

Aug. 3, 1965

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3,198,168

MACHINES FOR PROCESSING PRINTING PLATES AND THE LIKE

Filed April 5, 1961

4 Sheets-Sheet 1

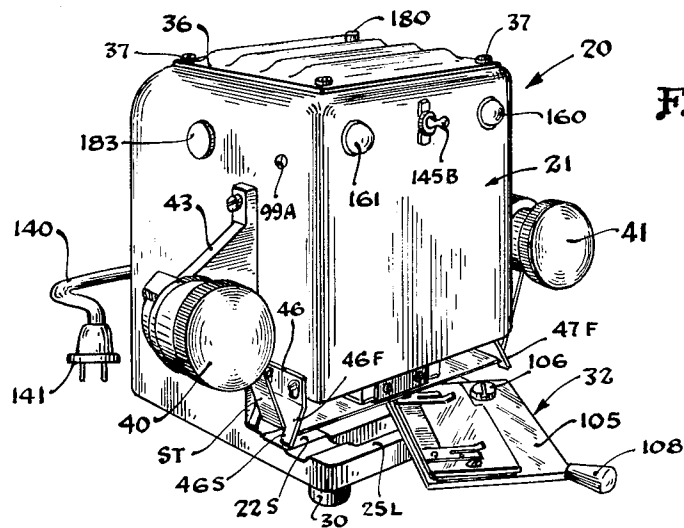


Fig. 1

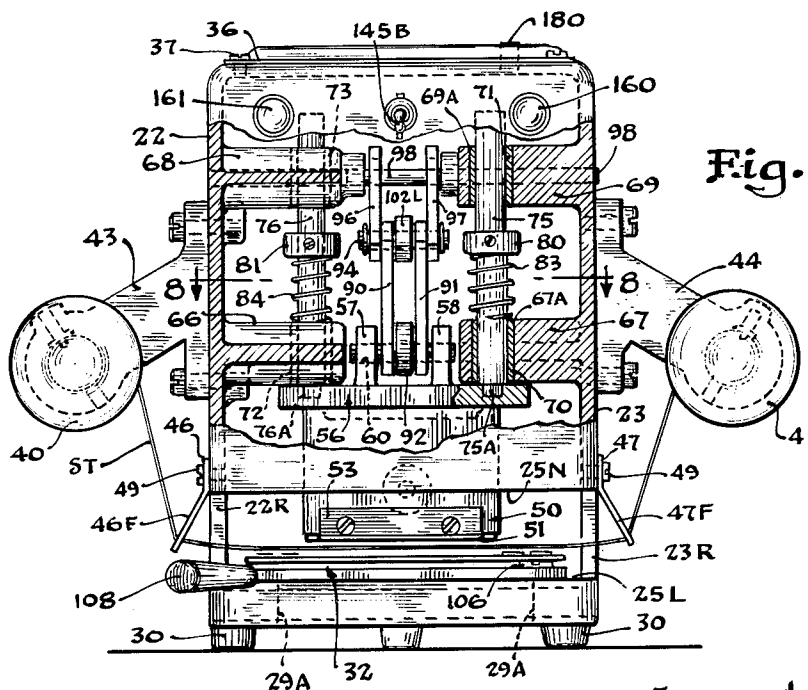


Fig. 2

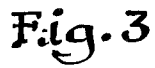
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4 Sheets-Sheet 3

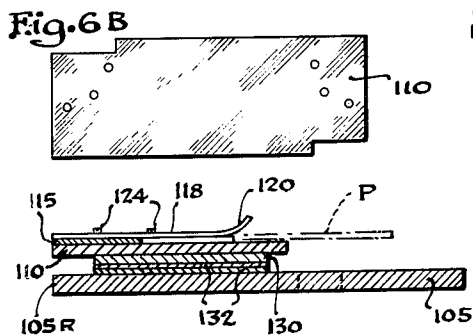
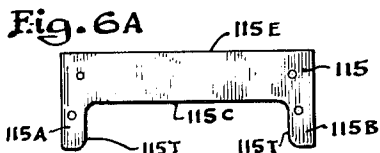
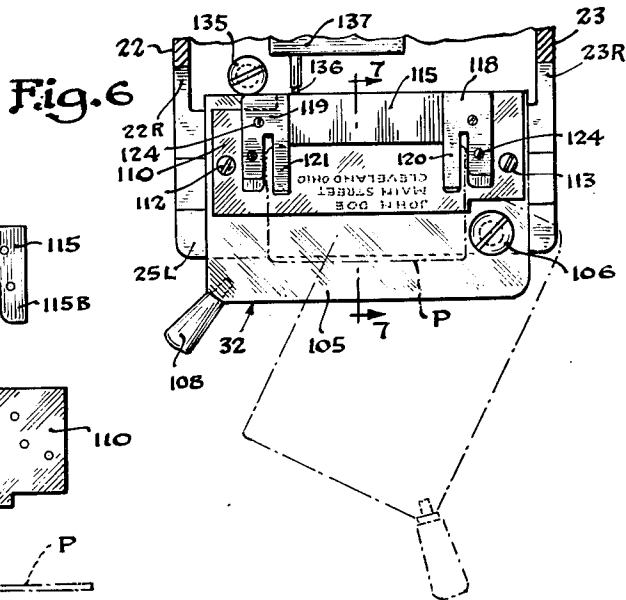
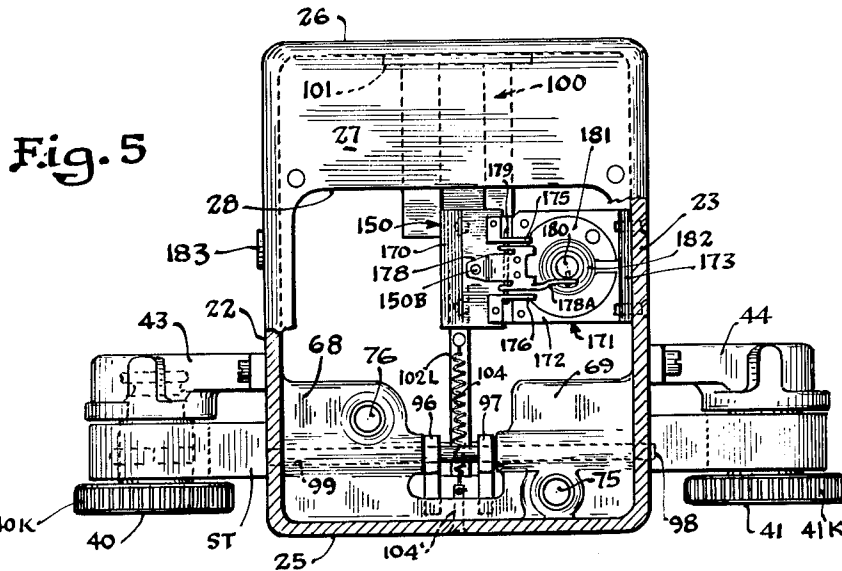


