Nov. 30, 1948. W. A. MADIGAN 2,455,075

PRINTING PLATE AND BASE MOUNT THEREFOR

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Fig. 1.

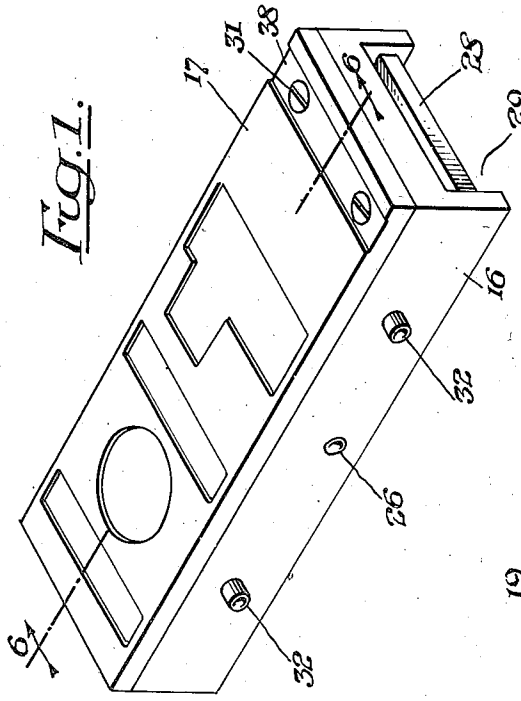


Fig. 3.

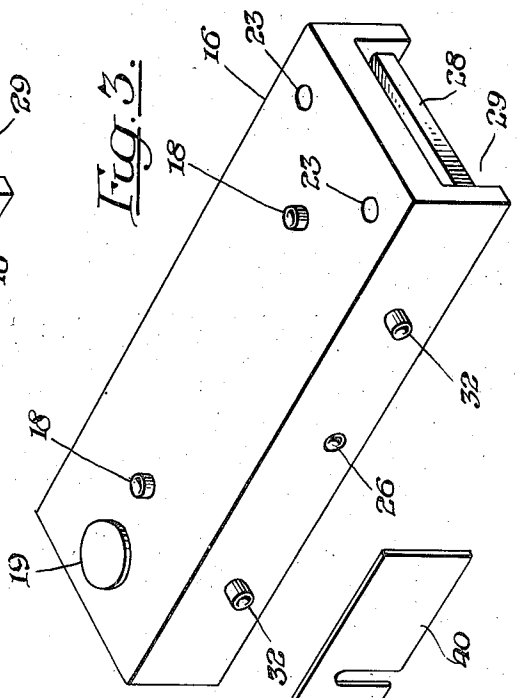


Fig. 2.

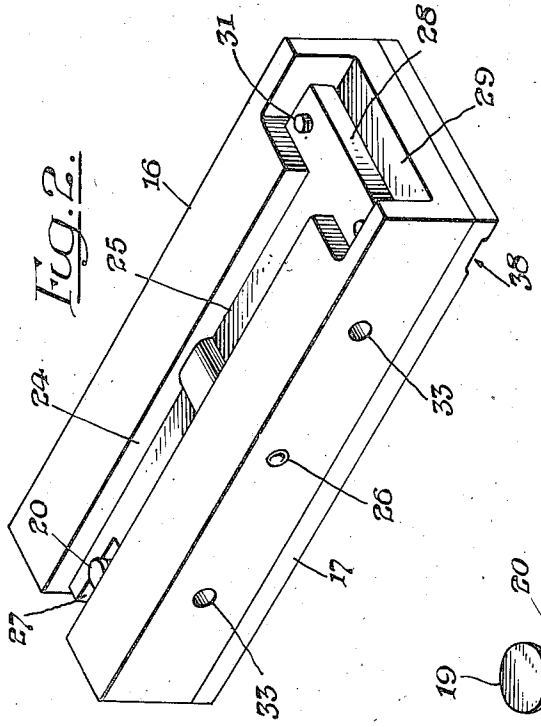


Fig. 5.

