W. FOGLESONG.

# Machines for Making Sheet-Metal Pans.

No. 133,975. Patented Dec. 17, 1872.

Fig. 1

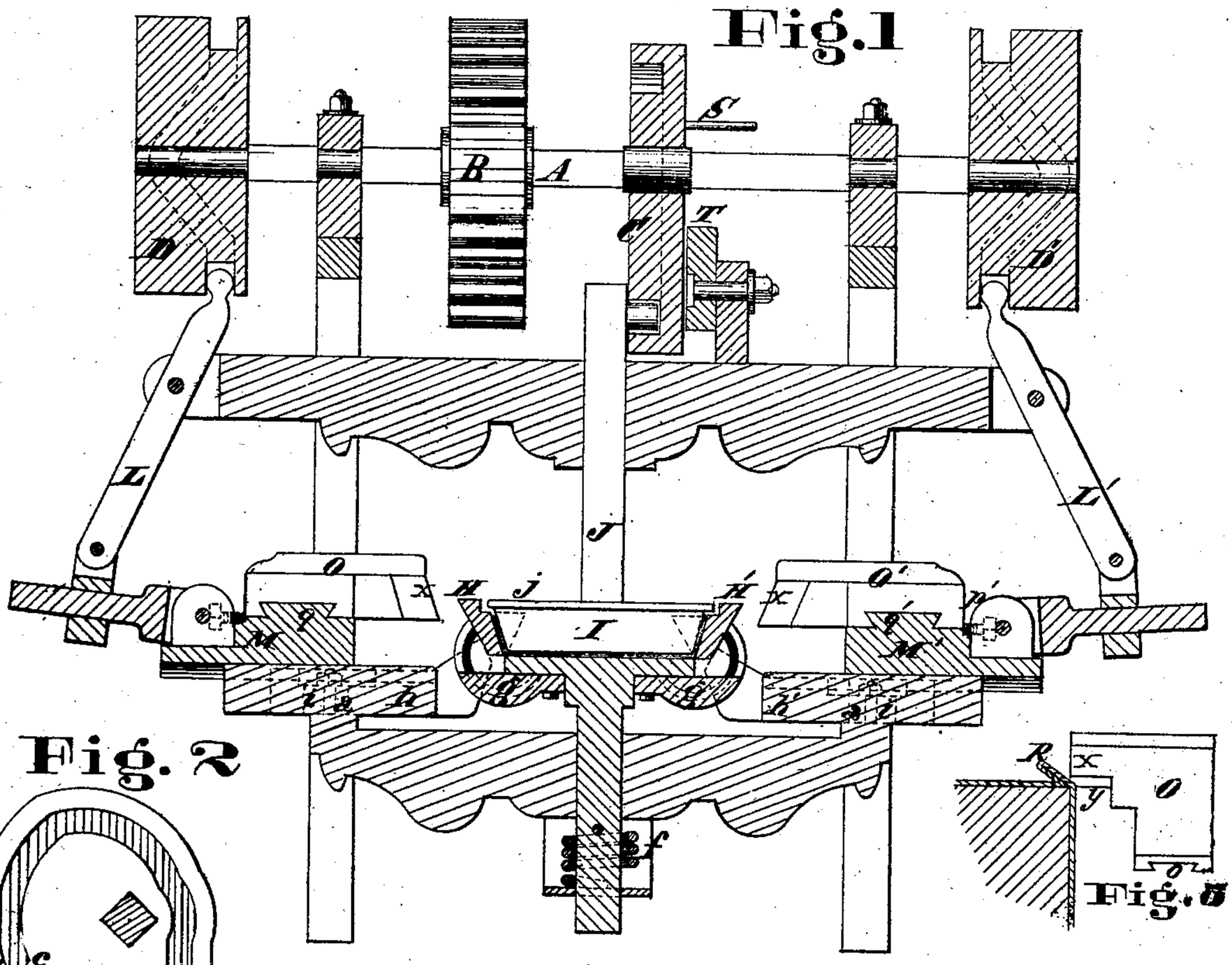



Fig. 2

