No. 699,049. Patented Apr. 29, 1902.

J. F. WILLIAMS.

TIP PRINTING PRESS.

(Application filed Jan. 25, 1901.)

(No Model.) 4 Sheets—Sheet 1.

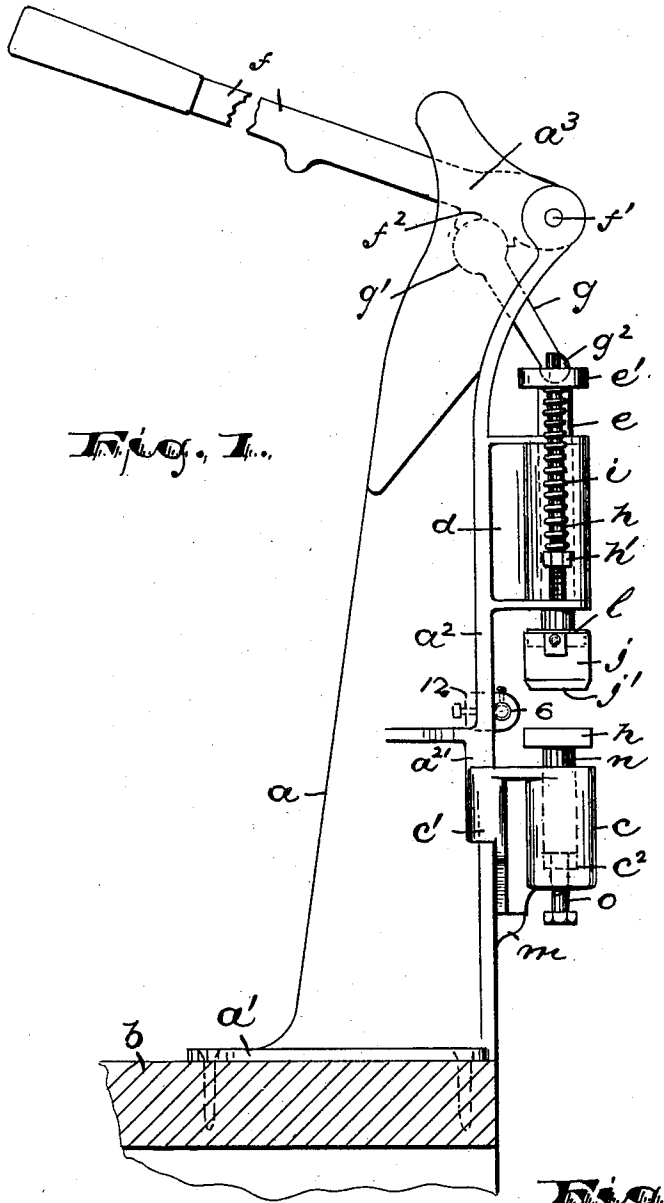


Fig. 1.

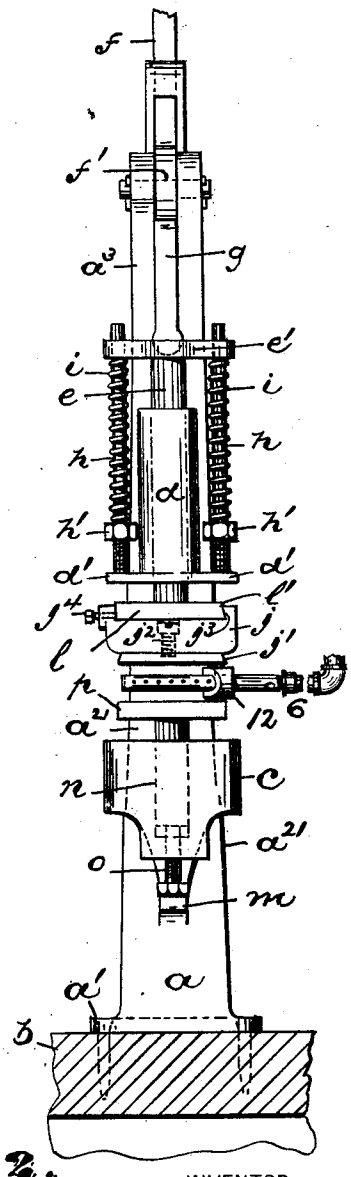


Fig. 2.

WITNESSES:

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John F. Williams,

BY

Drake & G.

ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 699,049. Patented Apr. 29, 1902.

