

March 22, 1938.

C. E. KOHLBERGER

2,111,914

REGISTERING DEVICE FOR USE IN MAKING PRINTING PLATES

Filed May 3, 1935

3 Sheets-Sheet 1

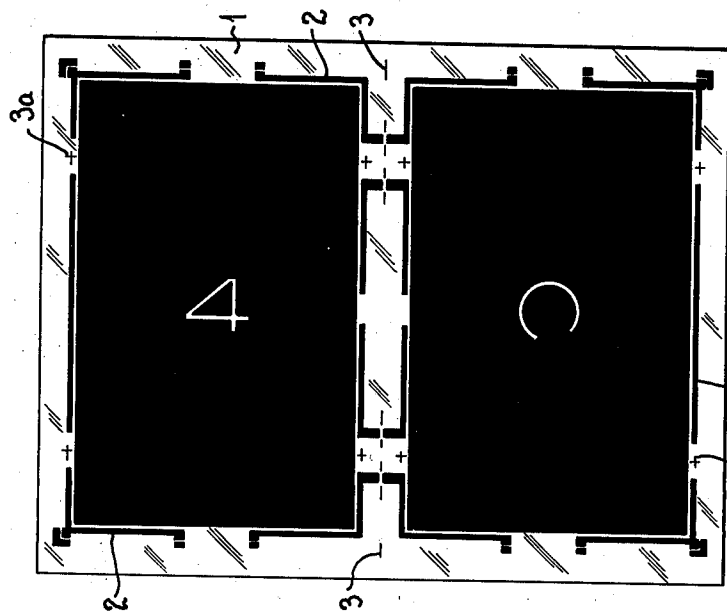


Fig. 3.

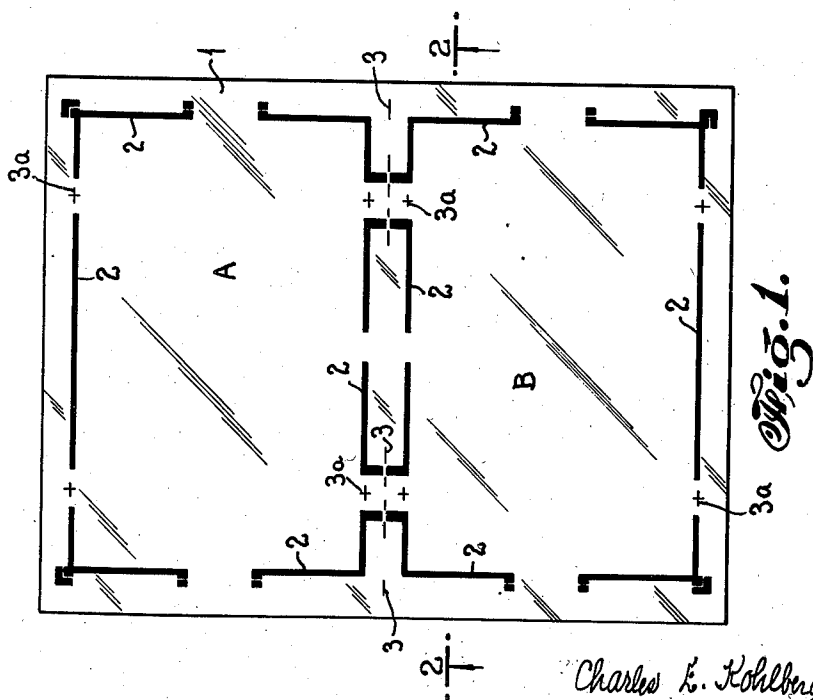


Fig. 1.

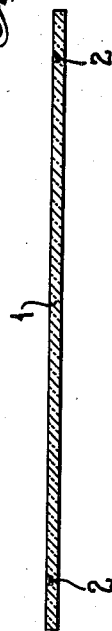


Fig. 2.

