(No Model.) 2 Sheets—Sheet 1.

E. SMALL.

TOOL FOR INTERLOCKING THE EDGES OF METALLIC PLATES.

No. 355,108. Patented Dec. 28, 1886.

Fig. 1.

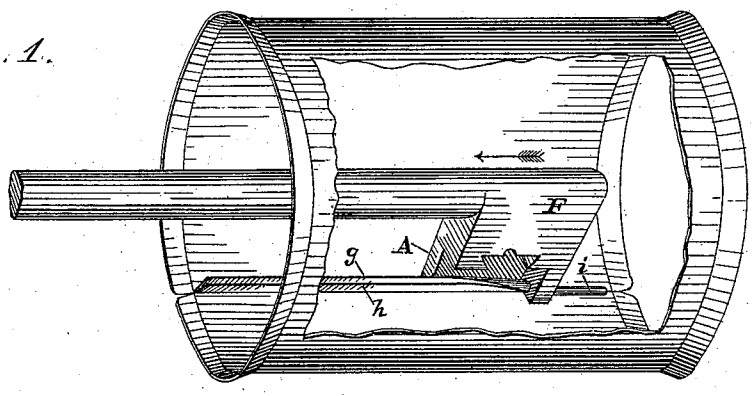


Fig. 2.

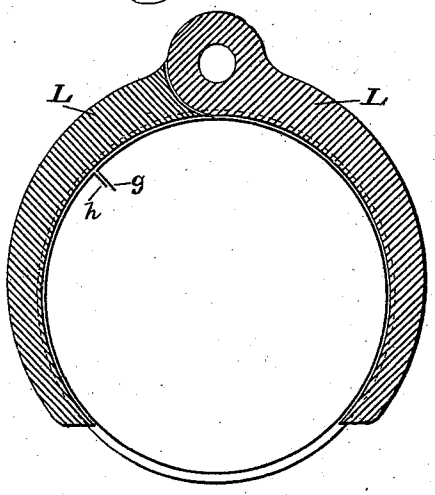


Fig. 3.

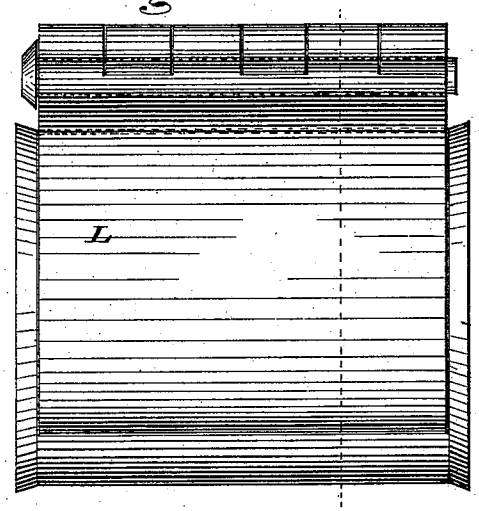


Fig. 4.

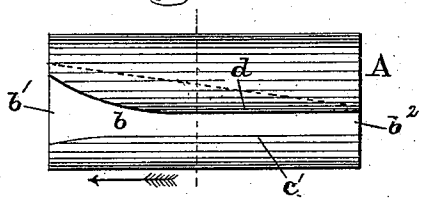


Fig. 5.

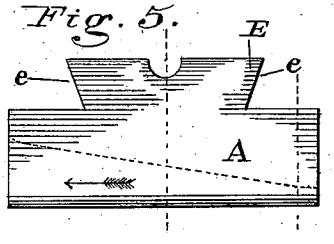


Fig. 6.

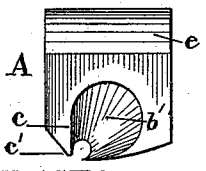


Fig. 7.

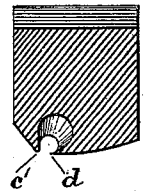
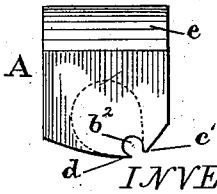


Fig. 8.



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(No Model.) 2 Sheets—Sheet 2.

E. SMALL.

TOOL FOR INTERLOCKING THE EDGES OF METALLIC PLATES.

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Fig. 9.

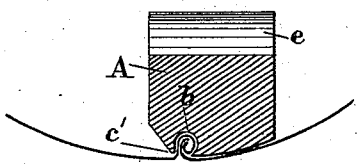


Fig. 10.

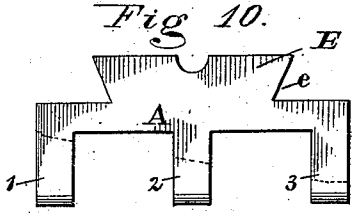


Fig. 11.