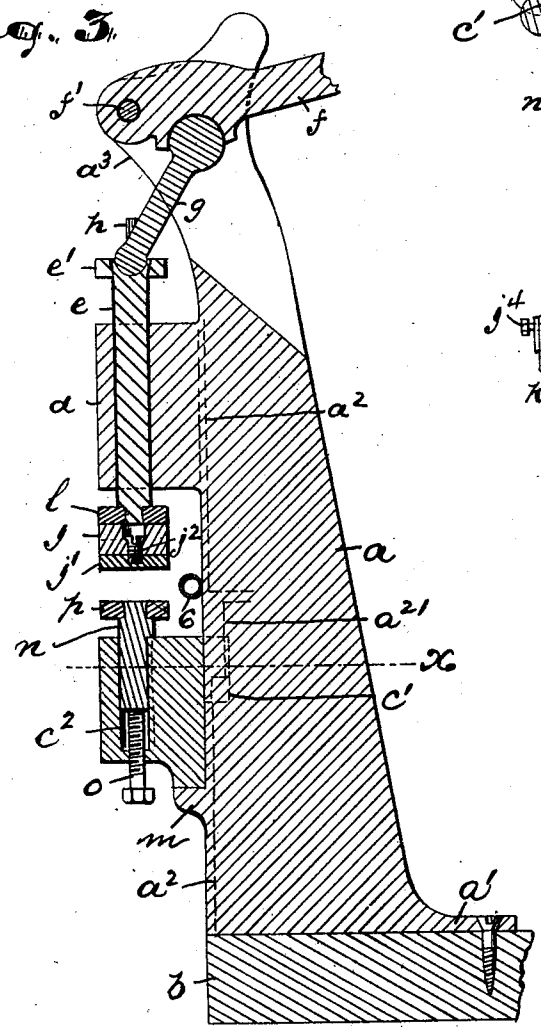
J. F. WILLIAMS.

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(No Model.) 4 Sheets—Sheet 2.

Fig. 3.



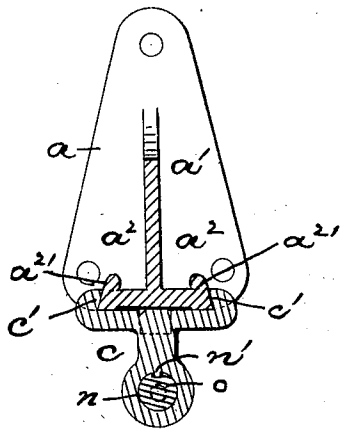


Fig. 4.

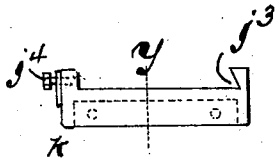


Fig. 5.

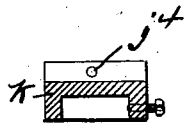


Fig. 6.

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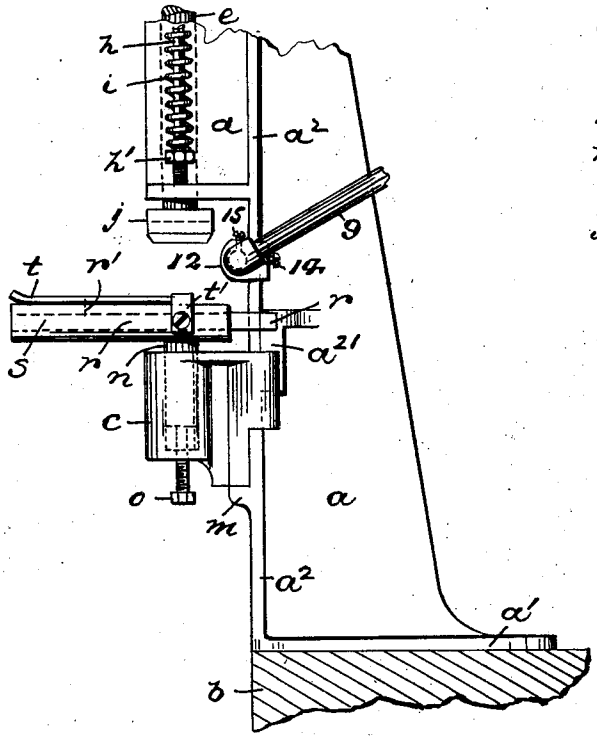


Fig. 7.

