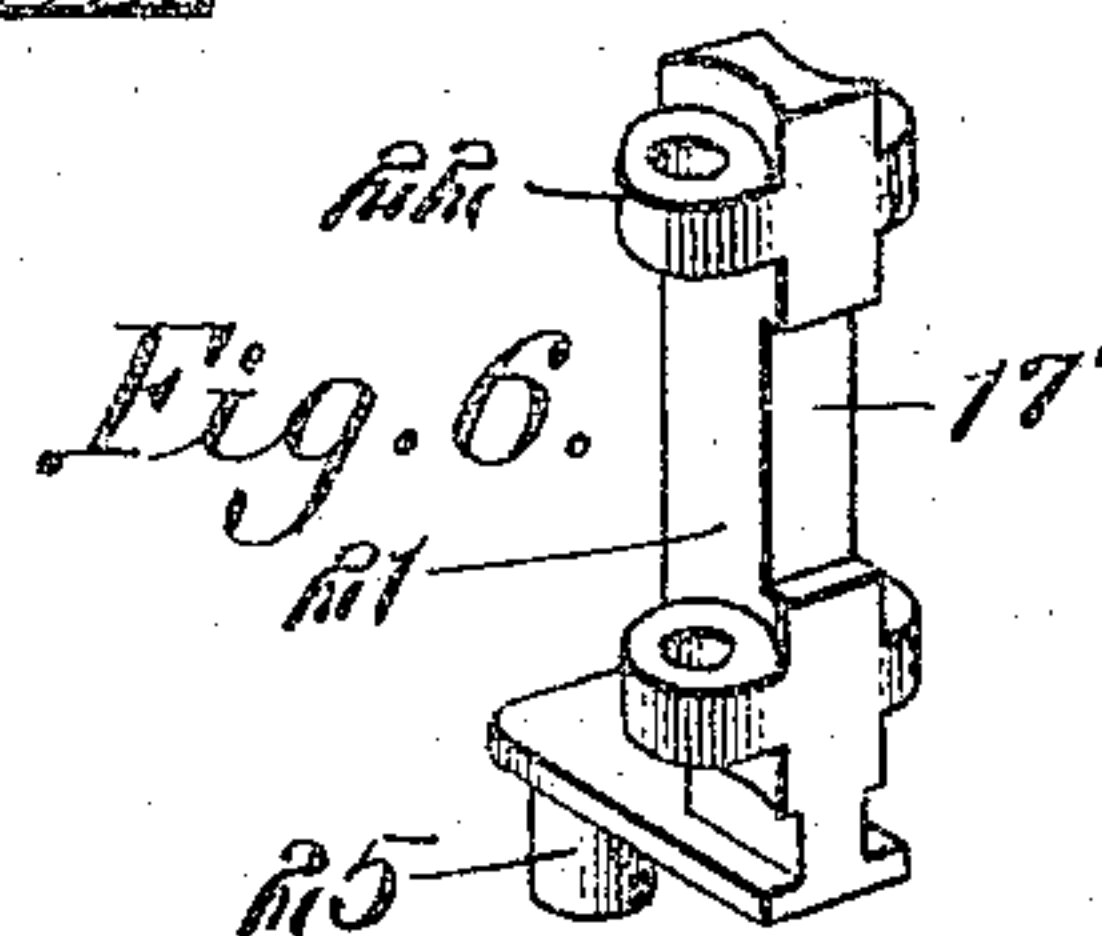
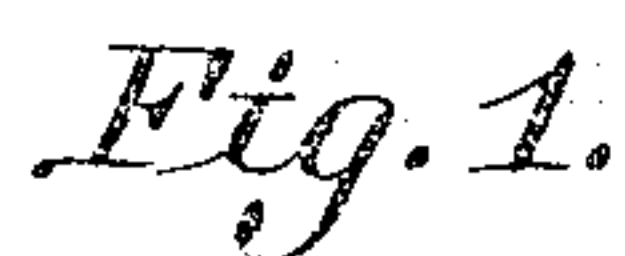


PATENTED AUG. 9, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Henry Diecks, Inventor.
by *Chas. W. The*
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No. 767,266.

