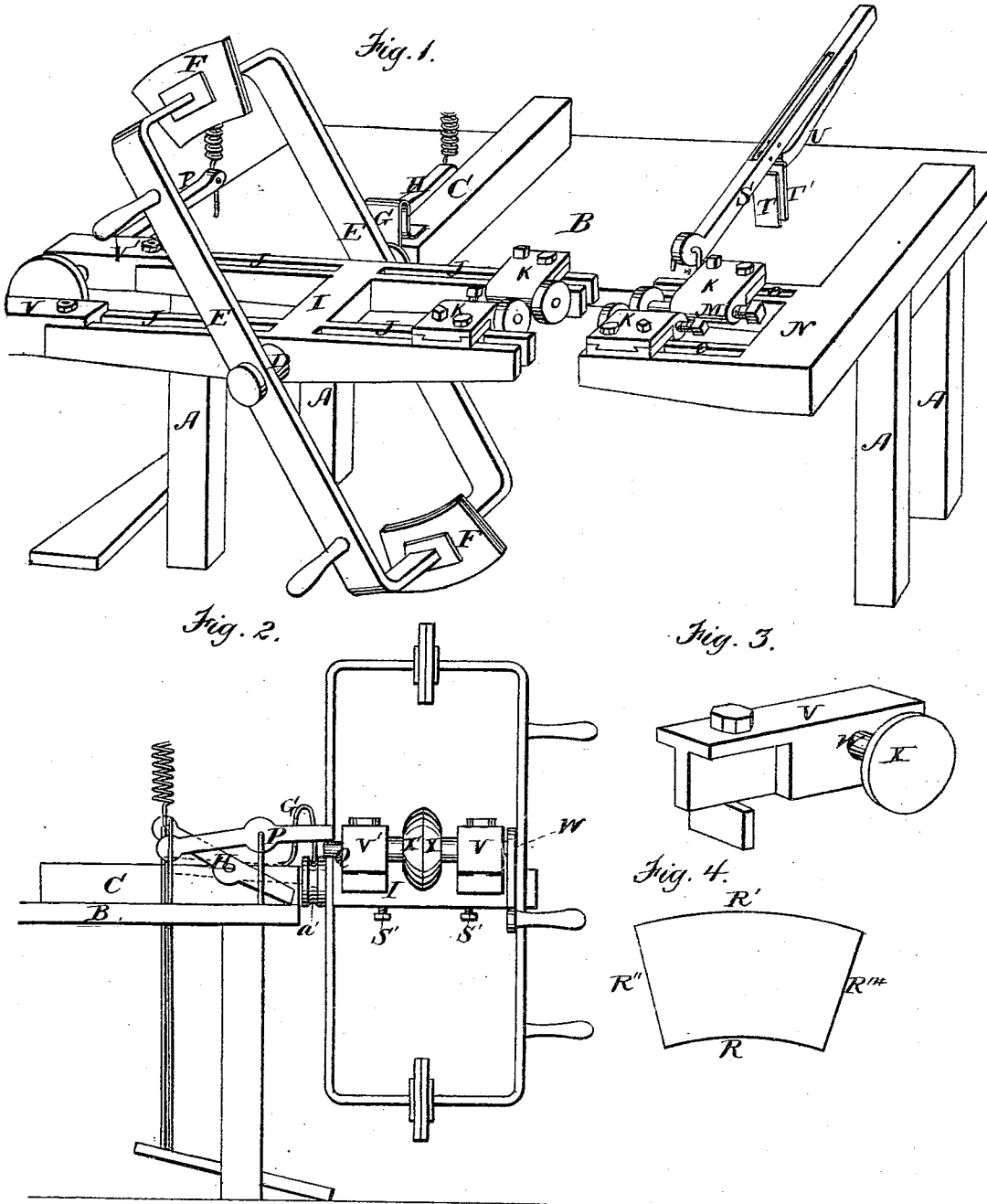


E. P. SHERWOOD.

Machines for Cutting Sheet-Metal Blanks.

No.148,992.

Patented March 24, 1874.



WITNESSES
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By

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UNITED STATES PATENT OFFICE.

EUGENE P. SHERWOOD, OF COPENHAGEN, NEW YORK.

IMPROVEMENT IN MACHINES FOR CUTTING SHEET-METAL BLANKS.

Specification forming part of Letters Patent No. **148,992**, dated March 24, 1874; application filed November 12, 1873.

To all whom it may concern:

Be it known that I, EUGENE P. SHERWOOD, of Copenhagen, in the county of Lewis and State of New York, have invented a new and Improved Machine for Cutting Out the Sides and Bottoms of Sheet-Metal Vessels; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of my invention. Fig. 2 is a side elevation of the same. Fig. 3 is a view of one of the circular blank-holders; and Fig. 4, a plan of one of the sections complete.

Similar letters of reference in the accompanying drawings denote the same parts.

My invention relates to improvements in machines for cutting out the sides and bottoms of sheet-metal vessels; and it consists in the employment of certain devices, as are hereinafter more fully set forth and pointed out in the claims.

