W. H. BROCK.

SHEET METAL MACHINES.

No. 181,630. Patented Aug. 29, 1876.

Fig. 1.

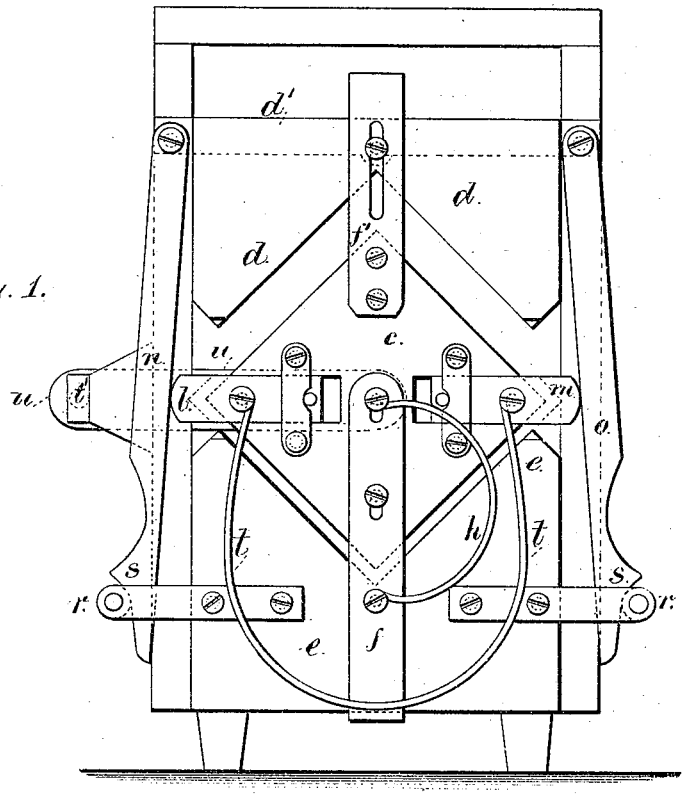


Fig. 3.

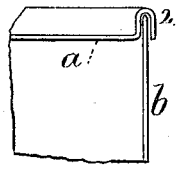


Fig. 4.

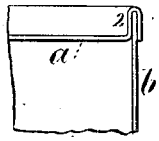
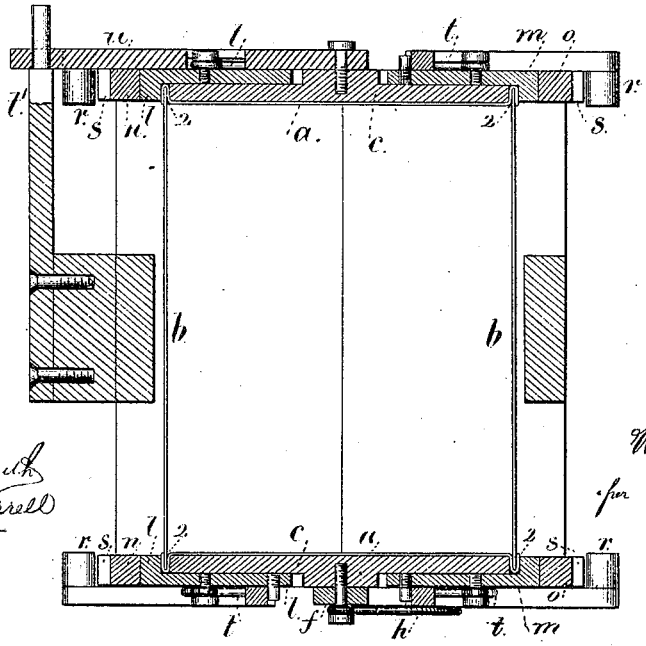


Fig. 2.



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IMPROVEMENT IN SHEET-METAL MACHINES.

Specification forming part of Letters Patent No. **181,630**, dated August 29, 1876; application filed March 20, 1876.

To all whom it may concern:

Be it known that I, WILLIAM H. BROCK, of Flushing, in the county of Queens and State of New York, have invented an Improvement in Presses for the Heads of Sheet-Metal Cans, of which the following is a specification:

Sheet-metal cans have been made in a cubical form, with a head having a flange turned outwardly around the edge, and returned, so as to set upon the end of the can, and the returned flange has been pressed together, so as to lock the edges of the sheet metal while being soldered, and for this purpose V-shaped dies have been made, that press at opposite angles of the head, and smaller dies have been brought up to close the flange at the other two angles. In some instances both heads have been introduced and pressed simultaneously.

