

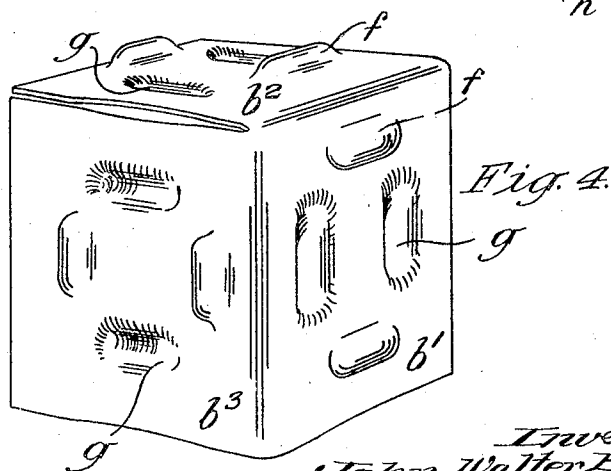
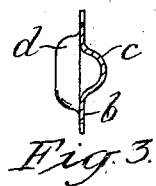
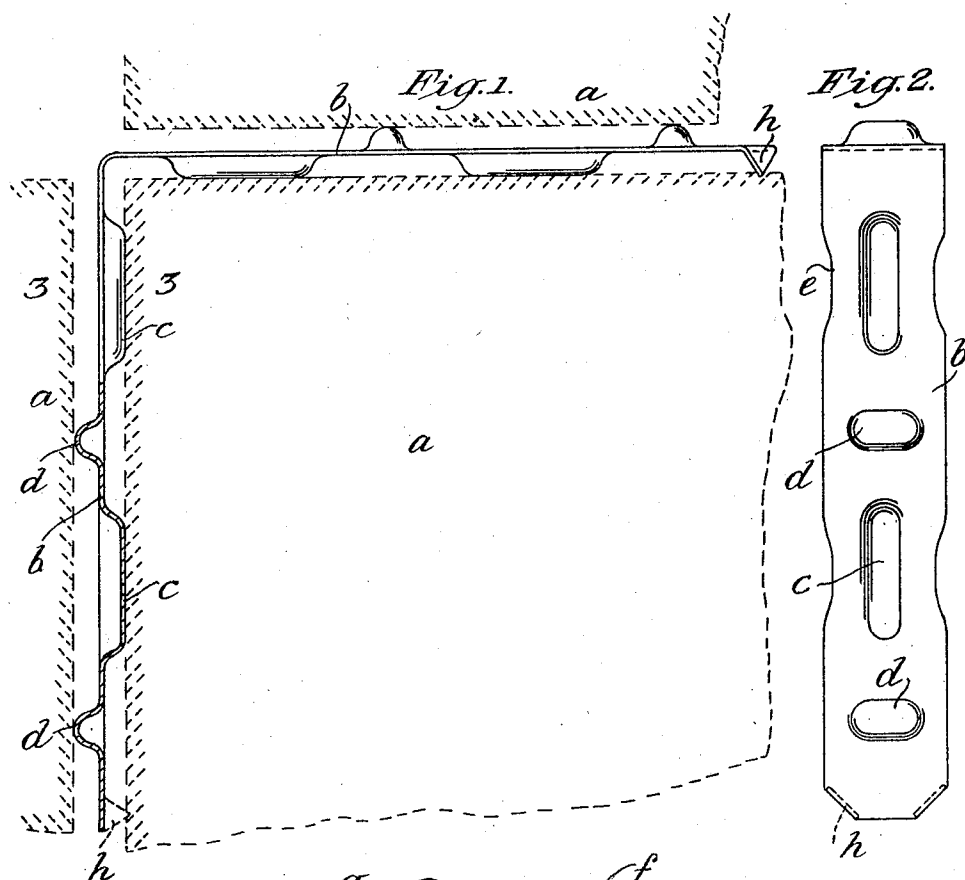
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J. W. BOAZ ET AL

DUNNAGE STRIP

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UNITED STATES PATENT OFFICE.

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DUNNAGE STRIP.

Application filed March 5, 1924. Serial No. 697,166.

To all whom it may concern:

Be it known that we, JOHN WALTER BOAZ, JOHN MARSHALL BROWN, and PERCY JOHN HAWKINS, all subjects of the King of Great Britain, residing, respectively, in Southend-on-Sea, England, Ilford, England, and London, England, have jointly invented certain new and useful Improvements Relating to Dunnage Strips, of which the following is a specification.