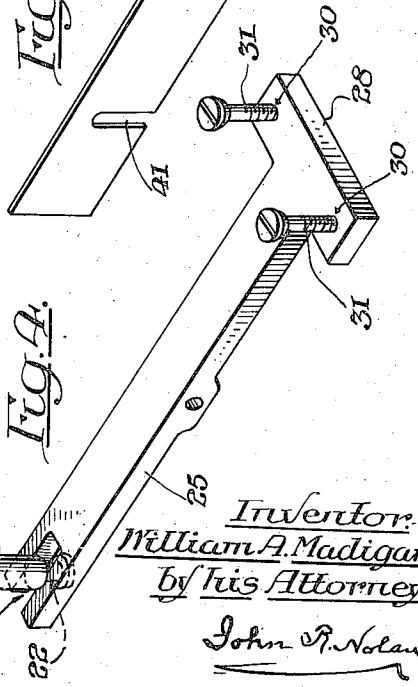
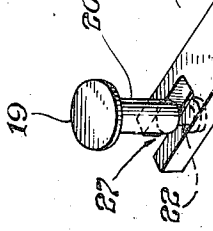


Fig. 4.



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Fig. 6.

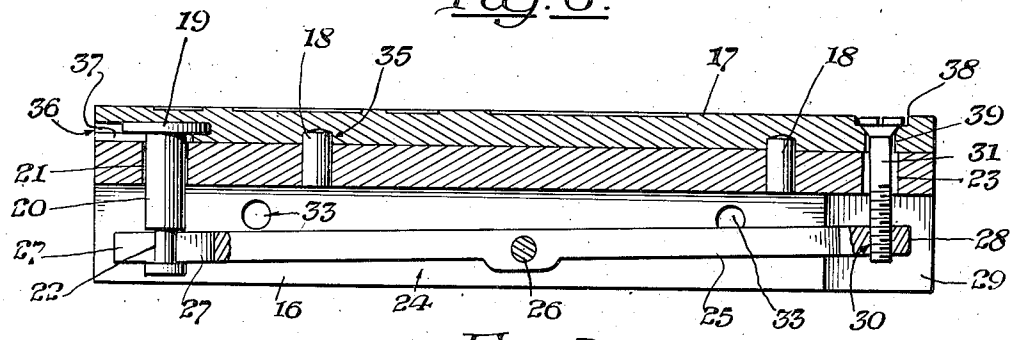


Fig. 7.

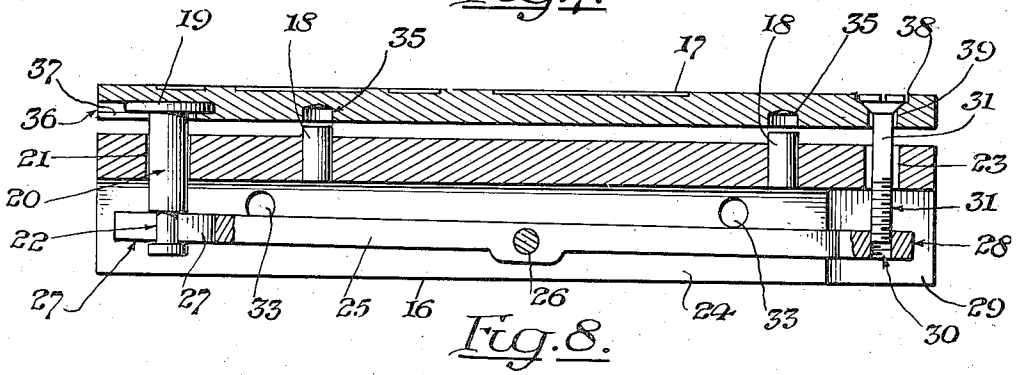
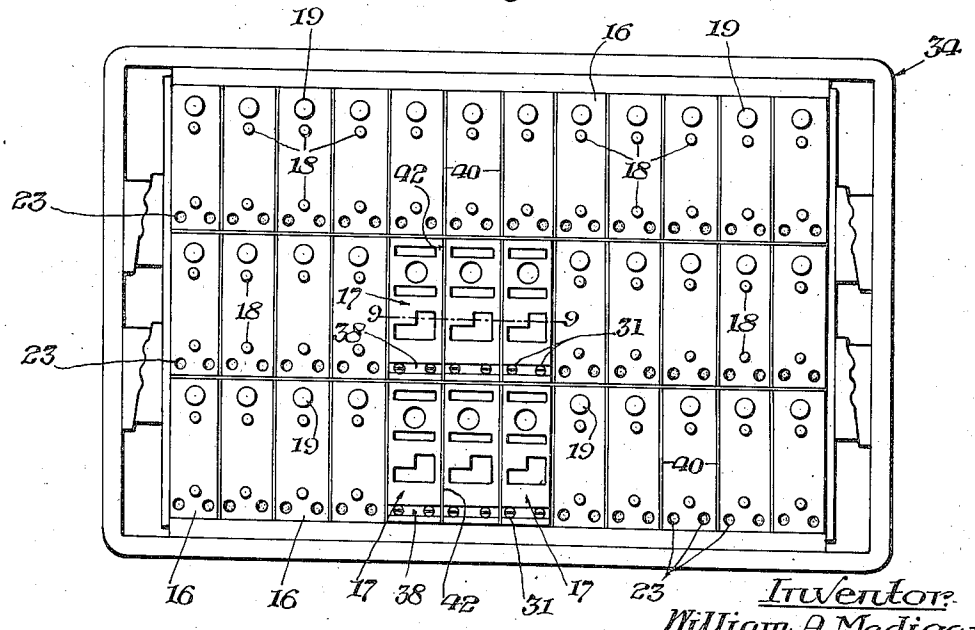


