

(No Model.)

2 Sheets—Sheet 1.

S. C. DAVIDSON.
METAL BOX OR CHEST.

No. 417,813.

Patented Dec. 24, 1889.

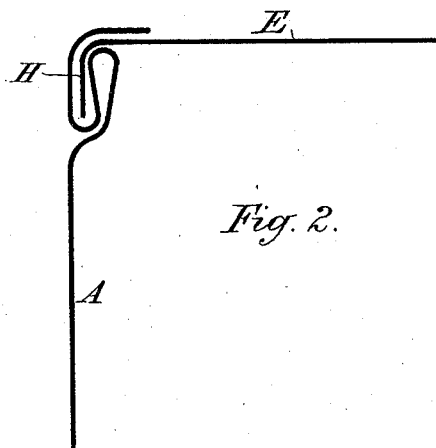
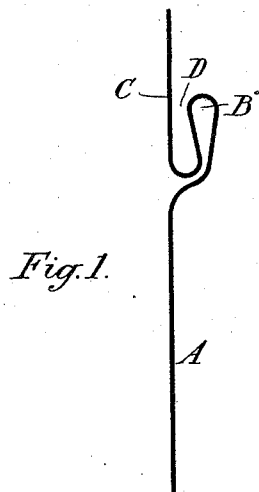
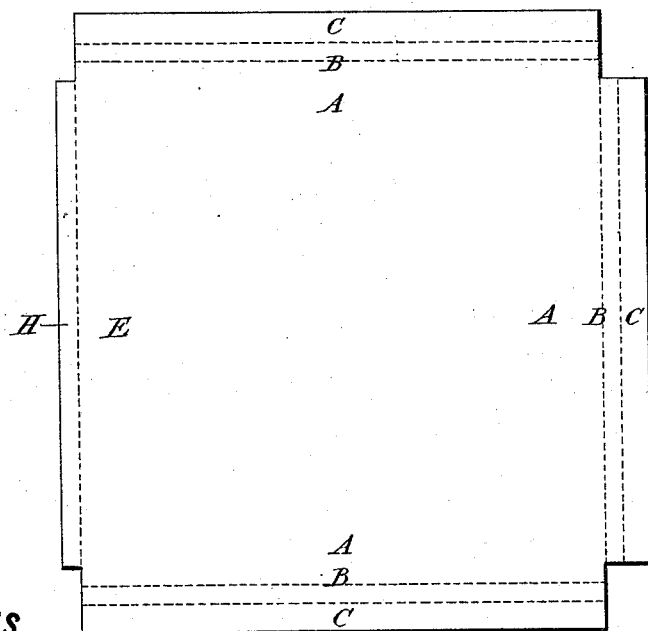


Fig. 3.



WITNESSES.

Fred White

E. K. Fraser

INVENTOR.

Samuel Cleland Davidson

By his Attorneys

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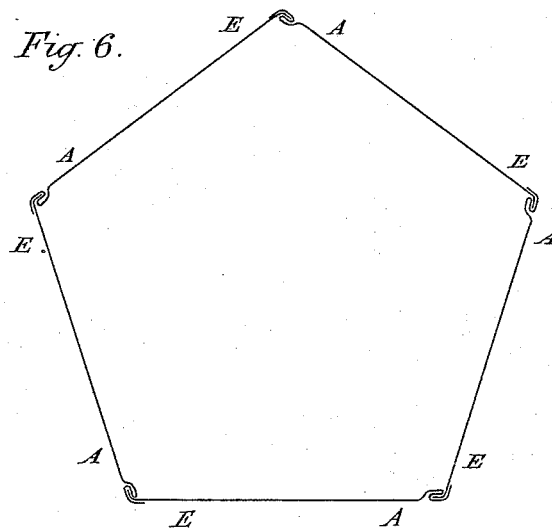
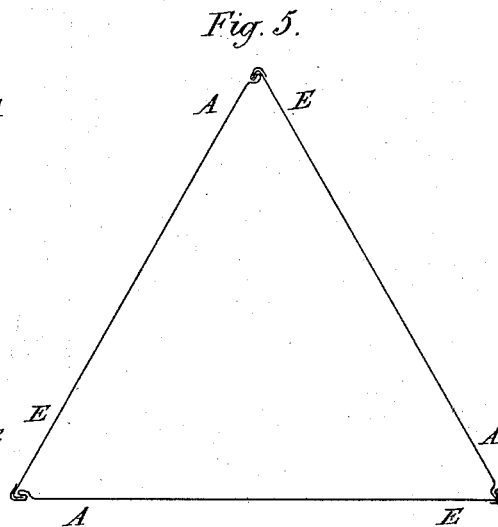
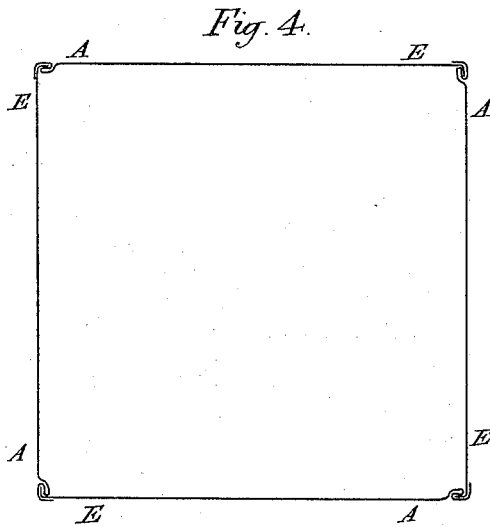
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2 Sheets—Sheet 2.

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WITNESSES

Fred White
L. K. Bracer.

