No. 744,405. PATENTED NOV. 17, 1903.

P. A. RENO.

PACKING OR SHIPPING BOX.

APPLICATION FILED DEC. 20, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

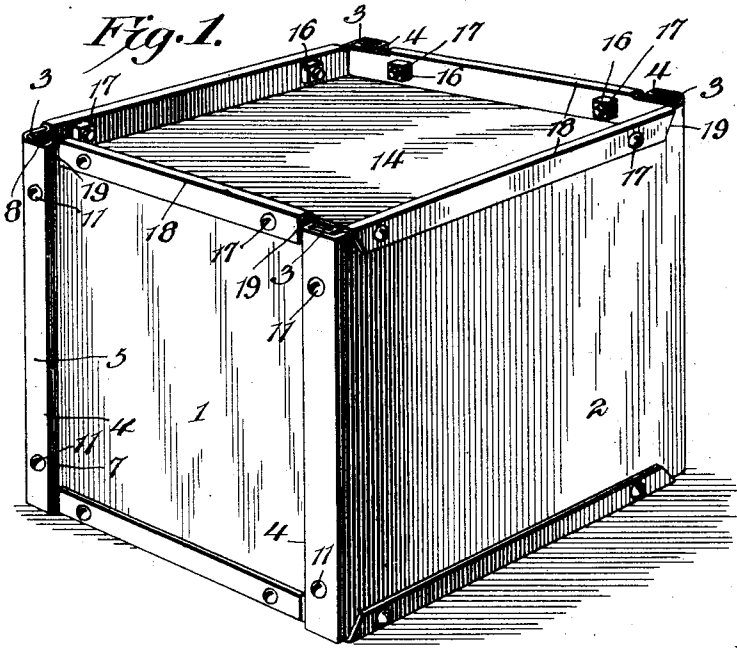


Fig. 7.

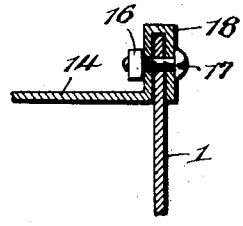


Fig. 8.

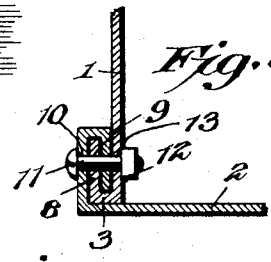


Fig. 2.

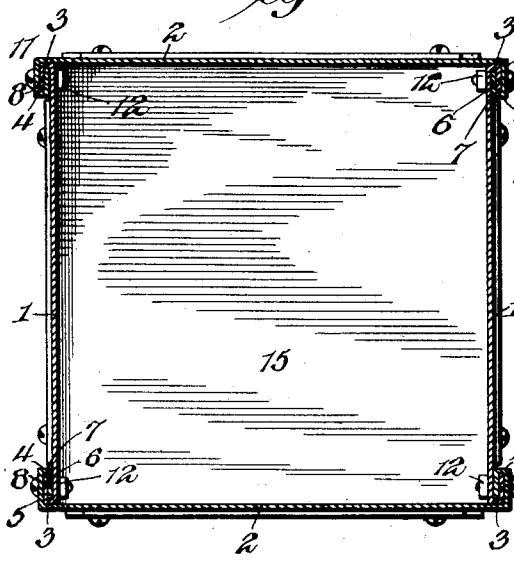
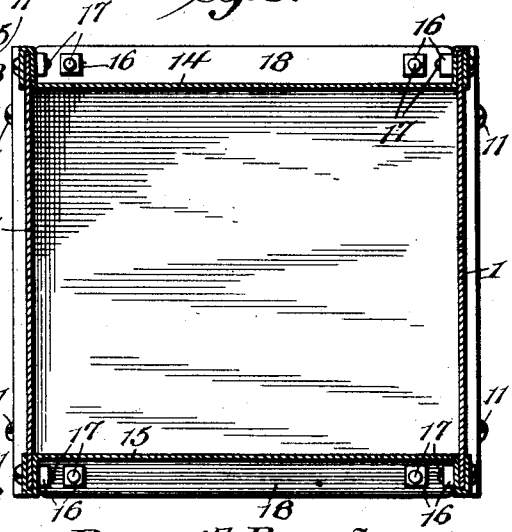


Fig. 3.



