G. A. BETTS.

METHOD OF PRODUCING PHOTO ENGRAVINGS.

APPLICATION FILED MAR. 10, 1919.

1,310,385. Patented July 15, 1919.

Fig. 1.

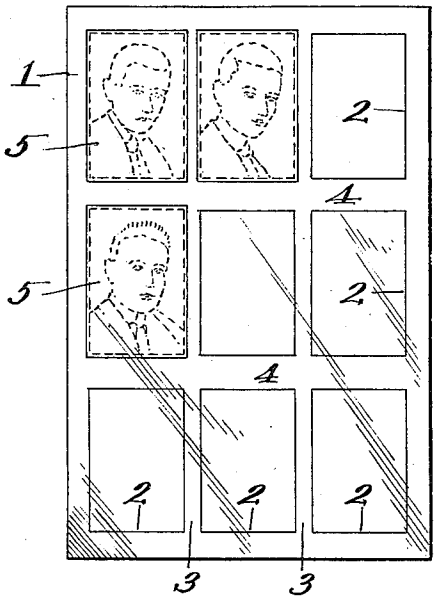


Fig. 2.

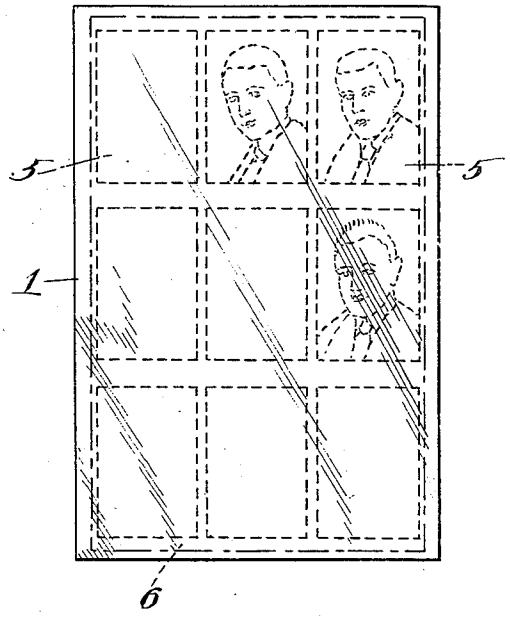


Fig. 3.

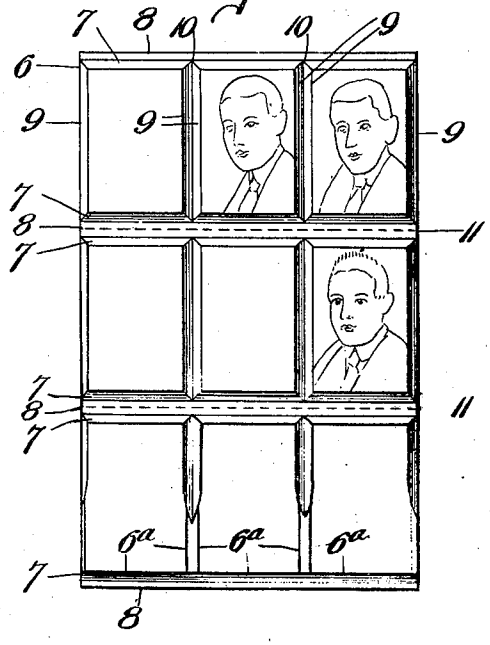
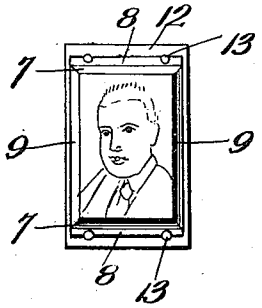


Fig. 4.



INVENTOR.

Gilbert A. Betts

BY

George F. Thompson

ATTORNEY.

UNITED STATES PATENT OFFICE.

GILBERT A. BETTS, OF TOPEKA, KANSAS.

