

July 17, 1934.

W. A. WAY

1,966,472

APPARATUS FOR MAKING ADDRESS PLATES

Filed Oct. 5, 1931

4 Sheets-Sheet 1

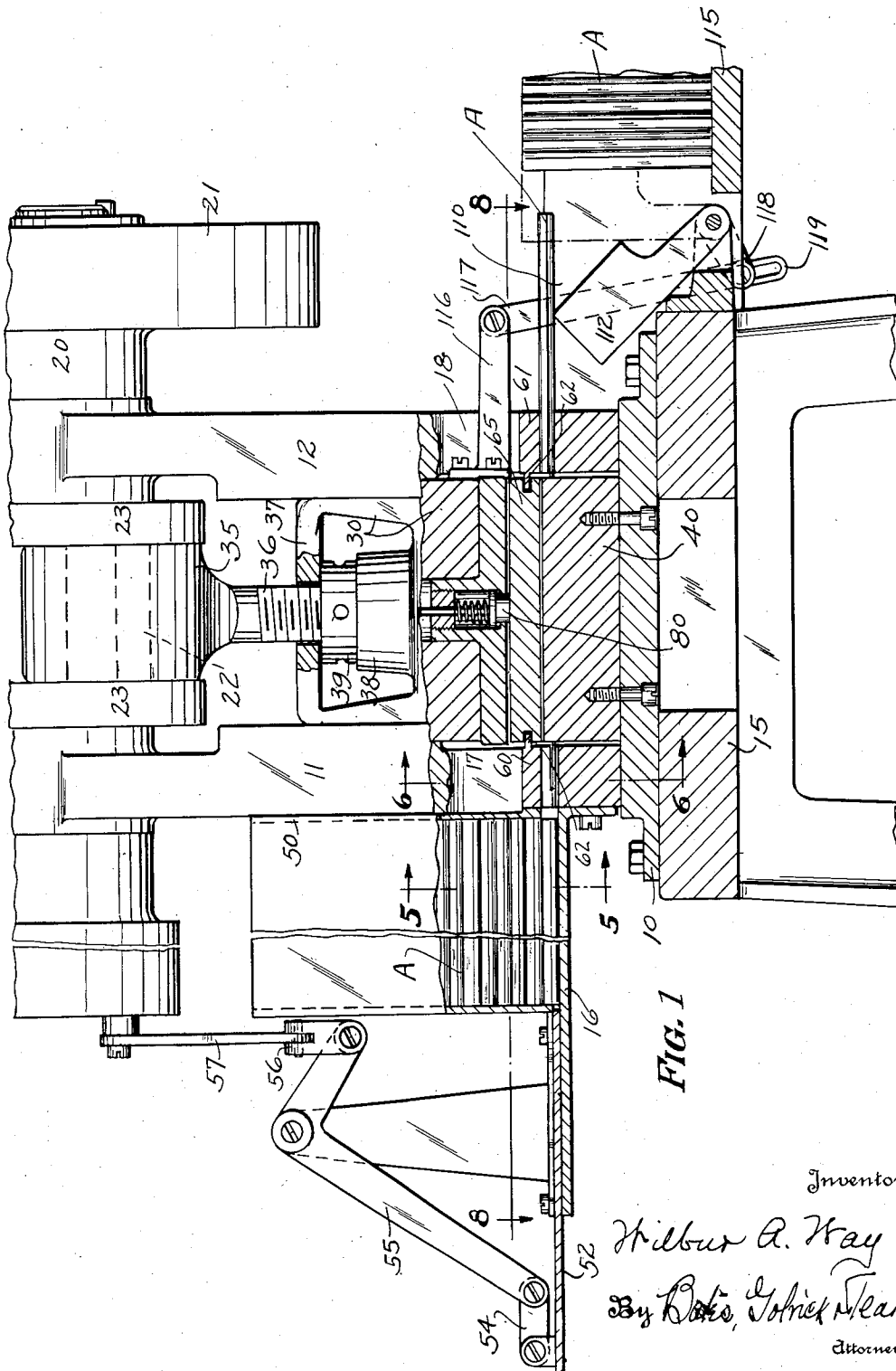


FIG. 1

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4 Sheets-Sheet 2

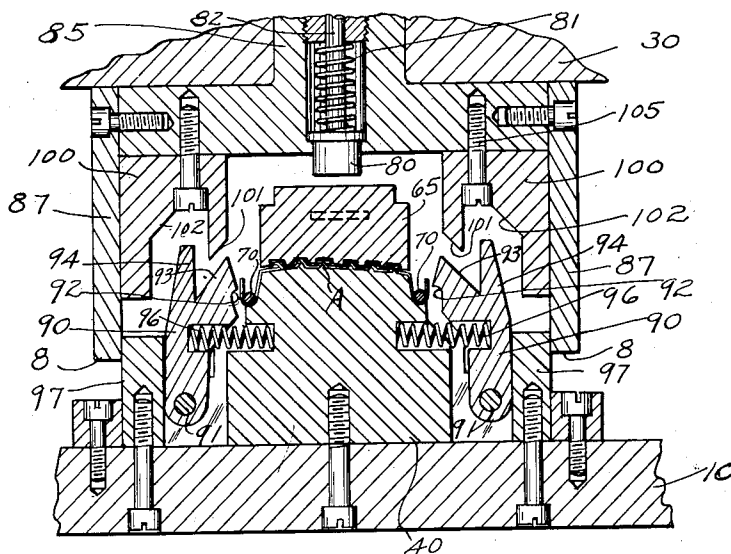


FIG. 2

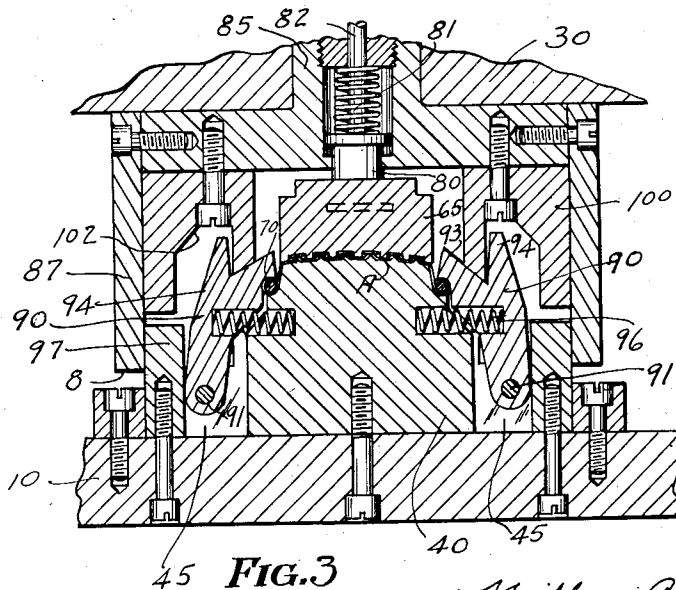


FIG. 3

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4 Sheets-Sheet 3

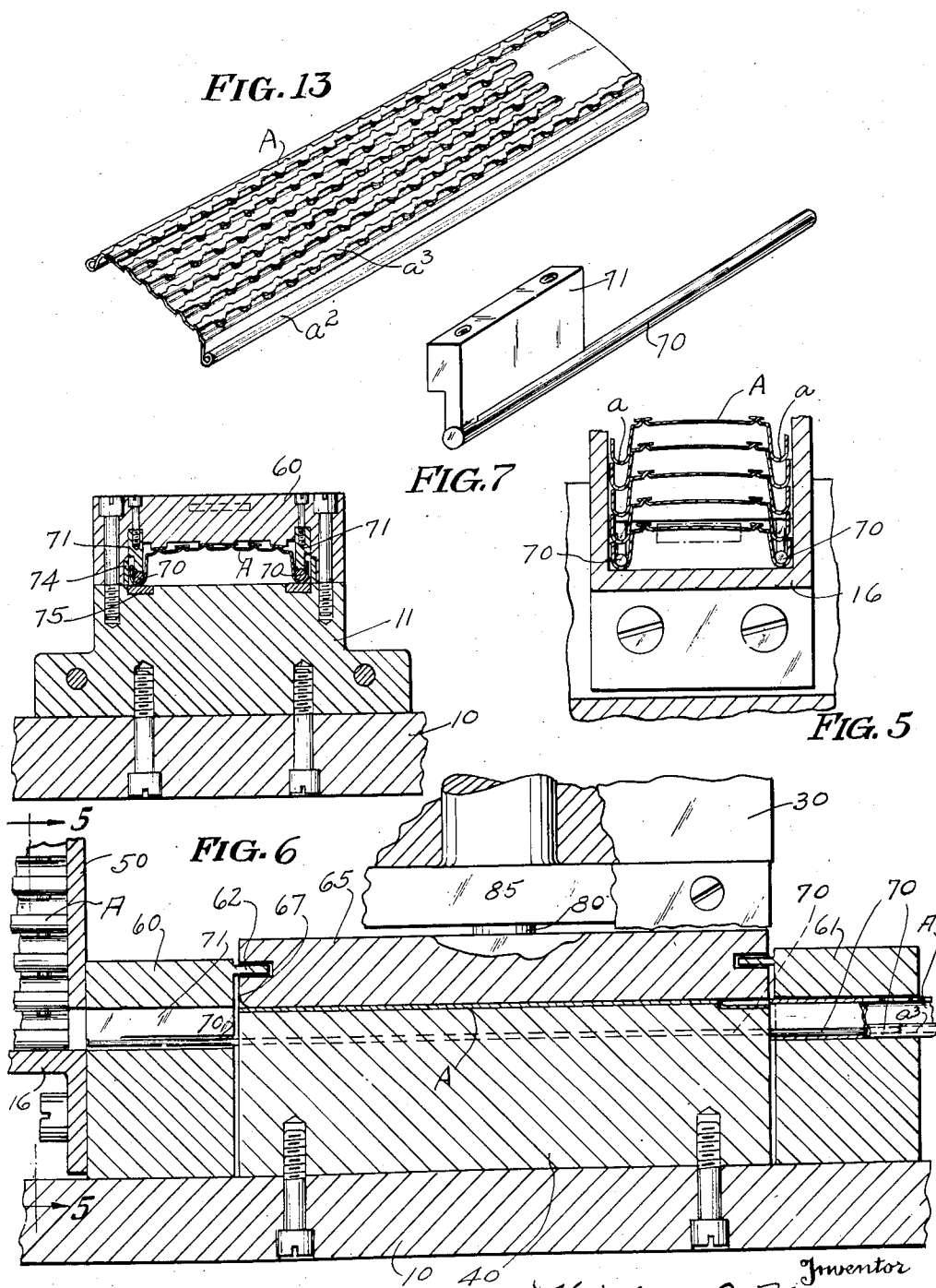


FIG. 4

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4 Sheets-Sheet 4

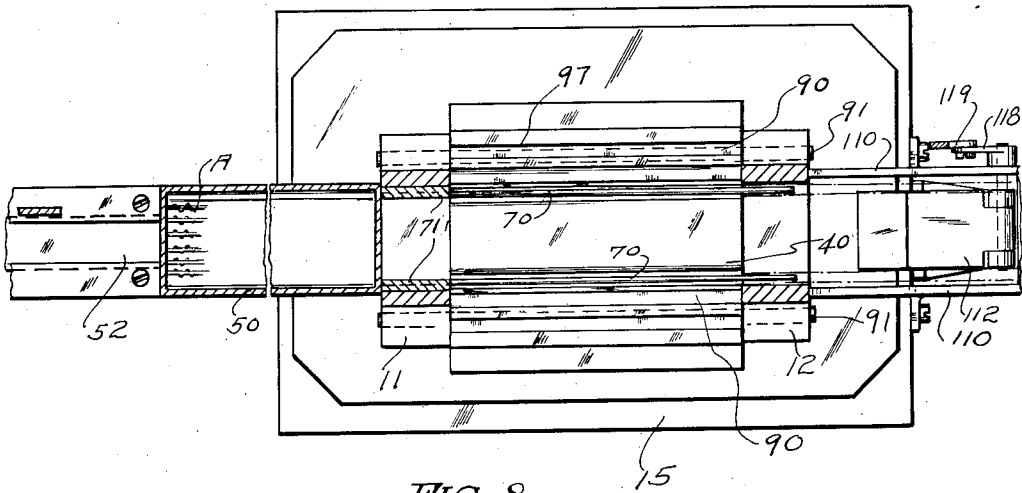


FIG. 8

FIG. 10

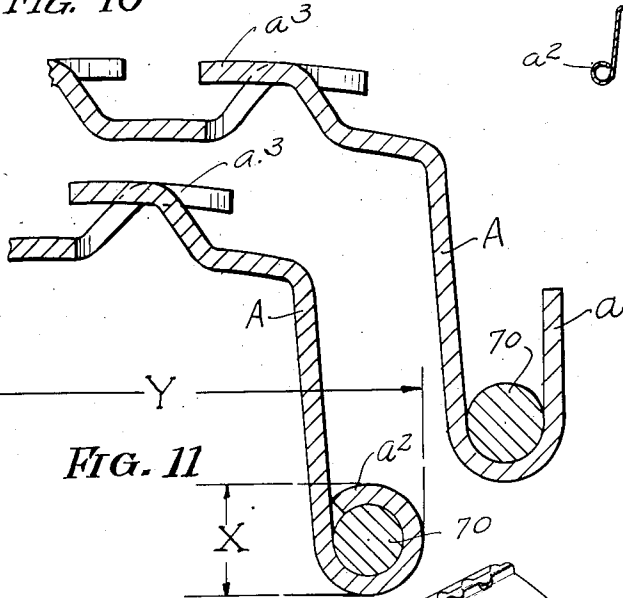


FIG. 11

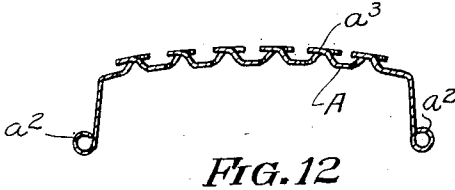


FIG. 12

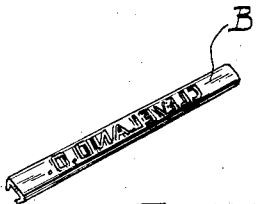


FIG. 14

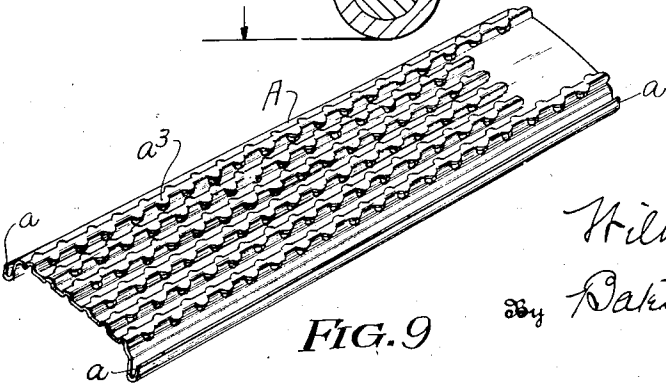


FIG. 9

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UNITED STATES PATENT OFFICE

1,966,472

APPARATUS FOR MAKING ADDRESS PLATES