PATENTED AUG. 9, 1904.

H. DIECKS.
FLANGING MACHINE.

APPLICATION FILED OCT. 15, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

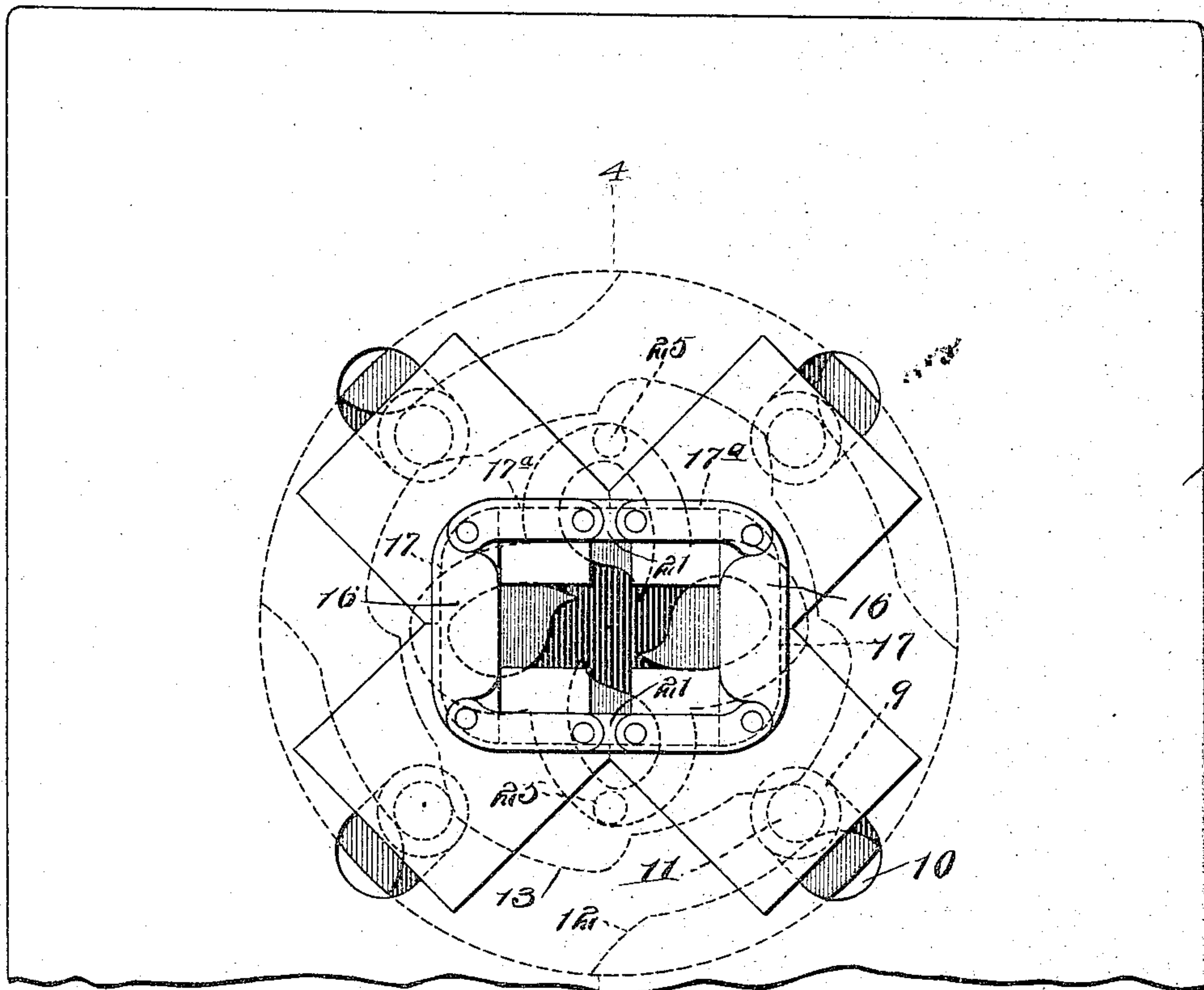


Fig. 2.

