March 9, 1937. H. A. W. WOOD 2,073,040

REGISTRATION OF PRINTING PLATES

Original Filed March 3, 1932 3 Sheets-Sheet 1

Fig. 1.

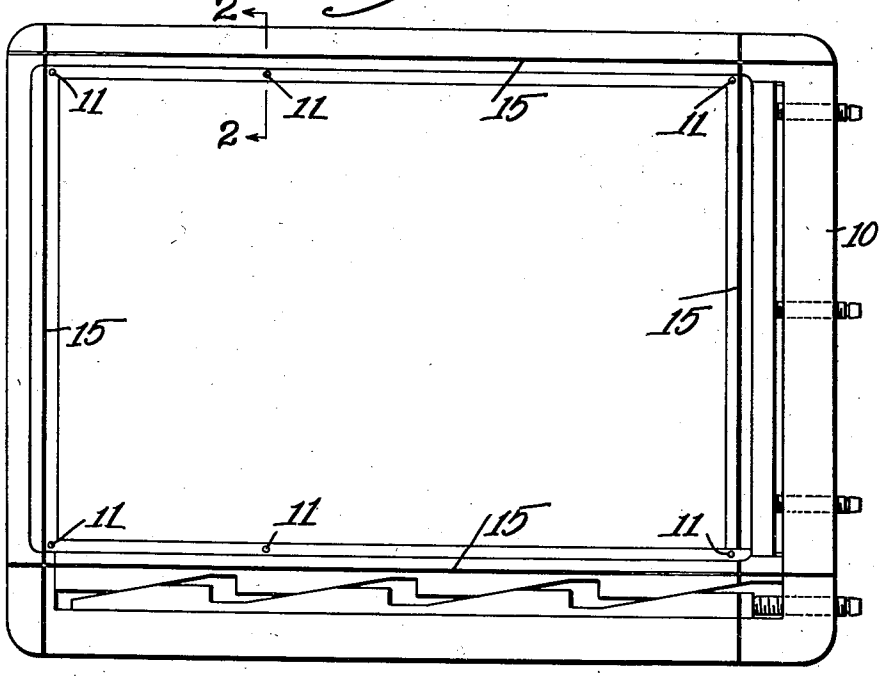


Fig. 5

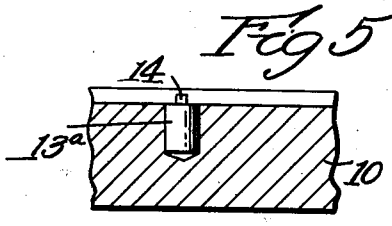


Fig. 2

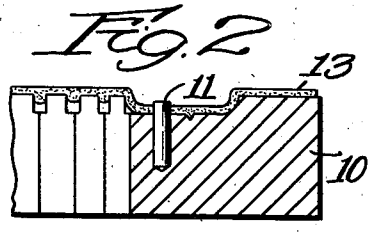


Fig. 4

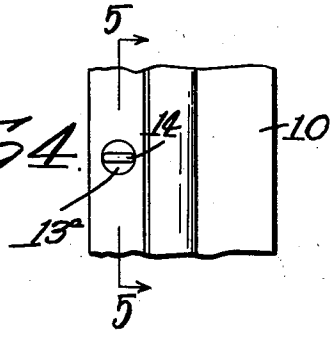
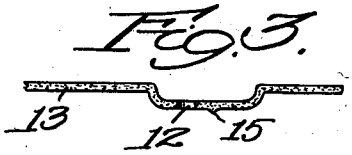


Fig. 3.



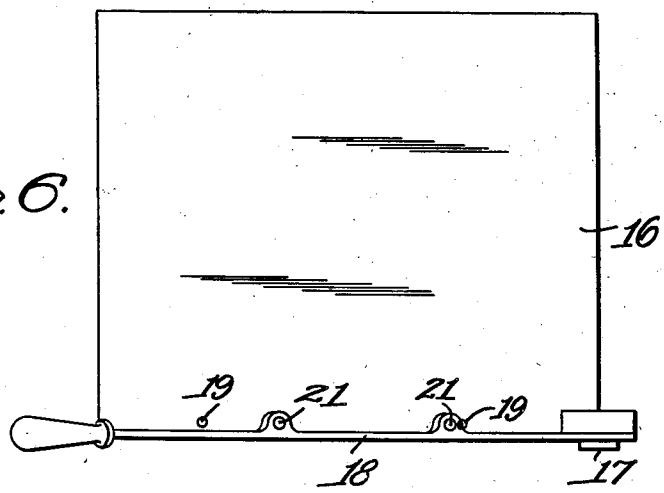
Inventor
Henry A. Wise Wood
By attorneys.
Southgate Fay & Hanley

March 9, 1937. H. A. W. WOOD 2,073,040

REGISTRATION OF PRINTING PLATES

Original Filed March 3, 1932 3 Sheets-Sheet 2

Fig. 6.



