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F. S. MACOMBER
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FREIGHT BINDING DEVICE
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Fig. 8

Fig. 9

Inventor
Franklin S. Macomber

By Brown Jackson
Boettcher Dinner Attys.
ABSTRACT OF THE DISCLOSURE

A freight binding member comprising a generally upright wrapper which is connected at its lower end to at least one edge of a generally rectangular rigid base or pallet and which is of a length equal to at least approximately one-half the perimeter of the base so that the wrapper is capable of being held in tension around freight disposed on the base by tension straps or the like connected to the wrapper and yet the wrapper will permit the freight to extend beyond the edges of the base on sides thereof not connected to the wrapper.

The present application is a continuation-in-part of my copending application, Ser. No. 384,491, filed July 22, 1964, entitled, Freight Binding Device, which copending application is being abandoned upon the filing of the present application.

The present invention relates to a freight carrier or binder for binding LTL or less than truck load freight shipments. More specifically, the invention relates to a collapsible binding device for unitizing or wrapping a freight shipment, the binder being adjustable in the sense that it is capable of widening itself to various size loads with a minimum of lost space or cube loss.

Heretofore, it has been common to use cargo cages to carry LTL or less than truck load freight shipments in order to avoid individual piece handling as the freight is transported from shipper to consignee. Such cargo cages commonly include a base mounted on four wheels, four upright metal sides one of which has a door, and in many cases a top, whereby LTL freight shipments may be loaded into a cargo cage and carried therein in a truck or highway trailer as a unitized shipment. Thus, cargo cages are used for collecting a number of medium size and small shipments going to the same destination, whereby such shipments may be unitized in the cage and the loaded cage transported on a highway trailer or the like. Such cages are also often used to move freight out of one trailer and into another.

While cargo cages of the type described above have found fairly extensive use due to the fact that they save time and labor by eliminating a certain amount of individual piece handling, they are subject to several disadvantages which limit their utility in freight handling. Thus, cargo cages are of a fixed size, and in the normal situation the size of the freight shipment to be unitized will not correspond closely with the fixed depth and width of the cage, whereby there is cube loss due to the left over space which no carton will fit. There is further cube loss due to the floor of the cage and the floor of the truck in which the cage is transported due to the fact that such cages are mounted on wheels. In addition, because of the fixed cubic capacity of cargo cages, it is often necessary as a practical matter to load such cages with more than one shipment to a given destination with the results that the different shipments must be rehandled at the destination terminal. Furthermore, cargo cages of the type described are expensive, they are not normally collapsible when empty, and because they have wheels they must be tied down or immobilized in some manner when being transported on a truck.

One object of the present invention is to provide an improved device for unitizing LTL freight shipments in the general size range of 150 pounds to 3000 pounds which device avoids substantially all of the foregoing disadvantages of the cargo cages presently used.

Another object of the invention is to provide a freight binding device which is unusually inexpensive to manufacture and yet is durable in use.

A further object is to provide a freight binder which is adjustable in the sense that it is capable of widening itself to a load so as to avoid substantially all cube loss.

An additional object of the invention is to provide a freight binding device which is light in weight and is collapsible when empty so as to be easily carried to a location where freight is to be loaded and bound therein.

In furtherance of the foregoing objects, I provide a freight binding device having a rigid base which may for example be made of plywood and which is designed to provide access therethrough for the blades of a special two-wheel hand truck fork lift or the like which may be used to transport a loaded binder. A generally upright flexible wrapper member is secured to the base along one edge of the latter, and the wrapper is designed so that it can be folded or bent along a plurality of generally vertical hinges in order to at least partially wrap around a freight shipment stacked on top of the base member. In accordance with a preferred embodiment of the invention, the generally upright wrapper is fabricated from a sheet of polypropylene plastic which is of a thickness of approximately ¼ inch or less and which is provided with a plurality of generally vertical scores which facilitate bending of the wrapper and thereby serve as hinges to permit the upright wrapper to be wrapped around various size loads. In order to hold the wrapper around a load disposed on the base member, a plurality of straps or cords or the like are attached at the respective ends of the wrapper for connection together in order to hold the wrapper in tension around a load. It is important to understand that with such an arrangement the shipment may extend beyond the base on any one of the three sides thereof which are not connected to the wrapper, and that shipments having substantially varying width and depth dimensions can be bound in the foregoing freight binder with substantially no lost space or cube loss. Since the upright wrapper is flexible and can bend or fold along different vertical hinge lines, the wrapper can be adjusted itself to shipments of various widths and depths. Extensions are provided which allow the height of the binder to be varied from 3 feet to 7 feet in increments of one foot.