Perry A. Reno, Inventor,

By E. G. Siggers

Attorney

Witnesses
Howard W. Orr.
H. C. Riley

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 744,405. PATENTED NOV. 17, 1903.

P. A. RENO.

PACKING OR SHIPPING BOX.

APPLICATION FILED DEC. 20, 1902.

NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.

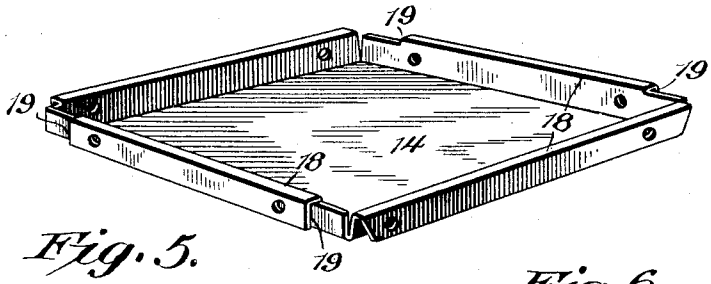


Fig. 5.

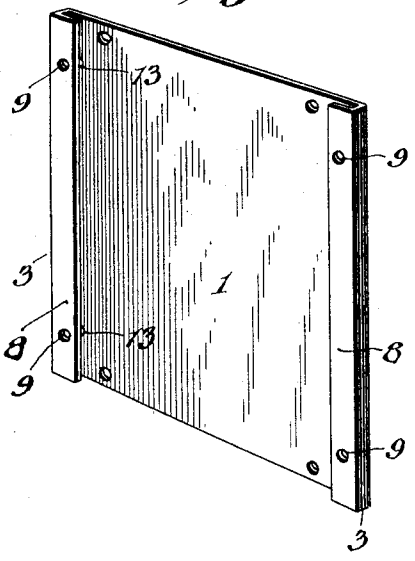
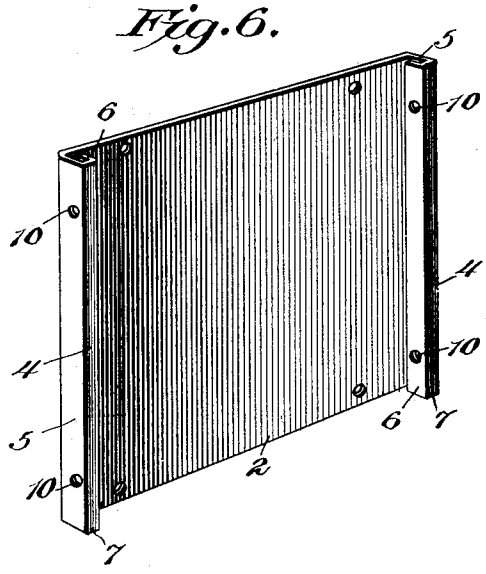


Fig. 6.



Witnesses
Howard D. Orr.
J. F. Riley

Perry A. Reno, Inventor,
By E. G. Siggers.
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 744,405. Patented November 17, 1903.

UNITED STATES PATENT OFFICE.

PERRY ALLEN RENO, OF REYNOLDSVILLE, PENNSYLVANIA.

PACKING OR SHIPPING BOX.

SPECIFICATION forming part of Letters Patent No. 744,405, dated November 17, 1903.

Application filed December 20, 1902. Serial No. 136,002. (No model.)

