C. F. CHAMBERS.

Making Sheet Metal Pans.

No. 48,516. Patented July 4, 1865.

Fig. 1,

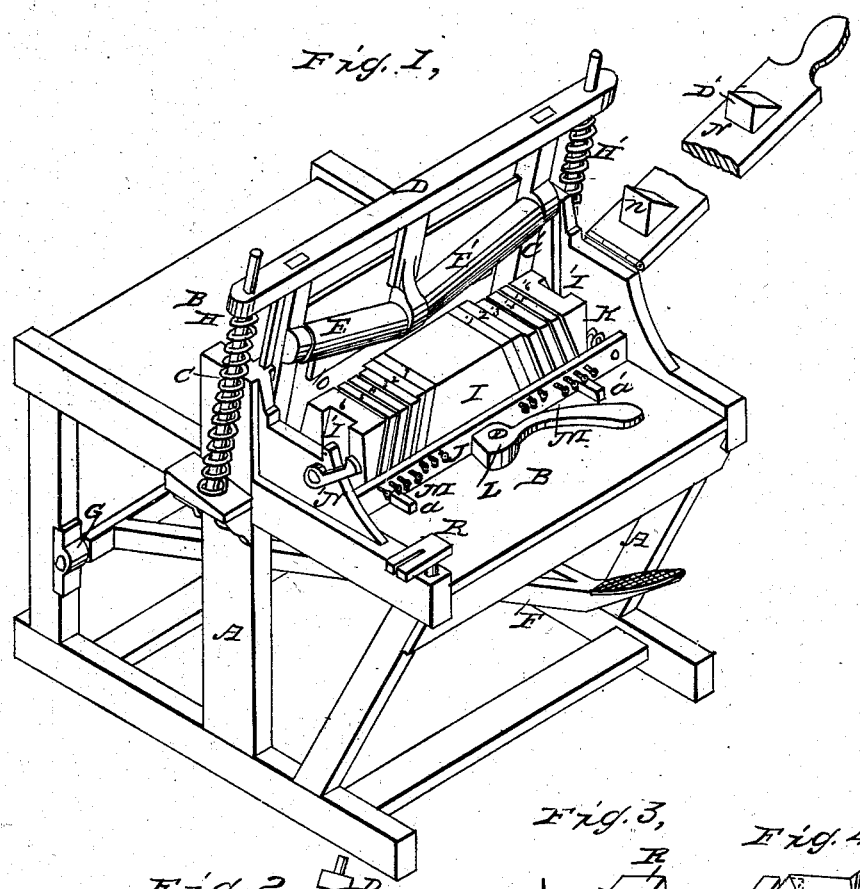

Fig. 3,

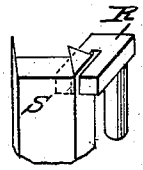

Fig. 4,

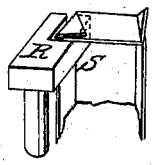

Fig. 2,

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UNITED STATES PATENT OFFICE.

CHARLES F. CHAMBERS, OF HUTSONVILLE, ILLINOIS.

IMPROVED MACHINE FOR MAKING SHEET-METAL PANS.

Specification forming part of Letters Patent No. **48,516**, dated July 4, 1865.

To all whom it may concern:

Be it known that I, CHARLES F. CHAMBERS, of Hutsonville, in the county of Crawford and State of Illinois, have invented certain new and useful Improvements in Machines for Making Sheet-Metal Pans; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

My invention relates to certain improvements in machines for making sheet-metal pans, by which pans of the ordinary rectangular shape are formed of a single sheet of metal more rapidly and economically than when made by hand, and of more uniform size and smoother finish, besides which the objectionable noise created when pans are formed with the mallet and stake is entirely dispensed with.

Figure 1 is a perspective view of a machine embodying my improvements. Fig. 2 is a longitudinal section through the same; and Figs. 3 and 4 show the method of closing down the corners on the jack-head.

The frame A supports, at a suitable height, the horizontal bench B, having a transverse opening, *b*, which permits the passage of the angling-rollers, to be hereinafter described.

