June 23, 1953 G. W. KEISER, JR., ET AL 2,642,989

SHIPPING DEVICE

Filed Oct. 17, 1950

2 Sheets-Sheet 1

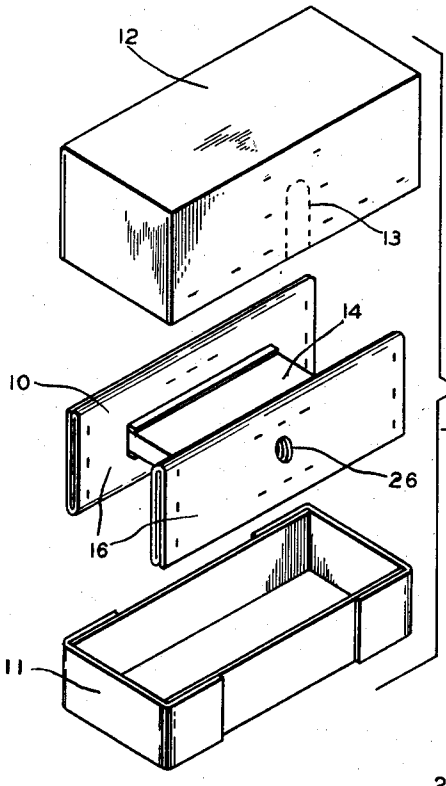


FIG. 1

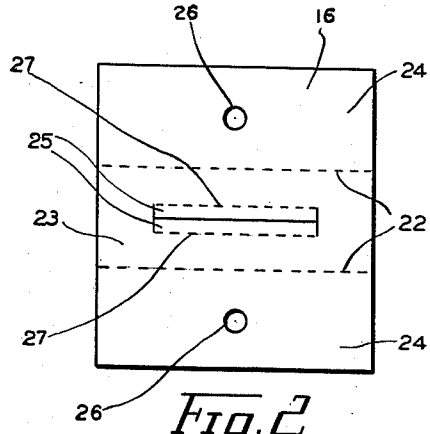


FIG. 2

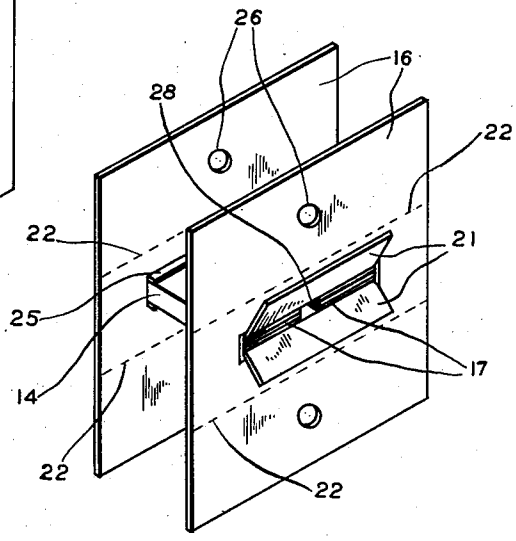


FIG. 3

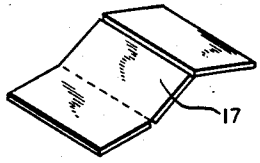


FIG. 4

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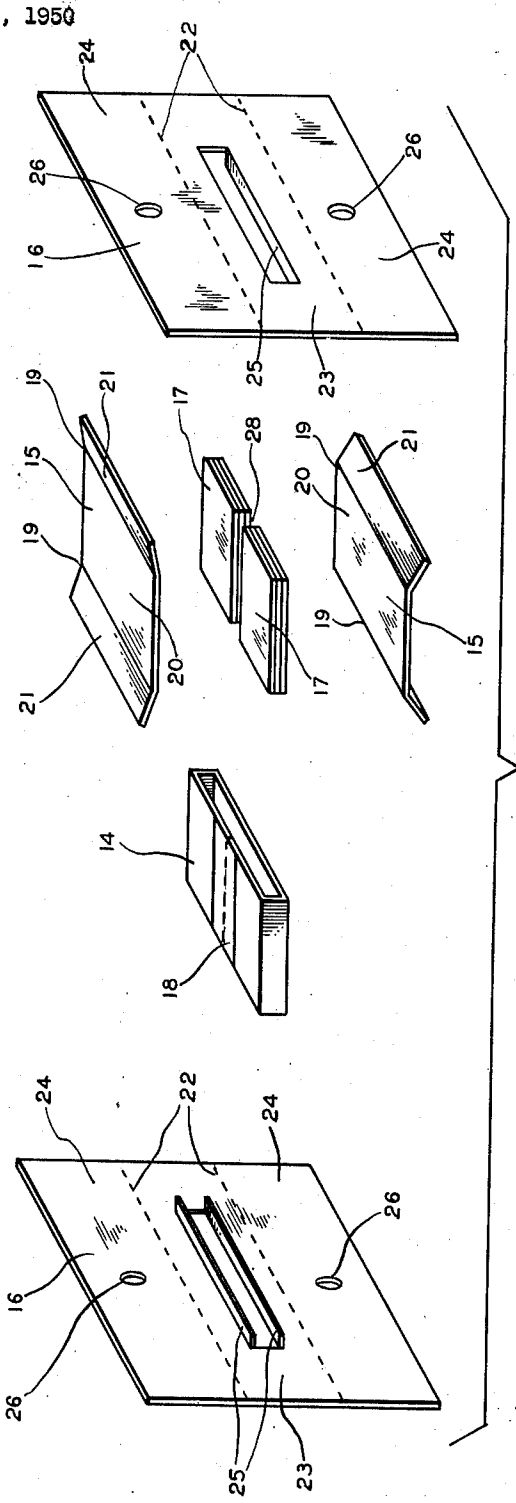