Fig. 7

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MACHINES FOR PROCESSING PRINTING PLATES AND THE LIKE

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Fig. 8

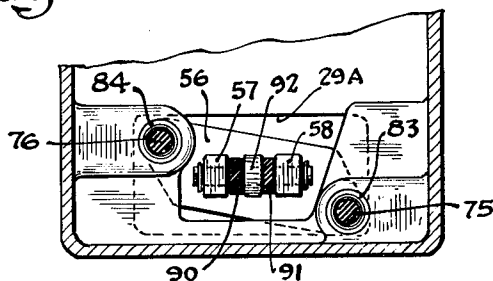


Fig. 9

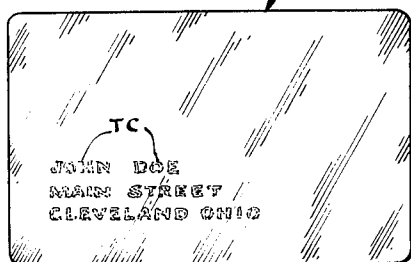


Fig. 10

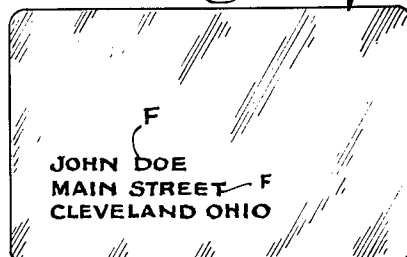


Fig. 9A



Fig. 10A

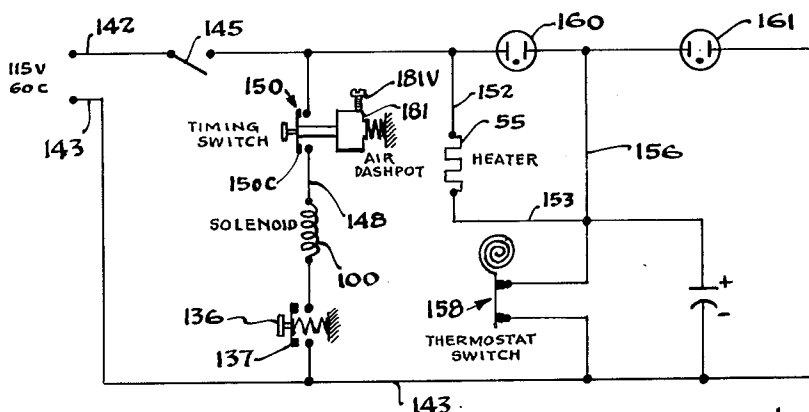
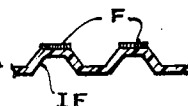


Fig. 11

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MACHINES FOR PROCESSING PRINTING PLATES AND THE LIKE

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12 Claims. (Cl. 118—202)

This invention relates to a machine for imprinting an embossed printing plate or like article with distinctively colored facings in selected portions thereof.

A well-known form of printing plate is the so-called credit plate bearing embossed type characters and of such size as to be conveniently carried on the person, as in a wallet. Plates of this kind can be composed of plastic, embossed with type characters delineating direct reading data such as the name and address of the person entitled to the plate. Such printing plates are used primarily for credit purchases at department stores, service stations and the like, although there are numerous kindred uses such as in connection with library rentals, hospital record keeping and similar record keeping operations.

Printing plates of the foregoing kind are arranged in a printing machine at the time a particular transaction or bookkeeping entry is to be effected therewith, and a sales slip or like data sheet is arranged in the printing machine to be printed by the type characters embossed on the plate. Printing machines in which plates of the foregoing kind are used are usually of relatively small size, occupying limited space on a department store counter or desk, and such machines are typified by the machine disclosed in United States Patent No. 2,909,998.

As noted above, printing plates of the credit card type are sometimes composed of deformable plastic. The blank stock material for the plate, usually of thin rectangular form, is processed in an embossing machine, such as the machine disclosed in United States Patent No. 2,951,571, and in the course of such processing the plate is delineated with embossed type characters to afford a plate which can be used for printing operations as aforesaid.

The plastic stock for the plate is of a predetermined color. The stock material, for example, may be a white plastic. In many instances, it is of advantage to be able to visually verify the data embossed on the plate, such as the name and address of the person to whom it is issued. However, where the plate is uniformly of one color throughout, including the embossed type, visual reading of the type characters is difficult, because the embossed data blend with the unembossed background area surrounding the embossures, making the latter difficult to read, unless tilted in a particular way to produce shadow effects which accentuate the embossed type. Thus, while the type characters include raised or relief faces of the usual kind, these can be difficult to read unless the plate is held in a particular way to take advantage of lighting effects that contrast the relief or raised type faces. The primary object of the present invention is to enable the relief faces of the embossed type characters on plates of the aforesaid kind to be easily read by facing the same with distinctively colored facing material in a novel machine constructed for this purpose.

Printing plates of the aforesaid character are to be embossed with a high degree of accuracy, which is to say that the type characters thereon are to be embossed to conform to a particular type height which will conform to a type height compatible with the construction of the printing machine in which the plate is to be disposed incidental to recording data as described above. The embossing machine in which the plates are processed is constructed to assure that a particular type height will be

attained on the plate processed therein. Thus, printing machines in which printing plates contemplated by the present invention are used are constructed to predetermined standards inclusive of a platen which is intended to move in or be moved to a particular plane when effecting a print on a sales slip or like data sheet referred to above, and the plates arranged therein are to have embossed type characters that will comply with the standards of the printing machine. If the type characters on the plate do not subscribe to the standard adopted for the particular printing machine, it follows that proper imprints will not be obtained on sales slips and the like printed in the machine, and another object of the present invention is to prevent distortion of the type characters to be faced by so constructing the present machine that the facing material will be transferred thereto without any substantial pressure being exerted thereon, or on a like article as aforesaid that is to be faced with a distinctive color that will contrast with the surrounding area on the article.