Fig. 8.



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Fig. 9.

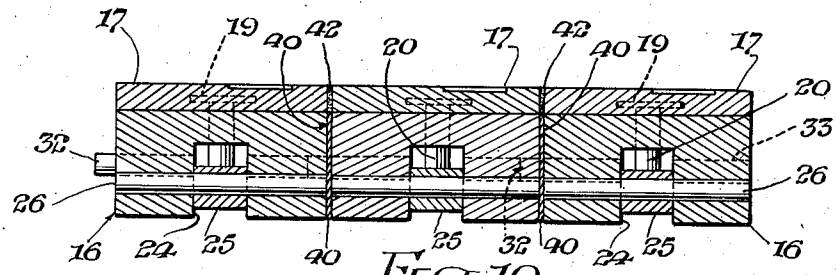


Fig. 10.

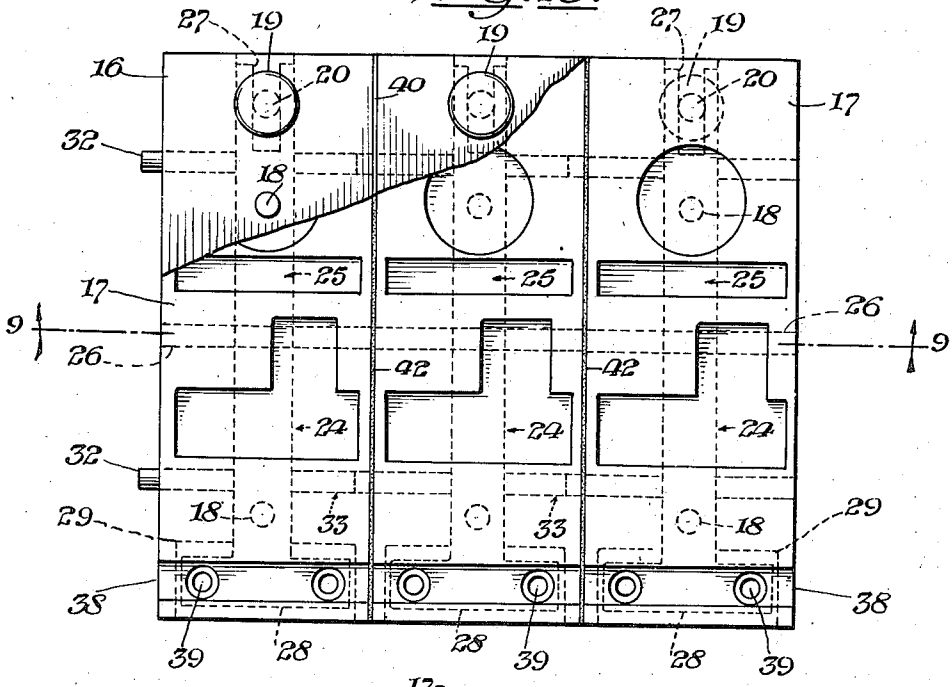


Fig. 11.