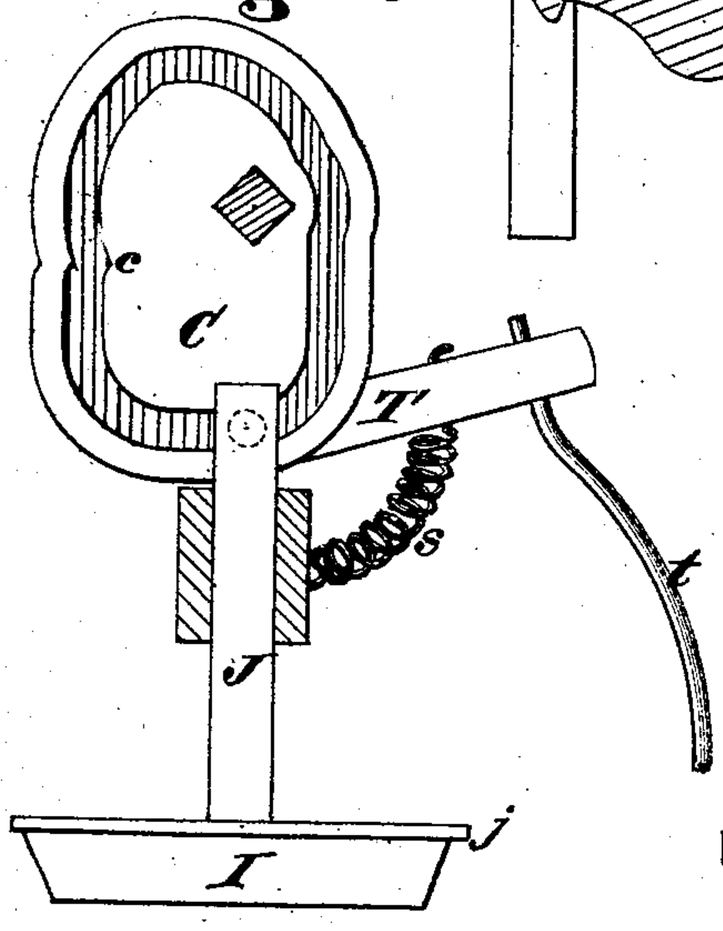






Fig. 5

Fig. 3

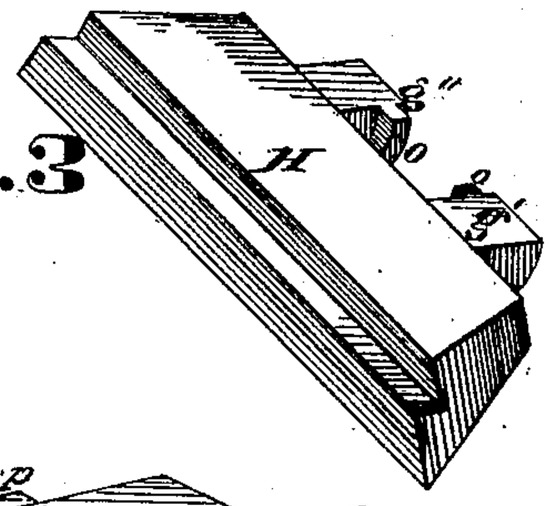
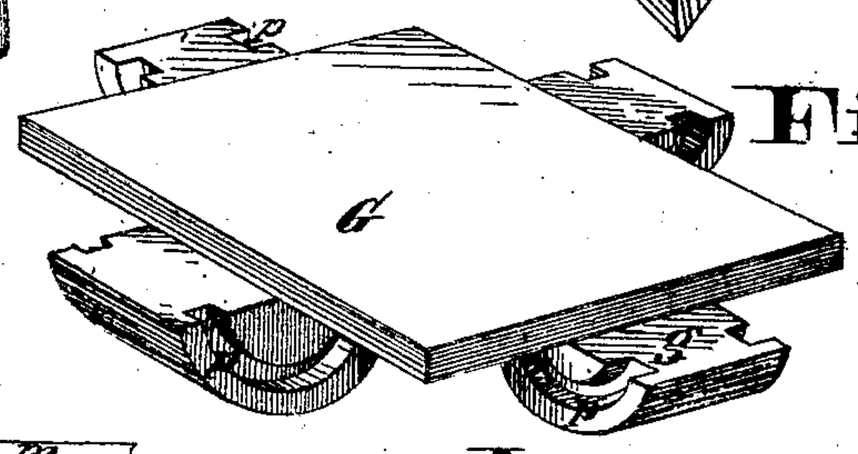