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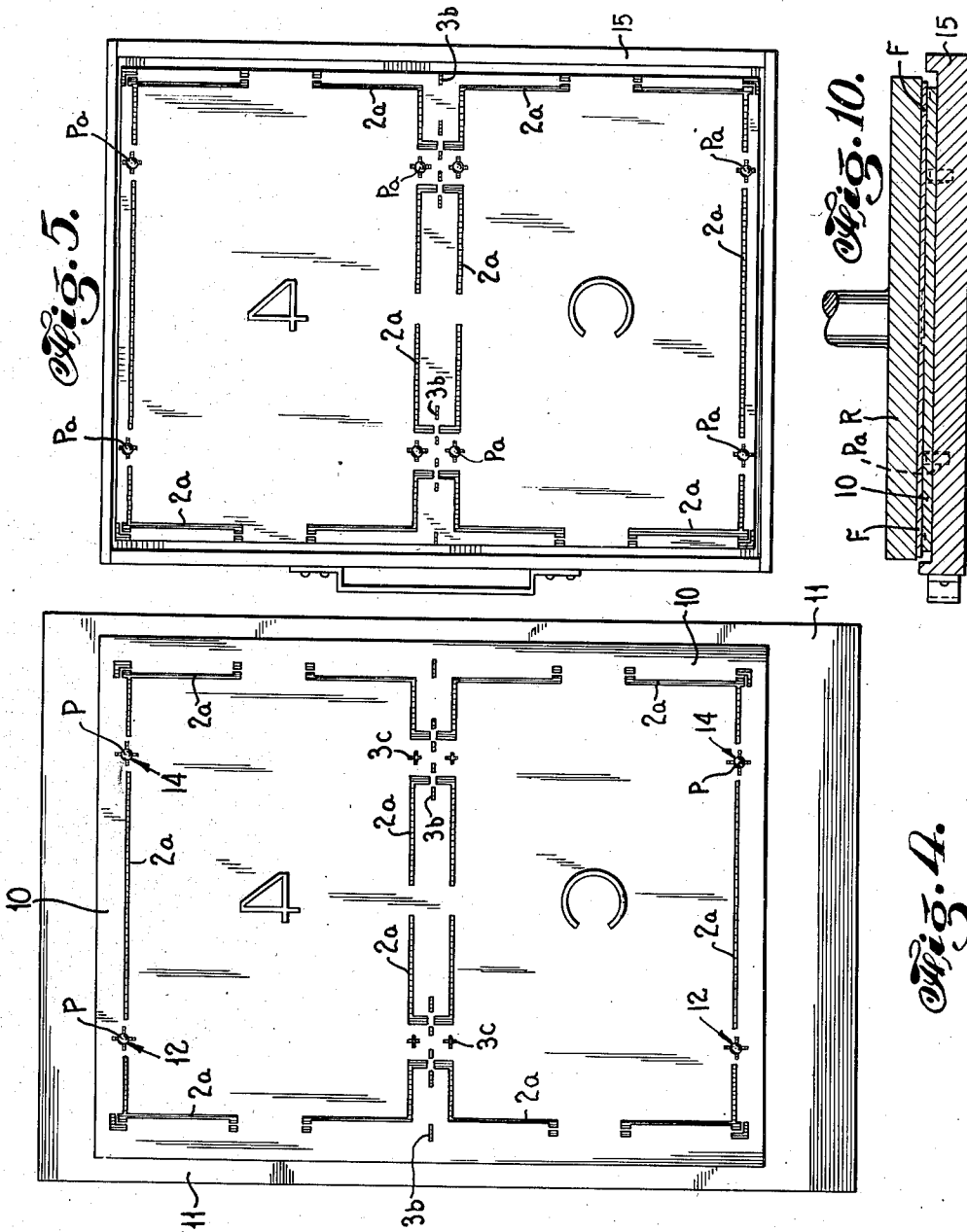
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

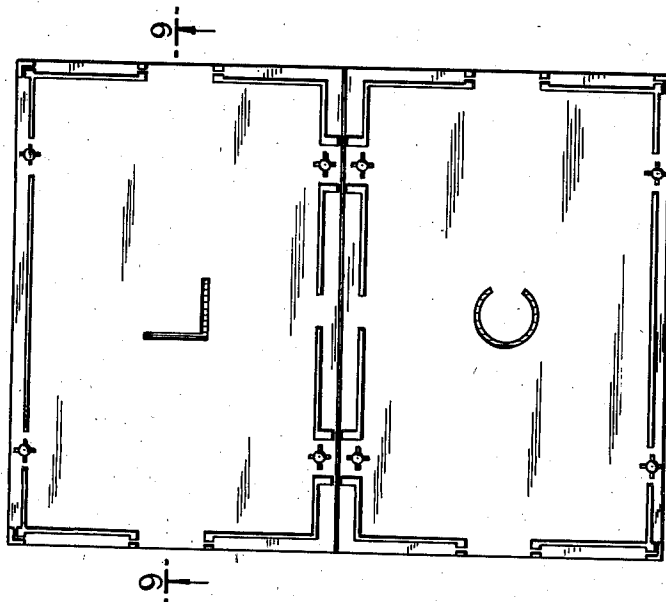


Fig. 8.