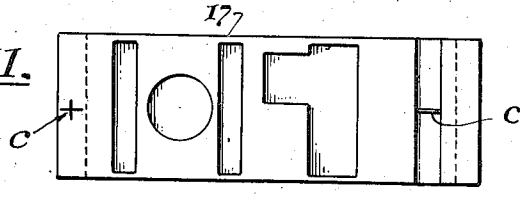
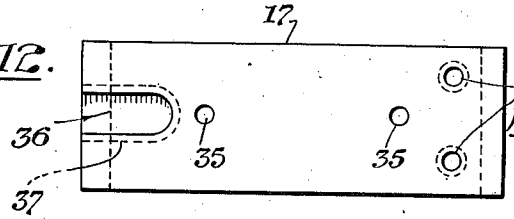


Fig. 12.



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Fig. 13.

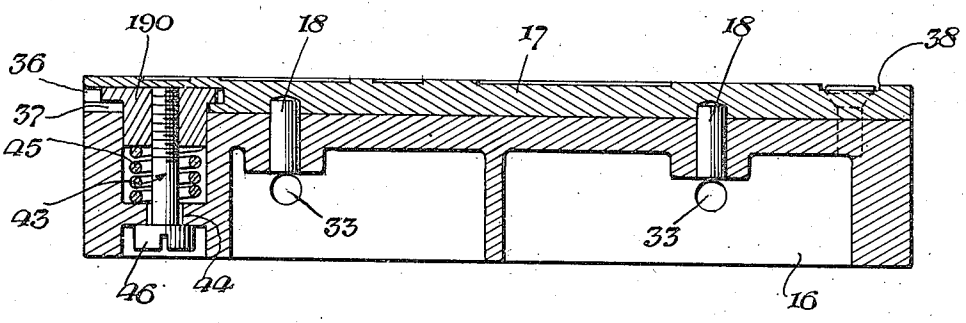


Fig. 14.

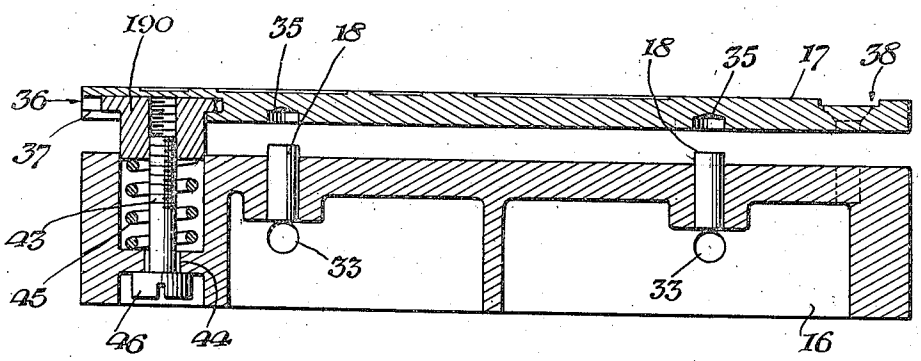
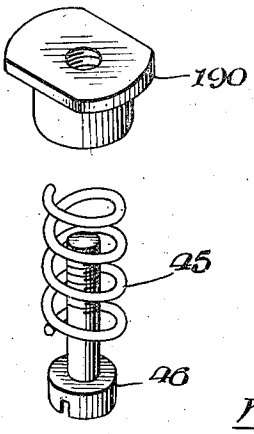


Fig 15.



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2,455,075

UNITED STATES PATENT OFFICE

2,455,075

PRINTING PLATE AND BASE MOUNT THEREFOR

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Application February 12, 1947, Serial No. 728,053

5 Claims. (Cl. 101—384)

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This invention relates to printing plates and base mounts therefor, having particular though not exclusive reference to electro-plates and mounts for use in multi-color printing.