As will be described in detail hereinafter, the machine of the present invention which is used to transfer to or imprint facing material on a selected portion of an embossed printing plate or like article is inclusive of a heated platen which is used to transfer facing material from a strip coated with the same onto the printing plate or like article. Inasmuch as the plate is of plastic material that will flow when excessively heated, it is important that the heated platen be effective to produce a transfer of facing material for a period no longer than that required to produce optimum transfer. Accordingly, another object of the present invention is to time the effective downstroke of the platen in a novel manner. In this connection it is also important to prevent operation of the platen except at times when the printing plate or like article is in an accurately oriented facing position in the machine, for otherwise the heated platen might very likely destroy the strip bearing facing material, or produce attendant damage to the machine. Accordingly, another object of the present invention is to include in the machine of the present invention means for preventing an effective stroke of the heated platen except at times when a plate or like article to be faced is in a predetermined facing position within the machine.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show a preferred embodiment of the present invention and the principles thereof and what is now considered to be the best mode for applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

FIG. 1 is a perspective view of a machine constructed in accordance with the present invention;

FIG. 2 is a vertical sectional view of the machine illustrated in FIG. 1;

FIG. 3 is a side elevation at one side of the machine illustrated in FIG. 1;

FIG. 4 is an elevational view of the other side of the machine, partly broken away to expose parts in section;

FIG. 5 is a plan view of the machine with a portion of the top broken away exposing certain parts in section;

FIG. 6 is a fragmentary view of the machine illustrating the plate support in its facing position;

FIG. 6A is a plan view of a guide associated with the plate support;

FIG. 6B is a plan view of an anvil associated with the plate support;

FIG. 7 is a sectional view substantially on the line 7—7 of FIG. 6 on an enlarged scale;

FIG. 8 is a fragmentary sectional view substantially on the line 8—8 of FIG. 2;

FIG. 9 is a plan view of a printing plate prior to facing under the present invention;

FIG. 9A is a fragmentary sectional view on an enlarged scale in comparison to FIG. 9 and showing the nature of the type characters on the plate of FIG. 9 prior to facing;

FIG. 10 is a plan view showing the printing plate of FIG. 9 in its faced condition;

FIG. 10A is a sectional view similar to FIG. 9A but showing the type characters in their faced condition; and FIG. 11 is a wiring diagram.

The machine of the present invention is adapted in particular to apply distinctively colored facings to the relief faces of embossed type characters on relatively small printing plates such as those typified by so-called credit plates that are used for individual credit transactions at department stores, oil service stations and the like. Thus, referring to FIG. 9, a printing plate P is there shown in the form as initially produced in an embossing machine to bear embossed type characters TC which, as shown in FIG. 9, delineate a name and address typical of data to be printed thereby.

The type characters TC as shown in FIG. 9 are in effect extruded from the material from which the plate P is composed, and advantageously this material is a thermoplastic such as vinyl plastic or the like capable of being deformed in an embossing machine to produce type characters having relief faces RF, FIG. 9A, on one side of the plate P and corresponding intaglio depressions IF on the opposite side of the plate as shown in FIG. 9A.

Plastic plates as P are composed plastic of a predetermined color. In many instances, for example, the plastic is uniformly white, and in order to facilitate visual recognition of the data represented by the type characters TC (which are of direct reading form) the tops of the relief faces RF are to be tipped or faced by distinctively colored facings F, FIG. 10. Such facing is effected, as will be hereinafter described, by contacting the relief faces RF of the type characters uniformly and simultaneously with the coated side of a strip coated with facing material, and concurrently with this contact the opposite side of the strip is heated whereby facing material is transferred image-wise from the strip to the relief faces on the printing plate, representing the selected portion of the printing plate or like article of predetermined color that is to be provided with facing material of predetermined color transferred by heat thereto. Resultantly, the indistinct type characters on the printing plate illustrated in FIG. 9 are rendered more distinct and readily readable as will be apparent from the comparison afforded by the tipped or faced printing plate illustrated in FIG. 10.

It will be recognized that printing plates of the kind illustrated in FIG. 9 are merely illustrative of relatively small articles of predetermined color that are to have a selected portion thereof provided with facing material of contrasting color transferred by heat thereto by means of the machine of the present invention. Hence, the machine of the present invention can be used on other kinds of articles that are to be faced with distinct coloring in selected portions thereof.

The machine 20, FIGS. 1 to 4, of the present invention includes a box-like housing 21 which is a one-piece casting including a pair of parallel vertical side walls 22 and 23, FIG. 2, and front and rear walls 25 and 26, FIG. 4. These walls are spaced rather far apart so as to afford an interior cavity or quite ample space in which the major components of the machine are housed as will be explained hereinafter. The top wall 27 of the housing, FIG. 4, is cast with a relatively large rectangular opening 28. The bottom wall 29 of the housing, FIG. 4, is cast with a pair of openings 29A and 29B, and these openings en-

able the various housed parts to be disposed and secured in their mounted positions within the housing during assembly of the machine.

The machine in its entirety is resiliently supported by rubber bosses 30 that are secured to the underside of the bottom wall 29, there being two such bosses at the forward corners of the bottom wall and one midway of the rear edge of the bottom wall.

As shown particularly in FIGS. 1 to 4, the side walls 22 and 23 are cast with slots or recesses extending rearward at 22R and 23R from the front edges thereof, and the front wall 25 is cast with an opening 25N, FIG. 2, across the entire width thereof, to provide a spacious recess or throat 35, FIGS. 3 and 4 at the front side of the machine. A plate holder 32, FIG. 1, is pivotally mounted on an axis at one side of the recess 35 to be swung in and out relative thereto in a horizontal plane as will be explained in detail hereinafter.

It is to be noted that the housing 21 is provided with a removable top plate 36 that is secured in place by screws 37, FIG. 1, that are adapted to seat in tapped openings in the top area of the housing 21 at the four corners of the opening 28. The top plate is provided with ventilator fins and corresponding slots therebetween to permit convective cooling of the interior of the housing where electrical parts including heating elements are located as will hereinafter be described.

The plate holder 32 is adapted to be disposed in a position outward of the recess 35 as shown in FIG. 1 whereat an unfaced printing plate P, FIG. 9, or like article to be faced is to be mounted therein. Thereafter, the plate support 32 is swung inward to the position illustrated in FIG. 4 wherein the printing plate or like article carried thereby is disposed in a facing position within the recess 35. A facing strip ST, FIGS. 1 and 2, is disposed within the recess 35 and extends thereacross as will be apparent in FIG. 2 in position to overlie the printing plate or like article mounted on the plate support 32 when in facing position. To this end, opposite end portions of the strip ST are wound on supply and feed spools 40 and 41 which are supported from manually induced rotation by respective brackets 43 and 44 that are secured to the side walls 22 and 23 of the housing 21. A pair of strip guides in the form of plates 46 and 47, FIG. 2, are fastened to the side walls of the machine above the opposite ends of the recess 35. Each guide plate is provided with an outwardly bent flange 46F and 47F, FIG. 2, and the lower edge thereof is bifurcated to afford a narrow guide slot as 46S, FIG. 1, having a width corresponding to the width of the facing strip ST. Thus, the strip ST is to be threaded in the guide slots as 46S of the guides 46 and 47.

The brackets which support the strip spools, and the guides 46 and 47 for the strip ST, are so arranged with respect to one another that the portion of the strip ST within the recess 35 is accurately disposed above the relief faces RF of a printing plate P in facing position. As will be noted in FIG. 2, the slotted lower ends of the plates 46 and 47 project downward so that the slots thereof are disposed in a plane substantially midway of the height of the recess 35, and as a consequence the strip ST is arranged to travel through the recess 35 substantially midway of the depth thereof.

As shown particularly in FIG. 3, the guide plates 46 and 47 are held in place by screws 49 that are seated in tapped openings in the corresponding side walls of the machine. These screws are passed through elongated slots as 50 in the guide plates 46 and 47, thereby enabling the latter to be vertically adjusted relative to the recess 35 at the front side of the machine so that the guide strip will move through the recess 35 in a predetermined plane.