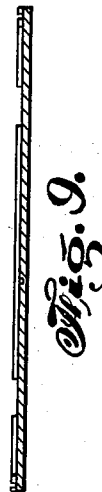
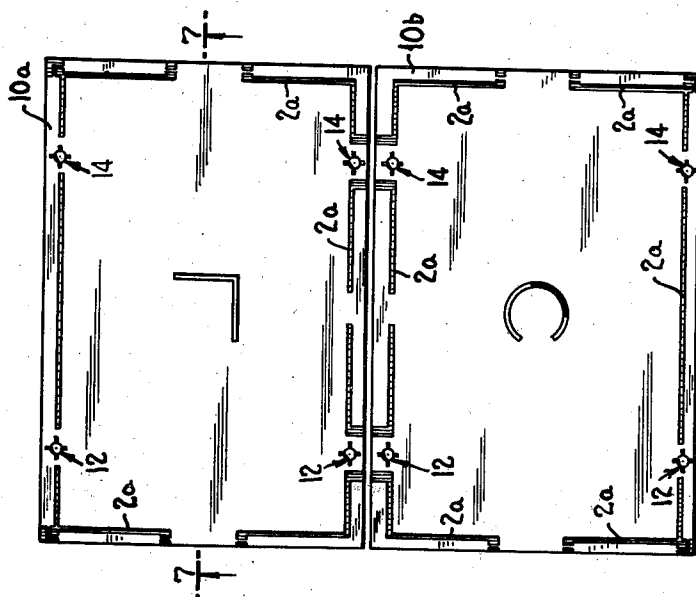


Fig. 9.



20.6.6.

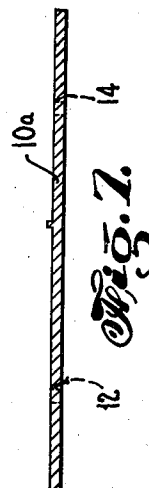


Fig. 7.

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UNITED STATES PATENT OFFICE

2,111,914

REGISTERING DEVICE FOR USE IN MAK-
ING PRINTING PLATES

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signor to Hearst Enterprises Incorporated,
New York, N. Y., a corporation of New York

Application May 3, 1935, Serial No. 19,661

2 Claims. (Cl. 101—401.1)

My invention relates to a new and improved
registering device for use in making printing
plates, and to a new and improved method for
securing proper registration, in the preparation
of printing plates.

One of the objects of my invention is to pro-
vide a universal device which can be rapidly and
accurately used in the preparation of stereotype
printing plates and electrotpe printing plates,
for use in printing newspapers, books and the like.

Another object of my invention is to provide a
device and a method whereby the preparation of
proofs will be facilitated.

Another object of my invention is to provide a
method and a device whereby proof-plates which
illustrate different subjects can be properly as-
sembled in proper registration, in order to make
a single metal stereotype plate or the like which
shall correspond to said proof-plates. Said metal
plate may be a stereotype plate or an electrotpe
plate, or a gravure or rotogravure plate.

Another object of my invention is to provide
printing plates for multi-color printing, whereby
the various plates can be brought into exact
registration for each color, and in every set.

Other objects of my invention will be set forth
in the following description and drawings which
illustrate preferred embodiments thereof, it being
understood that the above statements of the
objects of my invention are intended to generally
explain the same without limiting it in any
manner.

Fig. 1 is a top plan view of a plate which is
made of transparent glass, or other suitable trans-
parent and preferably rigid material, said plate
having certain black markings formed thereon.

Fig. 2 is a sectional view on the line 2—2 of
Fig. 1.

Fig. 3 is a top plan view of the plate shown in
Fig. 1, after said plate has been assembled with
one or more photographic negatives, said nega-
tives having been made on light-permeable ma-
terial such as celluloid or the like.

Fig. 4 shows a metal plate which has been
made with the use of the device illustrated in
Fig. 3. Said metal plate is illustrated as being
located upon the bed-plate of a proof-press.

Fig. 5 illustrates the plate shown in Fig. 4,
after said plate has been trimmed. Said trimmed
plate is illustrated as being located in the pan
which is used for making a negative impression
of said plate, in a mat made of flong or the like.
Since the plate shown in Fig. 5 is a negative, the
negative impression made from said plate is a
positive.

Fig. 6 illustrates how a plurality of metal plates,
which illustrate different subjects and which may
have been made at different places, can be located
in proper registration.

Fig. 7 is a sectional view on the line 7—7 of
Fig. 6.

Fig. 8 is a top plan view of a mat which has
been prepared by the use of the apparatus illus-
trated in Fig. 10.

