Sept. 4, 1945. H. V. DETTMAN 2,384,284

ECCENTRIC DIE SHEET METAL FLANGING MACHINE

Filed Oct. 28, 1942

Fig. 1.

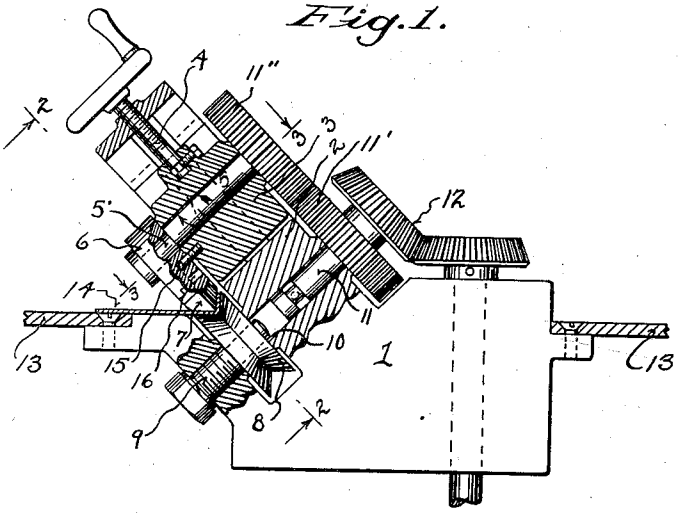


Fig. 2.

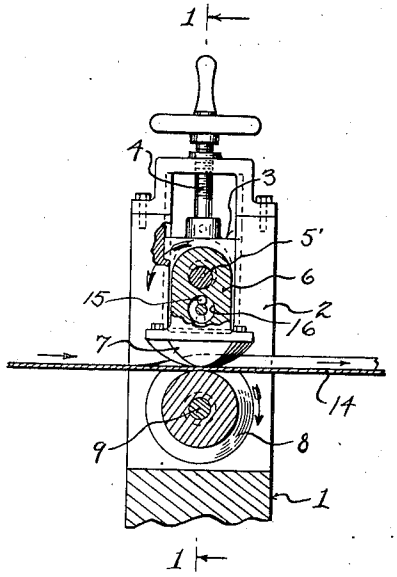


Fig. 3.

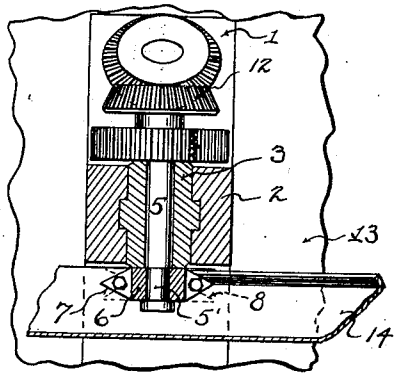


Fig. 4.



INVENTOR
HAROLD V. DETTMAN

BY

ATTORNEYS

Patented Sept. 4, 1945 2,384,284

UNITED STATES PATENT OFFICE

2,384,284

ECCENTRIC DIE SHEET METAL FLANGING MACHINE

Harold V. Dettman, Riverside, Ill.

Application October 28, 1942, Serial No. 463,585

1 Claim. (Cl. 153—29)

My invention has for its object to provide a simple, economical and rapidly operating flanging machine.

The specific object of my invention is to provide an eccentrically driven vibratory shoe having the desired flange forming sole operating in conjunction with a wheel having a periphery corresponding in shape to the reciprocative die or the wheel may be replaced by a die corresponding in every respect to the first mentioned die.

With the above and other minor objects in view, the invention consists in certain peculiarities of construction and combination of parts as will be fully set forth hereinafter with reference to the accompanying drawing and subsequently claimed.

In the drawing:

Figure 1 represents a sectional elevation of a machine embodying the essential features of my invention, the section being indicated by line 1—1 of Figure 2.

Figure 2 is a face view of the same partly in section as indicated by line 2—2 of Figure 1.

Figure 3 is a sectional plan view of said machine, the section being indicated by line 3—3 of Figure 1.

Figure 4 is an elevation of a curved form of edge flange.