Fig. 5

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SHIPPING DEVICE

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11 Claims. (Cl. 206—52)

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This invention relates to a shipping device and more particularly to a reel for supporting elongated, flexible articles during shipment and distribution.

It has been the practice in the past in shipping heavy elongated articles, such as link chain, to make use of a reel made of wood. Generally speaking, these reels consist of heavy end members, cross members, and brace members held together by nails or screws. Among the disadvantages of this type of reel are the following: high material and labor cost; length of time required for assembly, thus necessitating considerable storage; and the considerable weight, which means increased shipping costs.

The device of the instant invention provides an inexpensive shipping means for elongated articles such as link chain, the saving in cost of materials and labor over previously-known devices being as high as 75 percent.

The present invention further provides a reel for the shipping of chain and the like that is strong enough to withstand rough usage and yet is light enough to bring about substantial savings in freight costs, the saving in weight under previously-used devices being in the order of 60 percent.

Furthermore, the present device provides a reel which makes use of a very novel construction and which is fabricated from sheet material, such as paperboard.

Also, the device of the invention is so constructed as to be a useful dispensing, or exhibiting means as well as a shipping means.

In addition, the invention may be quickly and easily assembled, and the parts may be made on standard sheet-material-forming machinery.

Although the novel features which are believed to be characteristic of this invention will be particularly pointed out in the claims appended hereto, the invention itself, as to its object and advantages, the mode of its operation and the manner of its organization may be better understood by referring to the following description taken in connection with the accompanying drawings in which:

Figure 1 is a perspective view of the device of the invention with the several main parts separated to facilitate understanding.

Figure 2 is a plan view of a blank used in the construction of the invention.

Figure 3 is a perspective view of a main portion of the invention at an intermediate point in its fabrication.

Figure 4 is a perspective view of a portion of the invention.

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Figure 5 is an exploded perspective view of a main part of the invention.

Like reference characters denote like parts in the several figures of the drawings.

Referring first to Figure 1, which best shows the complete shipping device of the present invention, a reel, generally designated 10, is shown with an inner box member 11 and an outer box member 12 in which it is enclosed during shipping. The inner box member 11 is of a tray-like construction having a depth less than one-half the height of the reel. The outer box member 12 is also of tray-like construction, but its sides are of great enough height to envelope the side walls of the inner box member 11 with the reel 10 and the shipped article inside. The box member 12 is further provided with perforations at 13 which define a portion centrally of each side of the box member, which portion can be torn out to form a slot entering the edge and extending inwardly a distance sufficient to expose the aperture 26 in reel 10.

The reel 10 is probably most easily understood by reference to Figure 5 where the parts are shown separated. Generally speaking, the reel 10 comprises a tube 14, two locking sheets 15, two end members 16, and reinforcing sheets 17. The tube 14 is composed of a piece of sheet material folded so as to form a short tube of elongated, rectangular cross-section, the joint between the free ends of the material being taped or otherwise fastened at 18 if so desired. Each of the locking sheets 15 is formed of a rectangular piece of sheet material having score lines 19 which divide each sheet into an intermediate section 20 and end sections 21, said intermediate sections being of approximately the same size as the flat sides of the tube 14. The reinforcing sheets 17, best shown in Figure 4, are preferably made up from pieces of sheet material cut or folded to make up several thicknesses; the thickness of each sheet is such as to fit tightly within the tube 14 after the locking sheets 15 are inserted therein. The end members 16, best shown in Figure 2, are die-cut and are of a generally square configuration; score lines 22 divide each member 16 into an intermediate section 23 and end sections 24. The intermediate section 23 is cut in an H-shaped configuration defining flanges 25 which are bent along score lines 27 to extend at right angles to the plane of the end member proper. Each of the end sections 24 is provided in the central portion with an aperture 26.