METHOD OF PRODUCING PHOTO-ENGRAVINGS.

1,310,385. Specification of Letters Patent. Patented July 15, 1919.

Application filed March 10, 1919. Serial No. 281,730.

To all whom it may concern:

Be it known that I, GILBERT A. BETTS, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Methods of Producing Photo-Engravings, of which the following is a specification.

This invention relates to a method of standardization in quantity production of uniform-size photoengravings, and has for its object to facilitate the production of a quantity of such engraving plates or blocks and materially reduce the individual cost thereof.

It has long been a great desideratum to minimize the cost of production of photo-engraving plates or blocks, and efficiency experts and practical engravers have devoted much thought and experimentation to the question, particularly in large plants where the burden has been heavy. In such plants many plates, technically known as "flats," *i. e.*, glass plates on which a number of negatives are grouped, or metal plates for etching a plurality of subjects, have been made without thought of the method forming the subject matter of this application.

The cost of small engravings or negatives is less than large ones, but engravers and efficiency experts with this fact in mind, have never conceived the idea or entertained the thought as far as I have learned, that by the use of negatives of but slightly greater size than apparently was required, it was possible by resorting to the plan set forth in this application, to effect a material reduction in labor cost, and thereby reduce the cost of individual plates more than fifty per cent.

In the mounting of a plurality of negatives on a transparent negative support, engravers have never attempted to arrange the negatives in perfect alinement, for the obvious reason that the time required to effect such delicate and exact alinement would more than offset the saving that such arrangement would effect. I have found that by using a ruled or otherwise marked "negative support" and films for the negatives that are slightly over size, the negatives can be quickly mounted on the glass or "negative support," as this method contemplates the wasting of a slight strip off each side and end of each etched negative when the metal "flat" is subdivided into individual plates. My method also contemplates the use of a gang plow or dado cutter for beveling the edges of the sides of the plates, at one operation, and then the edges of the ends of the plates at a second operation, preliminary to subdividing the metal "flat" into individual photoengraving plates.

With the object therefore of producing uniform-size photoengraving plates in quantity, the invention consists in the novel method of operation hereinafter detailed and particularly pointed out in the appended claims, and in order that the invention may be fully understood, reference is to be had to the accompanying drawing, in which:

Figure 1, indicates a plan view of a negative support, ruled or marked in accordance with the invention for guidance in the placement upon said support of oversize photographic film negatives to secure approximate alinement thereof both vertically and crosswise of said support, a number of negatives appearing in said figure, the support and negatives together constituting what is technically known as a "flat."

Fig. 2, is a plan view showing the said plate placed with the face against a sensitized metal plate as customary in etching negatives on such plates.

Fig. 3, is a face view of the metal plate or "flat," the same being shown as it appears before the beveling operation is completed.

Fig. 4, shows a photoengraving plate after it has been completed and secured upon a mount or block.

In carrying out the invention I take the customary negative support 1, and rule or mark it to produce vertically and transversely alined rows of rectangular figures 2, the lines of said figures determining the exact width and length of the printed surface of the individual plates when completed, as disclosed by Fig. 4.

The vertical rows of figures 2 are spaced apart as at 3 a distance equal to the width of the bevels to be formed at the side edges of adjacent plates, as hereinafter more particularly referred to, and the horizontal rows are spaced a greater distance apart as at 4, so as to provide not only for the

bevels on the adjacent ends of juxtaposed negatives, but also to provide for a nailing edge for each individual plate when completed.

Upon the glass "flat" thus accurately marked or ruled, rectangular photographic negatives 5 are secured, said negatives being placed upon and slightly oversize with respect to the said rectangular figures in order that they may be placed in such position without having a great deal of valuable time consumed in attempting to accurately aline the said negatives vertically and horizontally. In the drawing three negatives only are shown as mounted upon the "flat" 1, but it is to be understood that a "flat" may be of any size and contain any number of alined negatives.