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Multigraph Company, Wilmington, Del., a corporation of Delaware

Application October 5, 1931, Serial No. 567,004

14 Claims. (Cl. 153—39)

This invention relates to an apparatus for use in the formation of address plates, and is particularly concerned with mechanism for curling the edges of such plates to form protecting beads thereon. The address plate formed by the machine may be of the type shown, described and claimed in Patent No. 1,628,630, granted May 10, 1927 to my assignee, American Multigraph Co., as assignee of Henry C. Osborn. Such address plate is of inverted trough shape, having an intermediate region formed of rows of upstanding overhanging projections on which may be mounted embossed printing strips having flanges at their edges which overhang the projections.

The present invention is designed to receive a blank, which may be a partially formed address plate, from a stack thereof and curl the extreme edges of the plate inwardly to form hollow protecting beads. In my invention, I accomplish this result by providing mandrels around which the beads may be curled, and mechanism automatically operating upon a rectilinear movement of a suitable head to clamp the intermediate region of the plate and automatically force inward from opposite sides mechanism to engage the metal for the beads and curl such metal about the mandrels.

The invention, which comprises the bead-forming means above referred to, is hereinafter more fully described in connection with the drawings, which illustrate a preferred embodiment thereof.

In the drawings, Fig. 1 is a vertical section through a machine of the punch-press type, having my bead-forming mechanism; Figs. 2 and 3 are vertical central sections of the same, showing the parts in different positions; Fig. 4 is a vertical section in a plane parallel to the Fig. 1; Figs. 5 and 6 are transverse sections on planes indicated by the correspondingly numbered lines on Fig. 1; Fig. 7 is a perspective of one of the mandrels and its holding block; Fig. 8 is a sectional plan taken above the mandrels and curling members, as indicated by the line 8—8 on Fig. 1; Fig. 9 is a perspective of the partially formed address plate which constitutes the blank for the specific machine shown; Fig. 10 is an enlarged fragmentary cross section of this blank with the mandrel in place; Fig. 11 is a corresponding section showing the bead completely formed; Fig. 12 is a transverse section and Fig. 13 a perspective of the completed holding plate for address strips; Fig. 14 is a perspective of an embossed printing strip such as may be

mounted on the projections of the plate of Figs. 12 and 13 to make a complete address plate.