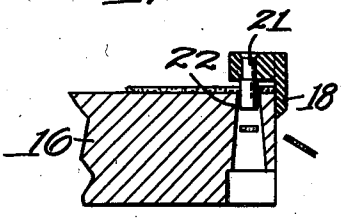


Fig. 10.

Fig. 7.

Fig. 8.

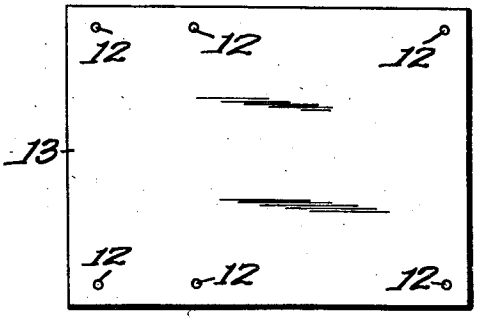
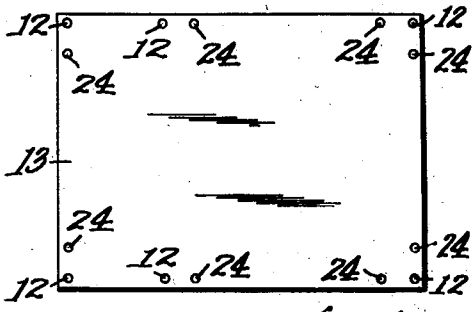


Fig. 9.



Inventor.
Henry A. Wise Wood
By attorneys
Southgate Fay & Hanley

Witness
C. K. Wunn.

March 9, 1937. H. A. W. WOOD 2,073,040

REGISTRATION OF PRINTING PLATES

Original Filed March 3, 1932 3 Sheets-Sheet 3

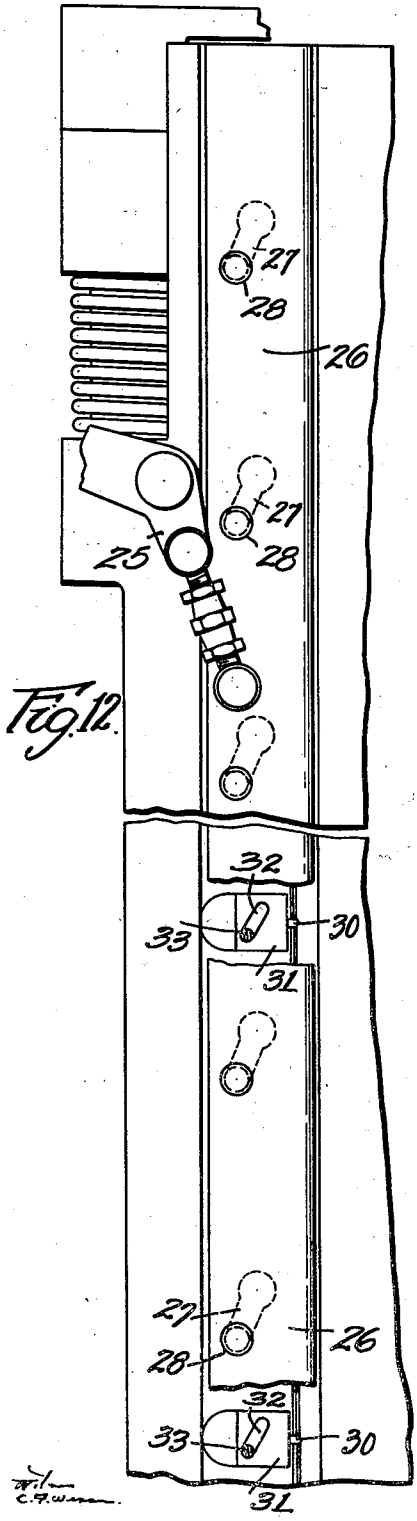


Fig. 12.

