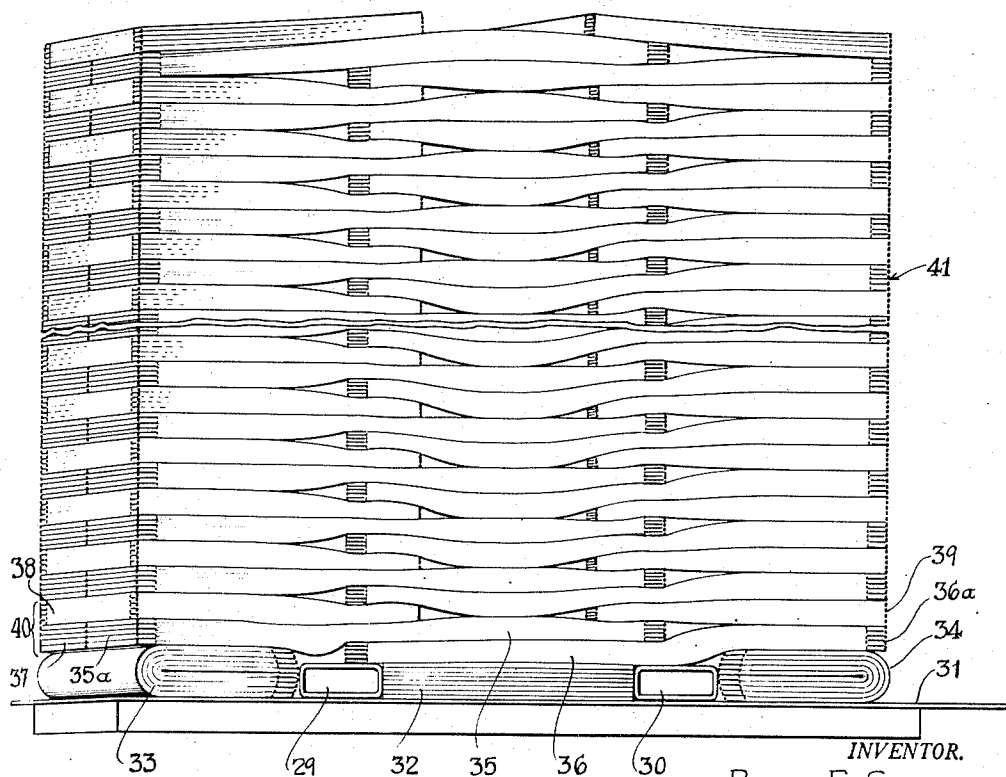


Fig. 2.



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BAG PACKAGE WITH FORK-LIFT
HANDLING MEANS

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3 Claims. (Cl. 206—60)

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This invention relates to the packing of loads of sheet material for shipment, and more particularly to a method for packing bags for shipment and handling as a unitary load.

A load of bags packed in accordance with this novel method is adapted to facilitate the storage and the handling thereof by so-called fork-lift trucks having hand or power operated fork-lift means associated therewith.

In the past, in preparing for shipment loads of bags or superposed layers of sheet material, for example of paper, it has been common practice to "palletize" the load by placing or securing same upon a suitable pallet which normally consists of parallel spaced platforms which permit the insertion between such platforms of the fingers of a lift truck, the superposed bags upon the pallet being secured thereto by suitable means such as steel bands or cord. One of the many disadvantages in the use of certain types of such pallets heretofore proposed has been their expense. For example, in the case of wooden pallets it has been found that they are usually sufficiently expensive to make it necessary to return them to the owner or to the shipper or else to add the cost thereof to that of the palletized material. Both of these courses are believed to be undesirable. Attempts to solve this problem have been made which include the use of paper pallets constructed, for example, of corrugated paper board. However successful the latter efforts may be and although such latter efforts have assisted in solving this problem, there is always the factor of the space which is occupied by such pallets regardless of their expense. That is, pallets and palletizing methods heretofore proposed have been under the disadvantage in that a substantial volume of space has been occupied by the pallet itself which space is to a degree wasted. Furthermore, in certain industries, such as the paper bag industry where unit costs are extremely low, heavy and expensive pallets cannot economically be used and the same is true with respect to pallets which occupy substantial volumes of space because where material is shipped, for example, in box cars or trailers, most efficient use of shipping space cannot be made.