The four parts of the dies being brought toward the angles of the head simultaneously, or nearly so, they have to be fitted with great accuracy, and sometimes the varying thicknesses in the sheet metal will prevent the dies closing properly together, and under all circumstances there are marks upon the sheet metal, or fins or projections between the dies, which mar the appearance, and render the seam difficult to solder at those places.

The object of my improvement is to press the folded sheet metal with entire uniformity along all the edges of the head of the can, and thus prevent the imperfections herein mentioned. I make the V-shaped angle-dies sufficiently long to lap, and two dies are brought up at opposite angles to press the fold in the sheet metal and then retire, and the other two dies are brought up to finish the pressing operation, so that the entire edges of the head are equally acted upon, and I arrange the mechanism so that one movement of the press performs all the operations, and the smaller or secondary dies are given two motions, so as to act twice and insure the proper closing of the corners of the can.

In the drawing, Figure 1 is an elevation of the dies employed. Fig. 2 is a sectional plan, showing two ends of the can, and the means for acting upon them simultaneously; and Fig. 3 is a section in larger size of the edges of the sheet metal of the head and sides of the can.

The head *a* of the can is made of sheet metal, that is pressed up by a die, or otherwise, with a returned flange or folded rim, 2, that extends all around the head, and the sides of the can are also of sheet metal, as shown at *b*.

The object of the improvement is to close down or compress firmly the folded edges of the head, so as to cause them to grasp and hold the edges of the body of the can, as seen in Fig. 4.

The head-block *c* is of a size and shape to fit against the head *a*, within the folded rim 2, and the main V-shaped dies *d* and *e* are adapted to being pressed upon the rim 2, and compress the same against the head-block *c*. This has been done before, and in the drawing the head-block *c* is shown as guided by the slotted bars *f f'*, that connect it to the dies *d* and *e*, but allow the parts to be drawn apart sufficiently for inserting the can with the head placed upon the body. The spring *h* lifts the head-block *c*, and holds it until the press brings down the V-shaped die *d'* upon the edges of the can. This die *d* is connected to a platen, *d'*, that is operated by any suitable press.

The secondary dies *l m* are made to slide upon the head *c*, and they are V-shaped at their projecting rear surfaces, as seen in Fig. 1, so as to act upon the folds 2 at the opposite angles of the can, where the dies *d* and *e* do not act.

These V-shaped dies *d e l m* are too long to permit of their being all closed at one time; therefore the secondary dies *l m* are first closed by the side bars *n* and *o*, that are connected to the head-block or platen *d'*, and pass down within the stationary fingers *r r;* and upon these bars *n o* there are cam projections *s*, which, as the bars and head-block are moved down, cause the bars *n o* to swing inwardly, and operate the dies *l m*, and the cam projections *s* pass below these fingers *r*, and allow the dies *l m* to open again by the action of the spring *t* before the dies *d e* press upon the rim 2 of the head *c*.

By this means the dies *d e l m* can be made to lap in their action upon the rim, and hence any imperfection in the work is avoided.

As the head-block is raised, the dies *l m* are brought together again, so as to give a second pressure, and insure the proper closing of the folded rim.

When the press is made to act at both ends of the can simultaneously, it is necessary to make a portion movable, so as to allow for the introduction of the can. I effect this object by connecting the head-block *c*, by the arm *u*, to the fixed gudgeon *t'*, so that the arm can be drawn back and forth upon the gudgeon, to move the head in and out, and turned around to swing the head aside out of the way when introducing or removing the can from between the dies.

In machines where only one head is operated upon, the main and secondary V-shaped dies act in the manner hereinbefore set forth.

I claim as my invention—

1. The V-shaped dies *d e l m*, arranged to act at the corners of the can and of the head-block *c*, and made too long to allow of their being closed at one time, in combination with the means, substantially as specified, for closing and then opening first one pair of dies and then the other in the same plane, substantially as set forth.

2. The side bars *n o*, with cam projections *s*, and the stationary fingers *r*, in combination with the secondary dies *l m* and main dies *d e*, substantially as set forth.

Signed by me this 15th day of March, A. D. 1876.

WILLIAM H. BROCK.

Witnesses:
GEO. T. PINCKNEY,
CHAS. H. SMITH.