The spools 40 and 41, FIG. 5, have knurled heads 40K and 41K to facilitate manual turning thereof, and as indicated in FIG. 2, spool 41 is to be turned in a clockwise direction manifest in a left to right hand advancing move-

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ment of the strip ST through the recess 35. As a consequence, fresh areas of the facing strip ST can be played out from the spool 40 during use of the machine by winding spool 41 clockwise, allowing spool 40 to idle, but it will be appreciated that these movements can be reversed if desired.

The facing strip ST is coated on the underside thereof as viewed in FIG. 2 with heat offsettable facing material to be offset onto the portions of the article such as the printing plate P which are to be distinctively colored. This facing material will be pigmented to be of any color that will afford an effective and pleasing contrast with the plastic of predetermined color of which the plate as P is composed. The facing material, being transferable by heat, is non-smudging at room temperature, and preferably the material transfers only at a high temperature, such as 325° F. applied for a second or so.

Such offsetting is effected by a heated platen 50 which, as will be described, is arranged in the machine for movement from an upper retracted position, free of the strip ST, to a lower actuated position within the recess 35 where the operative face of the platen is effective to engage the uncoated or upper side of the strip ST as viewed in FIG. 2. Simultaneously, the coated or faced side of the strip ST is pressed into light contact with the portions of the article to be faced when the latter is disposed by the plate support 32 in facing position. As a matter of fact, means are afforded for preventing operation of the platen unless the plate support has been moved into facing position within the recess 35.

Thus, the platen 50, FIGS. 2 and 4, is mounted within the housing 21 for reciprocal movement in a vertical direction. The platen 50 is in the form of a rectangular block having the lower portion thereof normally disposed within the confines of the recess 35, but in a retracted position free of contact with the facing strip ST. The lower or operative face of the platen 50 is represented by a separate die plate 51 held in place by intumed lips at the lower edges of a pair of gib plates 52 and 53 that are fastened by screws (see FIG. 2) to the front and rear faces of the platen block.

The platen block is composed of an alloy, such as cast iron, having a good heat conductivity. The die plate 51 is also a good heat conductor, and the lower rubber face thereof is finished to a high degree of accuracy to assure, in essence, that it will effect a coplanar contact of the coated side of the strip ST with the type characters as TC when a plate as P is being faced. An electric heater element 55, FIG. 4, is disposed in the platen block. As will be described hereinafter, a circuit is afforded for supplying current to the resistance element characterizing the heater 55.

The upper end of the heater block or platen 50 extends upward from the recess 35 into the interior of the housing 21 and is disposed somewhat rearwardly of the inner face of the front wall 25 of the housing as shown in FIG. 4. The upper end of the heater block 50 within the housing 21 is formed with an enlarged head or overhanging stop plate 56 having a pair of spaced lugs 57 and 58 cast integral therewith extending upwardly therefrom as best shown in FIG. 2. The lugs 57 and 58 are provided at their free ends with aligned apertures for receiving a pin 60, FIG. 4. A toggle link 65, FIG. 4, is associated with the pin 60 as will hereinafter be described for imparting vertical up and down motion to the platen 50.

The platen 50 is guided within the housing 21 for accurate vertical movement, and to this end the housing 21 in the interior thereof is cast, as shown in FIG. 2, with a pair of lower inwardly directed supports 66 and 67 and a pair of upper inwardly directed supports 68 and 69. The supports 67 and 69 at the right hand side of the interior of the housing as viewed in FIG. 2 are formed with vertically disposed apertures 67A and 69A, and low friction guide bushings 70 and 71 are disposed therein.

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The left hand supports 66 and 68 are formed with like apertures and vertical guide bushings 72 and 73 mounted therein.

Elongated guide rods 75 and 76, FIG. 2, are disposed in the vertically aligned bushings 70-71 and 72-73 that are provided in the supports referred to above, so as to be capable of free vertical sliding movement in the related bushings. As shown in FIG. 2, the upper ends of the guide rods 75 and 76 project upward from the upper surfaces of the upper supports 68 and 69. The lower ends of the guide rods 75 and 76 are provided with reduced stub portions 75A and 76A, and these reduced stubs are free of the lower surfaces of the supports 66 and 67.

The reduced elements 75A and 76A at the lower ends of the guide rods 75 and 76 are press-fitted into openings formed in the upper face of the stop plate 56 associated with the platen 50 as shown in FIG. 2. In this manner, the platen 50 is guided for movement along a predetermined vertical path.

Collars 80 and 81, FIG. 2, are secured by set screws to the portions of the guide rods 75 and 76 that are intermediate the opposed surfaces of the supports 67-69, 66-68 that are cast integral with the housing 21. Coil springs 83 and 84 are arranged concentrically about the guides 75 and 76 with the lower ends thereof bearing on the upper faces of the respective supports 66 and 67 and with the upper ends thereof bearing against the undersides of the respective stop collars 80 and 81 to exert an upwardly directed force on the platen 50. Thus, the springs 83 and 84 are effective to locate the platen in its normally retracted position. By shifting the collars 80 and 81, the magnitude of the bias exerted by the springs 83 and 84 on the platen can be varied.

The toggle mechanism 65 includes a pair of links 90 and 91, FIG. 2, having lower ends disposed adjacent the inside faces of the platen lugs 57 and 58. The lower ends of the links 90 and 91 thus disposed are provided with apertures through which the pin 60, supported in the lugs 57 and 58, is passed freely to thereby pivotally connect the toggle links 90 and 91 to the platen structure. A spacer 92 is arranged on the pin 60 between the inner faces of links 90 and 91.

The upper ends of the links 90 and 91 are likewise provided with apertures. A pin 94, FIG. 4, is passed freely through the aligned apertures in the upper ends of the links 90 and 91 and through aligned openings in the lower ends of upper toggle link arms 96 and 97 that are disposed outward of the link arms 90 and 91 as shown in FIG. 2. Retainer washers are seated in grooves at the free ends of the connecting pin 94 to maintain the effective joint at the midsection of the toggle structure.

The link elements 96 and 97 extend upwardly as shown in FIGS. 2 and 4 adjacent the inner face of the front wall 25 of the housing 21, and the upper ends thereof are journaled on a long fulcrum pin 98 which is slipped into an opening that is extended from the outer face of the right-hand side wall 23 (see FIG. 5) through the right-hand support 69 and into a passage opening 99, FIG. 5, in the left hand top support 68. The passage 99 terminates in an access opening 99A, FIG. 1, provided in the left-hand side wall of the housing 21 to enable a tool to be inserted therein incidental to removing the pin 98 when desired.

The toggle mechanism is to be actuated to move the platen 50 from its retracted position illustrated in FIG. 4 to an actuated position where the lower operating face of the platen die plate 51 is disposed in a predetermined plane that will lightly press the side of the strip ST bearing facing material into contact with the portion of the article carried by the plate support that is to be faced. To this end, the core of an electro-magnetic means is connected to the toggle joint represented by the pin 94.