The glass "flat," with the negatives thereon, is then placed with the latter face down upon a sensitized metal plate 6, indicated in dotted lines Fig. 2, and the printing of the subjects from the negatives is produced thereon in the customary manner.

The next step in the process after etching in the customary manner, is to employ a gang tool of any suitable character, such as a plow or dado, for producing beveled edges around each individual etching on the metal plate, all of the beveled edges extending in the same direction being produced at one operation by such a gang tool, and the remaining bevel edges at a second operation of such a tool, for economy of operation.

As shown by Fig. 3, the transverse bevelings are complete, and the vertical or longitudinal bevelings are indicated in the course of production, the lower part of the vertical or longitudinal bevelings being left incomplete to show how the plow or dado cuts within the rectangular margins 6^a produced on the metal plate by the etching process, and corresponding in size and form to the oversize negatives 5. The spaces between the horizontal rows of etchings are wide enough to leave between the end bevels 7, thin narrow strips 8 to be later severed to produce nailing edges on the adjacent ends of juxtaposed engravings, similar beveled edges 7 and narrow strips 8 being produced at the top and bottom of the plate as well as between the horizontal rows of etchings. A tool of the same general character is then employed to produce the vertical grooves or bevels 9 at the side margins of the etchings, the grooves formed in the production of these beveled edges 9 having a V-shaped cutting edge, as the production of a nailing edge at the sides of photoengravings, is not customary or required. After the plates are completed as described, they are cut apart vertically in the plane of the apices of the grooves forming the beveled edges 9, and the plate is also cut through along the lines 11, to produce nailing edges for the adjacent ends of juxtaposed etchings. The individual plates, as shown by Fig. 4, are mounted upon blocks 12 and secured thereon preferably by nails 13.

In the beveling operation by the gang plow or the like, the blades of the tool are set to provide printed faces corresponding in size and form to the markings 2, and hence the grooving operation of the metal "flat," overruns the lines 6^a thereon. As a result photoengraving plates are produced of uniform size and contour on a quantity basis and at a saving in the cost of the individual photoengravings of actually more than fifty per cent., even taking into consideration that the actual cost of a negative for the making of a 13 em by 18 em halftone by the common method, is about five cents less than the cost of a negative measuring 14 em by 20 em required for producing the same size engraving by my improved method.

I claim:

1. The method of producing photoengravings, comprising marking a negative support with longitudinally and transversely alined rows of rectangular figures of an area corresponding to the printing face of the completed engravings, then securing upon said support over said figures, photographic negatives which are oversize with respect to and overlap the said figures, then placing the flat thus produced with the faces of the negatives in contact with a sensitized metal plate and printing and etching of the same in the usual manner, and then producing beveled edges along the margins of the etchings.

2. The method of producing photoengravings, comprising marking a negative support with longitudinally and transversely alined rows of rectangular figures of an area corresponding to the printing face of the completed engravings, then securing upon said support over said figures, photographic negatives which are oversize with respect to and overlap the said figures, then placing the flat thus produced with the faces of the negatives in contact with a sensitized metal plate and printing and etching of the same in the usual manner, then simultaneously producing beveled edges on all parallel margins of the etchings, running in one direction, and then simultaneously producing beveled edges on all the remaining margins of the etchings.

3. The method of producing photoengravings, comprising marking a negative support with longitudinally and transversely alined rows of rectangular figures of an area corresponding to the printing face of the completed engravings, then securing upon said support over said figures, photographic negatives which are oversize with respect to and overlap the said figures, then placing

the negative support with the faces of the negatives in contact with a sensitized metal plate and printing and etching of the same in the usual manner, then in simultaneously producing beveled edges on all parallel margins of the etchings, running in one direction, and then simultaneously producing beveled edges on all the remaining margins of the etchings, all beveled edges running in one of such directions being formed with nailing edge extensions.

In testimony whereof I affix my signature.

GILBERT A. BETTS.