The foregoing and other objects and advantages of the invention will be apparent from the following description thereof.

Now in order to acquaint those skilled in the art with the manner of utilizing and practicing my invention, I shall describe, in conjunction with the accompanying drawings, certain preferred embodiments of the invention.

In the drawings:

FIGURE 1 is a perspective view of a freight binding device constructed in accordance with the present invention and having elastic shock cords with fasteners thereon secured to the ends of a plastic wrapper for holding the latter in tension around a load;

FIGURE 2 is a top plan view showing the binding device of FIGURE 1 in its collapsed condition as when being transported empty to a location where a freight shipment is to be bound;

FIGURE 3 is a perspective view of the collapsed binding device of FIGURE 2;
FIGURE 4 is a perspective view showing the binding device of FIGURE 1 in use to bind together a plurality of loaded shipping cartons which extend considerably beyond the base of the binding device on the front side thereof; FIGURE 5 is a top plan view of the shipping device of FIGURE 1 showing in solid lines the manner in which the device will bind a plurality of freight parcels having overall dimensions similar to the base of the shipping device, and showing in dash lines the approximate extent to which freight parcels may extend beyond the base on any one side thereof; FIGURE 6 is a perspective view of an alternative form of the binding device of the present invention having a somewhat longer wrapper with attached non-elastic straps of a type which are secured together by laying them in overlapping relation and pressing them together; FIGURE 7 is a perspective view of another alternative embodiment of the invention wherein a flexible wrapper is constructed from relatively rigid vertical slats interconnected by flexible wires; FIGURE 8 is a front elevation view of the freight binding device of FIGURE 7 showing the same when in its foreshortened condition; FIGURE 9 is a top plan view of the folded freight binding device of FIGURE 8; and FIGURE 10 is a reduced perspective view of a further alternative embodiment of the invention wherein the flexible wrapper is constructed from relatively rigid vertical slats which are interconnected by flexible strip material.

Referring now to the drawings, FIGURE 1 shows a binding device 10 having a lightweight plywood base 12 of rectangular configuration which includes three parallel planks 14 secured to the underside thereof to provide support when for insertion of the blades of a two-wheel hand truck or the like. If desired, the base 12 may alternatively have nine blocks attached to its underside in such a manner that blades can be inserted under the base from all four sides. A plastic wrapper 16 is provided having a flap 18 at its lower edge which is of a length approximately equal to the width of the base 12 and which is secured to the base adjacent the rear edge thereon by heavy staples 20 or any other suitable connecting means. The plastic wrapper 16 is preferably made from a sheet of polyethylene plastic having a thickness of approximately 1/8 inch. Alternate designs involve wire frames covered with canvas or vertical wooden slats bound with wire and hinged so that they bend around the freight in the same manner as the plastic wrapper, and certain such alternative embodiments will be described later herein. The wrapper 16 may be of any desired height, and in the embodiment described in FIGURE 1 the length of the wrapper is approximately equal to the total length of three of the sides of the plywood base member 12. The wrapper 16 is generally rectangular in its configuration when laid out as a flat sheet, and while shown in solid form, it will be understood that various small apertures may be punched therein if desired in order to reduce its weight.

While the wrapper 16 comprises one unitary plastic sheet, it is intended to be folded in order to form in effect a back wall 16' and a pair of side walls 16", and to facilitate such folding the wrapper is scored along a plurality of vertical lines which act as hinges or fold lines. Thus, the wrapper 16 is scored along a vertical line 22a adjacent one back corner of the base 12, and additional spaced score lines are provided further outwardly along the length of the wrapper at 22b, 22c and 22d. The wrapper is similarly scored proximate the opposite rear corner of the base 12 as at score lines 24a, 24b, 24c and 24d. Consequently, if the wrapper is being bound is approximately the same as the width of the base 12, then the wrapper 16 can be wrapped about three sides of the shipment by bending the wrapper along the hinge lines 22a and 24a, the wrapper being held in tension around the freight by elastic cord means to be described hereinafter. However, if the freight is wider than the base 12 so as to extend beyond the base at the opposite side edges thereof, the wrapper can readily accommodate such variations in the size of the load and can be wrapped partially around the load by bending the wrapper at other hinge or score lines disposed outwardly of the score lines 22a and 24a.