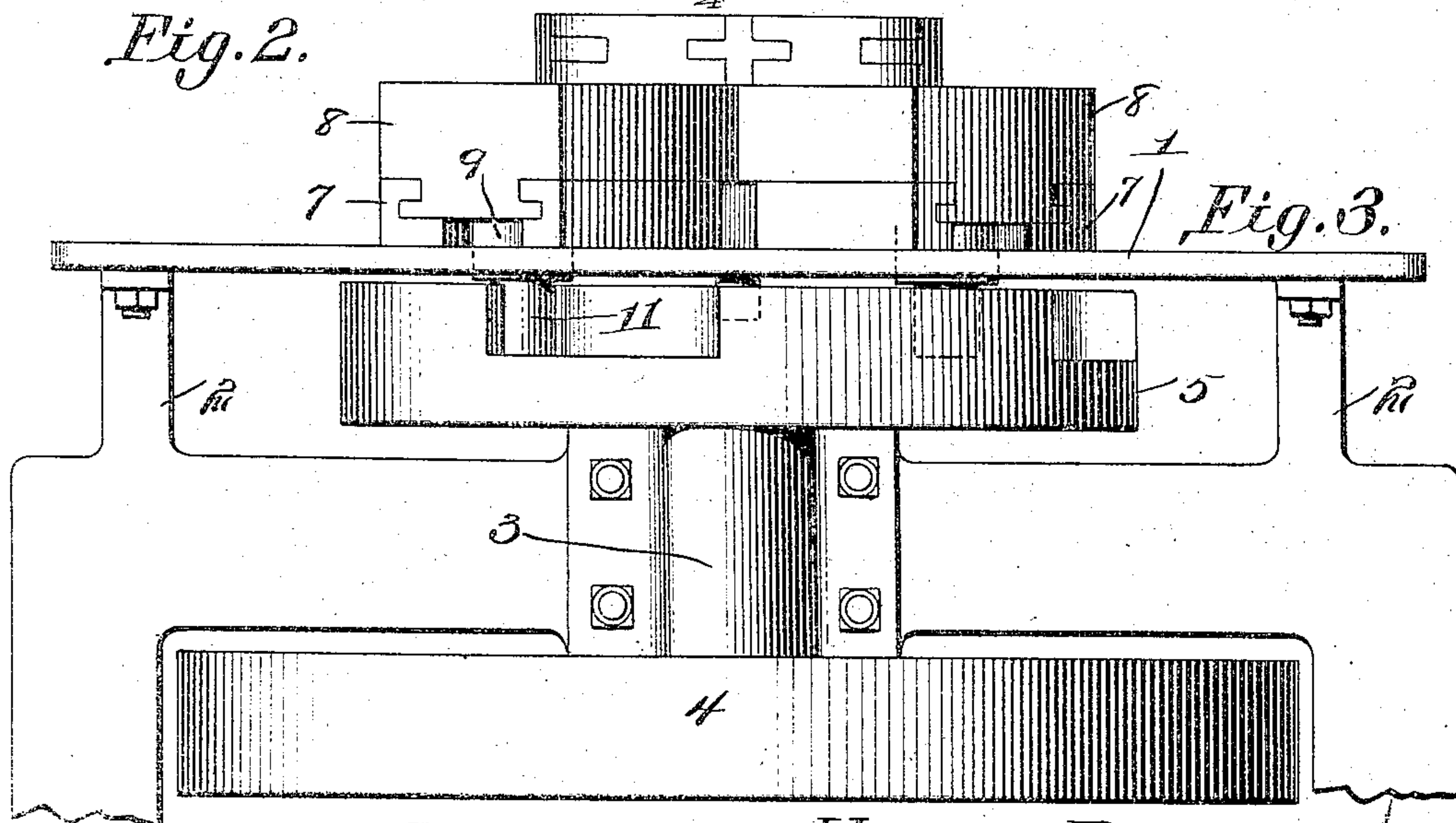


Fig. 3.