As illustrated in Figs. 1 to 6, my machine provides a bed plate 10 from which rises suitable standards 11 and 12 in which is journaled a transverse rotary power driven member 20 which, by suitable means, actuates a head 30 reciprocable vertically between the standards 11 and 12. The rotary member may be operated by a belt pulley 21 forming a portion thereof, and it may communicate motion in any desired manner to the reciprocating head 30.

By way of illustration, I have indicated a Scotch yoke connection between the rotary member 20 and the reciprocating head 30. The yoke is indicated at 35, and has a horizontal slot embracing the pin 22 of the double crank 23. The yoke has a shank 36 which is shown as extending loosely through a cross bar 37 of the head and into a boss 38 thereof. A suitable nut 39, threaded on the shank between the parts 37 and 38, provides an adjustment. The mechanism described may be conveniently mounted on some suitable stand as indicated at 15 in Fig. 1.

Secured on top of the bed plate 10 beneath the head 30 is an anvil 40 curved on its upper surface to properly support the blank indicated at A in Fig. 9. At the left-hand side of the machine is a magazine 50 adapted to carry a number of these blanks, one above the other. Suitable mechanism is provided, operated by the rotary member 20, for shoving the bottommost blank onto the anvil.

To effect the feeding of the blanks, I have shown, in Fig. 1, a reciprocatory slide 52 resting on a frame plate 16 which forms the bottom of the magazine 50. This slide is connected by a suitable linkage mechanism 54, 55, 56 and 57 with a crank pin on the end of the rotary member 20, with the result that, on the upstroke of the head 30, the slide 52 is shoved toward the anvil to advance the bottommost plate in the stack onto the anvil and shove the blank that has been acted on off of the anvil. In such movement, the blank is properly discharged into a suitable receptacle by a mechanism hereinafter explained.

The lower portions of the vertical standards 11 and 12 are open for a distance greater than the width of the blank, as indicated by the openings 17 and 18 through which the blanks travel to and from the mandrel. Extending transversely across these openings and secured to the standards are horizontal blocks 60 and 61 which have, on their inner faces, tongues 62. These

tongues loosely occupy notches in a clamping block 65 adapted to rest on top of the blank on the anvil and be pressed down firmly against the blank, by means hereinafter described, to hold it in place during the curling operation. Until the pressure is applied, the block 65 rests on top of the address plate by gravity. The left-hand edge of the block is beveled or rounded as indicated at 67 in Fig. 4, to enable the blank A to be readily shoved under the block.

Secured to the underside of the cross block 60 in the standard 11, are a pair of blocks 71, each of which has projecting from its bottom a round horizontal rod 70. These two rods are spaced apart a distance corresponding to the troughs *a* formed at the edges of the blanks A, so that, as the blanks are shoved by the feeding mechanism onto the anvil, the two troughs *a* embrace the rods 70, which are adapted to act as mandrels for the subsequent curling action of the plate edges. Suitable strips, as 74 and 75 (Fig. 6), are set into the block 60 and the base of the standard 11 to form guides for the outer edges and bottom of the blank troughs *a* so that, when the blank is advanced, these troughs will be accurately guided into position about the mandrels.

Immediately following the placing of the blank on the mandrel, the clamping means heretofore mentioned comes into action to press this blank down on the mandrel. The pressure is yieldingly supplied by a plunger 80 slidably mounted in the head 30 and yieldingly supported by a compression spring 81 holding a guide shank 82 on the plunger. For convenience, the plunger and its spring and shank are mounted in a separate plate 85, rigidly secured to the under face of the head 30, acting as a unit therewith.

It will be apparent from the above description that the first action of the downward movement of the head 30 is to bring the plunger 80 into engagement with the block 65 to cause it to clamp the blank under spring pressure. Then, the mechanism about to be described, acts to curl inwardly the upwardly projecting edges of the blank about the mandrels to form complete beads.

