March 29, 1927. 1,622,806

W. PAPKE

HAND PRESS

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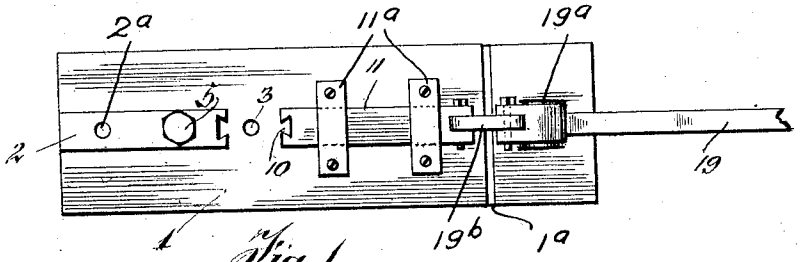


Fig. 1.

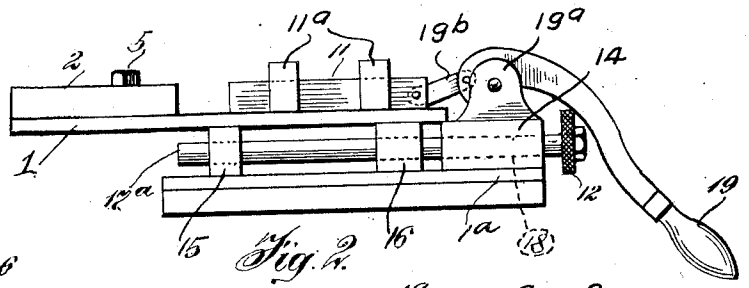


Fig. 2.

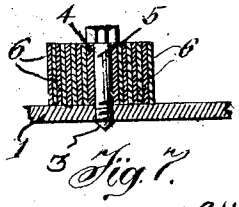


Fig. 7.

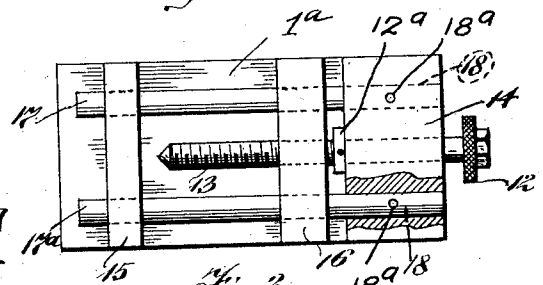


Fig. 3.

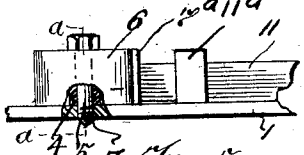


Fig. 5.

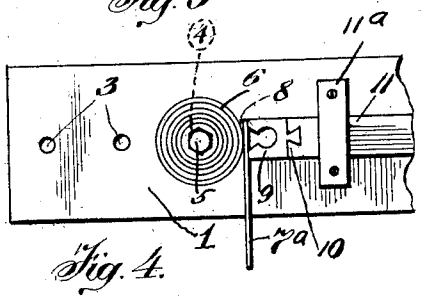


Fig. 4.

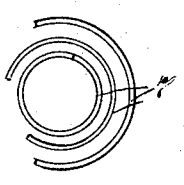


Fig. 6.

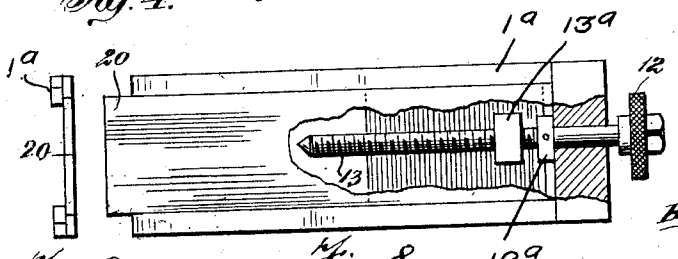


Fig. 9 Fig. 8

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UNITED STATES PATENT OFFICE.

