Dec. 27, 1955 C. F. HOLTKAMP 2,728,514

METAL STRIP FOR STAYING BOXES

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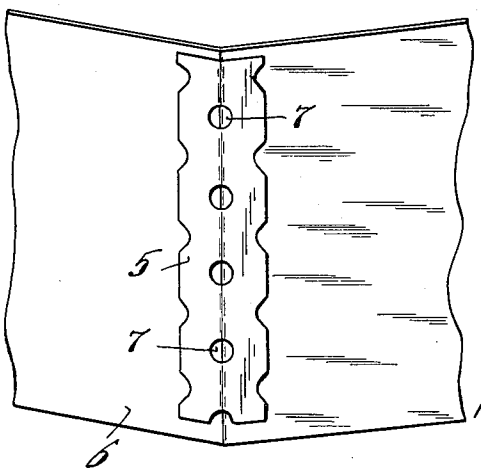


Fig. 1.

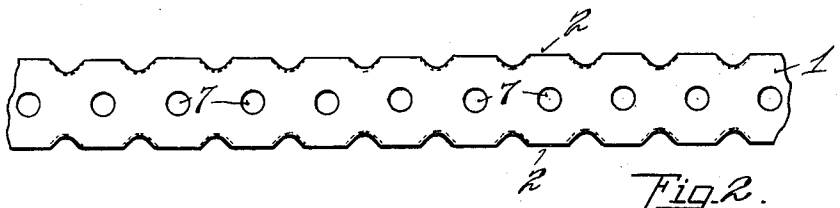


Fig. 2.

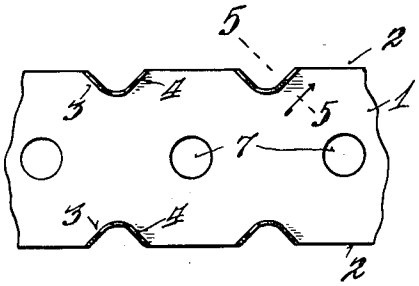


Fig. 3.

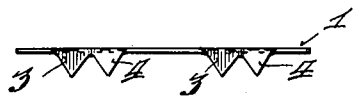


Fig. 4.

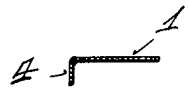


Fig. 5.

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METAL STRIP FOR STAYING BOXES

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4 Claims. (Cl. 229—49)

This invention relates to an improvement in strip metal strips as for binding the corners or meeting edges or the sides of paper board boxes or cartons to reinforce the same.

It has been a conventional practice for some uses of the paper board container or cartons to reinforce or stay the corners of the body thereof with a metal strip longitudinally bent at an angle to overlap the adjoining sides about the corners or meeting edges. A common type of stay has its opposite longitudinal edges of scallop or undulating design, of arcuate or semi-circular outline, and each scallop punched axially to form and extend a series of prongs or tangs laterally from the rear side of the strip about an aperture resulting in forming the prongs.

The prongs thus follow a circular aperture thereby correspondingly puncture the card board into which they are compressed, materially weakening the clinching hold of the prongs and which also tends to distort the edge of the scallops, retracting portions thereof outward from the plane of the strip forming obstructions along the opposite outer edges of the strip.

The scalloping also is wasteful in material and complicates the structure of the dies necessary for its manufacture. It was intended by insetting the indenture between the scallops to a greater degree, that the width of the strip intermediate of the scallops was reduced so that when the strip is cut transversely along a line midway between two adjacent scallops it would avoid damaging the prongs adjoining the severed edge in shearing the strip for a definite length of stay.

In the improved strip the scallops are omitted and a pair of opposingly angled prongs extend inwardly and coincide with a longitudinal edge of the strip, providing a pair of prongs respectively for each of the opposite longitudinal edges of the strip transversely in registry or alignment and which follows progressively longitudinally of the strip leaving a portion of the straight edge of the strip intervening for the degree of spacing between each successive sets of angular prongs.

