Aug. 5, 1952 E. C. HORTON 2,605,842

STRIP CENTERING DEVICE FOR PUNCH PRESSES

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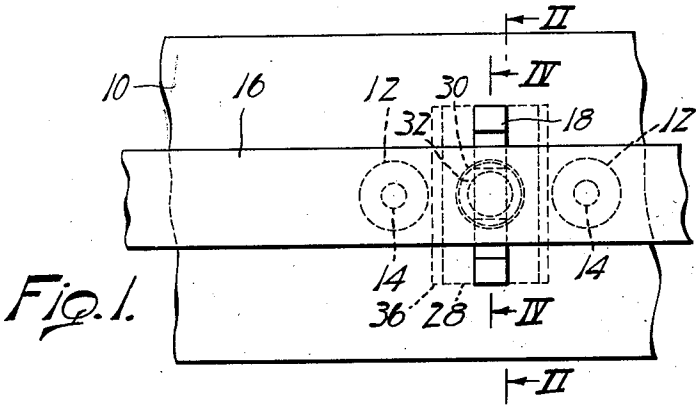


Fig. 1.

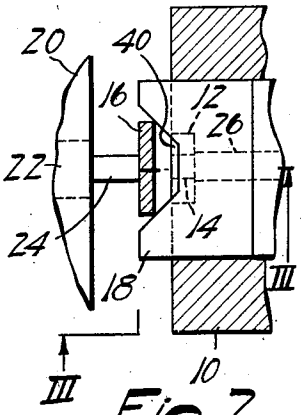


Fig. 2.

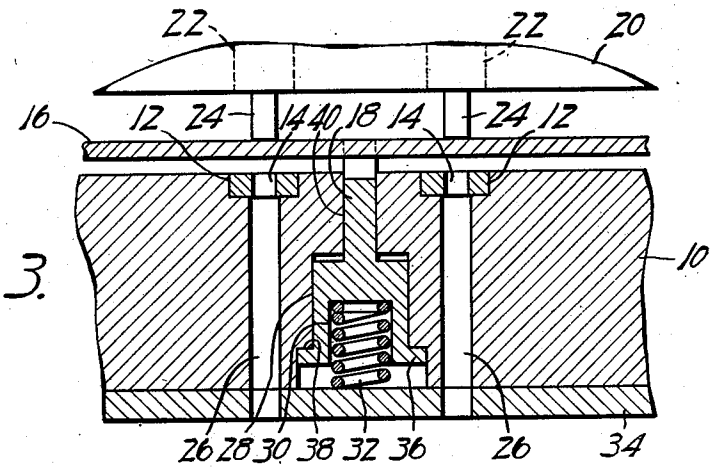


Fig. 3.

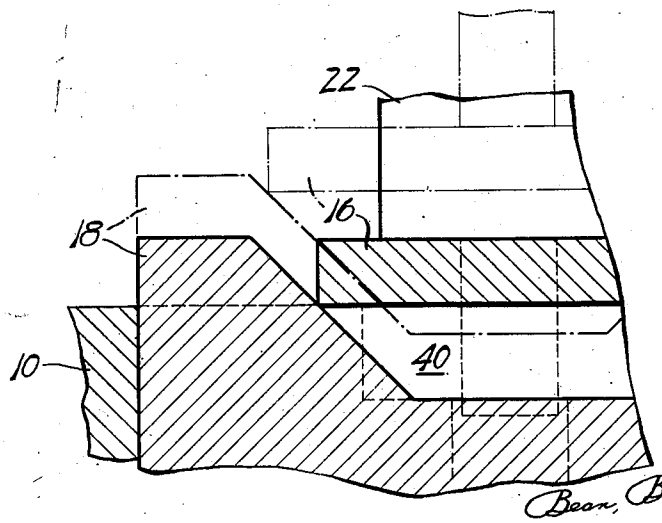


Fig. 4.

INVENTOR
Erwin C. Horton
BY
Bean, Brooks, Buckley & Bean
ATTORNEYS

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STRIP CENTERING DEVICE FOR PUNCH PRESSES

Erwin C. Horton, Hamburg, N. Y., assignor to Trico Products Corporation, Buffalo, N. Y.

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5 Claims. (Cl. 164—86)

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This invention relates to work guides and is particularly directed to means for centering the work piece in punch presses, stamping machines, and the like.

It is an object of the present invention to provide a work centering arrangement by which the work piece is properly positioned with respect to the die by and during the movement of the punch relative thereto during the stamping operation.

A further object of this invention is to provide a work centering means which will guide work pieces of varying widths with equal facility.

It is another object of this invention to provide a work centering means which will be simple, rugged, and reliable in operation.

Other objects and advantages will be apparent from the following description.

In the drawing:

Fig. 1 is a plan view of a press anvil embodying the invention;

Fig. 2 is a sectional view taken along line 2—2 of Fig. 1;

Fig. 3 is a partial sectional view taken along line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken along line 4—4 of Fig. 1, showing the operation of the device.