All of the main parts of the shipping device as described above are made of sheet material. While the preferred embodiment is made up of

corrugated board, it is evident that materials such as solid fibre board or folding carton board may be used to advantage. The particular material used would depend on the nature of the article being shipped, the strength of the reel desired, and, of course, the economics of the particular application.

The construction of the reel 10 can best be understood from a recitation of the manner of its assemblage, referring particularly to Figure 5. First, the locking sheets 15 are placed within the tube 14 with their intermediate sections 20 lying against the inner surfaces of respective large sides of the tube and their end sections 21 bent outwardly of the tube. Then, one of the end members 16 is placed on one end of the tube 14 with the tube running through the aperture left by the bending of the flanges 25. In that position, the end section 21 of the locking sheets 15 lie adjacent to the outer side of the member 16, while the flanges 25 lie along the surface of the tube 14. Then the other end member 16 is placed on the other end of the tube in the same manner as the first end member. Then, the reinforcing sheets 17 are inserted within the tube between the intermediate sections 20 of the locking sheets 15. The sheets 17 are of such a size as to fit in the tube side by side with a substantial space 28 between them; the sheets may be coated with sodium silicate or the like for a tight, strong construction. At this point, the assemblage appears as shown in Figure 3. The next step is to fold the end sections 24 of the end members 16 outwardly of the reel along the score lines 22 and into juxtaposition with the intermediate portions 23, the end sections 21, and with each other. When this is done, the apertures 26 of the end portions of each end member will coincide with each other and with the space 28 between the reinforcing members 17. Fasteners are then inserted to hold the end sections 21 and the three sections of each end member 16 in juxtaposition. The reel then appears as the finished product shown in Figure 1 and is ready for use.

In use, the article to be shipped, say a roller chain, is wrapped around the tube 14 and is restrained lengthwise of the tube by the end members 16. The reel 10 and the article are then placed in the inner box member 11, the outer box member 12 is slid over the assembly, and the whole is bound together by steel strap or other means well-known in the art. When the bound assembly reaches its ultimate destination, the receiver can tear the outer box member 12 along the perforations at 13 to remove a portion on each side, thus exposing the apertures 26 on the reel 10. Then, a reeling bar, not shown, is inserted through the apertures 26 on one side of the reel, through the space 28 between the reinforcing sheets 17, and out through the apertures 26 on the other side of the reel. The entire assembly is then placed on a disbursing standard, display device, or the like and the straps and the inner and outer box members are removed, whereupon the article may be unreeled as desired.

While certain novel features of the invention have been shown and described and are pointed out in the annexed claims, it will be understood that various omissions, substitutions, and changes in the forms and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A shiping device formed of sheet material, comprising: a reel having an axial bore adapted to receive a reeling bar, a relatively shallow inner box member whose sides do not cover the said bore when the reel lies therein, and a relatively deep outer box member, said inner and outer box members being normally in telescoped relation to form a receptacle and said reel being enclosed therein, said outer box member being perforated for the removal of portions of its sides adjacent the ends of the reel for the exposure of said axial bore.

2. A reel formed of sheet material, comprising: a flat tube of rectangular cross-section, end members on each end of said tube, each of said end members being formed of a rectangular piece of sheet material provided with score lines which divide the square into an intermediate and two outer portions, the intermediate portion of each end member being provided with an H-shaped cut through which the end of the tube is inserted, two locking sheets of generally rectangular conformation inserted through said tube and having portions extending from the ends thereof, said extending portions being bent at right angles to the remainder to lie against the intermediate portions of the end members, reinforcing sheets lying within said tube and spaced to define a central bore, the outer portions of said end members being bent so as to lie in juxtaposition with said intermediate portion whereby the extending portions of the locking sheets are embraced by the intermediate and outer portions of the end members, the outer portions of said end members being provided with apertures which are aligned with said bore.