WILLIAM PAPKE, OF CINCINNATI, OHIO.

HAND PRESS.

Application filed May 18, 1922. Serial No. 562,023.

This invention relates to hand-presses used for making various forms of printers' rules from sheet-metal strips or blanks, and, more particularly, to that type of presses employing a work plate or table on which are interchangeably mounted the female former-dies and a plunger or ram, the latter carrying interchangeable male dies to correspond to said female dies and in longitudinal alinement, for receiving, in the work-gap between them, the sheet-metal strips or blanks that are to be bent into the desired printing shapes or configurations by means of a toggle-jointed hand-lever, which latter is pivotally-mounted on the said table or the base-member of the press convenient to the operator.

The main object of the invention herein is to provide a base-member, a work-table carried by the base-member, a stationary anvil or former die on the work-table, a longitudinally-adjustable block on said base-member arranged to the rear of the said work-table, a male-die carrying plunger or ram mounted to move in guideways on the said work-table and having toggle-lever pivotal-connection with the said adjustable block, and the latter being set and held on the base-member, to suit the stroke necessary for the forward movement of the plunger and the respective male former-dies that are carried at its fore end, by means of a longitudinal compensating-screw that has a hand manipulating wheel at its rear outer end for readily determining the position of the said adjustable block and the point of impingement and delivery contact of the male former-die with the adjacent face of the metal strip or blank to be bent or shaped into the desired printer's rule form against said anvil or female former-die.

The details of structure, especially in connection with the special ring or circle-rule forming-nest of anvil-dies, will be fully described hereinafter in connection with the accompanying sheet of drawings, in which—

Figure 1 is a plan view of the press, but omitting its dies; Fig. 2, a side elevation of the same, showing the hand-lever depressed or turned down at the close of an active forward stroke of the male-die plunger; Fig. 3, a plan view of the base-member with the upper work-table removed from its supporting transverse blocks that have openings or holes therein for the slidable-engagement of the pair of longitudinal rods that project forwardly from the fore end of the accompanying adjustable block (omitting the hand-lever and its bearings) on the said base-member that variably positions the toggle-joint connection of the hand-lever with the male-die plunger for various strokes of the latter to suit the variations in the employment of the several dies used, especially in making a full-circle rule; Fig. 4, a fragmentary plan of the work-table showing dies therein for shaping said circular rule or rings; Fig. 5, a side elevation of Fig. 4, but with the plunger a little curtailed at its rear end, and with its die face in active relation with the rule blank; Fig. 6, a plan showing the strip of sheet-metal or blank in three steps of the process of forming a ring or circle rule, including the preliminary first curve or arc, the next lesser curve or arc and the final full circle for a round printer's rule; Fig. 7, a cross-section on the vertical line *a*, *a*, of Fig. 5. but omitting the plunger and its male-die; Fig. 8, a plan of a modified form of base-member and adjustable work-table member for the variable adjustments of the plunger or active male-dies, and showing the compensating-screw member; and Fig. 9, a fore-end view of Fig. 8.

In these views—

1 indicates the work-table having the customary removable female-die holder-block 2, a series of screw-threaded holes 3 being provided for the mounting of the standard-screw 5 to differentially-secure the block in the desired position to suit the character and number of dies used for an operation of the press in the work end of the said female-die holder-block. Holes 2^a are provided in the said holder-block 2 for accommodating the shank of the said screw 5.