The mechanism for automatically curling in the edges *a* of the plate is illustrated in Figs. 2, 3 and 8. It comprises a pair of blocks 90 pivotally mounted near their lower ends, as by rods 91 extending through the blocks and into ears 45 on opposite sides of the anvil 40. Each block 90 is formed with a recessed jaw 92 having an inwardly and downwardly curved face, the radius of the curvature being substantially that which is to be given to the bead of the plate. The upper surface of the block is inclined downwardly and outwardly, as shown at 93, and behind the base of the bottom of the incline is an upwardly projecting portion 94. Suitable springs 96, mounted in facing cavities in the blocks 90 and the edges of the anvil 40, tend to spread the blocks into the position shown in Fig. 2. They are normally retained in this position by stop blocks 97 behind them secured to the bed 10.

I form, on the reciprocating head 30, means to coact with the surfaces 93 of the blocks 90 and cam them inwardly to effect the curling of the beads. These camming members on the head are preferably in the form of blocks 100 (Figs. 2 and 3) which are secured to the underside of the plate 85 which is rigidly mounted on the under face of the head 30. Each block 100 has a

downwardly inclined projecting portion 101 to engage the cam face 93 of the pivoted block, and behind this projection 101 is a suitable recess 102 to receive the wing 94 of the block. The blocks 100 are shown as secured to the plate 85 by screws 105 and as bearing, at their outer faces, against plates 87 secured to the plate 85.

When the blank A is shoved onto the anvil by the feeding slide, the curling parts are in the positions shown in Fig. 2. Then, as the head 30 descends, the projections 101 engage the cam surfaces 93 and force the curling blocks 90 inwardly into the position shown in Fig. 3. This action causes the jaws 92 to engage the upstanding free edges *a* of the plate and bend them inwardly about the mandrels 70.

It should be noted that the jaws 90, in their active operation, are swinging slightly downwardly, as well as inwardly, due to the position of the pivots of the blocks, so that the edge *a* is completely curled into contact with the mandrel and the end of the edge comes substantially into contact with the downward portion leading from the body of the plate, as illustrated at *a*² in Fig. 11. Due to the mandrels and the peculiar action of the curling jaws, the trough-like edges *a* of the blank are made accurately cylindrical. Thus a definite outside vertical diameter, indicated in Fig. 11 by X, is obtained for the bead; also, the exact extreme width of the plate indicated by Y is maintained. This is important in the subsequent use of the plate in addressing machines.

On the up stroke of the head 30, the curling jaws 90 are freed and swing outwardly under the action of the springs 96, and thus the completed strip holder is left resting on the anvil with its beads embracing the mandrels. This up stroke of the head serves to advance another blank from the magazine 50, and this blank, abutting the completed plate, shoves it to the right (Fig. 1) nearly off of the mandrels. In this travel, the completed plate is guided by the vertical strips 110 (Figs. 1 and 8), and at the end of the stroke is supported partly by the end portions of the mandrels and partly by the pivoted packer 112 which engages the underside of an intermediate region of the plate. The same upstroke which shoves the completed plate between the guides 110 and onto the packer, operates the packer to further advance the plate and send it down into a receiving box or support indicated at 115.

The desired swinging movement may be given to the packer by a linkage mechanism connecting it with the reciprocating head 30. For this purpose, I have shown an arm 116 secured to the head and connected by a link 117 to a rock arm 118 rigid with the packer 112. A suitable slot 119 in the link 117 allows a free movement so that the packer acts at the end of the up stroke of the head.

It will be understood from the description given that blanks, contained in the magazine 50, are automatically acted on one after the other, and delivered in the form of completed members with tubular edges, as shown in Figs. 12 and 13.

In the specific embodiment illustrated, the blanks are of the form shown in Fig. 9, and the completed members having rows of upstanding overhanging projections *a*³ which were preferably formed on the blank A, and these projections are adapted to receive and hold embossed printing strips as indicated at B in Fig. 14. But while I have shown the address plate as consisting of the holder having upstanding projec-

tions carrying separate embossed printing strips, it is to be understood that the printing faces may be carried by the plate in any manner, and the plate itself might be embossed as is well understood. The machine of this invention which curls in the edges of the troughs on the blank, with very slight changes would be equally operative with quite different forms of address plates. I therefore do not intend to confine the present invention to the formation of the plate shown.

