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SHIPPING PACKAGE AND CONTAINER FOR SHEET MATERIALS

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Fig. 1

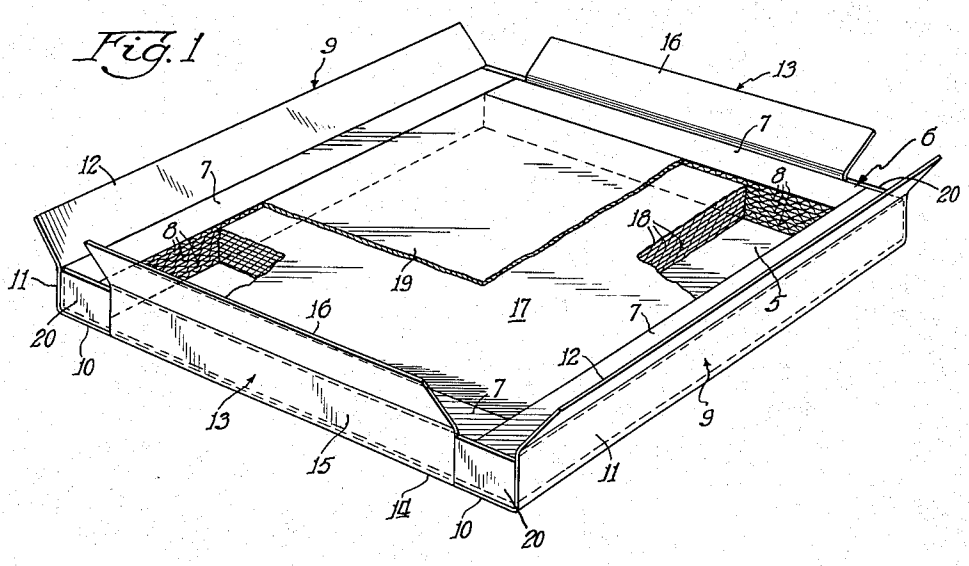
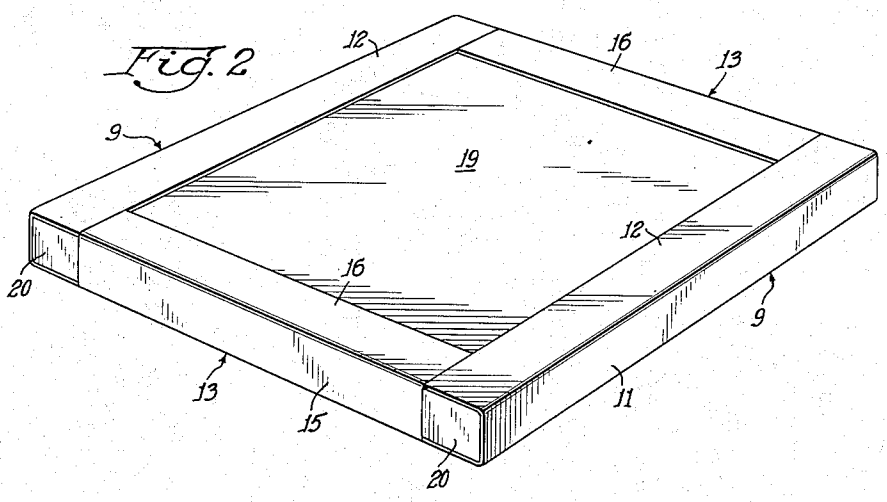


Fig. 2



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SHIPPING PACKAGE AND CONTAINER FOR SHEET MATERIALS

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1 Claim. (Cl. 206—60)

This invention relates to the shipment of sheet materials, and has to do with a shipping package embodying such materials and a container for use in assembling such a package.