The principal object of my invention is to provide printing plates and base mounts therefor having complementary positioning and locking means of simple and efficient construction whereby a plurality of individual mounts can be accurately assembled and "locked up" in close relation to each other within a press form, whereby the plates can be directly and interchangeably located with precision upon and firmly secured to the respective mounts, or any of them, with the edges of adjacent plates in proximity to each other and without recourse to precision adjusting instrumentalities for the plates, and whereby said plates can be severally released and removed with facility from the respective mounts within the form without affecting the relative positions of the assembled mounts or the remaining plates thereon.

With this object in view, and others which will presently appear, my invention comprises novel features of construction and combinations of parts, all of which will be hereinafter described, the scope of the invention being expressed in the appended claims.

In the drawings—

Figure 1 is a perspective view of an associated printing plate and base mount embodying my invention.

Fig. 2 is a similar view of the plate and mount as inverted.

Fig. 3 is a separate view of the base mount.

Fig. 4 is a perspective view of the plate clamping element as removed from the body of the mount.

Fig. 5 is a similar view of a form of shim for separating adjacent base mounts.

Fig. 6 is a longitudinal vertical section on the line 6—6 of Fig. 1.

Fig. 7 is a similar view showing the printing plate as elevated preparatory to its application to or its removal from the base mount.

Fig. 8 is a plan of a mount assembly "locked up" within a press form or chase, showing two groups of electro-plates as applied to adjacent base mounts.

Fig. 9 is a section through one of the groups of plates and their complementary mountings, as on the lines 9—9 of Figs. 8 and 10, showing the adjacent edges of adjoining plates soldered together.

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Fig. 10 is a plan of one of the groups, parts of the printing plates being broken away.

Fig. 11 is a plan of one of the plates as prepared by the electrotyper.

Fig. 12 is a bottom view of said plate after it has been drilled and milled before the trimming operation.

Fig. 13 is a longitudinal vertical section of a modified form of the clamping means for the printing plate and base mount.

Fig. 14 is a similar view of the modified construction showing the printing plate as elevated preparatory to its application to or its removal from the base mount.

Fig. 15 is a separate view of the modified clamping element.

Referring to the drawings, 16 designates a base mount and 17 a printing plate thereon, such, for example, as an electro-plate. The base mount comprises a body of suitable form having a flat upper surface provided with spaced upstanding studs or projections 18 located at definite points in relation to the design or other matter on the printing surface of the superposed plate. At one end of the upper surface of the body of the base mount is located a clamping head 19 conveniently formed on a depending stem 20 which is slidably fitted in a suitably located hole 21 in the body and is provided adjacent its lower end with a peripheral groove 22. At the opposite end of the body are suitably-located screw-receiving holes 23. In the under surface of the body is a longitudinally extending channel 24 within which, throughout the length of the channel, is movably fitted a rock lever 25 comprising a bar supported at or about its midsection by a transverse pivot pin 26 extending through the walls of the channel. The end of the lever 25 beneath the clamping head is bifurcated, as at 27, so as freely to embrace the lower grooved portion 22 of the stem, and the opposite end of the bar is expanded to afford a foot portion 28 which is loosely fitted within a suitable recess 29 constituting lateral extensions of the channel. The foot of the rock lever has therein tapped holes 30 located in axial alignment with the screw receiving holes 23 of the body of the base mount, and hence by properly manipulating suitable screws 31 fitted in the complementary holes of the body and the rock lever, the lever can be actuated to raise or lower, as desired, the stem and its clamping head, as will presently appear.

One of the longitudinal sides of the body of the base mount is provided with spaced parallel pins or projections 32, and the other side is pro-

vided with similarly spaced sockets **33** corresponding in number and diameter with the pins, whereby when a plurality of the mounts are arranged side by side in a press form **34** (Fig. 8) the projections **32** of one mount are slidably fitted within the sockets **33** in the adjacent side of the adjoining mount, thereby maintaining the assembled base mounts in fixed accurate relation to each other when the form is "locked up."