An object of the invention is to provide a stay to overlap a corner or meeting edges of adjoining walls of a paper board box or carton to reinforce and securely join the same, having prongs or tangs respectively along both of the opposite longitudinal edges of the stay, each prong indented to extend laterally inward at an angle from and coinciding with the relative longitudinal edge of the stay.

Another object is to provide a metal strip adapted to be cut into stay lengths, the stay to overlap a corner or meeting edges of adjoining walls of a paper board box or carton, to reinforce and securely join the same, the strip having prongs or tangs in pairs or sets along both of the opposite longitudinal edges of the strip in determined spacing apart, each pair along one edge of the strip for stapling a stay length to a paperboard, each prong indented to extend laterally inward at an angle from and coinciding with the relative longitudinal edge of the strip, the prongs arranged in pairs, each pair adjoining and opposingly angled with a section of the straight edge of the strip intervening or spacing the successive pairs of prongs within which to traversely sever the strip into stay lengths to avoid damage or distortion to the prongs adjacent a transverse severed edge in a cutting operation and to deflect the transverse severed edge in a cutting operation and to deflect the transverse edge for its impingement into a paper board.

Various other features and advantages of the invention will be more fully set forth and apparent from the following description of the drawings accompanied herewith and forming a part hereof, depicting a preferred embodiment, in which:

Figure 1 is a perspective view of a corner section of a paper board box with the improved stay applied to the exterior side thereof.

Figure 2 is a plan view of the face side of a section of a supply strip length from which stay lengths are severed.

Figure 3 is an enlarged plan view of the underside of a section length of the strip.

Figure 4 is an enlarged side elevation or edge view of a section length of the strip.

Figure 5 is a section on line 5—5, Figure 3.

The strip 1 may be of an extended supply length of fine gauge sheet metal normally having straight longitudinal opposite edges 2, 2. Marginally and respectively along each of the opposite longitudinal edges of the strip, a pair or set of prongs 3 and 4 opposingly angled are formed to extend laterally from one, as the bottom side of the strip and in relative registry for the opposite edges of the strip. The prongs, in sets, are progressively along both of the opposite edges of the strip and in determined spacing apart leaving a portion of the straight edge respectively between the successive sets of prongs and within which it is transversely cut to form a stay 5 of an appropriate length for a given wall height of box.

The stays are bent along a longitudinal central line to right angle the same to overlie a corner or meeting edges of adjoining sides of a paper board box 6 and into which the prongs are clinched to form a reinforced box edge or corner.

Each prong is bent at an angle to a longitudinal edge of the strip and with which its line of fold is contiguous, thus avoids any objectionable protuberance from the face side of the stay and the prongs of successive sets which adjoin the relative ends of an intervening section of the straight edge of the strip extend in relative opposite angles, which when clinched into the paper board compressively binds the intervening straight edge upon the surface of the paper board which it overlies, in smooth jointer therewith and resistive against outward yield.

The prongs of each set, at their base inward of the strip have a curved juncture which burrs from the lower face side of the strip and with the prongs is compressed into the paper board. The curved juncture completely rounds the face side of the indenture resulting in forming the tangs avoiding any objectionable interstices from the face side of the strip or stay.

Apertures 7 are formed along the central longitudinal line of the strip, each aperture being located intermediate of and adjacent pair of opposite sets of prongs which facilitates in folding a stay into a right angle form and generally performed simultaneous with the application of the stay about a box corner and also segments the transverse cut for an end of the stay and which can be instituted to burr the underside of the segment from opposite sides of the aperture so that when the stay is bent for a box with angular corners, the apertures are directly at the corners and for the opposite longitudinal ends of the stay avoiding any objectionable projections. Such aperturing is conventional and may be omitted, particu-

larly when the stay is not affixed over angular corners.