3. An assemblage of parts of sheet material from which a shipping reel may be formed, comprising: a tube, two end members, two locking members, and two reinforcing members, said tube being flat and of a rectangular cross-section, each of said end members being formed of a rectangular piece of sheet material provided with score lines which divide the square into an intermediate and two outer portions, the intermediate portion of each end member being provided with an H-shaped cut through which the end of the tube may be inserted, each of the outer portions of the end members being provided with a centrally located aperture, each of the locking members being of generally rectangular configuration and of such a size and shape as to lie within the tube with portions extending from the ends of the tube to be bent at right angles for locking the end members on the tube, the reinforcing members being of a size and shape to fit within the tube in side-by-side relation with a substantial space therebetween for receipt of a reeling bar.

4. A reel formed of sheet material, comprising: a flat tube of rectangular cross section, end members formed of pieces of sheet material and each having an H-shaped cut centrally thereof to receive one end of the tube, locking sheets passing through the tube and having flanges extending from the tube and bent away from the center of the tube in juxtaposition to the end members, reinforcing members within said tube spaced apart to define a bore centrally of the tube, each of said end members being provided with score lines which divide it into a central and two outer portions, the tube passing through the central portions and the flanges of the locking

sheets lying thereagainst, the outer portions being folded into juxtaposition with said central portion and with each other, each of the outer portions being provided with an aperture in line with the bore defined by said reinforcing members.

5. A shipping assembly formed of paperboard, comprising: a reel having a passage therethrough perpendicular to the plane of reeling, said passage being adapted to receive a reeling bar, a relatively shallow box member whose sides do not cover the said passage when the reel lies therein, and a relatively deep box member, said boxes being normally in telescoping relation to form a receptacle and said reel being enclosed therein, said deep box member being perforated for the removal of portions of its sides adjacent the ends of the reel for the exposure of said passage.

6. A reel formed of paperboard, comprising: a tube of rectangular cross section, end members on each end of said tube, each of said end members being formed of a rectangular piece of paperboard and provided with scoring which divides the rectangle into an intermediate and two outer portions, the intermediate portion of each end member being provided with an elongated aperture through which the end of the tube is inserted, two locking sheets of generally rectangular configuration inserted through said tube and having portions extending from the ends thereof, said extending portions being bent at right angles to the remainder to lie against the intermediate portions of the end members, reinforcing sheets lying within said tube and spaced to define a central passage, the outer portions of said end members being bent so as to lie in juxtaposition with said intermediate portion whereby the extending portions of the locking sheets are embraced by the intermediate and outer portions of the end members, the outer portions of said end members being provided with apertures which are aligned with said bore.

7. A reel formed of paperboard, comprising: a tube of rectangular cross section, end members formed of pieces of sheet material and each having an elongated aperture to receive one end of the tube, locking sheets associated with the tube extending from the tube and bent away from the center of the tube in juxtaposition to the end members, reinforcing members within said tube spaced apart to define a passage centrally of the tube, each of said end members being provided with score lines which divide it into a central and at least one outer portion, the tube passing through the central portions and the locking sheets lying thereagainst, the outer portions being folded into juxtaposition with said central portion, each of the outer portions being provided with an aperture in line with the passage defined by said reinforcing members.

8. A reel formed of paperboard, comprising: a

tube of rectangular cross section, reinforcing sheets substantially filling said tube except for a passage centrally of said tube, said sheets having portions extending from the ends thereof, end members folded into substantially equal overlapping portions of rectangular shape, the portions thereof adjacent the tube being cut out to receive the ends of said tube centrally of said folded end members, and the portions thereof away from said tube being provided with an aperture in line with the passage defined by said reinforcing members, said extending portions of the reinforcing sheets being bent to lie intermediate the folded portions of said end members.

9. A reel formed of sheet material, comprising a flat tube of rectangular cross-section, end members formed of pieces of sheet material and each having an aperture centrally thereof having inwardly extending flanges which reside against the outer surface of the core, locking sheets passing through the tube and through the apertures in the end members, the locking sheets having flanges extending from the tube and bent away from the center of the tube in juxtaposition to the end members, reinforcing members comprising a plurality of thicknesses of material within said tube spaced apart to define a passage longitudinally of the tube.

10. A reel formed of paperboard, comprising a tubular core of non-circular cross-section, end members on each end of said core, each of said end members being formed of a rectangular sheet and scored for folding into a multiply sheet, the inner portion of each end member being provided with an aperture in which the end of the core resides, a multi-thickness of paperboard within said core and extending longitudinally throughout said core to provide reinforcement thereof and spaced to define a central passage locking flaps at each end of said core bent outwardly from said core and lying between the plies of the end members, the outer portions of said end members being provided with apertures aligned with the central passage of said core.

11. A reel as recited in claim 10 wherein the core is rectangular in cross-section.

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