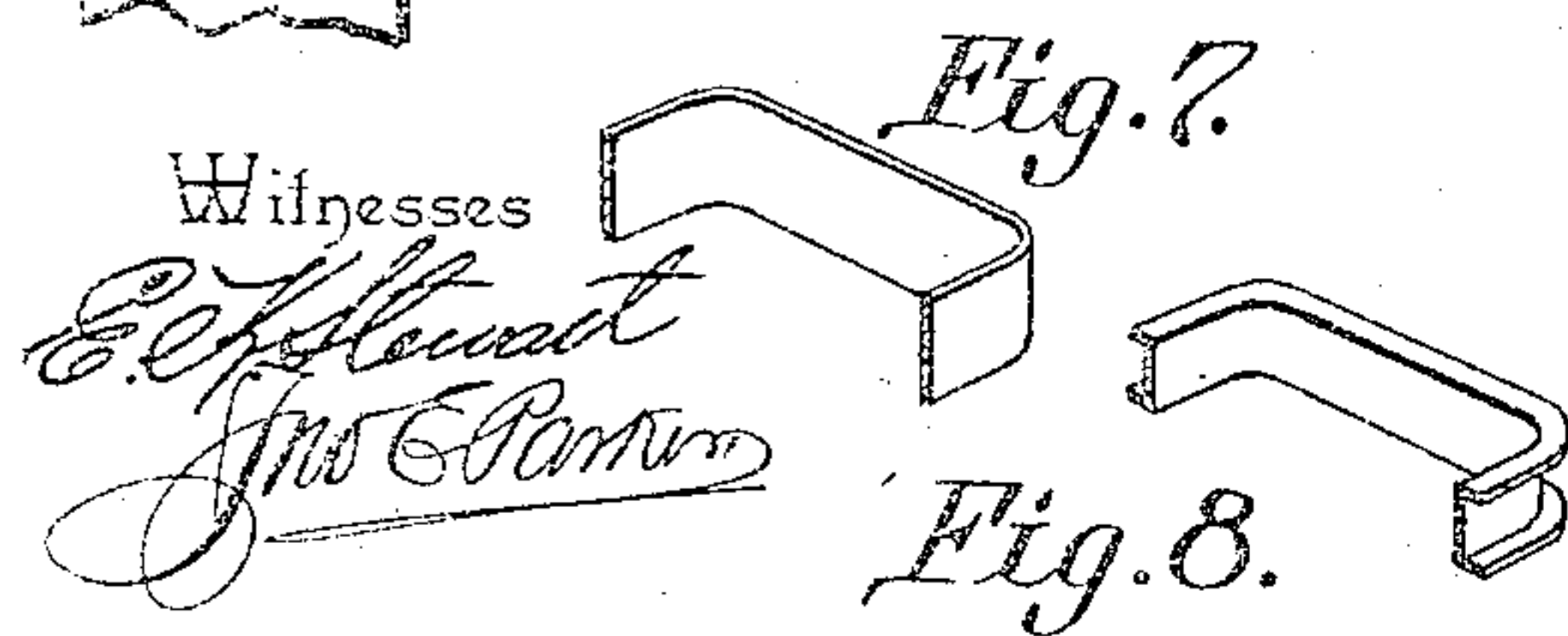


Fig. 7.

Fig. 8.

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UNITED STATES PATENT OFFICE.

HENRY DIECKS, OF EASTPORT, MAINE.

FLANGING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 767,266, dated August 9, 1904.

Application filed October 15, 1903. Serial No. 177,190. (No model.)

To all whom it may concern:

Be it known that I, HENRY DIECKS, a citizen of the United States, residing at Eastport, in the county of Washington and State of Maine, have invented a new and useful Flanging-Machine, of which the following is a specification.

This invention relates to certain improvements in machines of that class employed for flanging metallic and other articles.

The principal object of the invention is to provide a machine for forming flanges on can-bodies to prepare the latter for the reception of the tops and bottoms.

A further object of the invention is to provide a flanging-machine in which the edge of the metal will be gradually forced outward at an angle to the sheet or can-body without danger of splitting or otherwise damaging the metal during the operation and when applying the apparatus to the flanging of can-bodies to positively support the body of the can and to operate thereon in the formation of a flange or flanges in a manner somewhat similar to that practiced in die-forming operations, the metal being firmly held and turned gradually to proper position until at the completion of the operation the can-body and flange or flanges will be positively held in a practically rigid die.