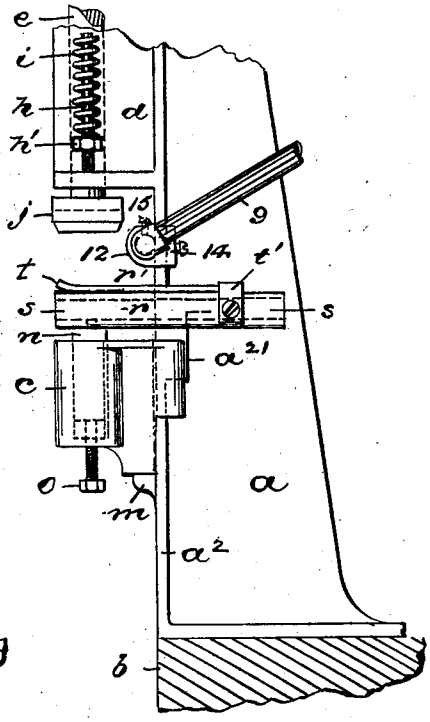


Fig. 8.

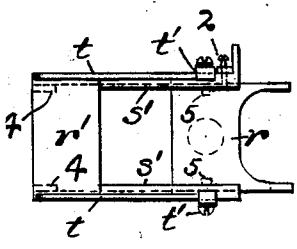


Fig. 9.

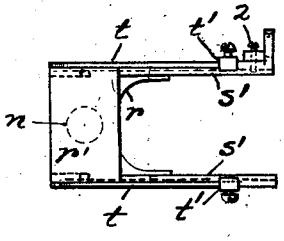


Fig. 10.

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No. 699,049. Patented Apr. 29, 1902.

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TIP PRINTING PRESS.

(Application filed Jan. 25, 1901.)

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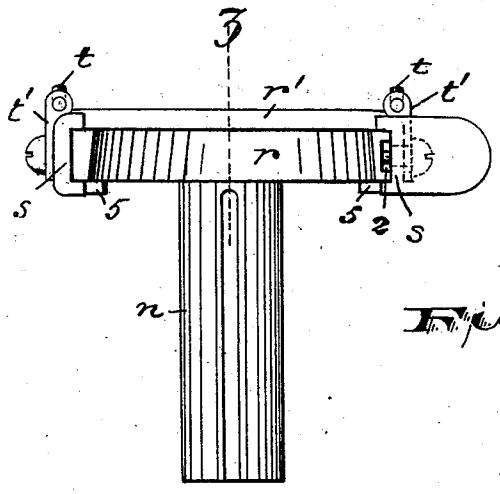


Fig. 11.

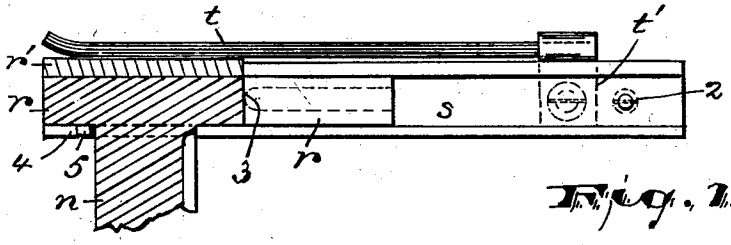


Fig. 12.

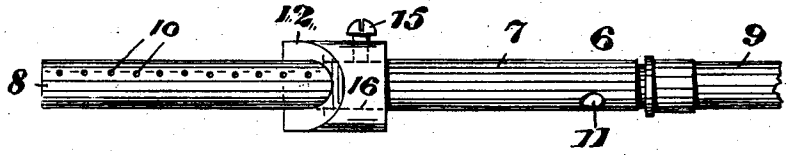


Fig. 13.

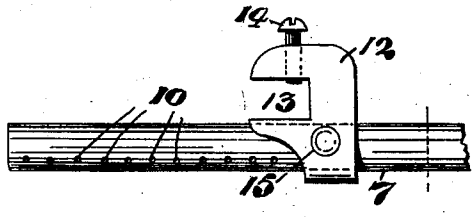


Fig 14.

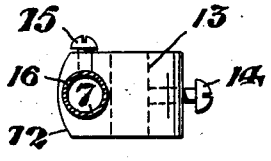


Fig. 15.

WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN F. WILLIAMS, OF WEST ORANGE, NEW JERSEY, ASSIGNOR TO THE NEW IDEA PRINTING MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

TIP-PRINTING PRESS.

SPECIFICATION forming part of Letters Patent No. 699,049, dated April 29, 1902.