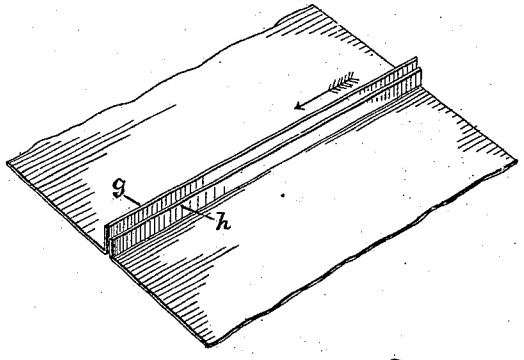


Fig. 12.

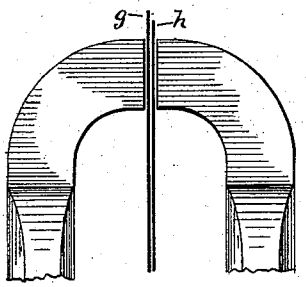


Fig. 13.

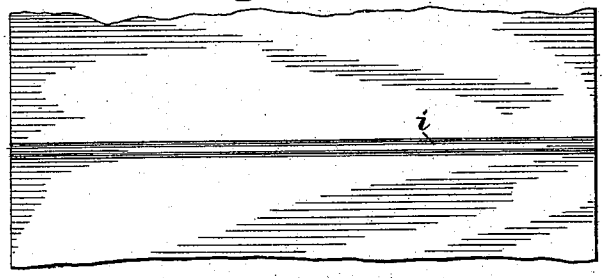


Fig. 14.



Fig. 15.

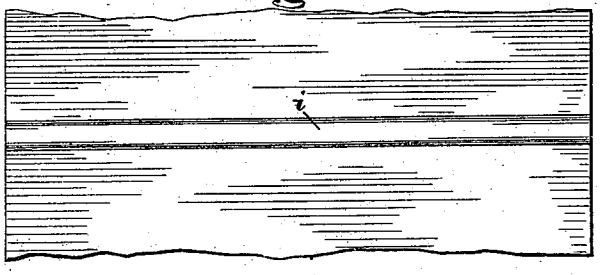
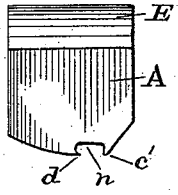


Fig. 16.



Fig. 17.



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UNITED STATES PATENT OFFICE.

EDWARD SMALL, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE METAL SEAMING COMPANY OF BALTIMORE CITY.

TOOL FOR INTERLOCKING THE EDGES OF METALLIC PLATES.

SPECIFICATION forming part of Letters Patent No. 355,108, dated December 28, 1886.

Application filed June 5, 1885. Renewed May 8, 1886. Serial No. 201,597. (No model.)

To all whom it may concern:

Be it known that I, EDWARD SMALL, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Tools for Interlocking the Edges of Metallic Plates, of which the following is a specification.

My invention relates to an improved tool for seaming or uniting sheet-metal plates by interlocking their edges.

The object is to provide a tool which will form a seam by the simple operation of sliding the tool along the edges of two plates.

The invention is illustrated in the drawings hereto annexed, in which—

Figure 1 is a view showing the tool applied to the side seam of a can-body. The side of the tool is partly broken to show the plate edges. Figs. 2 and 3 show the can-body held by a clamp in such manner as to firmly keep the plate edges in position. Fig. 4 is a face view of the seaming-tool. Fig. 5 is a side view of the same. Fig. 6 is a view of the tool, showing the large end of the tapered groove. Fig. 7 is a central cross-section of the tool. Fig. 8 is a view of the tool, showing the small end of the groove. Fig. 9 is a cross-section of the tool near the small end of the groove, showing two plates of sheet metal nearly seamed. Fig. 10 is a side view of a modified form of seaming-tool. Fig. 11 shows two plates of sheet metal having their edges bent up preparatory to being seamed. Fig. 12 is a view of two plates of sheet metal, the edges of which are not bent, but are in position to be held by clamps preparatory to being seamed. Figs. 13 and 14 show two plates united by a seam made by the tool. Figs. 15 and 16 show two plates united by a seam of modified form (a flat seam) made by the tool. Fig. 17 shows the end of the tool wherefrom the flat seam issues.

The letter A designates the metal block which composes the body of the tool. In the present instance the body of the tool has in general a rectangular shape; but it may be shaped otherwise, as may best suit special work. A tapering or gradually-contracted groove, *b*, is in the face side of the body. Its largest part forms a large opening, *b'*, at one end of the body and its smallest part forms a small opening, b^2, at the other end. In cross-section the shape of the groove is partly half-circular or somewhat exceeding a half-circle. While the groove has a regular taper from the large opening *b'*, its position in the body-block is such that the half-circle of that part of the groove from the large opening to about half its length merges in a flat side, *c*, which is at right angles to the face, as shown in Fig. 6. This flat side *c*, at and from the large opening as far as said flat side extends, and the continuation therefrom of the groove to the small opening b^2 together form on the face-side of the tool a straight-line edge, *c'*, from end to end of the body-block. Opposite the said straight-line edge is the lip edge *d*, which finishes the coiling or curling of the seam parts.