INVENTOR.

Samuel Cleland Davidson,
By his Attorneys
Arthur C. Bracer & Co.

UNITED STATES PATENT OFFICE.

SAMUEL CLELAND DAVIDSON, OF BELFAST, IRELAND.

METAL BOX OR CHEST.

SPECIFICATION forming part of Letters Patent No. 417,813, dated December 24, 1889.

Application filed May 1, 1889. Serial No. 309,172. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL CLELAND DAVIDSON, merchant, a subject of the Queen of Great Britain and Ireland, residing at Sirocco Works, Belfast, Ireland, have invented certain new and useful Improvements in Metal Boxes or Chests, of which the following is a specification.

The object of my invention is to manufacture sheet-metal boxes or chests the sides and ends of which, for convenience of storage and transit, can be supplied as separate sheets, whose edges are easily connected together at the angles of the box by a strong and tight joint, which is formed without employing solder, nails, or screws to secure the same, and the outer surface of which joint is approximately level with the sides of the box, so that the outside measurements from edge to edge of the box will approximately correspond with those of the body of the box—a matter of importance when freights on the boxes are reckoned by measurement.

My invention consists in a box or the component plates thereof having the specific form of joint hereinafter described for connecting the sides and ends of the sheet-metal chests together at the angles of the same. This special joint is made by forming two folds or flanges with a groove between them at the edges of a sheet, the outer fold of which is about double the width of the inner one, and projects this extra width past the bend of the first fold, and is approximately in the same plane as the sheet itself. The edge of the other sheet to which the connection is to be made is bent as a single flange to fit into the groove between the double folds of the first-mentioned sheet, and the joint between the two sheets is completed by bending or hammering down the projecting edge of the outside fold, which securely and firmly interlocks the two edges of the sheets together.

I make the boxes or chests of any description of sheet metal, but preferably of leaded, tinned, or galvanized iron or steel plates. These plates are cut to the requisite size to form the sides and ends plus a sufficient extra margin to the edges for forming the joint as above described, and rectangular pieces are cut out of the corners, so that the flanges may

be folded as required without their overlapping and interfering with one another.

The sides are preferably made of equal-sized rectangular sheets or plates, and the two folds or flanges and groove above described are constructed along three of their edges, the fourth edge being bent over as a single flange, as are also the four edges of the end sheets or bottom and lid, and which are made to fit exactly into the grooves of the double flanges. All the side sheets are thus similar in size and form and are interchangeable and the bottom sheet is a duplicate of the lid. These boxes will be usually made of cubical form—that is, with four sides and two ends; but they can also be made with three, five, six, or more sides and two ends, which are so formed as to correspond with the number of sides. The side sheets are put together by inserting the single-flanged edge of each sheet into the groove between the double flanges of the sheet adjoining it, and the projecting edges of the outer of said double flanges are bent or hammered down as a third fold or flange, which closes and secures the joints. When these side sheets are so connected, they form a frame which is open at both ends and with the double flanges and groove all around these open ends. The single flanges on the bottom and lid or end sheets fit exactly into these grooves, and when the projecting edges of the side sheets are bent or hammered down over the flanges of the end sheets the box or chest is complete and so securely closed as to be almost air-tight without the use of solder, nails, or screws. The outer fold of this joint being approximately level with the sides of the box, a number of the boxes can be packed closely together for storage or shipment without any space being lost between them, and boxes so constructed will stand a great amount of rough usage without the corners or angles being crushed in or damaged, and, further, when the hammered-down flanges are carefully turned up again the boxes can be taken asunder into their original separate sheets, so that these sheets may be packed closely together for convenience of transport and economy of freight, and they can easily be made up again into boxes and be used more than once.

The detail construction of my special joint

and its application to the construction of boxes or chests will be more fully understood by reference to the accompanying drawings.

Figure 1 is a cross-section of a sheet or plate, showing the two flanges and a groove formed on its edge. Fig. 2 is a cross-section of the joint complete when closed, as before described. Fig. 3 is a plan to a smaller scale of one of the side sheets with the corner-pieces cut out to allow of the flanges being properly folded on it without overlapping one another. The dotted lines in this figure indicate the creasing-lines of the folds. Fig. 4 is a cross-section of four side sheets when fastened together, as above described. Fig. 5 is a cross-section of three side sheets connected at acute angles by the special joint. Fig. 6 is a cross-section of five side sheets connected at obtuse angles by the special joint.

A A are the edges of the sheet on which the double flange and groove are formed.

B is the bend of the inside fold.

C is the outer fold or flange, which is made about double the width of the inside flange, and is approximately in the same plane as the body of the sheet, as shown in Fig. 1.

D is the groove between the outer and inner folds.

E is the edge of the sheet on which the single flange is formed.

H is the single flange on the edge E and is made to fit into the groove D.

What I claim, and desire to secure by Letters Patent, is—

A metal box or chest the sides and ends of which are formed of separate sheets, said sheets being connected together at the respective angles of the box by a joint formed of a single flange H on the meeting edge of one of the component sheets, said flange extending along substantially the entire width of said sheet, and a groove D between two flanges or folds B and C on the meeting edge of the corresponding sheet, which receives said single flange H, the outer fold or flange C of the two folds or flanges of such other part being approximately in the same line or plane as the body of the sheet and extending along substantially the entire width of said sheet, said flange C projecting beyond the bend of the inner fold B and being turned down throughout its entire length over said single flange H, thereby securing the joint, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

SAMUEL CLELAND DAVIDSON.

Witnesses;

WILLIAM JOHN DEVERS,
THOMAS WILLIAMS PUGH.