A plurality of cords are attached at the ends of the wrapper 16 in order to hold the same in tension around freight parcels to be bound. Thus, at the end of the wrapper 16 three upper cords 26a are provided, and at the opposite end of the wrapper three upper cords 26b are provided. Similarly, three lower cords 28a are provided at one end of the wrapper, and three oppositely disposed lower cords 28b are provided at the other end of the wrapper. The various cords may be anchored to the ends of the wrapper 16 by any suitable means. For example, the cords 26a may extend through small apertures in the wrapper and be anchored thereto by enlarged head members 30 which are secured to the cords and are too large to pass through the apertures in the wrapper thereby anchoring the cords thereto.

The cords 26a are interconnected by common tie bars 32 in order to facilitate handling of the cords and prevent them from becoming tangled with one another, and the oppositely disposed cords 26b are interconnected by a tie bar 34 having a pair of hooks 36 thereon which have a common handle 38 secured thereto, the hooks 36 being adapted to hook onto one of the tie bars 32 associated with the cords 26a. Accordingly, in order to fasten the upper cords around a freight shipment disposed on the base 12 and thereby hold the wrapper 16 in tension in partially wrapped relation around the freight, the cords 26a and 26b are drawn across the front of the freight and the hooks 36 are hooked over one of the tie bars 32. In a similar manner, the lower cords 28a are interconnected by tie bars 40, and the opposite cords 28b are interconnected by a tie bar 42 having hooks 44 thereon and a common handle 46. In the embodiment of FIGURE 1, all of the cords shown comprise elastic shock cords which can be stretched around the freight and will thereby adjust to freight of various sizes.

FIGURE 4 shows a plurality of loaded corrugated shipping cartons indicated at C bound by the binder device 10 of FIGURE 1. In this particular instance, the total width of the stacked cartons C is approximately the same as the width of the plywood base 12, but the depth of the cartons is substantially greater than that of the base 12 and thus the freight extends well beyond the front edge of the base. However, the flexible wrapper 16 will fold so as to adjust to the size of the freight, and the elastic shock cords 26 and 28 are stretched about the front of the freight and hooked together so as to hold the wrapper in tension in partially wrapped relation around the freight.

FIGURE 5 provides a more complete illustration of the manner in which the freight binding device of the present invention is capable of adjusting or sizing itself to a particular shipment. In FIGURE 5, the binding device is shown in solid lines as when containing a freight shipment C having overall dimensions approximately equal to the dimensions of the base member 12. There is also shown in dotted lines at C' the approximate maximum width of a freight shipment which can be accommodated by the binder, and at C" there is shown the approximate maximum depth of a freight shipment which can be accommodated. It will be understood from the drawing that the binder 10 can accommodate freight shipments having a range in width from the width of the base 12 to a freight shipment having a range in depth from the depth of the base 12 to a depth of almost two times that of the base. FIGURE 5 further shows...
the manner in which the wrapper 16 can be folded along different hinge lines in accordance with the size of the shipment being bound. As previously indicated, the binding device 10 has no wheels and is intended when loaded to be transported to and from a highway trailer or the like by means of a special "twincar" hand truck which provides complete support of the unit load through two blades which are inserted to a depth of 3/4 of the base width. Accordingly, when the binder is disposed in a highway trailer, there is only approximately 1/2 inch of space loss between the floor of the trailer and the bottom of the lowest carton stacking on the binder base. And in addition, the binder will remain stationary in the trailer without need for any tie-down means or the like to immobilize it. When not loaded, the binder 10 is fully collapsible to a condition where it is less than two inches thick, and since it does not weight more than about 25 pounds, it can be readily carried from a truck to a loading terminal. FIGURES 2 and 3 show the binder 10 in its collapsed condition, and it will be seen that the base 12 can be folded up against the back 16 of the wrapper 16, and then the ends 16' of the wrapper folded about the base in overlapping relation to provide an unusually compact arrangement.

The wrapper 16 disclosed hereinabove may be made of several materials but in its more lasting version is preferably made of plastic, and while various types of plastic may be used, it has been found that polypropylene plastic is particularly well suited, one example of such material being "Tenele" polypropylene manufactured by Eastman Chemical Products, Inc. Polypropylene plastic is extremely durable and shock resistant, and one of its special properties is its ability to form a hinge, since it is flexible and yet highly resistant to fatigue from flexing. In the embodiment described herein, the wrapper 16 is scored along a number of vertical lines to facilitate flexing of the wrapper, although it is understood that the wrapper could be provided without such scoring, if made of a sufficiently flexible material.