Fig. 9 is a sectional view on the line 9—9 of
Fig. 8.

Fig. 10 is a sectional view illustrating how a
mat is prepared with the use of a pan which has
been modified according to my invention.

Heretofore, and in preparing printing plates,
and more particularly stereotype printing plates,
it has been common practice to make a photo-
graphic negative of the matter to be reproduced,
and said negative was made on light-permeable
material. Said negative was placed upon a sheet
of rigid and transparent plate glass. Light was
passed through said negative and through the
glass, and the transmitted light was allowed to
fall upon the light-sensitive surface of a metal
plate. The metal plate was then developed and
etched, thus producing a proof-plate, upon a flat
sheet of metal.

Two or more of these proof-plates were then
used for making a proof upon a single sheet of
Celluloid or other light-permeable material, and
in performing this operation, it was necessary to
adjust the two metal proof plates, so that their
proofs upon the single sheet of Celluloid were in
proper registration. One of the metal proof-
plates was then riveted or otherwise connected to
a relatively large metal base plate. The other
proof-plate or proof-plates were then placed on
top of the metal base plate.

The proof of the Celluloid was placed above
these metal proof-plates, and the loose metal
proof-plates were then adjusted until they were
in proper registration with the fixed metal base-
plate. The loose metal proof-plates were then
riveted or otherwise connected to the large metal
base-plate. After the various proof-plates had
thus been properly assembled and riveted to a
large metal base-plate, the metal base-plate was
placed in a pan and a mat was made in the usual
manner from the metal proof-plates.

All these operations required considerable
time and great accuracy and this was particu-
larly disadvantageous for newspaper work.

As shown in Fig. 1, I provide a sheet of rigid
plate glass 1, which is transparent. This sheet
1 has lines 2 and markings 3 and 3a etched

therein, and these etched lines and markings are then filled with opaque material, such as a suitable black composition or the like. The lines 2 are arranged so as to define panels A and B, which correspond to the respective plates which art to be made.

In Fig. 1 I have illustrated two such panels, but the sheet of glass could have any desired number of such panels.

10 Photographic negatives of the subjects to be reproduced are now prepared and located in the panels A and B. This is illustrated in Fig. 3, which conventionally illustrates one subject by the reference numeral "4", and another subject 15 by the reference letter "C." The negatives "4" and "C" are prepared upon Celluloid or other light-permeable material. If desired the panel A could contain negatives corresponding to two or more subjects, and this could also be done with 20 the panel B.

The photographic negatives "4" and "C" are squeezed into position so that they remain planar and they adhere firmly to the top of the plate glass 1. The device shown in Fig. 3 is now 25 placed on top of a sheet of metal, having a light-sensitive surface of the well known type. This light-sensitive surface is exposed by means of transmitted light which is sent through the assembly illustrated in Fig. 3.

30 The exposed metal plate is then developed and etched in the usual manner.

As shown in Fig. 4, this results in a metal plate 10, having raised portions at "4" and at "C" and having depressed lines 2a, and also having recessed or depressed markings 3b and 3c. The depressed lines 2a in the metal plate 10 correspond to the opaque lines 2 of Fig. 1, and the depressed markings 3b and 3c of the metal plate 10 correspond to the opaque markings 3 and 3a 40 which are shown in Fig. 1.

As shown in Fig. 4, the metal plate 10 is located upon the bed plate 11 of a proof-press. For this purpose holes may be formed in the metal plate 10 at the points 12 and 14, which correspond to some of the markings 3a which are illustrated in Fig. 1. Said holes may be formed at any number of desired points of the metal plate 10, which correspond to the points 3a of Fig. 1.

The bed plate 11 is provided with upstanding 50 pins P which enter the openings formed at said points 12 and 14. The number and the position of the registering holes which are formed in the metal plate 10, depend upon the number and position of the pins P in the bed plate 11. These 55 pins P can be integral with the bed plate 11, or they may removably enter suitable sockets in the bed plate 11.

The proof press which has the bed plate 11, can be used for making a paper proof of the subjects in order to determine whether the metal plate 10 has been prepared properly.

After a proof has been pulled, the metal plate 10 is trimmed, as illustrated in Fig. 5, and said metal plate 10 is then placed within the usual 65 pan 15. Said pan 15 is provided with pins Pa, which enter the perforations which have been formed at the points 12 and 14 of the metal plate 10. The pan 15 may have any desired number of said pins Pa, corresponding to some or to all 70 of the points 3a which are shown in Fig. 1.