Also, in stacking palletized loads which are palletized in accordance with prior practice, there has been a substantial tendency to damage the load next beneath the pallet because of the rigid nature of such pallet whereby it is capable of tearing such lower load when being moved.

One of the objects of the present invention is

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to overcome the above difficulties by eliminating the necessity for a pallet but still retaining the advantages of a pallet.

The invention, in one aspect thereof, comprises a method which consists in placing a pair of hollow straight tubular core members in substantially parallel relationship and disposing on either side thereof and above, or around said tubular core members one or a plurality of stacks of bags, the core members preferably being near the bottom of such stack or stacks, and thereafter binding together the stacks of bags with the core members therein whereby the load of bags is made integral or into a unit whereupon the fingers of a fork-lift truck may enter the parallel tubular members for moving the unit load as desired.

Various further and more specific objects, features and advantages of the invention will clearly appear from the detailed description given below taken in connection with the accompanying drawings which form a part of this specification and illustrate, by way of example, preferred arrangements of apparatus for carrying out the invention. The invention consists in such novel methods and combinations of features and method steps as may be herein shown and described.

In the drawings:

Fig. 1 is a perspective view of a group of superposed bags having parallel tubular members associated therewith in accordance with one form of the novel method;

Fig. 2 is an end view of a stack of bags associated with a pair of hollow tubular members, which stack and members are arranged in accordance with another modification of the novel method described herein; and

Fig. 3 is a perspective view of a stack of bags which have been bound and prepared for shipment in accordance with one form of the invention.

Referring to the drawings in greater detail, it will be seen in Fig. 1 that a pair of parallel spaced tubular members 10, 11 are associated with a stack of bags 12. The tubular members 10 and 11 are straight, hollow and parallel and in the form shown are circular in cross-section. However, the invention is not limited to the use of a tubular member of any particular cross-sectional shape. The tubular members 10 and 11 are preferably of cardboard or similar inexpensive and easily disposable material. Furthermore, the volume of space occupied by the tubular members 10 and 11 is exceedingly small as compared to the volume of space occupied by

pallets heretofore proposed for palletizing stacks of bags.

The novel method in one form thereof produces the superposed bags with associated tubular members as shown in Fig. 1 and is adapted for preparing a plurality of, for example, multi-wall bags for shipment. Such bags may have one end thereof taped and sewn and the other end thereof open. A plurality of groups of bags, in this particular form of the invention, as at 13, 14 and 15 are disposed at the bottom of the pile and are in side-by-side adjacent relationship wherein a portion of the group 14 overlaps as at 14a a portion of the group 15. The longitudinal axes of said groups are parallel. There are disposed in parallel relationship and upon the groups 13 and 15 the tubular members 10 and 11 which are positioned in parallel relationship spaced apart a distance equal to the distance between the forks of a fork-lift member. In between said tubular members 10 and 11 there are mounted a plurality of groups of bags which may be staggered as shown and the longitudinal axes of which may be parallel to those of said groups 13, 14 and 15. Thus a generally firm foundation is formed, between the tubular members, for the bags to be superposed thereupon. It will be noted that certain of the extremities of the bag groups as at 16 bear the designation "s" and certain others bear the designation "o" which refer respectively to the fact that the bag group presents sewn or open ends as viewed in this figure.

To the left and right respectively of the tubular members 10 and 11, as viewed in Fig. 1, there preferably are positioned a plurality of bag groups which in thickness are at least equal to and preferably slightly greater than the thickness of the group 16 above described. For example, to the left of tubular member 10 there are positioned bag groups 17 and 18 which respectively present to view in Fig. 1 sewn and open ends, and each group has been folded substantially upon its longitudinal axis so that each in effect is "folded double." Analogous bag groups as at 19 and 20 are positioned to the right of the tubular member 11 and are similarly folded. The reason for so folding the bag groups 17-20 inclusive, is to insure that the superposed bags will not extend beyond the borders of the stack as defined by the periphery of the collective bag groups 13, 14 and 15.