Sheet materials of various sorts are shipped in stacks and in large volume. Many of such materials are heavy and of such character that the edges thereof must be protected against chipping during shipment of the packaged sheets and a stack of sheets may exert considerable pressure on the walls of the shipping container at the edges of the sheets of the stack when the container is disposed with one of such walls downward. It is known to ship sheets of the character referred to in a stack in a container having a frame of wood or like material fitting snugly about the sides of the stack. While the wood frame is capable of withstanding the pressures to which it is subjected, it may cause chipping or damage to the edges of the sheets of the stack and is comparatively heavy and expensive.

Our invention is directed to the provision of a shipping package and a container for sheet materials which avoids the above mentioned objections to the known packages referred to. To that end, we provide a shipping container formed in its entirety of paperboard or like material and comprising a first closure panel preferably formed of corrugated paperboard, an open top paperboard frame secured to the panel for snugly receiving a stack of sheets of material and a second closure panel for the frame. The frame is formed of rails constructed of laminations of corrugated paperboard adhesively secured together and disposed with the corrugations of each rail extending inwardly of the frame perpendicular to the side thereof at which the rail is located. While, as noted, the closure panels preferably are formed of corrugated paperboard, such panels may, within the broader aspects of our invention, be formed of any suitable material, for example, plywood or other suitable sheet material. The frame rails are adhesively secured to the inner face of what may be termed the lower or bottom closure panel of the container and paperboard channel members are disposed about the sides of the container and are adhesively secured to the underface of the bottom panel and to the outer faces of the frame rails, the upper flaps of the channel members being adhesively secured to the upper faces of the frame rails and to the upper or top closure panel. In that manner, the parts of the container are effectively tied together by the channel members and the latter, in cooperation with the two closure panels, effectively resist outward pressures to which the frame rails may be subjected, supplementing the adhesive attachment of the rail frames to the bottom closure panel in that respect. Further objects and advantages of our invention will appear from the detailed description.

Figure 1 is a perspective view of a shipping package embodying our invention with the upper flaps of the channel members unsecured and the stack of sheets within the container and the top closure panel partly broken away; and

Figure 2 is a perspective view of the package of Figure 1 in its closed condition ready for shipment.

The container comprises a rectangular bottom closure panel **5** which preferably is of corrugated paperboard, though it may be of other suitable sheet material within the broader aspects of our invention. A rectangular frame **6** is secured to the upper face of panel **5**. This frame **6** comprises rails **7** of rectangular cross section each formed of a plurality of layers or laminations **8** of corrugated paperboard. The laminations **8** of the respective rails **7** are adhesively secured together with the corrugations thereof extending transversely of the rail. The rails **7** are adhesively secured to the upper face of the bottom closure panel **5** parallel with the edges thereof and with the outer faces of the rails flush with the edges of that panel. The ends of the rails **7** are disposed in abutting relation and two of the rails may fit between the ends of the other two thereof, as shown. Channel members **9**, preferably formed of uncorrugated paperboard, though corrugated paperboard may be used if desired, are disposed about two opposite sides of panel **5** and the corresponding rails **7**. Each of the channel members **9** comprises a lower flap **10**, an intermediate or bight portion **11** to which flap **10** is hinged along a fold line, and an upper or top flap **12** hinged to the upper edge of the intermediate portion **11** along a fold line. The bottom flaps **10** of the channel members **9** are adhesively secured to the underface of the bottom closure panel **5**, and the intermediate or bight portions **11** of the channel members **9** are adhesively secured to the outer sides or faces of the corresponding frame rails **7**. Channel members **13**, similar to the channel members **9**, are disposed at the other two opposite sides of the bottom closure panel **5**, each of the channel members **13** comprising a lower or bottom flap **14** hinged or attached along a fold line to the lower edge of an intermediate or bight portion **15**, and an upper or top flap **16** hinged along a fold line to the upper edge of bight portion **15**. The bottom flaps **14** of the channel members **13** are adhesively secured to the underface of the bottom closure panel **5**, and the intermediate or bight portions **15** of the channel members **13** are adhesively secured to the outer sides or faces of the corresponding frame rails **7**.