To all whom it may concern:

Be it known that I, PERRY ALLEN RENO, a citizen of the United States, residing at Reynoldsville, in the county of Jefferson and State of Pennsylvania, have invented a new and useful Packing or Shipping Box, of which the following is a specification.

The invention relates to improvements in packing or shipping boxes.

The object of the present invention is to improve the construction of packing and shipping boxes and to provide a simple and comparatively inexpensive one of great strength and durability designed for the reception of all kinds of merchandise and adapted to be returned to the shipper in compact condition.

A further object of the invention is to provide a shipping or packing box adapted to protect its contents from rats and mice and capable of excluding water and of being either knocked down or nested for storing or returning it.

Another object of the invention is to provide a shipping case or box which will be braced and supported by the joints or seams and which will be provided with bolts or similar fastening devices having exteriorly-arranged heads and capable of being applied to the top or cover after the same has been placed in position for closing the box.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the claims hereto appended, it being understood that changes in the form, proportion, and minor details of construction within the scope of the claims may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a shipping case or box constructed in accordance with this invention. Fig. 2 is a horizontal sectional view of the same. Fig. 3 is a vertical sectional view. Fig. 4 is a detail perspective view of the top of the box. Figs. 5 and 6 are detail perspective views illustrating the construction of the sides of the box. Fig. 7 is an enlarged detail vertical sectional view illustrating the manner of securing the top of the box to the sides. Fig. 8 is a horizontal sectional view of one corner of the box.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 and 2 designate the sides of a shipping or packing box constructed of malleable sheet metal, such as steel or galvanized iron or the like, and designed as a substitute for wooden boxes or cases and to be returned to the shipper to be used again. The sides 1 and 2 are slidably interlocked to enable the box to be knocked down or taken apart and compactly arranged for storing or returning it, and the said side 1 is provided at its opposite vertical edges with approximately L-shaped flanges 3, formed by bending the said edges outward and then inward in a direction parallel with the plane of the side 1. The vertical edges of the side 2 are bent to form approximately U-shaped flanges 4, composed of sides or portions 5 and 6 and a transverse connecting portion 7. The side portions 5 extend outward at right angles to the side 2, and the transverse portions 7 are arranged in planes parallel with the side 2, the side portions 6 of each flange 4 being arranged between the transverse portion and the side 2 and terminating short of the latter to provide a narrow space or entrance to receive the outwardly-extending portion of the adjacent flange 3 of the side 1. The inwardly-extending portion 8 of the flange 3 fits within the space or opening within the approximately U-shaped flange 4 of the side 2 and is adapted to slide into and out of the same, the flanges 3 and 4 being moved longitudinally of each other to effect a separation or an assembling of the parts. By this construction the flanges are held against lateral movement on each other and can be separated only by sliding them longitudinally, as before explained. When the slidably-connected interlocked flanges are connected, as illustrated in Figs. 2 and 8 of the accompanying drawings, solid reinforcing or bracing portions are provided at the corners of the box, which is sufficiently strengthened and supported by such construction to obviate the necessity of employ-

ing separate braces or cleats. The vertical flanges 3 and 4 are provided with registering perforations 9 and 10 for the reception of bolts 11 or other suitable fastening devices for securing the sides together; but when the box is constructed of very light material and the goods or merchandise is also light the corner-fastening devices may be omitted, as the top and bottom fastening devices hereinafter described will be sufficient to hold the parts in position. The corner-bolts 11 have their nuts 12 arranged on the interior of the box or case to prevent them from coming in contact with the supporting-surface and other objects, and the heads of the bolts are preferably rounded and provided with grooves for the reception of the blade of a screw-driver or other tool. The side 1 is provided in its body portion with perforations 13, which are alined with the perforations 9 for the reception of the corner-bolts, which pass through the four thicknesses of the material, as clearly illustrated in Fig. 8 of the drawings, whereby the corner-flanges are securely held together and are enabled to form corner braces or supports, and thereby obviate the necessity of reinforcing the sheet metal by cleats or the like. The sheet metal may be of any desired thickness to adapt the box to the character of goods for which it is intended, and the corner-braces formed by the overlapped slidably-interlocked seams will effectually prevent the box from collapsing under any strain incident to its use.

