W. R. BETHAM.

EDGE PROTECTOR FOR TIED BOXES.

APPLICATION FILED JAN. 18, 1911.

1,041,413.

Patented Oct. 15, 1912.

Fig. 1.

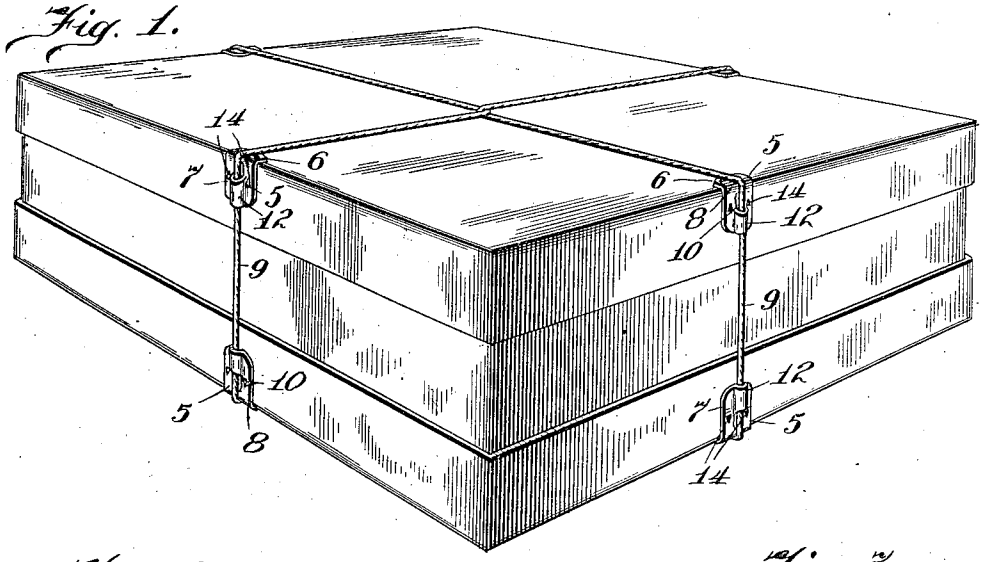


Fig. 2.

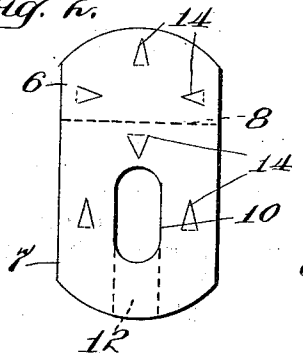


Fig. 3.

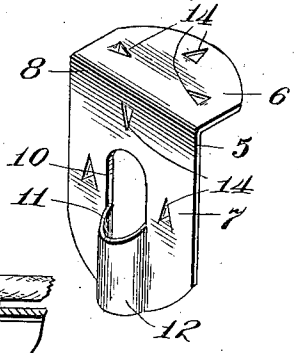


Fig. 4.

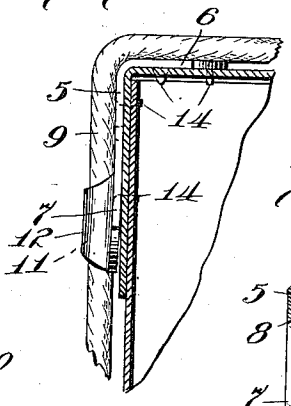


Fig. 5.

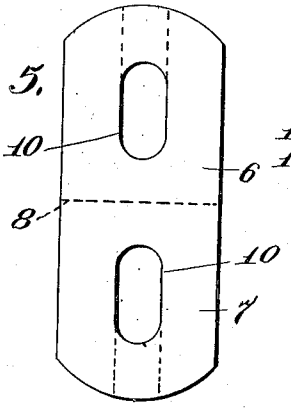
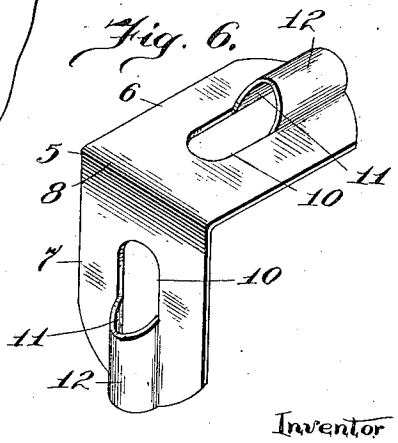


Fig. 6.



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EDGE-PROTECTOR FOR TIED BOXES.

1,041,413. Specification of Letters Patent. Patented Oct. 15, 1912.

Application filed January 18, 1911. Serial No. 603,217.

To all whom it may concern:

Be it known that I, WILLIAM R. BETHAM, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Edge-Protectors for Tied Boxes, of which the following is a specification.

My invention relates to improvements in edge protectors for tied boxes, and more particularly to protecting devices constructed for interposition between the tying cord and the "edges" or edge-angles of the box to be tied.

Among the salient objects of my invention are to provide such a structure for contact with both faces of the box which meet to form the edge, so that the cutting pressure of the cord normally applied at the point of passage over the edge, is spread over and sustained by an adequate portion of the box edge and walls to prevent indentation of the edge; to provide for maintenance of the protector in proper position under the cord so that loose tying of the box or slackness due to stretching will not permit the protectors to slip out of position under the loosened cord or drop out; and to provide such a protector which may be cheap and easy of construction, capable of use many times without destruction or damage, and, when applied to a box, not having objectionable projecting edges, and covering only a portion of the box local to each protected edge.