The longitudinal axes of all of the bag groups above described are parallel. The individual bags here employed are substantially twice as long as they are wide.

For purposes of clarity, in order to represent clearly the many bag groups, the latter are shown in Fig. 1 to be rigid which, of course, is not normally the case. Further it is understood that normally the bag groups are flexible in view of the fact that the bags are made of paper or the like.

Above bag groups 13-20, additional groups of bags may be superposed, for example, as shown, wherein there is a plurality of groups as at 21 and 22, the longitudinal axes of which are perpendicular to or extend transversely of those of the bag groups therebelow, said groups 21 having sides as at 21a which are in alignment with the ends of the bag groups therebelow, and having ends as at 21b which are in alignment with the sides of the bag groups therebelow. The bag groups 21, in the form shown, include three separate groups and sandwiched in between the central or lowermost group thereof is an in-

intermediate bag group as at 23 and between said central group and uppermost group is another bag group as at 24.

The bag groups 22 are analogously disposed and are associated with bag groups analogous to 23 and 24. It will be noted, of course, that the bags of group 21 are not fully in register with, that is, they do not fully overlap, the bag groups 23 and 24 but are so disposed that the combined groups extend from one side of the stack 12 to the other side, the longitudinal axes thereof remaining substantially parallel.

A plurality of groups of bags are superposed upon those previously described with certain of them having their axes parallel to the axes of the tubular members and certain others perpendicular thereto whereby an integrated stack of bags is made which, by virtue of such angular disposition of the axes of the bag groups, is stable and will hold together without collapsing or falling over. Means are provided for binding the stack together to prepare it for shipment comprising bands, as at 25 (Fig. 3), which may be bound around the stack in planes which are parallel to the axes of the tubular members and perpendicular to the base of the stack as shown in Fig. 3 or, if desired, such bands may be in planes perpendicular to the axes of the tubular members.

If desired, the entire stack of bags may be protected by suitable covering as at 26, the latter being for example of paper, and being positioned around the vertical surfaces of the stack and there secured by suitable means such as adhesive. Top and bottom covers as at 27 and 28 may also be provided of similar sheet material and also held in place by adhesive. Such sheet material may be easily punctured for the admission of the fingers of a fork-lift truck.

The stack of bags shown in Fig. 2 is analogous to that shown in Fig. 1 except that the tubular members are of rectangular cross-section and are not directly supported by bag groups therebeneath but may rest upon the bottom sheet cover member 28, if such is used. Within the purview of the novel method herein described, the bags are disposed with respect to such hollow tubular members of rectangular cross-section as at 29 and 30 as follows: said tubular members 29 and 30 are disposed upon a suitable horizontal surface as at 31 in parallel spaced relationship. The bags to be packed for shipment or handling by fork-lift apparatus are generally similar to those described in connection with Fig. 1 except that both ends thereof are taped and sewn. Such bags are oblong in shape and substantially twice as long as they are wide. It has been found desirable to form a pile of bags and prepare same for shipment which in length is approximately one and one-half times a bag length and in width is equal to the length of a bag. A horizontal section through the pile of bags shown in Fig. 2 is substantially of such dimensions. The tubular members 29 and 30 must be actually spaced apart a distance substantially equal to the distance between the tines or fingers of the fork of a fork-lift device. Such distance preferably is slightly in excess of the width of one of the bags and it has been found desirable to dispose said members 29, 30, as shown in Fig. 2, with a small stack or group of bags disposed therebetween as at 32. The longitudinal axes of the tubular members 29 and 30 are parallel to such axes of the bags forming the group 32, the latter being between and in contact with said tubular members. Thus the group of bags 32 is disposed adjacent the inner

sides of the tubular members 29 and 30. Positioned adjacent the outer sides of said tubular members 29, 30 are bag groups as at 33, 34, respectively, which are "folded double" and placed with the longitudinal axes thereof also parallel to those of said tubular members and in contact throughout their lengths with their respective tubular members. The depth of the folded bag groups 33 and 34 are preferably equal to or slightly greater than the depth of the tubular members 29, 30. Thus there is formed a firm foundation upon which can be built the remainder of the pile of bags. The length of the pile is preferably, as above mentioned, about one and one-half the length of a bag and such length is indicated in Fig. 2 wherein the distance from the left-hand edge of the bag group 33 to the righthand edge of the bag group 34 bears substantially such relationship with a bag length.