A further object of the invention is to provide a mechanism for simultaneously forming flanges on the tops and bottoms of can-bodies, the two flanges being formed in a single operation and by a single movement of the parts, the releasing movement after the flanging operation is accomplished permitting the parts to assume such position as to allow the ready withdrawal of the flanged cans and the substitution of another can to be acted upon.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is

a plan view, partly in section, of a flanging-machine constructed in accordance with the invention, the parts being shown in position in readiness to receive a can. Fig. 2 is a similar view showing the position which the parts assume at the completion of the flanging operation. Fig. 3 is a front elevation of the machine. Fig. 4 is a transverse sectional elevation of the same on the line 4 4 of Fig. 2. Figs. 5 and 6 are detail perspective views of portions of the forming-dies. Fig. 7 is a detail perspective view of a portion of an unflanged can. Fig. 8 is a similar view showing the can at the completion of the flanging operation.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The device forming the subject of the present invention is intended for the formation of flanges on metallic articles and by proper modification of its size and the contour of its die members may be employed for the formation of flanges on articles of widely-different characters.

The apparatus illustrated in the drawings, being merely one embodiment of the invention is intended for the formation of flanges on the upper and lower edges of tinned cans such as are employed in the packing of sardines and similar food products.

The several operating parts of the mechanism are supported on a suitable frame including an upper bed or table 1 and standards 2. This frame has bearings for the reception of a vertically-disposed shaft 3, on which are mounted a belt-wheel 4 and a revoluble cam 5. On the bed-plate are secured a plurality of guides 7, arranged on lines approximately radial from the center of the table, and in these guides are mounted slides 8 of a shape conformable to the shape of the can to be acted upon and serving when in operative position as a rigid support for the whole of the vertical wall of the can-body. The can in the present instance is substantially oblong in form, and each of the slides 8 is suitably shaped to receive one corner of the can, and when the slides are moved inward the can-supporting surface is continuous and un-

broken. Each of the slides is provided with a depending lug 9, that extends through a substantially radial slot 10, formed in the table, and to the lower end of the lug is secured a pin 11, adapted to be acted upon by cams 12 and 13, that are carried by the cam-disk 5 and serve to reciprocate the slide toward and from the center of the table, the cam 12 engaging the pin 11 and moving the slide inward to clamp against the vertical wall of the box, while the cam 13 serves to engage the pin and move the slide outward, so that a flanged box may be removed from the machine.

The bed-plate is provided with two pairs of parallel guides 15, adapted for the reception of the similarly-shaped bottom portions of end dies 16, that are moved outward from the center of the table during the flanging operation. Each of these dies has a recess 17, of which the upper and lower walls 18 and 19 serve as active die members in forcing the projecting upper and lower portions of the can over upon the slides 8, each end die 16 constituting, in effect, a female die for the reception of the male die, represented by the slide 8. The bed or table is further provided with guideways 20, arranged at a right angle to the guides 15 and serving to receive the suitably-shaped bottoms of the knuckle members 21, that serve in part as dies for the formation of the flanges and the side walls of the can. Each of the knuckles 21 has a recess 17', adapted to receive a portion of the slides 8 during the flanging operation, and from each upper member projects pivot ears 22, that are pivotally connected to swinging die members 23, the outer ends of said die members being pivotally connected to the end members 16, as shown in Figs. 1 and 2. The swinging die members are provided with recesses 17^a, also forming female dies when in the position shown in Fig. 2. The several recesses 17, 17', and 17^a will constitute a continuous groove or recess for forming the continuous upper and lower flanges of the box.

To the bottom of each knuckle member 21 is secured a pin 25, that is acted upon by cams 26, carried by the cam-disk 5, so that when the latter is turned the knuckle members will be moved from the position shown in Fig. 1 to that illustrated in Fig. 2, said knuckle members being moved directly away from each other and serving, in connection with the swinging die members 23, as toggle-joints for effecting outward movement of the end die member 16.