Fig. 4




Attest

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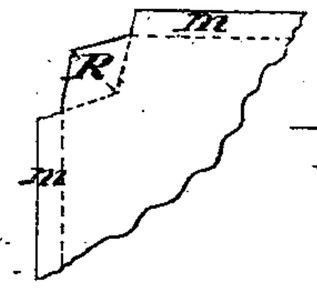


Fig. 6

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# UNITED STATES PATENT OFFICE.

WASHINGTON FOGLESONG, OF HAMILTON, OHIO.

## IMPROVEMENT IN MACHINES FOR MAKING SHEET-METAL PANS.

Specification forming part of Letters Patent No. **133,975,** dated December 17, 1872.

*To all whom it may concern:*

Be it known that I, WASHINGTON FOGLESONG, of Hamilton, in the county of Butler and State of Ohio, have invented a certain new and useful Improvement on Machines for Making Sheet-Metal Pans, of which the following is a specification:

### *Nature and Objects of Invention.*

My invention relates to the class of machines adapted to fold all four sides of a metallic blank in the manufacture of sheet-metal pans; and consists, first, of a peculiar mechanism for turning the corners of the pan during said rests; second, of peculiar devices for automatically discharging the finished pan; third, of a tongued and grooved hinge connecting the side lappers with the table of the machine in such a manner that a sharp corner is turned in the metal without any projection interiorly for the hinge; fourth, of devices for the adjustment of the working parts, and fifth, of a peculiar formation of the die by which a flange is turned upon the pan at its upper edge to facilitate the operation of wiring.

### *Description of Accompanying Drawing.*

Figure 1 is a transverse vertical section of a machine embodying my invention. Fig. 2 is a sectionized elevation of the operating-cam, plunger, die, spring, lever, and discharging-finger of the same. Fig. 3 is a perspective view of a side lapper or folder of the same machine. Fig. 4 is a perspective view of the sinking-table detached, showing the construction of the tongued and grooved hinges.

### *General Description.*

A is the operating-shaft of a machine for constructing pans from metallic blanks, driven by means of the gear-wheel B. Said shaft carries close to its midlength a cam, C, operating a plunger and die, hereafter to be described, and at its ends the two cams or eccentrics D D′ operating the two corner-folders O O′. Supported in such a manner upon a spiral spring, F, as to have a sinking motion under pressure, is a table, G, upon the four sides of which are connected, by tongued and grooved hinges *g g′*, the side-folders H H′, the operation of which is as follows: A metallic blank being laid upon the sinking-table G the cam C, by its rotation, presses the die I at the extremity of the plunger J down upon the said blank, and the table being allowed to sink under its pressure by the action of the spring *f*, the die presses down the extent of the blank which forms the bottom of the pan, while the side-folders H H′, being withheld from sinking with the table by the supports *h h′*, which are adjustable by means of screws *i i′* working in slots to suit different sizes of pan, are rotated upon the peculiarly-constructed hinges *g g′*, hereafter to be described, in such a manner as to force the margins of the blank up against the sides of the die so as to form the four sides of the pan. These hinges consist of one central and two side leaves *g g′ g″*, in which are constructed a curved tongue, *o*, and corresponding groove *p*, the curvature of which tongue and groove, having its center precisely at the upper edge of the table, allows the outer tongued leaves *g′ g″* so to rotate in the grooves of the central leaf *g* as to turn up at a sharp angle to the table and form a square corner without any interval whatever. The metallic blanks are so shaped at their corners before being placed under the die as to leave a triangular fold of the metal exterior to said corners when the sides are turned up, and a narrow margin, *m*, which, by means of a flange, *j*, upon the die I, is bent over and outward, making a list or hem for the purpose of receiving the customary wire by which the edges of sheet-metal pans are stiffened and strengthened. The cams D D′ in their rotation govern the motion of two compound levers, L L′, to whose lower extremities are attached sliding rests M M′, upon which the corner-lappers O O′ are adjustable by means of dovetail ways *q′ q′* upon which they move, and are secured by means of set-screws *p′ p″;* and their operation is as follows: The cam C which moves the plunger J and die I has in its curvature a rest, *c*, at which point its vertical motion is temporarily stopped or delayed. This rest corresponds to the point of the end cams D D′ at which they move the the levers L L′, and the die I, having pressed down the blank upon the spring-table G, and the action of the side-folders having bent up the four sides at sharp angles to the bottom of the pan, at the same time bending over between the side-folders H H′ and flange *j* the