Application filed January 25, 1901. Serial No. 44,666. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. WILLIAMS, a citizen of the United States, residing at West Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Tip-Printing Presses; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide a machine or press particularly adapted for printing or embossing firm-names, trade-marks, or other devices of an advertising or ornamental character upon the sweat-bands of hats, top facings or linings of shoes, inside of gloves, and similar surfaces upon which it may be desired to obtain an imprint, to secure such a press of simple and inexpensive construction and which will be within the reach of retailers and others having a limited use for such machines, to obtain a stationary die-heating burner, to provide a separable die-bed having a slidable member upon which the article to be printed may be arranged before it is brought under the die, and to secure other advantages and results, some of which may be referred to hereinafter in connection with the description of the working parts.

The invention consists in the improved tip-printing press or machine and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like characters of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of my tip-printing press, and Fig. 2 is a front elevation. Fig. 3 is a central vertical section from front to back of the machine. Fig. 4 is a cross-section on line x, Fig. 3, showing the attachment of the die-bed support to the frame. Fig. 5 is a side elevation of a chase for receiving type which is adapted to be substituted for the die; and Fig. 6 is a cross-section of the same on line y, Fig. 5. Figs. 7 and 8 are side views of a portion of the press, more particularly illustrating the separable die-bed, Fig. 7 showing the sliding member drawn out to receive the article to be printed, and Fig. 8 showing said member slid beneath the die. Fig. 9 is a plan of the die-bed with its slidable member extended, and Fig. 10 is a plan of the same with the parts in position to receive the die. Fig. 11 shows the separable die-bed in end elevation; and Fig. 12 is a section of the same on line z, Fig. 11. Fig. 13 is a front elevation of the die-heating burner in the position it occupies on the press. Fig. 14 is a plan of the same, and Fig. 15 an end view.

In said drawings, a indicates the frame of my improved machine, preferably comprising a rigid upright casting adapted to be bolted to a bench b by means of a foot a'. Said frame has at its front opposite lateral vertical wings or flanges a^2, which serve to stiffen the frame and also provide at the lower part of the frame a slideway for a removable die-bed support c, hereinafter described. At a higher point than said slideway and preferably at about the middle of the height of the frame an integral forward extension d of the frame provides vertical tubular bearings for a plunger e, hereinafter more fully described. The upper end a^3 of the frame bends slightly forward into line with the extension d and die-support c and is bifurcated to receive a handle or lever f, pivoted therein, as at f'. Back of its fulcrum said lever has at its lower edge a concave recess f^2, which receives the disk-like head g' of a link-bar g, the lower end of which has a spherical foot g^2, adapted to lie in a corresponding recess hollowed out in the top of the plunger e. The upper end of the link-bar g is held from lateral displacement by the bifurcation of the frame and from falling away from its seat by the weight of the lever. A free hinge action is thus permitted at the upper end of the link-bar and a ball-and-socket action at the lower end, whereby motion is freely transmitted between the lever f and plunger e. Said plunger reciprocates vertically in the extension of the frame and

is held against rotary movement by the guide-rods h, hereinafter described, or any other equivalent means, such as a groove and spline, may be used. The plunger is also normally held in elevated position either by any well-known means or by the particular device shown, where e' indicates a rigid cross-piece at the top of the plunger, having its arms perforated to loosely receive vertical guide-rods h on extensions d' at the foot of the sleeve d, in which the plunger slides. Spiral springs i are coiled on the guide-rods and bear at their upper ends against the cross-piece e' and at their lower ends preferably against stop-nuts h', screwing upon the guide-rods to adjust the tension of the springs.

At the lower end of the plunger e is a foot-plate l, to which may be removably secured either a die-box j, having a die-plate j' secured thereto in any usual manner, as by the screw j^2, or a chase k, wherein printing-type may be set. To this purpose one end of the foot-plate is beveled downwardly outward, as at l', and the entire foot-plate is adapted to slide into a seat or recess on the die-box or chase, said recess being open at opposite sides and having at one end an overhanging wall j^3 to engage the beveled extremities of the foot-plate and at the other end a set-screw j^4, working through its wall to clamp against that end of the foot-plate. The die-plate or other imprinting-surface thus moves with the plunger as a part thereof.