In the operation of the device all of the parts are initially in the position shown in Fig. 1, the main die members being contracted and the outer slides or dies 8 being moved away from each other in order to permit the ready insertion of an unflanged can. The cam-disk 5 is then rotated, and the cams 12 engage the pendent pins 11 and force the sev-

eral slides 8 inward toward the center of the table to form a continuous wall of the exact size of the box. The vertical height of the recesses 17, 17', and 17^a is less than that of the can, and those portions of the walls of the can which are to constitute the flanges extend above and below the horizontal walls of said recess. The knuckle members 21 are then forced apart, being moved gradually until they assume the position shown in Fig. 2. The separation of the knuckle members forces the dies 16 away from each other in the direction longitudinal to the can, and the can is caught between the walls of the recess and the adjacent vertical walls of the slide 17, its upper and lower edges being turned outward to form the flange. The swinging dies 23 are gradually forced outward and serve, in connection with the knuckle members 21, to form the flanges at the top and bottom of the longitudinal walls of the can. The flanging operation is complete at this time, and it will be observed that all portions of the can-body are held rigidly in place, being surrounded by the several guides or dies 8, while their inner walls are engaged by the continuous movable die. This operation not only forms the flanges without danger of tearing or splitting the metal, but also serves to impart shape to the can should the latter be distorted from any cause. This rigid clamping of the whole of the box serves to prevent distortion and is found in practice to form a complete and perfect flange without any danger of cracking or splitting of the metal of a flange. Continued rotation of the cam-disk will release the main dies and restore the same to the position shown in Fig. 1, while the cams 13 will then engage the depending pins 11 and draw the outer slides or dies away from the outer surface of the can, so that the latter can be readily removed and a fresh can-blank substituted.

It is to be understood that the shape of the dies for the formation of sardine-cans is here used merely as a matter of illustration and that the invention is equally applicable to the flanging of cans and other articles of any shape or size by alteration in the shape of the dies.

Having thus described the invention, what is claimed is—

1. In mechanism of the class described, a set of outer die members and a set of pivotally-connected and simultaneously-movable inner die members arranged to form a continuous die-surface for contact with the inner surface of a can-body or the like, and means for operating said members.

2. In mechanism of the class described, a plurality of outer die members, means for moving the same to form a rigid backing for the outer wall of an article being operated upon, a set of inner die members pivoted together in a continuous series and presenting when expanded a continuous die-surface for

contact with the article, one set of members being recessed to form a continuous flange on said article.

3. In mechanism of the class described, a set of outer die members, means for operating the same, a set of inner die members pivotally connected in a continuous series and forming a continuous die-face when expanded, means for simultaneously moving both sets of members and for stopping the movement of one in advance of the other.

4. In mechanism of the class described, a plurality of outer die members, means for operating the same, inner die members arranged in pairs and movable outward from a common center, and auxiliary members pivotally connecting the inner die members in a continuous series, and means for operating said inner die members.

5. In a machine for flanging can-bodies of angular form, outer die members movable toward the points of intersection of the sides of the can and adapted to engage each with portions of two of the can sides, an inner die member coöperating therewith, and operating means for moving the outer die members and completing their movement in advance of the operative movement of the inner die member.

6. In a can-body-flanging machine, a plurality of members forming an outer die, and an inner die comprising four guided members arranged in pairs at a right angle to each other,

the dies of each pair being diametrically opposed and movable simultaneously toward and from the other and link connections also forming die members and extending between the slidable members to form a continuous inner die.

7. In a can-body-flanging machine, a plurality of members constituting an outer die, a plurality of members constituting an inner die, and a revoluble disk having cams for operating the dies.

8. In a can-body-flanging machine, a bed-plate having guiding-grooves arranged in pairs at right angles to each other, movable die members having their lower portions arranged within said guides, link members also forming a part of the die and connecting the sliding members for simultaneous movement, auxiliary guides arranged approximately on lines diagonal with respect to the positions of the first-named guides, outer slides having portions fitted within such diagonal guides, and means for reciprocating the several die members, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY DIECKS.

Witnesses:

F. W. WILLIAMS,
JOHN H. McFAUL.