The depressions 3b in the plate 10, indicate the center line thereof, in case it is desired to cut said plate along its center line. After the metal plate 10 has thus been properly located within the pan 75 15, a sheet of flong F is placed upon the top sur-

face of said metal plate 10 in the usual manner. This sheet of flong is then subjected to pressure by the ram R of the usual hydraulic press, so that a single mat can be made which corresponds to a plurality of subjects.

As previously stated, this flong can correspond to two or more different subjects.

The lower part of Fig. 6 illustrates the lower portion of the plate which is shown in Fig. 5. That is, Fig. 6 illustrates the assembly of metal proof-plates, which may have been made at different times and in different localities.

It may be assumed that the plate which corresponds to the subject "L" which is shown in the upper part of Fig. 6 has been made at a place 15 which is different from the place of manufacture of the plate which corresponds to the subject "C" in Fig. 6. The plate corresponding to subject "L" has the same dimensions as the plate corresponding to subject "C", and the plate corresponding to subject "L" has been made by the method previously specified. These plates are indicated by the reference letters 10a and 10b.

The separate plates illustrated in Fig. 6 are provided with perforations at the points 12 and 14, and by means of these perforations and the pins Pa which have been previously mentioned, the plates illustrated in Fig. 6 can be automatically and accurately assembled in a pan.

Fig. 8 illustrates a single mat which has been 30 made with the use of the two plates illustrated in Fig. 6. The mat which is illustrated in Fig. 8 can be used in the ordinary stereotype casting machine, in order to prepare a stereotype plate which corresponds to the subjects "C" and "L", 35 which are illustrated in Fig. 6.

The invention is particularly useful in multi-color printing, since the series of plates which are required for multi-color printing can be registered with great accuracy, in making the necessary mat. 40

I do not wish to be limited to the use of panel-defining and guide depressions in the metal plate, as I can use panel-defining or guide means of any suitable type. Said panel-defining or guide 45 means may be in relief or they may consist of surface markings.

I have shown the use of negatives for photographically printing upon the light-sensitive surface of a metal plate and simultaneously photographically printing guide indicia upon said light-sensitive surface. If however, the photographic printing of a positive is desirable for any purpose, I wish to include the use of a positive, as well as the use of a negative. 55

Whenever I refer to a transparent member 1, I wish to include the use of any suitable light-permeable material, as absolute transparency may not be necessary under certain circumstances. 60

It is not necessary in all cases, that the panels A and B should have the same dimensions and the same area, although this is preferable.

I have shown preferred embodiments of my invention, but it is clear that numerous changes 65 and omissions can be made without departing from its spirit.

I claim:

1. A method of making a stereotype plate which consists in mounting a plurality of light-permeable negatives on a rigid transparent support having opaque markings which define separated areas of said support, said negatives being mounted in said areas and fitting substantially in said areas, said support also having additional 75

markings between the adjacent edges of said areas so that said mounted negatives are spaced from said additional markings, photographically printing the assembled negatives and the opaque
 5 markings of said support by transmitted light on the sensitized surface of a metal plate, developing and etching said metal plate, trimming the metal plate at its edges along lines which are substantially parallel to the edges of said areas
 10 and which are defined by the representations of said markings on the metal plate, forming perforations in said metal plate corresponding to at least some of the photographs of said markings on the metal plate and spaced from the representations of said negatives on said metal plate,
 15 said perforations being formed substantially at the edges of said areas, locating said perforated metal plate in a pan which has pins fixed thereto and which have pins which enter said openings, and pressing a duplicate of the etched surface of
 20 said metal plate in fiong, and using the fiong to cast a stereotype plate.

2. In the art of making a stereotype plate which corresponds to a plurality of subjects, those
 25 steps which consist in mounting light-permeable negatives of said subject on transparent rigid

mounts which have opaque markings which define respective areas on said mounts, the negatives being respectively located in said areas and fitting substantially therein, the respective areas
 5 on said mounts being identical, each said mount also having additional markings which are spaced from the edges of said areas and which are located identically relative to the edges of the respective areas, photographically printing the assembled negatives and their respective mounts
 10 on the surfaces of sensitized metal plates, developing and etching said metal plates, trimming said metal plates along lines which are defined by the representations of said markings on said metal plates, said lines being spaced from the
 15 edges of the respective areas, perforating said metal plates at points corresponding to some of said additional markings, assembling said perforated metal plates in a pan which has pins fixed thereto and which enter the openings of the
 20 respective plates, and pressing a duplicate of the etched surfaces of said assembled metal plates in fiong, and using the fiong to cast a stereotype plate.

CHARLES E. KOHLBERGER. 25