Thus, a solenoid 100, FIGS. 4 and 5, is arranged within the housing 21 and is supported at the inner face of the rear wall 26 of the housing by a support bracket 101. The solenoid is so arranged that the core 102 thereof,

FIG. 4, is in alignment with the toggle joint represented by the pin 94. A connecting link 102L is connected at one end to the solenoid core 102 and extends forwardly therefrom as viewed in FIG. 4 with the opposite end thereof connected to the pin 94 intermediate the ends of links 90 and 91 journaled on the pin 94.

A stud 103 projects upwardly from the connecting link 102L. One end of a coil spring 104 is anchored on the stud 103, and the opposite end of this spring is secured to the inner end of a screw 104' that is mounted in the front wall of the machine housing. Thus, the spring 104 is effective normally in cooperation with the springs 83 and 84 to exert forward tension on the connecting link 102L so as to kink the toggle mechanism 65 to thereby maintain the platen 50 in its retracted position. However, when the solenoid 100 is energized as will hereinafter be described, the connecting link 102L is pulled to the right as viewed in FIG. 4, when the core 102 of the solenoid is retracted to the right as it will be when the solenoid is energized. As a consequence, the platen 50 is lowered from its retracted or ineffective position to an actuated or operating position whereat the lower face of the die plate 51 thereon is disposed in a facing plane, that is, in a plane coincident with the side of the facing strip engaged thereby, and this condition is also manifest in the side of the strip ST bearing the facing material being disposed in a plane coincident with the type faces or equivalent portion of the article in facing position to be faced.

Under and in accordance with the present invention, the plate support or holder 32 is arranged to be moved between a loading position and a facing position, the latter being characterized by the portion of the plate or like article to be faced being disposed in a facing plane within the recess 35 that will be coincident with the side of the strip ST opposite the side engaged by the platen die plate 51 in its actuated position or facing plane.

The plate support or holder 32 includes a rigid base plate 105, FIGS. 1, 6 and 7. The base plate 105 is of general rectangular contour and is arranged to be swung about a pivot point represented by a pivot stud 106 that is located at the forward right hand side of the recess 35. In this connection, it will be recalled that the side and front walls of the housing 21 are slotted in affording the recess 35. Such slotting or recessing is such as to afford an elongated lip 25L, FIGS. 1 and 4, in the housing structure at the front of the recess 35. At the same time, shoulders 22S and 23S, FIGS. 1 and 4, are formed inward along the lower left and right hand sides of the recess 35. The upper surfaces of the lip 25L and the shoulders 22S and 23S are in a common plane and these afford a support shelf for the underside of the base plate 105 when the plate support is moved into facing position within the recess 35 as will be apparent particularly in FIG. 4.

The stud 106 is located on the right hand corner of the lip 25L, FIG. 6. Advantageously, the left hand outside corner of the base plate 105 is provided with a projecting handle 108 to facilitate manual movement thereof.

It is important that the plate or like article to be faced be accurately oriented in facing position within the recess 35, and in particular it is important to have the relief faces of the unfaced type characters on the plate as P in a facing plane within the recess 35 that is coincidental with the side of the strip bearing facing material when the platen 50 is in its actuated position. Thus, it has been found under the present invention that the platen 50 in its facing plane should merely produce light contact of the facing material on the strip ST with the portion of the printing plate or like article that is to be distinctively faced at a predetermined portion thereof. Excessive pressure is likely to cause too much facing material to be transferred, and more importantly is likely to deform the type characters TC so that these will not be of the proper type height when used in the intended printing machine noted above.

In view of the foregoing, the plate support 32 is provided with a guide that assures accurate orientation of the plate therein and is also constructed to enable printing plates having type characters of variant type height or plates or like articles of variant thickness, to be properly presented to the effect of the platen 50 when the latter is in its actuated position. Such construction of the plate support makes it unnecessary to provide for adjustments in the operating stroke of the platen, and this is of particular advantage under the present invention wherein the operating parts associated with the platen are relatively few in number, of simplified but rugged construction, and are closely nested within the housing 21. In other words, the machine 20 in the present instance is of compact rugged construction, such as to entail few adjustments, and occupies little space.

The plate support 32 includes a rigid metallic anvil plate 110 of rectangular contour, FIGS. 6 and 6B, removably fastened to the base plate 105 as by screws 112 and 113, FIG. 6. A plate guide 115 is secured to the upper face of the anvil 110. The plate guide 115 includes a straight rear edge 115E, FIG. 6A, that is aligned with the corresponding edges on the anvil 110 and the base plate 105 as will be apparent particularly in FIG. 7, and these aligned edges are those that will be innermost of the recess 35 when plate support 32 is moved to its facing position.

The guide 115 includes a pair of spaced side leg portions 115A and 115B, and the inner edges thereof extend substantially at right angles to a forward edge 115C of the guide 115 that extends parallel to the edge 115E. The resultant construction affords a recess or throat 115T, FIG. 6A, that is shaped complementary to the long section of the printing plate P as will be noted in FIG. 6. Different configurations of plates as P can be accommodated merely by shaping a guide as 115 to comply therewith and making the necessary substitution in the plate support 32.

Resilient plate retaining means are associated with the plate support 32 in order to hold the plate P in the guide 115 constructed as above. Such retaining means is inclusive of a pair of thin metal spring clips 118 and 119, FIG. 6, that are slotted to afford a pair of spring arms 120 and 121 that will bear on marginal portions of the plate P in the guide 115, outward of the embossed type characters thereon as will be evident in FIG. 6. Each spring clip 118 and 119 is held on the upper face of the guide 115 by screws as 124, and these same screws serve to secure the guide 115 to the anvil 110 as will be noted in FIG. 7.

It will be observed that the guide throat or cutout 115T in the guide 115 is of such dimension and configuration as to expose the planar upper face of the anvil 110. The underside of the printing plate P to be faced, when in the guide 115, will be supported by said exposed planar surface of the anvil 110, and this planar surface is of such extent as to underlie the area of the plate P bearing the type characters TC to be faced. In this connection, it may be noted that the plate P, as viewed in FIG. 9, will be oriented in the guide 115, as shown in FIG. 6, with the street address portion of the type data innermost, whereby a major unembossed portion of the plate hangs free of the anvil 110 (see FIG. 7).

Referring to FIG. 7, it will be noted that the anvil 110 is spaced from the upper surface of the base plate 105. Thus, a brass shim 130 is arranged beneath the anvil 110, and a selected number of thin metal shims 132 are interposed between the undersurface of the brass shim 130 and the upper surface of the base plate 105. Such arrangement of shims is of course effected prior to securing the anvil 110 to the base plate 105, but in any event the shims are so selected as to number and thickness as to assure that a printing plate P or like article in the guide 115, when the plate support 32 is in facing position within the recess 35, will have the portion or portions thereof to be faced disposed in a facing plane

coincident with the coated side of the strip ST when the platen is in its actuated position or operating plane. Additionally, such shims enable the degree of pressure of the platen or the plate to be varied.