One of the important features of the binding device of the present invention resides in its simplicity, since it need comprise only a base member, a flexible generally upright wrapper secured to the base, preferably along only one edge of the latter, and a plurality of cords or straps attached to the wrapper. The wrapper is preferably a unitary sheet of plastic which is flexible enough to fold along different vertical hinges or fold lines or the like in accordance with the size of the freight being bound, and yet is desirable that the wrapper have enough rigidity so that it will stand up by itself approximately as indicated in FIGURE 1. However, it is important to understand that the wrapper may take other forms, provided it is an upright wrapper capable of being secured to a base member and capable of bending or folding about a plurality of different vertical hinges. For example, the wrapper might be formed from wire bound crate material comprising a plurality of vertical wooden slats interconnected by wires with hinges formed by hooking the wires together in loops, and one particular wire bound wrapper comprised of vertical slats will be described later herein.

It will of course be understood that the present invention is based on the concept that most freight such as that packed in corrugated shipping cartons is durable and is designed to withstand many handleings and relatively rough treatment during transportation. Consequently, such freight is sufficiently strong in itself to withstand normal abuse and to withstand a tension wrap as when bound by the binding device 10. Accordingly, the principal purpose of the binder 10 is not so much to protect the freight as it is to unite the freight and thereby eliminate individual piece handling.

While the binder of the present invention can to a very large extent size itself to a particular load, it may still be found desirable to provide such binders in more than one size, and in addition, vertical extensions may be provided to increase the height thereof as will be described more fully hereinafter. Cube loss is substantially eliminated since the binder itself substantially assumes the shape of the freight wrapped therein. While various sizes may be utilized, one size found to be particularly useful comprises a base member 30 inches in width and 30 inches in depth, and with such an arrangement it is possible to accommodate freight as wide as 58 inches or as deep as 45 inches, due to the fact that the freight may extend well beyond the base on three sides thereof.

FIGURE 6 shows an alternative embodiment of the invention wherein a lightweight plywood base 50 has an upright plastic wrapper 52 secured thereto by applying staples 54 to a flap 56 at the bottom of the wrapper, the wrapper being secured to the base only along one edge thereof. In this embodiment, the wrapper 52 is of a length approximately equal to the total periphery of the base 50, and three series of spaced vertical score lines are formed at 58, 60 and 62 thus providing three distinct hinge areas which permit wrapping of the wrapper 52 about a freight shipment positioned on the base 50. It will thus be understood that when folded about a freight shipment, the wrapper 52 may in effect form four wall portions in contrast with the three wall portions formed by the binder of FIGURE 1. In order to secure the wrapper 52 in tension about a freight shipment, spaced straps or strips of material 64 are secured along their length in horizontal parallel relation to one end of the wrapper, and a plurality of corresponding straps 66 each have one end anchored by any suitable means to the other end of the wrapper.

The straps 64 and 66 may be made from a substantially non-elastic material known as "Velcro" which sticks together when pressed in overlapping relation to provide a connection having considerable strength in tension. Thus, after stacking a shipment of freight on the plywood base 50, the wrapper 52 is folded and wrapped at least partially around the freight, and the straps 64 are then laid on top of the corresponding strap members 64 and pressed thereagainst to hold the wrapper securely in tension about the freight. FIGURE 6 further shows a vertical wrapper extension 52' having a plurality of vertical "Velcro" straps 68 anchored thereto at one end for cooperation with strips 70 of "Velcro" secured along their length in vertical parallel relation adjacent the upper end of the wrapper 52. Accordingly, in order to accommodate shipments of greater height than the wrapper 52, the wrapper extension 52' may be connected to the upper end of wrapper 52, and straps 64' and 66' are provided on the extension for holding the same in tension around the freight.

Reference is now made to FIGURES 7-9 which illustrate an alternative embodiment of the present invention wherein a flexible wrapper member is comprised of vertical wooden slats interconnected by flexible wires. FIGURE 7 shows a plywood base member 72 which has nine spaced blocks 74 secured to the underside thereof (as best shown in FIGURE 8). An upright rear wall member 76 is hingely connected at its lower end to the base member 72 adjacent the rear edge of the latter. In the embodiment shown the hinged connection is provided by a strip of flexible canvas cloth or the like 78 which is secured by heavy staples 80 both to the lower end of the rear wall member 76 and the rear end of the base member 72, although it will be clear that other forms of hinged connections may be utilized. The rear wall 76 in the embodiment described is made of plywood material similar to the base 72, although normally it need not be as thick as the base.