Other objects of my invention will become apparent to those skilled in the art from a consideration of the following description taken in conjunction with the accompanying drawings, wherein—

Figure 1 is a perspective view of a tied box with edge protectors applied thereto in accordance with my invention; Fig. 2 shows a blank used in the production of a form of my protector; Fig. 3 is an isometric view of an edge protector made from a blank shown in Fig. 2; Fig. 4 is a side elevation of the protector showing its relation to the cord and box when in use; and Figs. 5 and 6 show respectively the blank and completed protector of a modified embodiment of my invention.

In the embodiment of my invention, I provide a sheet metal protector formed by two surfaces meeting at right angles to interfit with the edge of the box, the meeting surfaces or legs of the protector lying therefore in contact with the surfaces of the box on each side of the box edge. When such a protector is placed between the cord and the box edge, it prevents the cord from biting into the box by spreading the pressure of the cord, due to tight binding or to the lifting of a heavily loaded box by the cord, over a relatively large area of the box. My invention contemplates the use of such a structure and its provision in simple, durable, and efficient form for engagement with the cord for preventing displacement of the protector from its effective position, so that a box once tied with a protector at each edge, as shown in Fig. 1, cannot possibly have its edges exposed to cutting pressure of the cord while the cord continues to bind the box.

Specifically referring to Figs. 1 to 4, 5 indicates a protector providing legs 6 and 7, for contact with the walls of the box A, said legs meeting in a protecting edge 8, to receive in contact therewith the cord 9, which is to bind the box. In one of the legs 7 I provide an elongated perforation 10 of such size that the cord may be threaded therethrough, positively to maintain the device on the cord. As shown in Fig. 1, the cord passes over edge 8, through the perforation 10, and thence between the extremity of the leg and the box. For accommodation of the cord portion to underlie the extremity of leg 7 in substantial parallelism with said leg without kinking of the cord at the perforation or bending of the leg at such point as a result of forced straightening of the cord, I prefer that the perforated leg shall be provided on its under surface with a cord-receiving groove 11, extending between the perforation and the end of the leg. Thus, as shown in Fig. 4, the cord 9 may pass over the leg 6, edge 8, and a portion of leg 7, then pass through aperture 10 into groove 11, and along the groove to another edge of the box. Thus the cord will lie in a straight line very nearly parallel with the plane of the leg. It will be noted that by this arrangement, a portion 12 of the leg forming the groove lies over the cord and that the depth of the groove may be made to accommodate or substantially to accommodate the cord, so that the planar portions of the leg-end will fit down around the cord into contact or nearly into contact with the proximate box surface, while the remainder of the protecting device lies

under the cord and receives therefrom any damaging pressure which would otherwise mutilate the edge of the box. To prevent the protector from slipping, teeth or projections 14 may be struck inwardly, as shown in Figs. 2 and 3 to bite into the material of the package, but such teeth may, of course, be omitted as shown in Figs. 5 and 6.

It will be observed that the structure described may easily and cheaply be produced from sheet metal simply by manipulation of a blank shown in Fig. 2. The blank having been cut as shown, with an elongated aperture 10, may be pressed or tooled to form the groove 11, and bent along the line 8 to bring the legs 6 and 7 at any desired angle—generally a right angle—by a single operation, and the device is ready for use. It may be noted that the elongated aperture 10 is advantageous in several particulars, among which it may be noted that the elongation of said aperture leaves the flanking portions of the blank free to accommodate the drawing action incident to the formation of groove 11, and further that the opening, communicating with the mouth of groove 11 facilitates the passage of the cord into the groove and prevents kinking of the cord at such entrance. In the application of my invention, obviously, the protectors may be strung upon the cord in appropriate succession to bring one at each corner and the cord, after each protector is in position over the edge to be protected is drawn taut and fastened. When the box is thus tied, it will be obvious that slackness of the cord will not permit relative movement of the protector and cord, and the teeth 14 prevent movement of the protectors from side to side.

In Figs. 5 and 6, I have shown a modified form of my device like the one heretofore described except that both legs, instead of one, are perforated and grooved, so that the cord may be threaded through one leg, over the protecting edge, and out again through the other leg, thus providing a structure adding to the advantages of the form shown in Figs. 1 to 4, the feature of lessened ability of the protector to slide along the cord during application to the box or in the event of excessive slackness of the cord.

In both of the embodiments disclosed, it will be observed that the device includes a protecting corner or edge generally coinciding, when in position, with the true edge of the box, and on each side of the protecting edge planar surfaces for contact with the sides of the box adjacent the edge to be protected, so that pressure applied at the edge is borne by said surfaces; one or both of said surfaces providing a cord-receiving aperture, and a groove communicating therewith to accommodate a portion of the cord between the box and protector. While I have herein specifically described embodiments of my invention which I regard as commercially most advantageous, for purposes of full disclosure, it will be understood that variations may be made in the embodiment of my invention under its teachings and within the scope of the appended claim.

What I claim is:

An edge protector for tied boxes formed of a single piece of sheet metal bent to provide two legs meeting at an angle to overlie, respectively, contiguous portions of two sides of a box, one of said legs having in its central portion a relatively elongated and narrow aperture completely surrounded by the metal of the leg, and having the metal within the side edges of the leg between said aperture and the end of the leg bowed outwardly to form in the underside of the leg a relatively narrow groove alining with and opening into the aperture, the elongated aperture and groove forming a cord passage, through the leg and under said leg to its end, through which a cord may pass substantially without deflection.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

WILLIAM R. BETHAM.

In the presence of—
W. LINN ALLEN,
MARY F. ALLEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."