The die-bed beneath the die-carrying plunger e is supported upon a heavy bracket c, separable from the frame. Said bracket c has at its rear face a vertical groove or recess adapted to receive the frame a, and the side walls of said groove or recess are undercut, as at c', to lap over and engage the rearwardly and inwardly beveled or cut edges a^{21} of the side flanges a^2 of the frame. A dovetailed connection of the bracket to the frame is thus secured. The edges, moreover, of the flanges a^2 of the frame diverge downwardly in front view, and the engaging walls of the bracket are correspondingly inclined, so that when the bracket is dropped into place a tight fit is insured. A stop m, projecting from the frame, receives the lower end of the bracket to prevent undue wedging and to sustain the pressure in operating the machine, and the upward convergence of the side edges of the frame is at such an angle or is carried far enough above the normal position of the bracket to permit said bracket to be removed without striking the die above.

While the separable construction of the bracket or support thus described is deemed preferable, it will be understood that the same may be an integral part of the frame or immovably fixed thereon, if desired.

The die-plate proper is carried upon a stem n, extending down into a socket c^2 in the bracket or support c, said stem being held against rotation in said socket, as by the spline n', Fig. 4, but longitudinally adjustable by means of a screw o, working up through the bottom of the socket and upon which the stem stands. Said die-bed in its simplest form is a horizontal plate p, rigidly affixed to the top of the stem and adapted to be built up with paper or the like to hold the article to be printed or stamped in proper position to receive the die. In some kinds of work, however—as, for instance, in printing by the use of gold or silver leaf—a fixed die-bed beneath the die is somewhat inacessible in arranging the parts to receive the downstroke of the die, and I have therefore provided a separable or extensible die-bed, as illustrated in Figs. 7 to 12, inclusive. This has the stem n, before described, and at the top of said stem is a fixed plate r, constituting the stationary member of the die-bed. Above said member or plate r is an upper plate r', the adjacent faces of the two plates being ground to sit solidly one upon the other with great firmness. This upper member or plate r' has at its sides flanges s, which reach downward over the edges of the lower plate r and extend in beneath said lower plate to effect a connection of the two plates. The slideways thus formed on the upper plate for the edges of the lower plate are prolonged from said upper plate toward the frame of the machine, as at s', and thus the upper plate or member can be slid from its normal position directly over the lower member outward away from the frame and from beneath the die, as shown in Figs. 7 and 9. The work can now be arranged on the upper plate and secured in position by the springs t, secured to the plates by pieces t', screwed thereto. The sliding member is then slid into normal position, when the work lies beneath the die and directly over the support, with the slide-arms s' lying at either side of the frame. Suitable stops of any usual construction may be provided to limit the sliding of the upper member, such as a screw 2, projecting inward through one of the slide-arms s' to engage a shoulder 3 on the fixed member and limit outward sliding, and ears 4, extending from the underlapping portion of the side flanges of the sliding member r' inward beneath the fixed plate r to engage lugs 5, depending from the under surface of said fixed plate, and determine the inward movement of the sliding member.

The lower or fixed member r of the die-bed is preferably of greater width than the adjacent portion of the frame a, so that the flanges or slideways s of the upper member can pass said frame at its sides when the upper plate or member is slid toward the frame.

Obviously either the die-bed shown in Figs. 1, 2, and 3 or that shown in Figs. 7 to 12, inclusive, may be used, according to the character of the work to be done.

It will be understood that in the class of work for which my machine is intended it is necessary to heat the die, and for this purpose I have provided a burner 6, fastened upon the frame a and, it will be observed, sta-

tionary during the operation of the machine. Said burner preferably comprises a piece of tubing 7, closed at one end 8 and connected at the other to a suitable gas-supply pipe 9 and having in its side a longitudinal series of perforations 10 for the gas to escape and be lighted. Back of these flame-openings 10 is an aperture 11 to secure the mixture of air with the gas, as is usual. This tubular burner is supported in horizontal position close to the front of the frame, so that the die and plunger will clear it in descending, and is turned axially into such position that its jets of flame will be directed slantwise against the under surface of the die when said die is in normal elevated position. Said die thus becomes heated and retains the heat through its downward movement to the die-bed even though it passes out of the flame while making the stroke.

The burner 6 is held by a clamp 12, comprising a piece of metal having a recess 13 to receive the side flange a^2 of the frame a of the machine and a set-screw 14, working through one side wall of said recess against the flange. At the front end of the clamp is a round opening or slideway 16, through which the burner-tube is thrust longitudinally, a set-screw 15 being provided in the wall of said slideway 16 for clamping the burner in any position into which it may be slid or turned axially by the hand of the operator. Any other form of clamp suitable to the purpose may be used, if desired, and obviously the burner instead of receiving its gas-supply from a tube in line therewith may be supplied by a pipe at right angles to the perforated tube 7, or both ends of the tube 7 may be closed and a supply-pipe enter intermediate of said ends without departing from the spirit or scope of the invention.