Instead of using the said holder-block 2, when it is desired to make circle or round rule 7, I provide a graduated removable and reducible nest or telescopic-cluster of former-rings 6 that are concentrically-carried by a central sleeve 4 on the shank of said screw 5, as best seen in Fig. 7, but also well shown in place for use in Fig. 4, to suit the diameter of the full-circle rule desired, or the radius of any desired partial-circle rule. In Fig. 4, I show a strip of sheet-metal or rule-blank 7^a in working position in the gap 8, between the male-die 9 and the face of the outermost anvil or former ring 6, ready for the advance shaping-stroke of the said male-die that has removable dovetail-joint con-

nection 10 with the fore end of the plunger or ram 11, the latter being reciprocable in a pair of transversely-positioned guideway-blocks 11^a, 11^a, that are suitably secured on the top of the work-table 1. The metal strip or blank 7^a is fed forward across the gap 8 in the path of the male-die 9 and formed into successive arcs (Fig. 6), the outermost arc taking the contour of the outermost anvil or former ring 6 and the succeeding arcs being produced by removing successive former-rings from the nest until the round or full-circle rule of the desired diameter is completed on the corresponding inner former-ring 6, or the otherwise desired one of the set of former-rings of the nest or set, to suit the diameter of round or full-circle rule required. When the selected one of the former-rings has been reached, with the outer ones of the set easily removed and set aside, the opposite ends of the metal strip or blank approach each other and abut in closed position ready for the use of the printer.

In operating the press, the hand-lever 19 is raised and depressed intermittingly, its full depressed stroke being shown in Fig. 2, and fully stopped or limited by contact with the edge of the hand-wheel 12 of a longitudinal compensating-screw 13 that is used to adjust the block 14 forward when the work-gap 8 between the dies has been widened at the time of removing each successive former-ring from the nest 6, the extent of the stroke of the plunger 11 being adapted to each successive operating-step of the circle-forming process whereby the inner end and the succeeding inclusive portion of the hand-fed blank 7^a advances in a circular path while in its contact with the anvil-face of the adjacent former-ring, the latter being free to simultaneously and coincidentally rotate therewith, all while the circle-rule under formation is in the active course of its production.

The hand-lever 19 is pivotally-mounted in an upright bearing box 19^a on the said adjustable carrier-block 14 and has a toggle-link connection 19^b with the tail end of the plunger 11 for reciprocating the latter in the guideways 11^a, 11^a, along the top surface of the work-table 1. The fore end of the screw 13 engages a screw-threaded opening in the rigid supporting-block 16 of the work-table, but the rear end of the said screw 13 is smooth-faced for free rotary-engagement, but not longitudinally so with the smooth bore of a central opening in the block 14, a collar 12^a being securely mounted on the fore part of said smooth portion of the screw, between the said block 14 and the rear face of the transverse table-supporting block 16, as best seen in Fig. 3 to prevent the longitudinal-movement of the said smooth rear end of the screw 13 in the said carrier-block 14. A pair of parallel duly spaced longitudinal rods 17 and 17^a is provided and projects forwardly from the inner vertical face of the said adjustable block 14, pins 18^a being used to secure their inner ends 18 in holes made in said block 14. These rods 17 and 17^a register with and freely engage holes in the transverse table-supporting blocks 15 and 16 for the reciprocal adjustments movement of the said block 14, in the use of the compensating-screw 13.

A modified form of plunger base-member 1^a is shown in Figs. 8 and 9, in which the mechanical screw-action is the same as that in Fig. 3, but it discards the parallel registering rods 17 and 17^a and substitutes therefor a sliding-bed 20 that is adapted to carry the superposed plunger-die component members into operative sheet-metal printer's rule shaping-position.

I claim:—

In a hand-press for producing circular rule and the like, the combination of a base-member, and adjustably-mounted block on said base-member, a stationary work-table mounted on said base-member, a removable nest of concentric former or anvil circle-dies on the work-table, a longitudinal screw-member projecting forwardly from the said block into threaded engagement with said work-table and adapted to propel the said block into compensated position along said base-member in relation to said work-table and nest of circle-die formers, a plunger or ram reciprocally movable on the work-table, a shaper or former die mounted at the fore end of the plunger, and a toggle-jointed hand-lever pivotally connected to the rear end of the said plunger, substantially as shown and described.

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