A plurality of wires 82a, 82b, 82c, 82d and 82e extend generally horizontally across the back of the rear wall 76 and are secured to such wall by a plurality of heavy staples. The wires may be made of various materials including metal, but in the preferred embodiment they are fabricated from a plastic material such as poly-
propylene, and they are of a diameter of approximately 0.125 inch or less. It will be seen that the two wires 82a and 82b are disposed fairly close together near the upper end of the rear wall 76, the two wires 82a and 82b are disposed fairly close together more toward the lower end of the rear wall 76, and the wire 82c is disposed approximately intermediate the first-mentioned two pairs of wires.

It will be seen from FIGURE 7 that the five wires 82a and 82b are each longer than the width of the rear wall 76 and thus extend well beyond the side edges of the latter. Furthermore, a plurality of wooden vertical slats 84 are interconnected by means of the several wires 82 which are secured to the slats by heavy staples 86. At one side of the rear wall 76, the wires 82 extend beyond the end of the rear wall by a distance approximately equal to the width of the rear wall so that together with the slats 84 to which they are secured they define a flexible side wall or wrapper portion indicated generally at 88. At the other side of the rear wall 76, the wires 82 extend beyond the end of the rear wall by a distance approximately equal to twice the width of the rear wall, so as to define a flexible side wall or wrapper portion indicated generally at 90 which can be folded so as to comprise both a side wall and a front wall in the manner of the embodiment of FIGURE 6. In other words, the particular embodiment being described will provide a wrapper comprising in essence four upright wall portions which depending upon the size of the load may be wrapped substantially around the entire load. It will be understood, however, that the length of the wall 90 may if desired be only approximately as long as the wall 88 so as to define only a side wall member, in which case the attached tension cords to be described hereinbelow would be stretched across the front of the load to complete a tension wrap.

Three tension cords 92a, 92b and 92c each have one end anchored to the last vertical slat 84 of the upright wall 90, and each carries a hook at its other end as indicated at 94a, 94b and 94c. Accordingly, a load to be bound may be disposed on the base 72 and may overlap the base on any of three sides thereof in the manner previously described, and the flexible wrapper comprising the wall members 88 and 90 may then be wrapped about the load. The hooks 92 which extend from the wrapper wall portion 90 may be hooked over one of the vertical slats 84 of the wrapper wall portion 88 so as to secure the wrapper in tension about a freight shipment. In addition, as shown in FIGURE 7, a pair of plastic semi-elastic straps 96a and 96b are connected to the base member 72 and extend inwardly beyond the perimeter of the base member 72.

The straps 96a and 96b have snap members at the ends thereof which cooperate with selected ones of a plurality of apertures 98 formed in the slats 84 which constitute the wrapper wall member 90. Thus, after the wall members 88 and 90 are wrapped about the load, the straps 96a and 96b may be extended upwardly over the outside of the wall member 90 and the ends of such straps may be snapped into selected ones of the apertures 98 to secure the straps to the slats 84. In this manner, the base 72 is tied together with the front face of the utilised load so as to prevent the base from pulling away from the load.

It will be understood from the foregoing that the embodiment of FIGURES 7-9 provides a flexible wrapper which can be bent or folded about a vertical axis between any desired pair of adjacent vertical slats 84. The slats 84 are themselves relatively rigid and in the embodiment described are made of wood, but the wires 82 are flexible and in the embodiment described are made of plastic. Thus, due to the flexibility of the wires, the wrapper walls 88 and 90 can be folded along a vertical axis at any of the locations where the wires extend between adjacent vertical slats. Accordingly, the embodiment of FIGURES 7-9 will provide substantially the same advantages previously described with respect to the embodiment of FIGURES 1-5 and will size itself to a load substantially in the manner illustrated in FIGURE 5.

It will be noted that the flexible wrapper 16 of FIGURE 1 is flexible throughout its length, whereas the upright wall members in the embodiment of FIGURE 7 comprise the rigid rear wall 76 together with the flexible wrapper walls 88 and 90. The fact that the rear wall 76 is rigid does not minimize the versatility of the wire bound wrapper of FIGURE 7, since the freight shipment to be bound can still extend beyond the base 72 on three sides thereof in the same manner as in the embodiment of FIGURE 1, and the wrapper walls 88 and 90 can wrap around the load and bend at various locations depending upon the size of the load. On the other hand, it will be understood that if desired the rigid rear wall 76 may be eliminated and a plurality of vertical slats 84 substituted therefor, in which case the lower ends of some of the slats would be hingedly connected to the base 72.