Similar reference numbers refer to similar parts in the several figures. The punch press anvil 10 is fitted with the usual die pieces 12 having apertures 14. The work piece 16 is shown in the form of a strip and may be fed longitudinally into the press either manually or automatically to position the strip over the dies 12. The press head 20 has its punch members 22 carrying bits or pins 24. The passageways 26 are provided through anvil 10 for the disposal of the punched-out parts of the work.

In accordance with the present invention means are provided to center or correctly position the work in the machine and thereby insure the strip being accurately processed. To this end there is mounted a substantially V-shaped cradle or position rectifying means 18 which cooperates with the movable element of the press to shift a misplaced work piece into proper registry with the dies and punches.

In the illustrated embodiment, the V-block or cradle 18 is formed with a rectangular pedestal 28. Pedestal 28 is bored at 30 to receive a spring 32 which rests on the press base 34 and urges pedestal 28 and the V-block 18 upwardly. Such upward movement of V-block 18 is limited by flanges 36 at either side of the base of pedestal 28, which bear against shoulders 38 formed in

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the anvil 10. As is clearly shown in the drawing, the anvil 10 is formed to slidably fit flanges 36 and pedestal 28, and is slotted, as at 40, to slidably fit the cradle or upper portion of V-block 18.

In operation, the V-block 18 will serve to center the work piece or strip 16 or push it into a predetermined relation to the punches, as the strip is fed across the press.

As shown in Fig. 4, when the press punch bits engage the work piece, the work piece will center itself in the V, then the spring 32 will yield, and the V-block 18 will be depressed until the work piece 16 rests on the anvil 10. The movable member of the press will, therefore, cooperate with the centering or rectifying means to position the work piece properly by and during the movement of the punch or movable member. The V-block will accommodate itself to various width work pieces, in contrast to previous, rigid guides.

Although in the illustrated embodiment of the invention the work positioning device is resiliently mounted in the stationary member of the press, it will be obvious that the work positioning device could be carried by the moving member of the press without altering its mode of functioning.

The term "punch press" is used herein as inclusive of stamping machines, and other like devices, the foregoing description being given in detail for clearness, and not by way of limitation since the inventive principles involved are applicable to other physical embodiments without departing from the spirit of the invention and its scope as defined in the appended claims.

What is claimed is:

1. A strip punching machine comprising an anvil having a flat work supporting face formed with a recess, a ram, a punch member on the ram, a cooperating die member on the anvil, and a receding work guide resiliently mounted in the anvil recess and having work shifting faces converging toward the anvil and movable within the anvil recess by and during the ram punching operation and yieldably acting in cooperation with the anvil to shift the work across the face of the anvil.

2. A strip punching machine comprising an anvil having a flat horizontal work supporting surface formed with a recess, a vertically reciprocable ram, a punch member on the ram, a cooperating die member on the anvil, and a downwardly receding work guide having downwardly converging work shifting faces, resilient means mounting said guide in the anvil recess in an elevated work-piece-receiving normal position

projecting from the recess, said faces being movable within the anvil recess by and during the ram punching operation from said normal position to a receded position wherein the work piece rests on the surface of the anvil embraced by the faces of the guide, the work piece being initially centered by gravity between the faces of the guide in the normal position thereof and finally centered by the cooperative cradling of the faces and the surface of the anvil as the guide recedes during the ram punching operation.

3. In a material forming press, a first work piece engaging member and a cooperating second work piece engaging member, said first member being shaped at its work piece engaging surface to complement the proximate face of the work piece, and a receding guide having a work piece engaging portion concave with respect to the work piece to embrace the edge portions thereof, said guide being resiliently mounted with said portion projecting past said surface and toward said second member, whereby during a press operation the work piece will seat in said concave portion of said guide and will be forced by said second member toward said first member together with said guide until said work piece rests against the complementing surface of said first member while continuing to be embraced by said guide.

4. A material forming press comprising a pair of coacting work engaging members, one of said members being shaped at its work engaging face to complement the proximate face of the work piece to be processed, a receding work piece guide

having a work piece locating portion shaped with respect to the work piece to apply edge pressure thereto, said guide being mounted to project said portion past the work engaging face of one of said members toward said other member and to recede to permit said members to come together with the work piece between them and laterally located by said portion of said guide.

5. A material forming press comprising a first work engaging member and an opposed cooperating second work engaging member, said first member having its work engaging face shaped to complement the proximate face of the work to be processed, a receding work guide having a work embracing portion concave with respect to the work to apply edge pressure thereto, said guide being mounted to project said portion past the work engaging part of one of said members toward said other member and to recede to permit said members to come together with the work piece between them and embraced by said portion of said guide, said first member being formed to permit movement of said guide portion intersecting the plane of said work engaging face.

ERWIN C. HORTON.

REFERENCES CITED

The following references are of record in the file of this patent:

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