Having thus described the invention, what I claim as new is—

1. In a printing or embossing press having a die-bed and a movable die adapted to normally lie away from the die-bed, a stationary burner comprising a tube located at one side of the path of movement of the die substantially parallel to the face of said die and having gas-perforations in its side next said die, and means for supporting said tube and permitting turning of the same on its longitudinal axis.

2. In a printing or embossing press, having a die-bed and reciprocating die presenting an extended imprinting-surface, a burner stationed adjacent to the path of movement of said die, between its opposite limits of movement, and comprising a tube having gas-perforations in its side, and supporting means holding said tube but permitting rotation on its longitudinal axis, whereby adjustment may be had to direct the flames slantwise against the face of the die.

3. In a printing or embossing press having a die-bed and a die adapted to move toward and away from said die-bed, a burner comprising a tube arranged at one side of the path of the die substantially parallel to its face and having a lateral gas-discharge opening, supporting means for said tube adapted to permit it to turn on its longitudinal axis, and means for clamping the tube in any desired position.

4. In a press, the combination of a frame providing a slideway, d, with ears d', at one end of said slideway, a plunger e, adapted to reciprocate in said slideway, and having a cross-piece e', at the end opposite from the said ears on the slideway, guide-rods h, extending between said ears and cross-piece parallel to the plunger and fast at one end to one of said parts and sliding at the other end through the opposite part, and spiral springs on said rods bearing at one end against that part through which the rods slide and nuts screwing on said rods to form adjustable stops for the other ends of the springs, substantially as set forth.

5. In a press, the combination with a frame providing a vertical front, of an independent die-bed support or bracket adapted at its rear wall to lie against the front of the frame, the contacting surfaces of said frame and bracket having coöperating means for forming a separable connection from which the bracket may be released by moving upward with respect to the frame, substantially as set forth.

6. In a printing or embossing press, the combination with a frame providing at its lateral edges rearwardly-beveled and upwardly-converging flanges and at its face having a stop m, of a socketed die-bed support or bracket having at its rear face a vertical recess or groove adapted to receive the front of the frame and undercut side walls to engage the beveled flanges of said frame, the lower end of the support being adapted to engage the stop m, when said support engages at the side walls of its rear recess the flanges of the frame a die-bed having a stem entering the socket, and an adjusting-screw working through the bottom of the socket to regulate the height of the die-bed, substantially as set forth.

7. In a press, the combination with a frame presenting at its face lateral and upwardly-converging flanges, of a die-bed support or bracket having at its rear a vertical recess or groove adapted to receive the frame and having overhanging side walls to engage the said lateral flanges of the frame, and a stop preventing undue wedging of the support upon its seat on the frame, substantially as set forth.

8. The combination with a printing or stamping press having a vertical frame a, of a die-bed comprising a lower member held in fixed position close to said frame, an upper member adapted to lie solidly upon said lower member and being slidably connected thereto, and arms or extensions at the inner end of said upper member which normally lie on opposite sides of the frame a, and which serve to extend the slidable connection of the upper and lower members so that the upper mem-

ber can be slid out from said frame a, beyond the lower member.

9. In a printing or stamping press having a socketed die-bed support or bracket, a separable or removable die-bed comprising a lower member having a stem n, adapted to enter the said socketed support or bracket, and an upper member adapted to lie upon the lower member and slide in its own plane with respect thereto for a limited distance.

10. The herein-described die-bed for a tip-printing press, comprising upper and lower plates or members r', r', forming at their contacting surfaces a close-fitting joint, means upon the lower member for holding it in fixed position beneath the die depending lateral flanges upon the upper member engaging the side edges of the lower member and being extended beyond the end of the upper member to permit said member to be slid entirely off the lower member, stops limiting relative sliding of the members, and spring-clips on the upper member for grasping the article to be printed, substantially as set forth.

11. In a printing or embossing press, having a frame a, a die-bed support comprising a lower fixed member of greater width than said frame, and an upper slidable member having its side edges depending over and engaging the edges of the lower member, said side edges being extended rearward beyond the lower member.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of December, 1900.

JOHN F. WILLIAMS.

Witnesses:
ARLIN W. HILSINGER,
CHAS. C. RUNYON.