Apples, pears and other fruit and other perishable objects, when sent overseas, are frequently packed in boxes or cases for transportation by ship. In stowing such packed boxes in the hold of a ship by piling them one above another and side by side, it has been customary, for the purpose of promoting ventilation about them, to place between opposing faces of juxtaposed boxes strips of wood or metal so as to keep the boxes out of contact one with another and provide clearances between the opposing faces, thereby permitting air to circulate more or less effectively through the clearances or spaces thus left between the piled boxes. Strips of wood or metal so used are commonly known as "dunnage wood" or "dunnage strips." Wooden dunnage strips, however, are very liable to break, and as a flat wooden strip placed between two opposing surfaces of two boxes is in contact continuously throughout its length with those surfaces, the circulation of air about the boxes is impaired or interfered with.

The present invention consists in improvements in metal dunnage strips or spacers of the kind comprising one or more limbs, the limbs, when there is a number of them, being in angled relation to one another.

It has been previously proposed to form metal dunnage strips or spacers by stamping them from corrugated sheet metal, but according to the invention a metal dunnage strip or spacer is provided on both of its faces with a number of suitably shaped embossments or pocks spaced apart along its length, so that when an embossed spacer or embossed limb of a spacer is applied to or against a surface only the pocks projecting from the spacer body towards that surface will be in contact therewith, a series of open spaces being left between each

pair of adjacent pocks situated on the same face of the strip or spacer. Consequently, if a dunnage strip or spacer with pocks on both of its faces be arranged between opposing sides or ends of boxes, the pocks on the two faces will be in contact, respectively, with the boxes and open spaces will occur between the boxes and the strip or spacer between the pocks on both of its faces. With spacers thus constructed there is obtained a freer circulation of air than with spacers formed of corrugated sheet metal, and the manufacturing costs are reduced considerably.

The metal dunnage strips or spacers may be of any desired lengths and may be wholly straight or be angled. The improved spacers may be of hollow cubic or dice shape for use at the corners of boxes, the cube being devoid of three of its faces.

In the accompanying drawings:—

Fig. 1 is a vertical section showing portions of three piled boxes and a metal dunnage spacer, formed according to the invention, the spacer being one with two limbs;

Fig. 2 is an elevation of one member or limb of the spacer in Fig. 1;

Fig. 3 is a section on the line 3, 3 in Fig. 1, and

Fig. 4 is a modified form of a spacer constructed according to the invention and intended for use at the corner of a box.

In the drawing, *a* denotes a portion of a box, and *b* the body portion of a spacer. Each face of a spacer is embossed, the embossments or pocks being of spherical, truncated, conical or pyramidal, or of other desired shape, and being variously disposed. As illustrated, one face is provided with longitudinally disposed pocks *c* and the other face transversely arranged pocks *d*. In embossing the body part *b* the width of this becomes reduced in places as indicated at *e* in Fig. 2.

If a two-limb or L shape spacer be required, a length of strip metal, having its two faces provided with suitably shaped embossments or pocks, may be bent about a transverse line which intersects the centre line of the strip at any convenient point of its length and is at right angles to the two side edges of the strip, so that the centre lines of each limb will after bending lie in

one plane. Alternatively, the strip may be bent about a transverse line that is inclined to the two side edges, in which case after the bending the centre lines will not be contained by one plane. In the latter case the bearings of the two limbs will be more extensive and more distributed than in the former case.

If T shape spacers be required, the vertical limb of the T may be formed by doubling the body portion *b* at that part.

A corner spacer is shown in Fig. 4, and the body portion comprises three connected sides or parts *b'*, *b''*, *b'''* mutually inclined at right angles. Each face of each of the three parts is provided with suitably shaped pocks *f* or *g*.

In order to give support to the terminal portions of the body *b*, the corner parts *h* thereof may be bent in a manner to bear upon one or other of the boxes as indicated in Fig. 1. Alternatively, tongues *i* may be formed on a limb by a punching or slitting operation. The parts *h* and *i* may be made sufficiently long to permit of them penetrating a face of the box if the spacer be struck with a tool after it has been placed in posi-

tion, thereby securing the spacer in said position.

Having thus described the nature of the said invention and the best means we know of carrying the same into practical effect, we claim:—

1. A metal dunnage spacer comprising a body portion of sheet metal having its opposite faces provided with a number of embossments of suitable shapes and spaced apart, the embossments on one face projecting in a direction reverse to those on the opposite face.

2. A metal dunnage spacer according to claim 1, wherein the body portion comprises a plurality of connected parts disposed at an angle to one another.

3. A metal dunnage strip according to claim 1, wherein the body portion comprises three connected parts mutually inclined at right angles.

In testimony whereof we have signed our names to this specification.

JOHN WALTER BOAZ.
JOHN MARSHALL BROWN.
PERCY JOHN HAWKINS.