The top 14 and the bottom 15 of the box are constructed in the same manner, and each is inwardly offset from the adjacent edges of the sides 1 and 2 and is arranged within the box to provide spaces for the reception of the nuts 16 of the bolts 17 for securing the flanges 18 of the top and bottom to the sides 1 and 2. The flanges 18, which are approximately U-shaped in cross-section, extend outward in vertical planes from the top and bottom 14 and 15 and cap the end edges of the sides 1 and 2 at the top and bottom of the box, thereby reinforcing the projecting side edges between the corner-seams. The inner sides of the flanges 18 are continuous and extend to the corners of the box, while the outer sides terminate short of the corners of the top and bottom to provide corner-spaces 19 to clear the corner-seams of the body of the box. By inwardly offetting the top and bottom of the box from the upper and lower edges of the sides spaces for the nuts of the bolts are not only provided, but the bolts are also enabled to be applied after the top of the box has been placed in position. The upper and lower edges of the sides 1 and 2 are provided with perforations which register with corresponding perforations of the U-shaped horizontal flanges 18 for the reception of the top and bottom bolts. These flanges 18 are provided with inner and outer vertical sides and a connecting portion, the inner sides being arranged at the inner faces of the sides of the box and the outer sides being located on the exterior of the same, as clearly indicated in Fig. 7 of the drawings. These top and bottom seams, which are located beyond the top and bottom portion of the box, reinforce the latter between the vertical corner-seams, thereby forming a frame or bracing around the top and bottom of the box. By reinforcing the box at the upper and lower edges and at the corners the sheet metal is effectually prevented from collapsing in any position in which the box may be placed.

The box may be readily opened by removing the fastening devices at the top thereof, and ready access may be had to the bolts and nuts for this purpose. After the goods have been removed from the box the latter may be compactly arranged for storing or returning to the shipper by separating the sides and the bottom. Instead of separating the parts of the box for this purpose boxes may be constructed of different sizes to enable them to be compactly nested.

It will be seen that the box, which is exceedingly simple and inexpensive in construction, possesses great strength and durability and that it is capable of effectually protecting its contents during shipment and storing from rats, mice, water, and the like. It will also be apparent that the sheet-metal box, which is reinforced at the upper and lower edges and at the corners by solid braces, is prevented from collapsing and that these braces are formed by folding the edges of the sheet metal to provide seams for connecting the parts. Furthermore, it will be clear that the corner-seams are composed of slidably-interlocked flanges, which permit a ready separation of the parts to enable the box to be compactly folded for storing or for returning it to the shipper. The sheet-metal box is adapted to subserve all the purposes of the ordinary wooden box or crate, and it may be continuously used and is not injured in opening it or closing it.

Any number of bolts may be employed at the seams of the shipping case or box, and they may be painted, stained, or otherwise coated to prevent them from rusting.

What I claim is—

A sheet-metal packing or shipping box comprising sides 1 and 2, the side 1 being provided with exteriorly-arranged L-shaped flanges having outer portions arranged in a plane parallel with the side 1, and the side 2 being provided with approximately U-shaped flanges arranged at right angles to the side 2 and having inner portions terminating short of the same to provide spaces for the L-shaped flanges, said flanges being slidably interlocked and forming solid corner-braces, and the top and bottom fitted within the sides and provided with outwardly-extending approximately U-shaped flanges fitting over the

edges of the sides 1 and 2, the inner sides of the U-shaped flanges being continuous and extending to the corners of the box, and the outer sides of the said U-shaped flanges being spaced apart at their ends to receive the corner-braces, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

PERRY ALLEN RENO.

Witnesses:
FRANK H. BECK,
IRA S. SMITH.