Referring to FIGURES 8 and 9, the freight binder of FIGURES 7-9 is collapsed by first folding the base member 72 upwardly so that it lies against the front of the upright wall 76, then folding the flexible wrapper wall member 88 across the front or outside of the upright base member, and then wrapping the wrapper member 90 first around the collapsed front of the collapsed binder so as to overlie the wall 88 and then around the back of the rear wall 76. The elastic cords 92 may be extended horizontally and the hooks 94 hooked onto one of the vertical slats 84 so as in effect to tie the collapsed binder together in a compact package. It is a significant advantage of this embodiment of the invention that when the binder is collapsed the feet or base blocks 74 will extend between pairs of adjacent vertical slats 84. By spacing the vertical slats 84 far enough apart to accommodate the blocks 74 therebetween when the binder is collapsed in the manner described above, the resultant thickness of the collapsed binder is reduced appreciably.

FIGURE 10 shows a further modification of the freight binding device of the present invention comprising a base 100, an upright rear wall 102 which is hingedly connected at its lower end to the base, a plurality of horizontal straps 104 made of canvas or plastic or other flexible material, and a plurality of vertical wood slats 106, the straps being connected to the back of the rear wall 102 and the several slats being interconnected by the flexible straps which are secured thereto. The resulting upright portion of the binder comprises the rear wall 102 and a pair of flexible wrapper wall portions indicated generally at 110. The embodiment of FIGURE 10 differs from the embodiment of FIGURES 7-9 principally in that the flexible straps 104 are provided rather than the flexible wires 82, and also because the two flexible wrapper portions 108 and 110 are approximately of equal length. The ends of the straps 104 may be secured to one another in the manner described relative to the straps 66 of FIGURE 6 in order to hold the wrapper in tension about a freight shipment.

While I have described my invention in certain preferred forms, I do not intend to be limited to such forms, except insofar as the appended claims are limited, since modifications and changes within the scope of my invention will readily occur to those skilled in the art, particularly with my disclosure before them.

Now referring to the appended claims:

1. A freight binding device for binding together less than truck load freight shipments or other merchandise, comprising, in combination, a generally rectangular base member for vertically supporting a freight shipment to be bound, generally upright shipment means secured at its lower end to the base, said binding means having at least one edge of the latter for at least partial wrapping around a freight shipment disposed on said base, said binding means being of a length equal to at least approximately one-half the perimeter of said base and being flexible about a plurality of different approximately vertical axes in order to permit
9 wrapping thereof around freight of various overall dimensions, whereby the wrapper will size itself to the freight while permitting the latter to extend beyond said base at sides thereof not connected to said wrapper, and releasable connecting means associated with said wrapper for holding the same in tension in at least partially wrapped relation around said freight.

2. A freight binding device for binding together less than truck load freight shipments or other merchandise, comprising, in combination, a base member for vertically supporting a freight shipment to be bound, said base being generally rectangular and having front and rear edges and a pair of oppositely disposed side edges, generally upright wrapper means secured at its lower end along the rear edge of said base for at least partial wrapping around a freight shipment disposed on said base, said plastic sheet being of a length equal to at least approximately one-half the perimeter of said base and being flexible about a plurality of different approximately vertical fold lines in order to permit wrapping thereof around freight of various overall dimensions, whereby the plastic sheet will size itself to the freight while permitting the latter to extend beyond said base at sides thereof not connected to said sheet, and releasable connecting means associated with said plastic sheet for holding the same in tension in at least partially wrapped relation around said freight.

3. A freight binding device for binding together less than truck load freight shipments, comprising, in combination, a base member for vertically supporting a freight shipment to be bound, said base being generally rectangular and having front and rear edges and a pair of oppositely disposed side edges, generally upright wrapper means of a length at least approximately equal to the total length of the rear and side edges of said base and secured at its lower end along the rear edge of said base for at least partial wrapping around a freight shipment disposed on said base, said wrapper being free of the other three edges of said base and being flexible about a plurality of different approximately vertical axes in order to permit wrapping thereof around freight of various overall dimensions, whereby the wrapper will size itself to the freight while permitting the latter to extend beyond said base at said other three edges thereof, and releasable connecting means associated with said wrapper for holding the same in tension in at least partially wrapped relation around said freight.

4. The invention of claim 3 wherein said wrapper means is also flexible about a generally horizontal axis proximate to the rear edge of said base to permit said base to be folded up against said wrapper means in order to collapse said freight binding device.