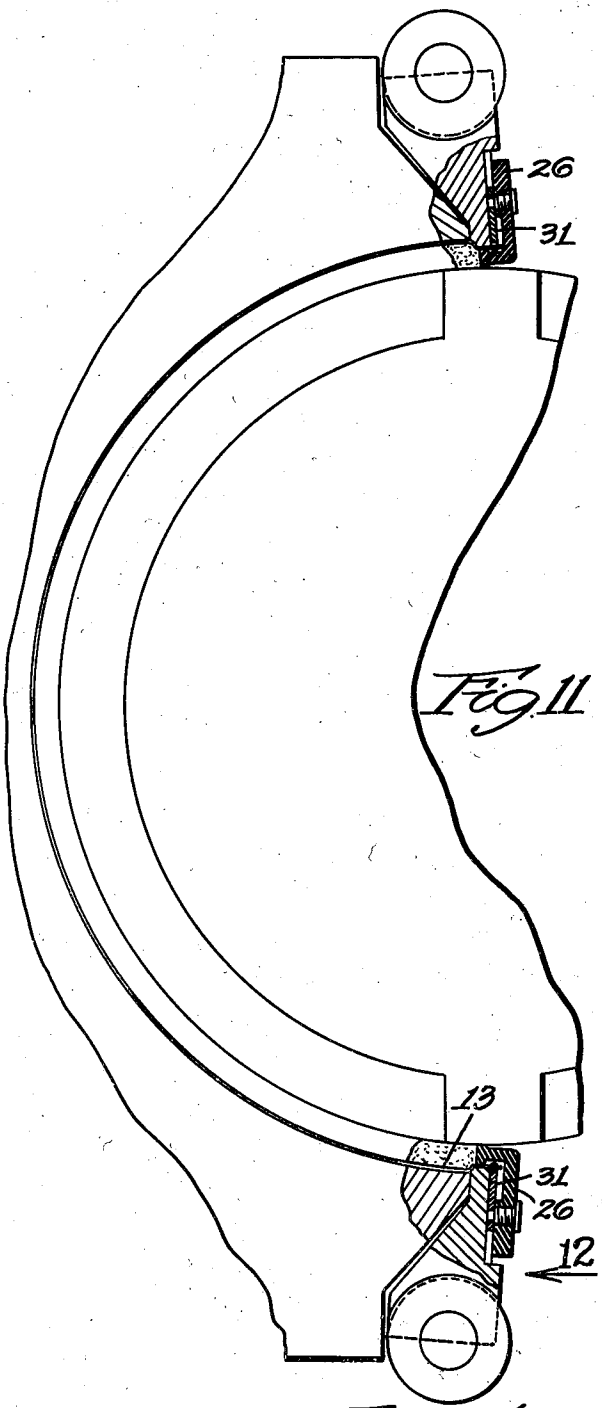


Fig. 11.

Inventor
Henry A. Wise Wood
By Attorneys
Coulter Fay & Coulter

Patented Mar. 9, 1937

2,073,040

UNITED STATES PATENT OFFICE

2,073,040

REGISTRATION OF PRINTING PLATES

Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia

Application March 3, 1932, Serial No. 596,474
Renewed August 13, 1936

3 Claims. (Cl. 101—395)

This invention relates to a means and method of registering printing plates so that the corresponding printing portions on a series of plates, that are to print different colors on the same page, will register accurately.

The principal objects of this invention are to provide such a registration that little or no care need be exercised by the employee who puts the matrix in the casting box and yet all the plates will be cast with their corresponding printing matter exactly in registration; to provide means and method whereby the trimming of the matrices can, without special care, be caused to take place in such a way that the matrices will all be trimmed accurately and in exact registration; and to so coordinate the molding of the matrix, the trimming of its edges and the placing of the matrix in the casting box that these three operations will cooperate to produce perfectly registered plates in color printing.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a plan of a chase showing certain features of this invention;

Fig. 2 is an enlarged sectional view on the line 2—2 of Fig. 1;

Fig. 3 is a similar view of a portion of the matrix after it is molded;

Fig. 4 is a plan of a modification coming within the scope of this invention;

Fig. 5 is a sectional view on the line 5—5 of Fig. 4;

Fig. 6 is a plan of an edge trimming device for the matrix;

Fig. 7 is an edge view of the same;

Fig. 8 is a plan view of the matrix after it has been molded but before it has been trimmed;

Fig. 9 is a similar view of the same matrix after it has been trimmed and punched for register, which is done in the course of trimming;

Fig. 10 is a sectional view showing the punching of the matrix by the trimming device;

Fig. 11 is an end view of a casting box showing in section the method of holding the matrix in position by the use of the holes in the margin of the matrix, and

Fig. 12 is an edge view of the casting box as indicated by the arrow 12 in Fig. 11.