I claim:

1. In a machine of the character described, the combination of means adapted to support a blank having its edge portion in the form of an open trough, a rod adjacent one side of the support, and positioned to lie in the trough when the blank is on the support, mechanism for shoving the edge of the blank laterally to curl it about the rod, and means for removing the blank from the rod.

2. The combination of means adapted to support the intermediate region of a blank, a pair of parallel rods adjacent the edges of the blank, means for shoving inwardly the extreme edges of the blank to curl them about the rods, and means for removing the blank from the rods.

3. The combination of an anvil adapted to support the intermediate region of a blank, means for pressing such blank against the anvil, a pair of rods on opposite sides of the anvil, means for shoving inwardly the extreme edges of the blank to curl them about the rods, and means for moving the blank lengthwise of the rods to remove it therefrom.

4. In a machine of the character described, the combination of means for feeding a blank periodically by movement in one direction, a pair of dies adapted to clamp the blank a mandrel comprising a rod supported at the end corresponding to the region from which the blank comes and free at the opposite end, means for curling the blank about the mandrel and means for feeding the blank longitudinally off of the mandrel.

5. In a machine of the character described, the combination of an anvil, means for clamping a blank thereon, means for feeding the blank to and from the anvil by movement in one direction, a pair of dies adapted to act on the blank a mandrel comprising a rod supported at the end corresponding to the region from which the blank comes and free at the opposite end, means for curling the edge of the blank about the mandrel while it is on the anvil, and means for feeding the blank longitudinally off of the anvil and mandrel.

6. In a machine of the character described, the combination of an anvil, a head adapted to reciprocate toward and from the anvil to clamp a blank thereon, a spring-pressed plunger carried by the head for yieldingly clamping the blank on the anvil, a mandrel mechanism moving inwardly toward the anvil to curl the edge of the blank about the mandrel, and means for separating the blank and mandrel.

7. The combination of an anvil and a pair of mandrels respectively on opposite sides of the anvil, a head movable toward and from the anvil for clamping the blank thereon, pivoted

jaws on opposite sides of the anvil adapted to engage the blank on the anvil, and means moving consequent upon the movement of the head for moving said jaws inwardly to curl the edges of the blank about the mandrels, and means for separating the blank and mandrels.

8. The combination of an anvil, a pair of rods on opposite sides of the anvil, a reciprocatory head adapted to clamp a blank on the anvil, a pair of pivoted jaws adapted to curl the edges of the blank about the two rods, each jaw having an inclined outer surface, and inclined projections on the head adapted to engage said jaw surfaces and cam the jaws inwardly.

9. The combination of a magazine adapted to contain blanks, an anvil, means for feeding the blank from the magazine to the anvil, means to clamp the blank on the anvil, a pair of mandrels a pair of pivoted jaws movable toward and from the anvil to curl in the edges of the blank clamped thereon so that they can embrace the mandrels, and means for feeding the formed blank off the anvil and mandrels.

10. In combination with a mechanism for forming beads on the edges of blanks, means for feeding said blanks longitudinally step by step, a pivoted packer adapted to receive and support the formed blank, and means for swinging said packer on its pivot to tip the blank down into an upstanding position.

11. The combination of an anvil, a reciprocatory head adapted to coact therewith, a pair of rods on opposite sides of the anvil, mechanism for curling the edges of the blank resting on the anvil about the rods respectively, means for feeding said blank lengthwise of the rods, the ends of the rods being free, and a packer standing beneath the plate as it passes off the rods and adapted to tip the plate down into a suitable receptacle.

12. The combination of an anvil, a head movable toward and from the anvil to clamp a plate thereon, a mandrel at the side of the anvil comprising a rod held at one end and free at the other, means for curling the edge of the plate about the mandrel, comprising a jaw at the side of the mandrel, means operating in timed relation to the movement of the head for moving the jaw inwardly toward the mandrel, and means for thereafter moving the blank along the mandrel, toward its free end.

13. The combination of an anvil adapted to support an intermediate region of a blank, said blank having troughs adjacent its edges, a pair of parallel rods held at one end and free at the other and adapted to occupy said troughs, movable jaws for curling the edges of the blank inwardly around the rods, and means for separating the blank and rods.

14. The combination with means for feeding a plate, of a reciprocating cross head, and means carried thereby to clamp the intermediate region of the plate, a pair of rods, means operating automatically in timed relation to the movement of the cross head to curl the edges of the plate about the rods, and means for separating the plate and rods.

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