The pile of bags which are superimposed above the bag groups 32-34 and about the tubular members 29 and 30, as shown in Fig. 2, is made up of a plurality of units, each of which is composed of a plurality of bag groups disposed as follows: a pair of bag groups 35 and 36 are placed in partially overlapping relationship such that the respective ends thereof at 35a and 36a are in alignment with their respective but opposite extremities of the pile. The longitudinal axes of said groups 35 and 36 are, of course, in alignment and are perpendicular to the axes of groups 32-34, inclusive. Directly adjacent, and on the same level with, the groups 35 and 36 a second pair of partially overlapping bag groups is positioned, one of which is shown as at 37. The sides of such analogous latter pair of bag groups are preferably in contact with the sides of the bag groups 35 and 36. The term "bag group side" as used herein refers to a side surface composed of a plurality of aligned side edges of the bags of a group.

Next above the bag groups 35, 36 and the second pair of such groups on the same level, there is disposed a pair of bag groups 38 and 39, the axes of which are parallel to the tubular members 29 and 30, and which are positioned each with a side thereof in alignment with the side of the pile, that is, the outer corners of such groups 38 and 39 are brought into substantial alignment with corresponding outer corners of the bag groups therebeneath.

The unit of bag groups described above is indicated collectively at 40 and a plurality of such units are superimposed thereupon to make up the entire pile indicated generally at 41.

The open ends of the tubular members 10, 11 and 29, 30, of course, are freely accessible and are substantially coincident with the opposite vertical faces of their respective bag piles. The lengths of said tubular members, in the forms shown, are equal to a bag length and thus substantially equal to the width of a bag pile.

The bag piles shown in Figs. 1 and 2 both may be bound by bands 25 with or without being covered.

While the invention has been described with respect to certain preferred examples which have

given satisfactory results, it will be understood by those skilled in the art after understanding the invention that various changes and modifications may be made without departing from the spirit and scope of the invention, and it is intended, therefore, in the appended claims to cover all such changes and modifications.

What is claimed as new and is desired to be secured by Letters Patent is:

1. A package of superimposed fibrous sheets comprising: a pair of hollow tubular core members in spaced substantially parallel relationship, the core members each having an orifice at least at one end thereof; a pair of sheet groups each consisting of superimposed fibrous sheets, the thickness of each group being substantially equal to the depth of the core members, one such group being placed along the outer side of one of the core members and the other such group being placed along the outer side of the other core member; another group of such sheets occupying the space between such core members; a plurality of such sheets superimposed on said core members and groups of sheets; and means binding the entire pile of sheets, the plane of such binding means being substantially perpendicular to a plane containing the axes of such core members.

2. A package of bags comprising: a pair of hollow tubular core members in spaced substantially parallel relationship, the core members each having an orifice at least at one end thereof, a plurality of groups of stacked bags in substantially aligned relationship positioned between said core members and along the outer sides thereof, a plurality of bags mounted upon said core members and groups of bags, and a band member embracing the package of bags and holding same together as a unitary load together with said core members, the latter being positioned with the orifices thereof accessible from a common exterior side of the package.

3. A package of bags comprising: a pair of hollow core members positioned in substantially horizontal parallel spaced relationship; a plurality of bags positioned between said core members and along the outer sides thereof; a pile of bags superimposed upon said core members and first-mentioned bags; and means binding said bags and placing same under compression with compressive forces acting substantially perpendicular to a plane containing the axes of said core members.

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