As stated, this invention relates to color printing, especially for newspapers. It has been customary to make up printing plates which are to produce colored products, finish them, and register them by means on the printing press that has been more or less crude. Not only is it a tedious task but it consumes considerable time and very often the results are not entirely satisfactory. With the advent of colored pages in daily newspapers, it has become increasingly important that simple registering means be supplied for insuring that a plurality of plates printing different colors on the same area of paper be properly registered and that that be accomplished with the least possible labor cost and delay in the process. The general trend is away from the electrotype plates and toward stereotypes, speed being an essential in this work.

This invention deals with the proper registering of each stereotype matrix by the production of registering means in the matrix. Then these registering means are used to locate the matrix both in the trimming device and in the casting box. It is important that each character, when locked in the form, occupy the same position as the one with which it is to register. This invention does not deal with that particular part of the make-up but deals with the method from that point on to the making of the finished plate.

Referring to the first three figures, the form in which this part of the invention is illustrated is very simple. The chase 10 is provided with locating projections, indentations, or pins 11 which may be placed at various points wherever it may be necessary on the chase itself or its furniture so that when the matrix is molded, they will leave openings, notches, perforations, or marks on the matrix in definite locations. These holes or the like can be used for locating the matrix in the matrix trimming device. This is done for the reason that different matrices molded in the same chase are to be used for making different plates which will print on the same page in different colors. The matrices also can be located in the mold in this way. They can be both trimmed and placed in the casting box in exact registration with each other so that different colors eventually will be applied to the same page in exactly the proper relationships with each other. It will be understood, of course, that the plates cast in the casting box will thereafter be registered exactly with respect to each other on the printing cylinder.

These pins 11 leave the holes 12 molded in the matrix 13, which is shown in Fig. 8 in the form in which it is molded in the chase. In Figs. 1, 2, and 3, all these pins are shown as cylindrical or at least round in shape and two of them are shown on each end of the chase and one on each side. Four of the end ones are shown as regis-

tering with the side ones but that is not vital. In other words, in the preferred form, six holes 12 are produced in the matrix, some of these holes being unnecessary in the placing of the matrix in the casting box but being used in the trimming of the matrix only.

When a four-color job is being molded by placing each point of the four colors exactly in the same position in the form, molding one matrix for each, these matrices will carry the characters on the page in exactly the same relation to the molded holes 12 in all four cases. In this case six holes 12 are shown.

A modification of the chase construction is shown in Figs. 4 and 5. In this case a different shaped pin 13a is shown having a longitudinal bar 14 at the top for molding a slot in the matrix. In cases in which the matrix shrinks slightly and also in cases in which the matrix bar on the stereotype mold does not close properly, the round pin construction might cause trouble. If this occurs frequently enough it would be advisable to use two of these pins 13a at one end of the chase with two of the round pins 11 at the other end. This gives accurate register at the end having the round pins and allows for slight variation at the other. In this case the pins on the matrix trimmer, to be described later, may be used against one end of the slotted holes to obtain the correct trim or properly shaped removable pins may be provided.

Referring to Figs. 6 to 10 inclusive a matrix trimmer is shown. This consists of a flat plate 16, a pivot stud 17 and a knife 18 pivoted on this stud and having a handle for operating it. Of course, the side of the plate 16 constitutes one element of a shear while the knife 18 constitutes the other element. As far as the cooperation of this trimmer with the chase shown in the first five figures is concerned, the plate 16 is provided with two marks, projections, or pins 19 which are so placed as to register with two of the holes 12 or other marks on the matrix. Thus the matrix can be placed with two of these holes 12 on the pins 19 which will properly register and then the knife can be used to cut the matrix along the trimming lines 15, one after the other. Four of these trimming lines are shown. The pins 19 in Fig. 6 are shown in such position as to register with either pair of end holes 12 or with two of the side holes 12. The four corner holes 12 are the ones used in locating the matrix in the casting box.