In connection with the foregoing, it will be appreciated that numerous articles such as literally thousands of the printing plates P will be faced in mass operations in the machine of the present invention. As a consequence, the effective facing plan and optimum platen pressure will be predetermined factors, and the shims as 132 will be selected on this basis. In other words, the machine 20, when initially constructed will have, in effect, the correct type height built thereinto according to specifications conforming to the expected plates as P to be faced. Changes, however, are easily accommodated by substituting shims 132.

When the plate support 32, loaded with a printing plate to be faced, is swung into facing position, the lower surface of the base plate is supported by the lip 25L and the shoulders 22S and 23S. When in proper facing position within the recess 35, the rear edge 105R, FIG. 7, of the base plate 105 abuts a stop 135, FIGS. 3 and 6, within the recess 35. Under this circumstance, the rear edge of the base plate 105 engages the plunger 136 of a normally open Micro-type momentary switch 137, FIG. 6. The circuit in which this switch is arranged will be described below, but here it may be noted that the solenoid 100 cannot be energized unless switch 137 is closed. Further, the switch plunger 136 has a spring (not shown) associated therewith which is of such strength that the plate support 32 must actually be pressed up against the stop 135 and held against the stop by the operator in order to hold switch 137 closed. In other words, for the solenoid 100 to accomplish its intended purpose, the solenoid 100 must be held energized by a continuous force on the switch plunger 136, and in this interval timing means are operated, while switch 137 is held closed manually, to time the "down" time of the platen 50.

The circuit for the solenoid 100 and the platen heater 55 is illustrated in FIG. 11. First of all, the machine is equipped with a cord 140, FIG. 1, having the usual plug 141 associated with lead wires 142 and 143, FIG. 11. A main operating switch 145 is associated with lead wire 142, and this switch is operated by a toggle button 145B, FIG. 1, at the front of the machine.

The circuit for the solenoid includes a wire 148 which shunts wires 142 and 143 in the manner shown in FIG. 11. Thus, the circuit for the solenoid 100 includes the lead switch 145, and additionally switch 137 identified above, and a normally open timing switch 150, both of these switches being interposed in the shunt wire 148 as shown in FIG. 11.

The timing switch 150 is of the air dash-pot type as will be explained, and when this switch is closed, together with switch 137, a circuit is completed to the solenoid, assuming of course that the plug 141 is connected and the main toggle switch 145 closed.

The heater element 55, FIG. 11, is connected to wire 142 by a wire 152. Another wire 153 leads from the heater element, and is connected to a wire 156 which in turn is shunt connected across wires 142 and 143 in the manner shown in FIG. 11. A normally closed thermostat switch 158 is interposed in wire 156 between the connections thereof to wires 153 and 143, and this thermostat switch is responsive to the heater 55.

A red neon lamp 160 is mounted at the front of the machine as shown in FIG. 1. This lamp is in series with wire 142 between the connection of wires 152 and 156 thereto. A white neon lamp is similarly arranged in the machine in series with lamp 160. However, as shown in FIG. 11, this lamp is shorted by the normally closed thermostat switch 158. The heater element 55 has relatively low impedance compared to the lamps 160 and 161.

When a circuit is established upon closure of switch 145 as above noted, the red lamp lights, because full voltage (115 volts, 60 cycle) is established across the lamp 160. However, the white lamp remains out, being shorted through the normally closed thermostat switch 158 which remains closed until the heater 55 reaches a predetermined temperature, usually about 324° F.

When the thermostat switch opens as a result of the heater element 55 attaining the proper working temperature, the white lamp 161 is no longer shorted, and in fact it now conducts and lights up. Simultaneously, the red lamp goes out, since the voltage across it is now so small that it does not conduct, that is, does not illuminate. Thus, the operator is signalled that the platen is at proper working temperature.

The dash-pot timing switch 150 discussed above in connection with the wiring diagram in FIG. 22 is disposed within the housing 21. This switch includes the usual contacts arranged in the circuit for the solenoid 100 as shown in FIG. 11, and these contacts are disposed within a switch box 170, FIG. 5, which is supported by a switch mounting bracket 171 having a horizontal base plate 172 and a vertically extending flange 173, the latter being secured as by screws to the side wall 23 of the main housing 21 of the machine.

The horizontal plate 172 of the above described switch mounting bracket is formed with a pair of vertically extending lugs 175 and 176, and a switch operating lever 178 is pivoted intermediate its end on a pin 179 supported on and arranged between the bracket lugs 175 and 176. The free or left-hand end of the lever 178, as viewed in FIG. 5, is connected to the operating button 150B, FIG. 5, of the switch 150 that controls opening and closing of the contacts 150C, FIG. 11, associated therewith.

The switch operating lever 178 includes an extension 178A, FIG. 5, that extends in the direction of the side wall 23 of the main housing of the machine. The free end of this extension is connected to a manually operable plunger 180, FIGS. 4 and 5. The plunger 180 is part of a dashpot timer of the air type so as to include an air chamber 181, FIGS. 4, 5 and 11, and this plunger is normally spring biased to an upper released position wherein the upper end of the plunger 180 projects outward of the top plate 36 of the machine as shown in FIG. 4. Thus, a coil spring 182, FIG. 4, is under tension between the bracket 171 and a stop on the plunger 180.

When the plunger 180 is depressed, the contacts of the timing switch 150, FIG. 11, are closed on the related contacts of wire 148, but the dashpot permits only a timed, slow return of the plunger 180 to its released position whereat the timing switch contacts 150C are again opened. Consequently, it will be seen that once the plunger 180 is depressed manually, the associated switch 150 is slow to release, and during this interval the holding circuit for holding the solenoid 100 energized is established.

The dashpot timer is capable of adjustment for selection of the optimum interval in which the solenoid 100 is to be held energized. To this end, the dashpot chamber is provided with a needle valve or equivalent element 181V, FIG. 11, for regulating rapidity of the return stroke of the timing plunger 180. The left-hand side wall 22 of the machine 20 as viewed in FIG. 1 is provided with a removable cap 183, which, when removed, enables a screwdriver to be inserted therein to turn the screw associated with dashpot timing valve 181V.

In like manner, the thermostat switch 158 can be regulated for selecting an optimum operating temperature for the heater element 55 in the platen 50. To this end, the rear wall 26 of the machine, FIG. 4, is provided with a cap 184 that covers an access opening, such that when the cap 184 is removed a screwdriver can be inserted therein to engage and turn the screw 185, FIG. 4,

which adjusts the heat responsive element of the thermostat switch.