In the present instance a head, E, is attached to or is integral with the body-block. This head has undercut inclined sides *e*, thereby forming the one half of a dovetail and adapting the tool to be secured to any suitable holder, F, which may have the counterpart or other half of a like dovetail. In the illustration, Fig. 1, the seam to be formed is that extending lengthwise of a can-body. Suitable clamps, L, are shown to firmly hold the can-body and keep the edges in position while the tool operates thereon.

Whatever form the metal plate may have—whether flat sheets formed up square for a box-body or cylindrical, like that shown for a can-body—suitable clamps must be employed to firmly hold the parts to be joined.

The edges of the metal plates to be united must be brought together, side to side. One of the edges may, by preference, project beyond the other, as shown. The parts of the plates adjacent to the edges require to be firmly held or stayed, to prevent the edges from retreating when the seaming-tool is forced along. The tool is then advanced, the large opening, *b'*, foremost, as indicated by the arrow, in a direction corresponding to that in which the plate edges *g h* extend. Instead of advancing the tool and holding stationary the plate edges,

it is obvious the plate edges may be advanced and the tool held stationary. The plate edges *g h* enter the large opening, *b'*, of the tool, at first resting against or in contact with the flat side *c* thereof. The straight-line edge *c'* of the tool must be parallel with the plate edges *g h*. In those cases where the edges of one plate projects beyond the other the longer edge of the plate should be next to the said flat side *c* of the tool.

As the tool or plate edges advance (whichever may be moved) the plate edge encounters the circular part of the gradually-contracted groove, and as the tool is so firmly held by its holder that it cannot deviate, and the plates are so stayed that their edges cannot retreat, the result is the plate edges are forced to curl or coil by the action of the largest part of the groove, and then this coil, by the progressive or continued sliding of the tool taking place, is gradually tightened or compressed by the action of the smaller part of the tapered groove until said tightened coil passes out the smaller opening, b^2, in a finished state. This operation completely interlocks the plate edges by coiling one edge over the other, the finished seam *i* being seen in Figs. 1, 13, and 14.

I contemplate a wide range of work for this tool. It is adapted for uniting sheet-metal plates of any kind, such as tin plates, ordinary sheet-iron and copper plates, and even iron and steel plates as thick as those commonly used for boilers. The tool here shown is suited for straight seams; but by an obvious change it may be adapted for forming the seams on curved or cylindrical bodies.

Instead of a seam of rounded shape, like that seen in Figs. 1, 13, and 14, a flat seam may be made, like that seen in Figs. 15 and 16. This form of seam may be produced by providing the tool at the small end of the groove with a terminal of flat shape, as at *n*, Fig. 17.

It is not essential that the tool-block have a gradually-contracted groove continuous from one end of the block to the other. This is illustrated in Fig. 10, where the block has three sections, 1 2 3, and an opening, *b'*, partly circular, with a flat side, *c*, is in block 1, and the smallest opening, b^2, partly circular, with a finishing-lip, *d*, on the side opposite that whereon the flat side is located, is in block 3, while the middle block, 2, has an opening corresponding to that seen in the section view, Fig. 7. The several openings in parts 1 2 3 of the block gradually contract in size. It is possible to do the work of seaming with only two sections—the first, 1, and the last, 3.

Having described my invention, I claim—

1. A sheet-metal-seaming tool consisting of a body-block having in the face side a tapering or gradually-contracted groove, partly circular in cross-section, whereby the tool is adapted to form a seam by sliding along the sheet-metal edges, as set forth.

2. A sheet-metal-seaming tool consisting of a body-block having in the face side a tapering groove, partly circular in cross-section, and extending from end to end of the body-block, as set forth.

3. A sheet-metal-seaming tool consisting of a body-block having in the face side a tapering groove, partly circular in cross-section, with a straight-line edge, *c'*, at one side of the groove and the finishing-lip edge *d* at the opposite side, as set forth.

4. A tool for interlocking the edges of two sheet-metal plates by coiling the edge of one over the other, consisting of a body-block having an opening, *b'*, partly circular, with a flat side, *c'*, and a smaller opening, b^2, partly circular, with a finishing-lip, *d*, on the side opposite that where the flat side is, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD SMALL.

Witnesses:

CHAS. B. MANN,

A. COOPER.