The process of producing a plate can be carried out in this manner but a different arrangement is shown in Figs. 6 to 10. The molding of the matrix is usually done in connection with soft blankets. This causes the matrix to project out when the pin carried by the chase molds a hole. This leaves a ragged hole rather than a clean cut one. As the registering pin carried in the clip in the mold enters from the back of the matrix, this ragged edge is undesirable. In these figures, the holes, instead of being molded in the matrix, or in addition to having some of them molded therein, the knife 18 is provided with means for punching holes in the matrix after it is molded. The matrix is placed face down on the trimmer plate 16 and it is registered by the pins 19 carried by the plate 16, if holes are previously molded in the matrix.

The knife 18 carries in this instance two perforating pins 21 which cooperate with complementary holes 22 in the plate 16, thus producing a die. When the knife is swung down to trim off the edge of the matrix two cleancut holes 24 are punched out by these pins. Thus the holes 12, by being placed two at a time, so that they register with the pins 19 accurately place the matrix on the trimming device. The trimming is done on all four sides and the punching out of the cleancut registering holes 24 is accomplished by the knife and simultaneously with the trimming. These holes 24 are used to be engaged by pins carried in the casting box to insure accurate register as will appear hereinafter.

Without departing from the scope of the invention it is possible to locate an unpunctured matrix on the plate 16 so that the only holes carried on the matrix after trimming might be the holes 24.

It will be seen that in Fig. 9 are shown two sets of holes 24, of course, equal distances apart, two being located in each side and two in each end and the holes 12 are not then used for registering the matrix in the casting box.

It has been mentioned at times in this description that these holes, either the holes 12 or the holes 24, are used to register the matrix in the casting box. This is accomplished in a very simple manner as shown in Figs. 11 and 12 by utilizing the usual toggle motion 25 for sliding the clip 26 to the left, guided by inclined slots 27 and headed pins 28 as usual, to unclamp the mat.

Carried by the bar in both sides of the casting box are slidably operated registering pins 30 or other means for registering with the marks on the matrix. These pins fit in the perforations in the matrix, not only to hold the matrix rigidly but especially to insure that each successive matrix is placed in exactly the same position in the box. Thus the finished plates as they come out of the box are perfect and will register perfectly.

These registering pins 30 are mounted on slides 31 which are provided with angular slots 32 into which studs 33 project from the clip 26. Thus in ordinary operation the matrix is slipped in between the bar and clips and as the clip is locked by a motion from left to right in Fig. 12, the pins 30 project outwardly and engage the registering holes in the matrix.

It will be obvious therefore that by this invention the accurate registering of successive matrices to be used for the production of plates, which will in turn be used for printing a plurality of colors on the same page, is provided for. The man who trims the matrices and the man who puts them in the casting box are relieved from the necessity of adjusting them and can bring them to the proper positions instantly. This greatly reduces the time, energy and labor necessary at present for registering plates after they have gone to the press. The method involved is of a simple nature not adding to the expense of molding the matrices or the time required for doing it and the additional apparatus consists of not much more than the simple pins described.

Although I have illustrated and described only one form of the invention, I am aware of the fact that modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore, I do not wish to be limited to all the details of construction herein shown and described, but what I do claim is:—

1. The method of preparing a series of matrices for use in producing a set of plates to be used

for printing in different colors on the same surface which consists in making all of said matrices with perforations through them in their margins in the same place on each matrix and in locating said matrices in the casting box, one after the other, with said perforations on the several matrices in exactly the same place in the casting box, for the purpose described.

2. The method of producing stereotype printing plates for printing different colors on the same sheet which consists in providing a separate complete matrix for casting the whole of each type of plate of a series, making openings through the several matrices in exactly the same position in each one, providing pins in the mold for registering the openings of the several matrices therewith, whereby the matrices will all be located in the same position successively in the mold and the printing areas on the plates produced will bear the same relationship to each other throughout the series of plates.

3. The method of producing a set of printing plates for printing different colors in the same area which consists in trimming the edge of the matrices to be used for making such plates and simultaneously forming openings in said matrices, all in the same relation to the trimmed edges, and thereafter registering said openings in the casting box in exactly the same way and in the same relative position for each matrix.

HENRY A. WISE WOOD.