Having described my invention, I claim:

1. A stay strip formed from sheet metal having longitudinally parallel edges, a plurality of indentations each having a face inwardly from each of said edges of the strip with each indentation formed around a center line substantially normal to its edge with, at least, a portion of the face of each indentation formed to an arc with its center at the point where the said center line crosses the sheet metal edge and downwardly bending the material in forming said depression, and a depending prong formed from the said downwardly bent material on each side of the center line of each indentation with each prong having a point formed at the point where the center line passes through the edge of the material and each prong having a body portion extending from said point substantially triangular in plan with its base integrally joined with the strip, and adjacent prong bases of each indentation forming the face of the indentation and each prong body portion transversely formed in accordance with the juncture of its base with the metal strip in forming the said face of the indentation.

2. A stay strip formed from sheet metal having substantially parallel edges, a plurality of indentations each having a face inwardly from each of said edges of the strip with each indentation formed around a center line substantially normal to its edge with, at least, a portion of the face of each indentation formed to an arc with its center at the point where the said center line crosses the sheet metal edge and downwardly bending the material in forming said depression, said indentations being equally spaced from one another along each edge of the material with said spacing of adjacent indentations center lines being greater than the length of the indentation as measured along the edge of the material so that a portion of each edge of the material remains between adjacent indentations, and a depending prong formed from the said downwardly bent material on each side of the center line of each indentation with each prong having a point formed at the point where the center line passes through the edge of the material and each prong having a body portion extending from said point substantially triangular in plan with its base integrally joined with the strip, and adjacent prong bases of each indentation forming the face of the indentation and each prong body portion transversely formed in accordance with the juncture of its base with the metal strip in forming the said face of the indentation.

3. A stay strip formed from sheet metal having longitudinally parallel straight edges, a plurality of indentations each having a face inwardly from each of said edges of the strip with each indentation formed around a center line substantially normal to its edge of the strip with, at least, a portion of the face of each indentation formed to an arc with its center at the point where the said center line crosses the strip edge and downwardly bending the material in forming said depression, said indentations being equally spaced from one another along each edge of the material and said indentations being opposite one another transversely of the strip with said spacing of adjacent indentations center lines being greater than the length of the indentation as measured along the edges of the strip so that portions of the original edges of the strip remain between adjacent indentations with said portions of the original strip edges joining adjacent ends of adjacent indentations, and a depending prong formed from the said downwardly bent material on each side of the center line of each indentation with each prong having a point formed at the point where the center line passes through the edge of the material and each prong having a body portion extending from said point substantially triangular in plan with its base integrally joined with the strip, and adjacent prong bases of each indentation forming the face of the indentation and each prong body portion transversely formed in accordance with the juncture of its base with the metal strip in forming the said face of the indentation.

4. A stay strip formed from sheet metal having longitudinally parallel straight edges, a plurality of indentations each having a face inwardly from each of said edges of the strip with each indentation formed around a center line substantially normal to its edge of the strip with, at least, a portion of the face of each indentation formed to an arc with its center at the point where the said line crosses the strip edge and downwardly bending the material in forming said depression, said indentations being equally spaced from one another along each edge of the material and said indentations being opposite one another transversely of the strip with said spacing of adjacent indentations center lines being greater than the length of the indentations as measured along the edges of the strip so that portions of the original edges of the strip remain between adjacent indentations with said portions of the original strip edges joining adjacent indentations, said strip being longitudinally apertured substantially centrally thereof with said apertures, respectively, transversely aligned with the transversely aligned remaining portions of the original strip edges between indentations, and a depending prong formed from the said downwardly bent material on each side of the center line of each indentation with each prong having a point formed at the point where the center line passes through the edge of the material and each prong having a body portion extending from said point substantially triangular in plan with its base integrally joined with the strip, and adjacent prong bases of each indentation forming the face of the indentation and each prong body portion transversely formed in accordance with the juncture of its base with the metal strip in forming the said face of the indentation.

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