In the accompanying drawings, A A are uprights, supporting the table B, to which is attached transversely the cross-piece C, provided with a cylindrical shaft, D, projecting out beyond the table. On the outer and inner ends of the shaft D are journaled two arms, E E, which freely turn thereon, and are curved or bent at their upper and lower ends to approach or come nearly in contact, where they are provided with blank-holders F F, between which the metal to form the sides of the pan or vessel is securely held during the cutting operation. G is a spring located on the top of the transverse piece C, and bearing against the arm of the inner blank-holder, the tension of which operates to open the blank-holder. H is a lever having its fulcrum on the side of the transverse bar C, and provided with a spring on its inner end, attached to the ceiling or other appropriate point, the tendency of which is to depress the opposite end of the lever, which bears in its horizontal position upon the inner arm of the blank-holder. A wire or cord, passing through a perforation in the table, and moved by a foot-lever or otherwise, is operated to bring the inner end of the lever to bear against the arm of the blank-holder, and, overcoming the tension of the

spring G, forces the blank-holders together to seize the side plates. On the axis D is pivoted the frame I, which is allowed to turn thereon, but may be securely attached thereto by set-screws S' S', or their equivalents. This frame is slotted, as seen at J, the slots being the receptacles of the circular cutter-holders K K. These cutter-holders are capable of being slid along in the slots. The holders K are made in two parts, the upper part being tenoned, and fitting into a corresponding mortise in the lower part. The two parts are connected together by bolts passing through elongated slots in both parts of the holders, by means of which the parts may be slid on each other so as to bring the cutters nearer to or farther from each other. One of the bolts connecting the two parts of the holder is double-headed, the bolt passing through the slot in the frame I, and the lower head of the bolt preventing the holder from being removed vertically from the slot in the frame, while the holder may be slid along in the slot. The inner end of the holder is cylindrically formed, as seen at M, to receive the shaft of the circular cutters, a bolt being inserted in the opposite end to hold the cutter securely. By this construction it is evident that the cutters may be shifted or inserted in either end of the cylindrical part M of the holder. N is an extension-bed attached to the bench, and projecting beyond it. The inner portion is slotted, as seen at o o, the slots o being in the same line with the slots in the frame I. Similar holders, provided with circular cutters, to those used in the frame I are employed in the extension-bed N.

The operation of cutting the outer and inner edges of the blank circularly is as follows: The blank is inserted between the blank-holders F, the parts V V' being removed from the machine, and the lever H being operated to overcome the tension of the spring G, and bring the blank-holders together, so as to securely grasp the blank. The frame I is held firmly in place by means of the set-screws s' s', heretofore described. The blank-holders F, carrying the blank, are then rotated, bringing the blank in contact with the circular cutters, to which a rotary motion is given. It is obvious that, by the above-described movement of the blank-holders, the edges of the blank will

be cut circularly, as seen at R R', the cutters on the frame I cutting the arc R, while the cutters on the extension-bed will cut out the arc R'.

S is a lever pivoted to the bench or bed of the machine, and capable of being turned upon the latter when not in use. On this lever are attached the two vertical blank-holders T T', the former securely attached to the upper face of the lever S, and the latter, T', pivoted thereto. U is a lever, fulcrumed on the upper face of the lever S, its inner end bearing against the pivoted plate-holder T'. The blank, after having its outer and inner ends cut circularly, is placed between the blank-holders T T', and the outer end of the lever S being raised, and the blank set at an angle, the beveled or inclined edges R'' R''' are cut out. During this operation, the blank-holders on the arms E E may be turned up vertically out of the way. V V' are pieces rabbeted at their inner ends to fit over the ends of the frame I, the ends of the rabbeted parts entering the slots in said frame. Bolts, provided with nuts or their equivalents, are employed to pass through the inner ends of the parts V V', and through the slots, by means of which they may be attached to the frame, or detached therefrom when not in use. W is a shaft journaled in the part V, carrying a crank on its outer end, and provided with a circular blank-holder, X. A similar blank-holder, X', attached to a shaft journaled in the part V', is employed, and the blank to form the bottom of the vessel is held between the blank-holders X X', and a rotary motion given them by means of the crank of the blank-holder X, the blank being brought against circular cutters held in holders similarly constructed to those lettered K, and situated in the frame I, near the blank-holders X X', by means of which the bottom of the pan or vessel is cut out. P is a lever fulcrumed in an upright in the table B, to the outer end of which is attached a spring, connected with the ceiling or other appropriate point. A rod, connected with the outer end of the lever P, passes through a perforation in the table, and

has a treadle or foot-lever at its lower end. By depressing the outer end of the lever P by means of its treadle, the lever P is made to abut against the shaft *g* of the part V', in order to bear against it, and securely hold the blank between the disks X X'.

The circular cutters present a cutting-edge on each side, so that they may cut on either side when shifted in the slots of the frame.

I claim as my invention—

1. The revolving section-plate blank-holders F F on the outer ends of the arms E E, the latter being pivoted to the axis D, in combination with the circular cutters, substantially as described, and for the purpose set forth.

2. The slotted extension-bed N and slotted frame I, both being provided with circular cutters, in combination with the section-plate blank-holders F F on the outer ends of the swinging arms E E, substantially as described, and for the purposes set forth.

3. The frame I, having slots J J, open at their outer ends, in combination with the holders K K, provided with double-headed bolts to retain the holder in the slots, and circular cutters having a cutting-edge on each face, by means of which the circular cutters may be shifted and adjusted, substantially as described, and for the purpose set forth.

4. The cutter-holders K K, made in two parts, and capable of being adjusted endwise by means of a mortise-and-tenon connection, substantially as described, and for the purpose set forth.

5. The lever S, carrying its blank-holders, in combination with the circular cutters, as set forth.

6. The detachable parts V V', provided with tenons on their inner ends, in combination with the slotted frame I and circular blank-holders X X', substantially as described, and for the purpose set forth.

EUGENE P. SHERWOOD.

Witnesses:

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JAMES JOHNSTON.