Operation

Shims as 132 above described will be selected of such number and thickness as to assure that the type characters of a printing plate or the like disposed in the plate support 32 will be in the proper effective facing plane when the plate support is moved into facing position, and that the platen die plate will exert just sufficient pressure to assure good contact of the facing material on the strip ST with the portion of such article to be faced. The aforesaid effective facing plane will be the plane that is coincident with the coated side of the strip ST when the die plate 51 of the platen 50 is in its lower actuated position.

The plug 141 is inserted into the usual wall socket, and the main switch button 145B is flipped to the "on" position. When these preliminaries have been completed, the red lamp 160 will light and will remain lit until the thermostat switch opens as an incident to the heater element 55 attaining the proper temperature. When such temperature is attained, the red lamp no longer conducts, but the white lamp does, and the latter is thereupon illuminated indicating to the operator that the platen is at the proper temperature.

Preliminary to each facing operation, the spool 40 or 41 as the case may be will be turned in the proper direction so as to expose a fresh area of the coated side of the strip ST beneath the die plate 51 of the platen. The die plate 51, in the retracted state of the platen, is spaced approximately one-eighth of an inch above the strip ST. Thereafter, the article to be faced is inserted into the guide associated with the plate support 32 and the plate support 32 is then moved into the recess 35 to dispose the article to be faced in facing position.

The plate support 32 is forcefully held by the operator, for example, with the left hand acting on the handle 108, against the tendency of the switch plunger 136 to hold the associated switch contacts 137 in their open position. Simultaneously, with a continuous holding force applied to the handle 108 by the operator, he then depresses the plunger 180 as by his right hand. This completes a circuit to the solenoid 100 as will be evident in FIG. 11. The plunger 180 need only be depressed momentarily, and the finger then removed, because the switch 150 performs its own timing.

When the solenoid 100 is energized in the foregoing manner, the platen 50 is moved rapidly down to its lower or actuated position to dispose the facing material on the strip ST in contact with the portion or portions of the plate P or the like disposed in an effective facing plane. The spools 40 and 41 are free wheeling, so to speak, and hence are free to permit the strip ST to be moved downward by the platen 50.

The operator continues to hold the plate support against the switch plunger 136 to hold the switch 137 closed, and in the meantime the dashpot timer is slowly releasing such that eventually switch 150 is opened, whereafter the solenoid 100 is de-energized and the springs associated with the platen effect return movement thereof to the upper or inoperative position of the platen.

During operation, the lamps 160 and 161 may alternately conduct, but once the white lamp 161 is on for the first time the machine may be operated continuously. After each cycle of operation, the facing strip ST is advanced by the operator to present a fresh coated area thereof beneath the platen die plate.

After each facing operation, the plate support 32 is swung out of the recess 35 to its loading position, the faced article is removed therefrom and a new article to be faced is inserted in the guide 115.

Hence, while I have illustrated and described a preferred embodiment of my invention, it is to be understood that this is capable of variation and modification, and I

therefore do not wish to be limited to the precise details set forth, but desire to avail myself of such changes and alterations as fall within the purview of the following claims.

I claim:

1. In a machine of the class described wherein an embossed printing plate or like article of predetermined color is to have a selected portion thereof provided with facing material of contrasting color transferred by heat thereto, a platen in the machine guided for reciprocal movement between a retracted and an actuated position and having electrical heating means associated therewith, means for reciprocating the platen including electromagnetic means and an associated core connected to the platen, guide means for locating a strip, coated on one side with heat off-settable facing material, within the path of movement of the platen to be engaged on the opposite side by the platen in its actuated position, a support for such an article and arranged in the machine for manual movement between a loading position whereat the article to be faced is to be mounted therein and a facing position whereat the article so mounted is disposed with said portion thereof in a plane coincident with the facing material on the strip in the actuated position of the platen, and means for establishing an energizing circuit for the electromagnetic means and including a normally open switch that is closed only when said support has been located accurately in facing position.

2. In a machine of the class described wherein an embossed printing plate or like article of predetermined color is to have a selected portion thereof provided with facing material of contrasting color transferred by heat thereto, a platen in the machine guided for reciprocal movement between a retracted and an actuated position and having electrical heating means associated therewith, spring means for normally holding the platen in its retracted position, means for moving the platen against the action of said spring means and including electromagnetic means and an associated core connected to the platen, guide means for locating a strip, coated on one side with heat off-settable facing material, within the path of movement of the platen to be engaged on the opposite side by the platen in its actuated position, a support for such an article and arranged in the machine for manual movement between a loading position whereat the article to be faced is to be mounted therein and a facing position whereat the article so mounted is disposed with said portion thereof in a plane coincident with the facing material on the strip in the actuated position of the platen, and means for establishing an energizing circuit for the electromagnetic means and including a normally open switch that is closed only when said support has been located accurately in facing position, and a timing switch effective to maintain said energizing circuit operative for a predetermined period.

3. In a machine of the class described wherein an embossed printing plate or like article of predetermined color is to have a selected portion thereof provided with facing material of contrasting color transferred by heat thereto, a housing having a recess extending inward from one side thereof, a platen guidably supported within the housing for vertical movement between an upper retracted position and a lower actuated position within the confines of said recess, said platen having electrical heating means associated therewith, spring means within the housing effective normally to maintain the platen in its retracted position, means for advancing the platen to its actuated position and including electromagnetic means and an associated core connected to the platen within said housing, guide means for locating a strip, coated on one side with heat off-settable facing material, within the path of movement of the platen in said recess to be engaged on the opposite side by the platen in its actuated position, a support for such an article and arranged in the machine for manual movement between a loading position outward of

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said recess whereat the article to be faced is to be mounted therein and a facing position within said recess whereat the article so mounted is disposed with said portion thereof in a plane coincident with the facing material on the strip in the actuated position of the platen, and means for establishing an energizing circuit for the electromagnetic means and including a normally open switch located in said recess to be closed only when said support has been located accurately in facing position.

4. In a machine of the class described wherein an embossed printing plate or like article of predetermined color is to have a selected portion thereof provided with facing material of contrasting color transferred by heat thereto, a housing having a recess extending inward of one side thereof, a platen guidably supported in said housing for reciprocal movement between an upper retracted position and a lower actuated position within the confines of said recess, said platen having electrical heating means associated therewith, means for reciprocating the platen including electromagnetic means and an associated core connected to the platen, means for energizing said electromagnetic means and for furnishing a current to said heating means, guide means for locating a strip, coated on one side with heat off-settable facing material, within the path of movement of the platen in said recess to be engaged on the opposite side by the platen in its actuated position, and a support for such an article and arranged in the machine for manual movement between a loading position outward of said recess whereat the article to be faced is to be mounted therein and a facing position within said recess whereat the article so mounted is disposed with said portion thereof in a plane coincident with the facing material on the strip in the actuated position of the platen.