5. A freight binding device for binding together less than truck load freight shipments, comprising, in combination, a rigid base member for vertically supporting a freight shipment to be bound, said base being generally rectangular and having front and rear edges and a pair of oppositely disposed side edges, wrapper means of a length at least approximately equal to the total length of the rear and side edges of said base and secured at its lower end along the rear edge of said base for at least partial wrapping around a freight shipment disposed on said base, said wrapper means being free of the other three edges of said base, and said wrapper means being sufficiently rigid to normally stand generally upright from said base and yet being flexible about a plurality of different approximately vertical axes in order to permit wrapping thereof around freight of various overall dimensions, whereby the wrapper will size itself to the freight while permitting the latter to extend beyond said base at said other three edges thereof, and releasable connecting means associated with said wrapper means for holding the same in tension in at least partially wrapped relation around said freight.

6. A freight binding device for binding together less than truck load freight shipments, comprising, in combination, a generally rectangular rigid base member for vertically supporting a freight shipment to be bound, generally upright wrapper means comprising a unitary plastic sheet secured at its lower end to said base along at least one edge of the latter for at least partial wrapping around a freight shipment disposed on said base, said plastic sheet being of a length equal to at least approximately one-half the perimeter of said base and being flexible about a plurality of different approximately vertical fold lines in order to permit wrapping thereof around freight of various overall dimensions, whereby the plastic sheet will size itself to the freight while permitting the latter to extend beyond said base at sides thereof not connected to said sheet, and releasable connecting means associated with said plastic sheet for holding the same in tension in at least partially wrapped relation around said freight.

7. The invention of claim 6 wherein said wrapping means is made from a sheet of polypropylene plastic.

8. A freight binding device for binding together less than truck load freight shipments, comprising, in combination, a generally rectangular rigid base member for vertically supporting a freight shipment to be bound, wrapper means comprising a unitary plastic sheet secured at its lower end to said base along at least one edge of the latter for at least partial wrapping around a freight shipment disposed on said base, said plastic sheet being of a length equal to at least approximately one-half the perimeter of said base and being sufficiently rigid to normally stand generally upright from said base, and said plastic sheet being secured along a plurality of different approximately vertical fold lines in order to increase the flexibility of said plastic sheet about such lines and thereby permit wrapping of said plastic sheet around freight of various overall dimensions, whereby said plastic sheet will size itself to the freight while permitting the latter to extend beyond said base at said other edges thereof and releasable connecting means associated with said plastic sheet for holding the same in tension in at least partially wrapped relation around said freight.

9. A freight binding device for binding together less than truck load freight shipments, comprising, in combination, a rigid base member for vertically supporting a freight shipment to be bound, said base being generally rectangular and having front and rear edges and a pair of oppositely disposed side edges, wrapper means comprising a unitary plastic sheet secured at its lower end along the rear edge of said base for at least partial wrapping around a freight shipment disposed on said base, said plastic sheet being of a length equal to at least approximately one-half the perimeter of said base and being sufficiently rigid to normally stand generally upright from said base, and said plastic sheet being flexible about a plurality of different approximately vertical fold lines in order to permit wrapping thereof around freight of various overall dimensions, whereby the plastic sheet will size itself to the freight while permitting the latter to extend beyond said base at said other three edges thereof, and releasable connecting means associated with said plastic sheet for holding the same in tension in at least partially wrapped relation around said freight.

10. The invention of claim 9 wherein said plastic sheet is scored along said plurality of different approximately vertical fold lines in order to increase the flexibility of said plastic sheet about such lines.

11. The invention of claim 9 wherein said plastic sheet is also flexible about a generally horizontal fold line proximate to the rear edge of said base to permit said base to be folded up against said plastic sheet in order to collapse said freight binding device.

12. The invention of claim 9 wherein said plastic sheet is made from polypropylene plastic.

13. The invention of claim 9 wherein the length of said
plastic sheet is at least approximately equal to the total length of the rear and side edges of said base.

14. The invention of claim 9 wherein said connecting means comprises elastic cords secured in vertically spaced relation at opposite ends of said plastic sheet.

15. The invention of claim 9 wherein said connecting means comprises substantially non-elastic strips secured in vertically spaced relation at opposite ends of said plastic sheet.