The electro-plate **17** corresponds in length and width with the dimensions of the upper surface of the complementary body of the base, and therefore when the plate is imposed on such body the edges of the plate are flush with the sides and ends of the body. The back or under surface of the plate has formed therein sockets **35** corresponding in number and diameter with the projections **18** of the body of the base mount, which sockets are located at definite points in relation to the design or other printing matter of the plate, so that when the plate is imposed on the mount the projections **18** of the latter mate with the sockets of the plate, thereby insuring the accurate positioning of the plate on the mount.

The end of the plate adjacent the clamping head **19** has formed in its under surface a longitudinally extending recess **36** having under-cut walls **37** which, when the clamping head has been elevated by manipulation of the screws **31** (as seen in Fig. 7) slidably receive such head until the sockets **35** of the plate, by its longitudinal movement, are in axial alignment with the upstanding projections **18** of the base mount; it being noted that the head **19** is of sufficient size to support the raised printing plate in parallelism, or substantially so, with the upper surface of the body of the mount. This done, the screws **31** are manipulated to actuate the rock lever **25** and retract the head **19**, thus clamping the plate firmly upon the top of the base, with the positioning projections **18** of the latter in locking engagement with the sockets **35** of the plate.

As shown in Fig. 12 the positioning sockets **35** and the locking recess **36** are formed in the bottom of the printing plate in spaced relation to each other and are located on a median line extending longitudinally of the plate as prepared by the electrotyper.

A dead space, as at **38**, at the end of the plate remote from the clamping head has formed therein holes **39** which register with the holes **23** of the base and receive the screws **31**, which screws thus not only additionally secure the plate to the base in order to relieve undue strain on the locking clamp, but they also facilitate the plate mounting operation.

In carrying out my invention in a simple and efficient manner, an electro-plate, for example, as prepared by the electrotyper and bearing the usual registering marks (c) at the respective ends of its upper surface (Fig. 11) is precisely adjusted and secured within a drilling jig having at its respective ends suitably located transparent portions bearing registering marks corresponding in number and relation with those of the plate. This done, the described positioning sockets **35** are drilled in the under side of the plate at predetermined points in relation to, but not through, the printing surface of the plate. At the same time the screw holes **39** can be drilled in the plate (see Fig. 12). The electro-plate is then removed from the jig and the milling of the under-cut recess **36** in one end of the under side of the plate is effected. Thereupon the plate is trimmed at its ends to the desired length for application to the upper surface of the body of the base, as previously described.

From the foregoing it will be seen that when a plurality of identical base mounts are properly assembled and "locked up" in the press form **34**, as seen in Fig. 8, a permanent location of the respective mounts of the assembly is established.

It will also be seen that the construction and arrangement of the plate positioning and clamping construction requires no spaces between the edges of the adjoining plates when they are mounted in the form, and occupies no space on the upper or printing surfaces of the plates. However, if occasion require, exact variation of spacing between adjacent individual base mounts in the press form can be effected by the insertion of metal shims **40** between the adjoining mounts. As shown in Figs. 5, 9 and 10, each of the shims conforms in height and length to the dimensions of a base mount and has suitably located slots or notches **41** to enable the shim to clear the opposing laterally projecting studs **32** of the base mount.

It will also be seen that the printing plates can be accurately positioned and clamped singly or in groups upon the base mounts locked up in the press form, and that any desired number of the plates can be readily unclamped, raised and removed from their respective mounts without affecting the relative positions of the assembled mounts or the remaining printing plates of the composition.

In order to insure precise spacing and positive register of printing plates for single or multiple "bleed-off" design when grouped more than one design to the plate, the abutting edges of the mounted plates are soldered together, as indicated at **42** (Figs. 9 and 10), in which case the integral multiple plate thus produced can be readily removed from the respective supporting base mounts therefor, thus constituting a pattern from which additional identical groups of plates for use in printing can be prepared in accordance with standard procedure.

The invention hereinbefore described provides for use in multi-color work, printing plates and base mounts whereby proper pre-register of the plates can be effected with facility; whereby positive pre-location of the printing plates in the press form can be insured without recourse to "key forms"; whereby substantial reduction of "make ready" requirement in preparation of press forms and in printing operation, is attained; whereby quick change of all or any part of the composition in the press form can be accomplished, and whereby the preparation of printing plates for single or multiple "bleed-off" design when grouped more than one design to a plate, is facilitated.