The frame **6** is open at its top and defines a recess of appropriate depth for reception of a stack **17** of sheets **18** of material such as above referred to. The sheets **18**, in the production thereof, are cut to predetermined dimensions and the frame **6** is of such interior dimensions as to receive snugly the sheets **18** placed therein. The height of the stack **17** of sheets **18** is such that the upper face of the top sheet thereof is disposed a short distance below the upper face of the frame **6**. After the stack has been thus placed in the container, the top of frame **6** is closed by a top closure panel **19** fitting snugly therein and seating on the stack with its upper face flush with the upper face of frame **6**. The top panels **12** and **16** of the channel members **9** and **13**, respectively, are then folded downward onto the frame **6** and the top closure panel **19** and adhesively secured thereto. That completes the package which then appears in Figure 2.

In the completed package the corrugations of the rails **7** of the frame **6** are disposed perpendicular to the edges of the sheets **18** of the stack **17**, so that the frame **6** is well suited to withstand the pressures to which it may be subjected in the use of the container. Further, the frame rails **7**, being formed of paperboard, possess desirable cushioning characteristics which further guard the edges of the sheets against chipping or other damage. The channel members **9** and **13** tie the frame rails **7** and the top and bottom panels **5** and **19**, respectively, together

and materially assist in resisting outward pressure to which the frame rails may be subjected, supplementing in that respect the adhesive securement of the rails 7 to the bottom closure panel 5. The flaps 12 and 16 of the channel members 9 and 13, respectively, being adhesively secured to the upper faces of the frame rails 7 and to the top closure panel 19, in conjunction with the snug fit of the latter in frame 6, effectively prevent any objectionable looseness or play of panel 19.

The ends of the top flaps 16 of the channel members 13, which are shorter than the channel members 9, abut the end portions of the top flaps 12 of the channel members 9 so as to avoid any appreciable space or opening therebetween, as shown in Figure 2. The flaps 12 and 16 effectively seal the top of the package against entry of dust, dirt or other foreign materials, as will be clear from what has been said. If desired, the end portions of the rails between the ends of the intermediate or bight portions 11 and 15 of the channel members 9 and 13, respectively, may be covered by paperboard strips 20 adhesively secured thereto to prevent entry of moisture or foreign materials into the package. As will be understood, if desired or required, protective sheets of paper or other suitable material may be disposed between the sheets 18 of stack 17 and between the top and the bottom sheets of the stack and the top closure panel 19 and the bottom closure panel 5. Also, in cases where the stack 17 does not extend the full interior height of the frame 6, a suitable filler may be used to guard against any undesirable looseness or play of the sheets of the stack, the top and bottom closure panels 19 and 5, respectively, preferably being under slight tension sufficient to restrain the stack against any undesirable looseness or play in the container.

As will be understood from what has been said, changes in detail may be made without departing from the field and scope of our invention, and we intend to include all such variations, as fall within the scope of the appended

claim, in this application in which the preferred form only of our invention has been disclosed.

We claim:

In a shipping package, a container comprising a substantially rectangular bottom closure panel, an open top substantially rectangular frame formed of rails parallel with the sides of said panel and secured to the upper face thereof with their outer faces flush with the edges of said panel, said rails respectively comprising laminations of corrugated paperboard secured together with the corrugations of the respective rails parallel with said panel and perpendicular to the adjacent edge of said panel, a stack of sheets of material fitting snugly within said frame, a substantially rectangular paperboard top closure panel fitting snugly within said frame on top of said stack, and paperboard channel members respectively comprising a bight portion and top and bottom flaps attached to the top and bottom edges of said bight portion along fold lines, the bight portions of said channel members being secured to the outer faces of said rails effective for sealing the outer ends of the corrugations thereof, the bottom flaps of said channel members underlying and being adhesively secured to said bottom closure panel and the top flaps of said channel members overlying and being adhesively secured to said rails and the edge portions of said top closure panel, said channel members tying together said rails and top and bottom closure panels.

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