5. In a machine of the class described wherein an embossed printing plate or like article of predetermined color is to have a selected portion thereof provided with facing material of contrasting color transferred by heat thereto, a housing having a recess extending inward of one side thereof, a platen guidably supported within the housing for vertical movement between an upper retracted position and a lower actuated position within the confines of said recess, said platen having electrical heating means associated therewith, spring means within the housing normally effective to maintain the platen in its retracted position, means for advancing the platen to its actuated position against the action of said spring means and including electromagnetic means and an associated core connected by a toggle linkage to the platen within said housing, guide means for locating a strip, coated on one side with heat off-settable facing material, within the path of movement of the platen in said recess to be engaged on the opposite side by the platen in its actuated position, a support for such an article and arranged in the machine for manual movement between a loading position outward of said recess whereat the article to be faced is to be mounted therein and a facing position within said recess whereat the article so mounted is disposed with said portion thereof in a plane coincident with the facing material on the strip in the actuated position of the platen, and means for establishing an energizing circuit for the electromagnetic means and including: a normally open spring-type switch located in said recess to be held closed by said support located accurately in facing position, and a normally open dash-pot timing switch disposed within said housing and having an operating button exposed on said housing in position to be manually actuated while simultaneously holding said support in its switch closing position.

6. A machine according to claim 5 wherein an indicator circuit including an indicator lamp is associated with the heating means, said indicator circuit including a thermostatting controlled switch effective at a predetermined temperature of the heating means to complete a circuit to said lamp.

7. In a machine of the class described wherein an em-

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bossed printing plate or like article of predetermined color is to be provided on a selected portion thereof with a facing of contrasting color transferred thereto, a reciprocal platen, means for moving the platen from a retracted position to a predetermined plane characterizing an actuated position therefor, means for returning the platen to its retracted position, guide means for locating a strip, coated on one side with facing material, within the path of movement of the platen so as to be engaged on the opposite side thereof by the platen in its actuated position, and a support for presenting the article to be faced to said strip, said support being pivotally mounted in the machine for swinging movement between an article-loading position whereat the article to be faced is to be mounted thereon and a facing position whereat said portion of the article so mounted is disposed in a facing plane coincident with said coated side of said strip in the actuated position of the platen, said support including: a base plate, an anvil on the base plate affording a planar support surface for the article to be faced, a template on the anvil and formed to include a guide slot complementary to a marginal portion of the article to be faced, and removable fasteners securing the anvil to the base plate to enable a shim to be located therebetween which will dispose the support surface of the anvil in a plane that will dispose said portion of the article in said facing plane when said support is moved into facing position.

8. In a machine of the class described wherein an embossed printing plate or like article of predetermined color is to be provided on a selected portion thereof with a facing of contrasting color transferred thereto, a reciprocal platen, means for moving the platen from a retracted position to a predetermined plane characterizing an actuated position therefor, means for returning the platen to its retracted position, guide means for locating a strip, coated on one side with facing material, within the path of movement of the platen so as to be engaged on the opposite side by the platen in its actuated position, and a support for presenting the article to be faced to said strip, said support being arranged in the machine for swinging movement between an article-loading position whereat the article to be faced is to be mounted thereon and a facing position whereat said portion of the article so mounted is disposed in a facing plane coincident with said coated side of said strip in the actuated position of the platen, said support including: a base plate pivotal on an axis at one side of said recess to enable the support to be swung as aforesaid, an anvil on the base plate affording a planar support surface for the article to be faced, means affording a guide complementary to a marginal portion of the article to be faced, and removable fasteners securing the anvil to the base plate to enable a shim to be located therebetween which will dispose the support surface of the anvil in a plane that will dispose said support of the article in said facing plane when said support is moved to facing position.

9. In a machine of the class described wherein an embossed printing plate or like article of predetermined color is to be provided on a selected portion thereof with a facing of contrasting color transferred by heat thereto, a housing having a recess extending inward of one side thereof, a reciprocal platen within said housing and having heating means associated therewith, means within said housing for moving the platen from a retracted position to a predetermined plane within the confines of said recess characterizing an actuated position therefor, means within said housing for returning the platen to its retracted position, guide means for locating a strip, coated on one side with heat off-settable facing material, within the path of movement of the platen so as to be engaged on the opposite side thereof by the platen in its actuated position, and a support for presenting the article to be faced to said strip, said support being arranged in the machine for swinging movement between an article-loading position outward of said recess whereat the article

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to be faced is to be mounted thereon and a facing position within said recess whereat said portion of the article so mounted is disposed in a facing plane coincident with said coated side of said strip in the actuated position of the platen, said support including: a base plate pivotally mounted on an axis at one side of the recess to enable the support to be swung as aforesaid, an anvil on the base plate affording a planar support surface for the article to be faced, a guide complementary to a marginal portion of the article to be faced, and removable fasteners securing the anvil to the base plate to enable a shim to be located therebetween which will dispose the support surface of the anvil in a plane that will dispose said portion of the article in said facing plane when said support is moved to facing position.

10. In a machine of the class described wherein an embossed printing plate or like article of predetermined color is to be provided on a selected portion thereof with a facing of contrasting color transferred by heat thereto, a housing having a recess extending inward of one side thereof, a reciprocal platen within said housing and having heating means associated therewith, means within said housing for moving the platen from a retracted position to a predetermined plane within the confines of said housing characterizing an actuated position therefor, means within said housing for returning the platen to its retracted position, guide means for locating a strip, coated on one side with heat off-settable facing material, within the path of movement of the platen so as to be engaged on one side thereof by the platen in its actuated position, and a support for presenting the article to be faced to said strip, said support being pivotally mounted in the machine on an axis at one side of said recess for swinging movement about said axis between an article-loading position outward of said recess whereat the article to be faced is to be mounted thereon and a facing position within said recess whereat said portion of the article so mounted is disposed in a facing plane coincident with the side of said strip opposite the side engaged by the platen in its actuated position.

11. In a machine of the class described wherein an embossed printing plate or like article of predetermined color is to be provided on a selected portion thereof with a facing of contrasting color transferred by heat thereto, a

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housing having a recess extending inward of one side thereof, a reciprocal platen within said housing and having electrical heating means associated therewith, electromagnetic means and an associated core connected to said platen within said housing and adapted when energized to move the platen from a retracted position to a predetermined plane within the confines of said recess characterizing an actuated position therefor, means within said housing for returning the platen to its retracted position when said electromagnetic means is de-energized, guide means for locating a strip, coated on one side with heat off-settable facing material, within the path of movement of the platen so as to be engaged on one side thereof by the platen in its actuated position, a support for presenting the article to be faced to said strip, said support being pivotally mounted in the machine on an axis on one side of said recess for swinging movement between an article-loading position outward of said recess whereat the article to be faced is to be mounted thereon and a facing position within said recess whereat the portion of the article so mounted is disposed in a facing plane coincident with said coated side of said strip when the platen is in its actuated position, and means for establishing an energizing circuit for said electromagnetic means and including a normally open switch that is closed only when said support has been accurately located in facing position.

12. A machine according to claim 11 wherein said switch is of the spring type requiring the support to be held thereagainst to maintain said switch closed, and wherein the energizing circuit for said electromagnetic means includes a timing switch.

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