16. A freight binding device for binding together less than truck load freight shipments, comprising, in combination, a rigid base member for vertically supporting a freight shipment to be bound, said base being generally rectangular and having front and rear edges and a pair of oppositely disposed side edges, wrapper means comprising a unitary plastic sheet of a length at least approximately equal to the total length of the rear and side edges of said base and secured at its lower end along the rear edge of said base for at least partial wrapping around a freight shipment disposed on said base, said plastic sheet being free of the other three edges of said base and being sufficiently rigid to normally stand generally upright from said base, said plastic sheet being scored to render the same flexible about a plurality of different approximately vertical fold lines in order to permit wrapping thereof around freight of various overall dimensions, whereby said plastic sheet will size itself to the freight while permitting the latter to extend beyond said base at said other three edges thereof, and said plastic sheet also being flexible horizontally at the generally horizontal fold line proximate to the rear edge of said base to permit said base to be folded up against said wrapper means in order to collapse said freight binding device, and releasable connecting means associated with said plastic sheet for holding the same in tension in at least partially wrapped relation around said freight.

17. A freight binding device for binding together less than truck load freight shipments or other merchandise, comprising, in combination, a generally rectangular base member for vertically supporting a freight shipment to be bound, generally upright wrapper means secured at its lower end to said base along at least one edge of the latter for at least partial wrapping around a freight shipment disposed on said base, said wrapper means being of a length equal to at least approximately one-half the perimeter of said base and including a plurality of relatively rigid slats disposed approximately vertically and in spaced apart side-by-side relation, flexible means interconnecting said plurality of slats so as to render said generally upright wrapper flexible about a plurality of different approximately vertical axes intermediate adjacent slats in order to permit wrapping thereof around freight of various overall dimensions, whereby the wrapper will size itself to the freight while permitting the latter to extend beyond said base at sides thereof not connected to said wrapper, and releasable connecting means associated with said wrapper for holding the same in tension in at least partially wrapped relation around said freight.

18. A freight binding device for binding together less than truck load freight shipments or other merchandise, comprising, in combination, a base member for vertically supporting a freight shipment to be bound, said base being generally rectangular and having front and rear edges and a pair of oppositely disposed side edges, generally upright wrapper means secured at its lower end along the rear edge of said base for at least partial wrapping around a freight shipment disposed on said base, said wrapper being free of the other three edges of said base, and said wrapper comprising a plurality of relatively rigid slats disposed approximately vertically and in spaced apart side-by-side relation, flexible means interconnecting said plurality of slats so as to render said generally upright wrapper flexible about a plurality of different approximately vertical axes intermediate adjacent slats in order to permit wrapping thereof around freight of various overall dimensions, whereby the wrapper will size itself to the freight while permitting the latter to extend beyond said base at said other three edges thereof, and releasable connecting means associated with said wrapper for holding the same in tension in at least partially wrapped relation around said freight.

19. The invention of claim 17 wherein said flexible means for interconnecting said slats comprises a plurality of flexible wires which extend generally transversely to said vertical slats and are secured thereto.

20. The invention of claim 17 wherein said vertical slats are made of wood and said flexible means for interconnecting said slats comprises a plurality of flexible wires which extend generally transversely to said vertical slats and are secured thereto.

21. The invention of claim 17 wherein said flexible means for interconnecting said slats comprises a plurality of flexible strips of fabric which extend generally transversely to said vertical slats and are secured thereto.

22. A freight binding device for binding together less than truck load freight shipments or other merchandise, comprising, in combination, a base member for vertically supporting a freight shipment to be bound, said base being generally rectangular and having front and rear edges and a pair of oppositely disposed side edges, a generally upright relatively rigid rear wall hingedly secured at its lower end along the rear edge of said base, and generally upright wrapper means secured at each end of said rear wall for at least partial wrapping around a freight shipment disposed on said base, said wrapper means being free of the other three edges of said base, and said wrapper comprising a plurality of wooden slats disposed approximately vertically and in spaced apart side-by-side relation, a plurality of plastic wires extending generally transversely to said plurality of slats and secured thereto so as to interconnect said slats and render said wrapper flexible about a plurality of different approximately vertical axes intermediate adjacent slats in order to permit wrapping thereof around freight of various overall dimensions, whereby the wrapper will size itself to the freight while permitting the latter to extend beyond said base at said other three edges thereof, and releasable connecting means associated with said wrapper for holding the same in tension in at least partially wrapped relation around said freight.

23. The invention of claim 22 wherein the length of said wrapper means including the length of said upright rear wall is at least approximately equal to the total length of the rear and side edges of said base.

References Cited
UNITED STATES PATENTS
2,696,360 12/1954 Toffolon --------- 108—55
THERON E. CONDON, Primary Examiner.
JAMES B. MARBERT, Examiner.