narrow exterior margin *m* which is to receive the wire, leaving a triangular fold, R, of metal at each angle of the pan, the corner-lappers O O′, moved by the cams D D′ and levers, are simultaneously moved inward upon their slides or ways and bend said triangular folds smoothly backward upon the ends of the pan in such a manner that they will be secured under the wire rim or hem when entirely bent down over the wire, and while thus forming a smooth square corner serve to materially strengthen the pan upon its salient angles. The principal cam C has upon its side opposite to the curved groove which governs the motion of the plunger a wrist-pin, S, which operates a spring-lever, T, to whose extremity is attached a bent metallic finger, *t*, and as the said cam, in its continuous rotation, raises the plunger and die from the formed pan, this wrist-pin colliding with the spring-lever T depresses its outer extremity in such a manner that the finger *t* is thrown back so as to embrace the edge of the pan, and the lever being retracted by means of the spring *s* when the pin has passed by its point of contact with the lever the pan is thrown out from the table, which is then ready to receive a new blank. By means of the slides or ways *h h′* with their slots *a a* and set-screws *i i′*, which govern the action of said side-folders and corner-lappers, these can be so adjusted as to permit the use of different sizes of dies and tables, to form different sizes of pans, as may be desired. The dotted lines on the die in Fig. 1 show the position of the metal when lapped at the corner. The lines of folding are shown in Fig. 6, which is a plan of one corner of the blank, showing the portion of metal R which is doubled upon its diagonal dotted line to form the triangular fold, and the exterior margin *m*, which is bent over by the flange *j* to receive the wire, while Fig. 5 shows a plan of one of the corner-folders O in the act of folding back the corner R. The folder has a dovetail groove, *o*, on its lower surface for attaching it to the sliding rest M, which gives it a reciprocating motion and forces its forward edge X, in which is shaped an angular recess, Y, corresponding to the shape of the pan, closely past the corner of the die I, leaving only room for the doubled fold R, which is thus bent back against the sides of the pan and die in the manner shown in this figure, and by the dotted lines in Fig. 1.

As a modification of the corner-folder its forward edge X, which first comes in contact with the metal to be folded, may be armed with a roller to decrease friction.

*Claims.*

1. The sinking-table G, plunger J I, and side-folders H H′, operated by suitable mechanism, in combination with the reciprocating corner-folders O O′, operating substantially as and for the purpose set forth.

2. The combination of table G, die I, and corner-lappers O O′, constructed and operating substantially as specified.

3. The combination of table G, plunger J I, side-folders H H′, corner-lappers O O′, and cam C, when the cam is constructed so as to allow the plunger to rest at a certain point in the revolution of the shaft A to permit the lappers to turn the corners R.

4. In combination with the elements of the first clause of claims, the discharging-finger *t*, swinging lever T, spring *s*, and revolving wrist pin or stud S, as and for the purpose specified.

5. In combination with a sheet-metal pan folding-machine, comprising a table, G, die I, and side-folders H H′, the tongue and groove hinge *g g′*, as and for the purpose specified.

6. In combination with the elements of the first clause of claims the adjustable bars *h h′*, as and for the purpose specified.

7. In combination with the table G, die I, and side-folders H H′, the shoulder or flange *j*, as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

WASHINGTON FOGLESONG.

Witnesses:

FRANK MILLWARD,

J. L. WARTMANN.