The standards C C′, rising vertically from the frame A, are provided with oblique grooves, which serve to guide in a proper path the gate D. The gate D affords journal-bearings for the angling-rollers E E′, which, in connection with a suitable block or form, serve to bend or upset the stuff of which the pan is composed. These rollers operate to bend the stuff in a downward stroke, which is effected through the medium of the treadle F and rods *f*. The treadle is worked by the foot of the operator, and is journaled to the frame at G. The gate D, and with it the angling-rollers E E′, is made self-retractive by means of the springs H H′, or, if preferred, a rope or chain, secured to the gate and passing over a sheave, may be attached to a weight of sufficient size to withdraw the gate after the downward or effective stroke.

The form consists of a main or central block, I, of metal or hard wood, and a series of supplemental blocks, 1 2 3 4 5 1′ 2′ 3′ 4′ 5′, and end clamps, 6 6′, the latter having inclined planes I′, and are hinged to the base-plate J of the forming-block I. The front and rear flange of this bed-plate serves to retain the series of blocks in a uniform position, and the blocks are prevented from being lifted out by the tongue *j*, which enters a groove, *i*. The rear faces of the series of blocks are made at an angle corresponding to the path described by the angling-rollers E E′. The bed-plate J, and with it the form I, is confined to a rectilinear path by the tongues *a a′*, and has a short automatic retraction by the springs K. An eccentric, L, in connection with said self-retraction of the bed-plate J and its superincumber form I, enables the operator to advance the latter to the exact position to insure the proper pressure of the angling-rollers E E′ for the bending of the sides of the pan, and also enables him to momentarily draw back the work to permit the return-stroke of the rollers.

M M′, &c., are screws, which serve to set up the blocks that are to be used in order that the angling-rollers E E′ may not be subjected to an injurious strain by coming in contact with more than one thickness of metal. Wedges or blocks of wood or other material may be substituted for the set-screws M M′, if desired.

N is a clamp, which holds the sheet of metal firmly down on the form I, and also serves, by means of the wedges or beveled shoulders *n n′* and inclined planes I′, to crowd the blocks snugly together.

N′ is a catch, which secures the clamp N in position when in operation.

Secured to the rear of the gate D is a gage, O, which is adjusted to suit different depths of pans by the set-screw P. Attaching the gage O to the sliding gate D leaves the part of the table B back of the rollers clear of any obstruction, and in small workshops, where economy of space is a desideratum, the rear portion of the table may be dispensed with altogether without detracting any from the power or capacity of the machine.

R is a slotted jack-head for closing down the corners of the pan, by the aid of the mallet, in the usual way, the said head having a round stem, which enters a corresponding socket in the frame A, firmly supporting the head at a suitable elevation, while permitting it to be freely turned about to any convenient position for the work.

Operation: The gage O being set to produce

the required depth of pan, the machine is ready for action. A sheet of metal, S, Fig. 2, being clamped down on the form I, with one edge resting against the gage O, the angling-rollers E E′ are brought down on the metal, and the sheet is uniformly and evenly pressed from the center outward and without twisting or buckling it, thus producing one end of the pan, and the metal being then liberated from the form the opposite end is made in the same manner. The great advantages obtained by the use of the angling-rollers over a single horizontal one consist in the fact that the pressure is gradually applied to the sheet metal, which permits of the machine being operated with less expenditure of power, besides producing no injurious shock or strain of the mechanism, and also presses the metal from the center outward. When the ends of the required number of pans have been bent the blocks corresponding to the desired length of pan are set out of line with the other blocks by the screws M M′, and the bent ends being inserted in the joints between the blocks 1 1′, &c., another depression of the rollers E E′ bends down the side, and this operation is repeated to form the opposite and last side. Before each and every descent of the rollers the form I is advanced a slight distance toward them by the eccentric L, and after the stroke has been completed, and before the rollers are allowed to return, the eccentric is shifted, so as to release the form from the pressure of the rollers and to permit the ascent of the same.

I claim herein as new and of my invention—

1. The angling-rollers E E′, or their equivalents, placed at any suitable inclination to press the sheet metal from the center outward, as described and set forth.

2. The set-screws M M′, &c., or their equivalents, for throwing the operating-forms out of line with the remaining one, substantially as described.

3. In this combination, the gage O, when attached to the gate D, for the purpose of regulating the depth of the pans, in the manner set forth.

In testimony of which invention I hereunto set my hand.

CHARLES F. CHAMBERS.

Witnesses:

JAMES H. LAYMAN,

GEO. H. KNIGHT.