In Figs. 13, 14 and 15 is shown a modified form of printing plate clamping means comprising a T-nut **190** which is slidably guided in the upper portion of a vertical opening in the body of the mount. The nut is threaded on the upper end of a vertical screw **43** which extends through and is guided in a reduced lower portion **44** of the opening, such screw and nut being urged upward by means of a spring **45** seated within the opening between the nut and the shoulder at the reduced portion of the opening. The shoulder is located a suitable distance above the bottom of the body of the mount so that the underlying portion of the opening receives the head **46** of the screw **43**, which head is normally held in yielding contact with the under side of the shoulder and is manipulative from the bottom of the

mount. Hence by turning the screw head in one direction the nut is bodily raised by the action of the screw and the spring, and thereafter by reversely turning the screw the nut is retracted against the force of the spring. In this case the screws 43 simply secure to the base the end of the plate remote from the clamping member 190.

I claim:

1. A printing plate having in its under surface spaced sockets located at predetermined positions in relation to the printing matter on the upper surface of the plate and having also in its under surface at one end of the plate a guide and clamp recess, in combination with a base mount for said plate comprising a body having upstanding projections located in mating relation to said sockets, and clamping means supported by said body, said means including a vertically movable clamping member located at the top of said body and slidably received by the end recess of said printing plate, said recess and clamping means being so constructed and arranged that by actuation of the latter the plate can be raised or lowered in respect to the upper surface of the body of the mount.

2. A printing plate having in its under surface spaced sockets located at predetermined positions in relation to the printing matter on the upper surface of the plate and having also in its under surface at one end of the plate a guide and clamp recess, in combination with a base mount for said plate comprising a body having upstanding projections located in mating relation to said sockets, and clamping means supported by said body, said means comprising a vertically-movable stem supported by the base mount, a clamping head on the upper end of the stem and slidably received by the recess of the plate, and means for actuating said stem, said recess and clamping means being so constructed and arranged that by actuation of the stem the plate can be raised or lowered in respect to the upper surface of the body of the mount.

3. A printing plate having in its under surface spaced sockets located at predetermined positions in relation to the printing matter on the upper surface of the plate and having also in its under surface at one end of the plate a guide and clamp recess, in combination with a base mount for said plate comprising a body having upstanding projections located in mating relation to said sockets and having in its under side a longitudinal channel, and clamping means supported by said body, said means comprising a vertically movable stem guided in said body, a clamping head on the upper end of the stem and slidably received by the recess of the plate, a rock lever movably fitted in and extending longitudinally of said channel, one end of said lever operatively connected to the lower portion of the stem, and means for actuating the opposite end of the said lever to effect the clamping of the proximate portion of the plate to said body by the clamping head, said recess and clamping head being so constructed and arranged that by manipulation of the lever actuating means the plate can be raised or lowered in respect to the upper surface of the body of the mount.

4. A printing plate having in its under surface spaced sockets located at predetermined positions in relation to the printing matter on the upper surface of the plate and having also in its under surface at one end of the plate a guide and clamp recess, in combination with a base mount for said plate comprising a body having upstanding projections located in mating relation to said sockets, and clamping means supported by said body, said means comprising a vertically-movable stem supported by the base mount, a clamping member threaded on the upper end of the stem and slidable in the recess of the plate, said recess and clamping means being so constructed and arranged that by actuation of the latter the plate can be raised or lowered in respect to the upper surface of the body of the mount.

5. A plurality of identical base mounts for multi-color printing plates, said base mounts being assembled in close relation to each other and each of said plates corresponding in length and width with the dimensions of the upper surface of a mount and also having in its under surface a guide and clamp portion, mating means for each base mount and its associated plate for correctly positioning the plate on the mount, clamping and releasing means for each individual mount and its associated plate, said latter means including a vertically-movable element having a clamping member engageable with said guide and clamp portion of the plate, and means for manipulating said element to unclamp the plate and elevate it above the base mount or to lower the plate and clamp it to said mount, as desired, whereby the assembled plates can be severally released and removed from their respective mounts without affecting the relative positions of the assembled mounts or the remaining plates thereon.

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