Referring by characters to the drawing 1 indicates the base frame of the machine having angularly disposed post 2 slotted in its upper end for the reception of a bearing block 3 slidably mounted in the post. The bearing block is adjustable by means of any standard hand controlled screw mechanism 4 as shown. The block 3 has revolubly mounted therein a shaft 5, the projecting end of which 5' is of an eccentric formation. Mounted upon the eccentric is a depending boot 6, flanged at its lower end for the reception of a die shoe 7, the same forming an elongated V shaped die at its base, or sole.

The bed 1 is slotted out below the shoe for the reception of a die wheel 8, the periphery of which is V shaped to correspond with the upper die and said wheel is loosely mounted upon a stud 9 carried by the frame.

Centrally disposed with reference to the axis of the wheel, the bed is provided with a bearing aperture 10 and loosely mounted therein is an idle shaft 11. The shaft 11 has secured thereto an idle gear wheel 11', which has an integral bevel gear 12 that meshes with a similar bevelled gear, the shaft of which is mounted in the base frame and driven by a suitable source. Hence, drive is imparted to the idle gear wheel 11', which wheel under working conditions is meshed with a gear wheel 11'' secured to the eccentric shaft 5, whereby reciprocative motion is imparted to boot 6. As best indicated in Figure 1 the flanging machine carries a work supporting table 13, upon which a sheet of metal 14 is placed and inserted between the male and female dies. It is understood that this metal sheet may be of a rectangular formation whereby the edges of the same, as shown in Figure 1 may be folded at a right angle to the body of the sheet, by the die unit or the metal sheet may be circular in form whereby the edges of the disc are thus folded in the desired shape. It is understood however, that the shape of the fold at the edges may be varied indefinitely. As for example, this edge may be simply curved upwardly as indicated in Figure 4 of the drawing or it may be crimped in various manners, depending upon the conformation of the male and female dies with which the machine is equipped.

As indicated in Figures 1 and 2 of the drawing, the upper die boot may be held from rotating by any suitable mechanism, as for example a pin 15 extending from the bearing 3 engaging a circular slot 16 which is formed in the rear face of the boot, hence the slot and pin connection while permitting free vibratory movement of the shoe will serve to hold the same in its stamping or working position.

The male hammer die 7 as shown is elongated, forming a runner which in cross section is convexed to conform with the peripheral concavity of the female die wheel 8. The driven eccentric 5' of the boot 6 and the pin 15 and slot guide 16, which forms a shackle anchor for the boot, causes the male die to describe not only a downward hammer stroke, but also a reciprocative forward feed movement and thus the metal plate is fed slightly forward with each hammer blow. Hence, the female wheel die functions as an anvil for support of the plate worked upon and rotates in unison with said plate as it is intermittently fed forward.

From the foregoing description it will be understood that in the event a circular disc is operated upon for folding its edge, the said edge may be disengaged, after completion, by simply raising the male die shoe and its associated parts through manipulation of the crank screw 4. Figures 1, 2 and 3 show a sheet metal plate 14 in different positions, whereby the folded edge is developed and while I have shown one simple exemplification of my invention minutely as to de-

tail, it is understood that I may vary such details within the scope of the claim.

It should be understood that when the edge of a circular sheet of metal is folded the said sheet is rotated upon a common center carried by the table 13 and obviously inner and outer circles may be operated upon.

I claim:

A sheet metal flange forming machine comprising a base frame, a horizontally disposed table carried thereby, an angularly disposed post extending from the base frame above the table, the same being slotted at its upper end, a female guide wheel mounted in the post below said table, an idle driving gear having a shaft journalled in the post, a bearing block in slidable union with the slotted portion of said post, a threaded spindle carried by the post for raising and lowering the bearing block, a shaft journalled in the bearing block terminating with an eccentric at its front end, a gear secured to the eccentric shaft in mesh with the idle gear, when the bearing block is shifted downwardly to working position, a boot mounted upon the shaft eccentric and an elongated male die carried by the boot adapted to intermesh with the female die wheel when the bearing block is moved downwardly to its functioning position.

HAROLD V. DETTMAN.