Jan. 24, 1950 O. W. GREGSON ET AL 2,495,519

METHOD OF MAKING DISPLAY CUTOUTS

Filed Aug. 23, 1946 2 Sheets-Sheet 1

Fig. 1.

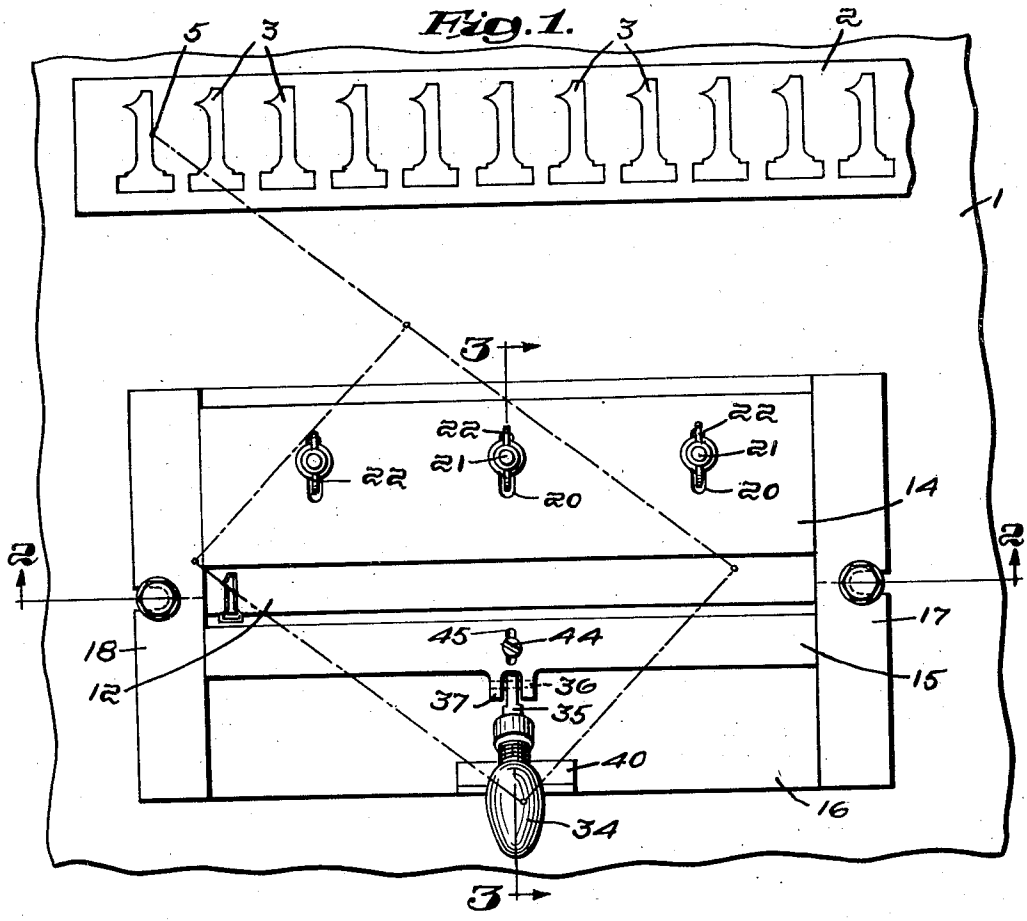
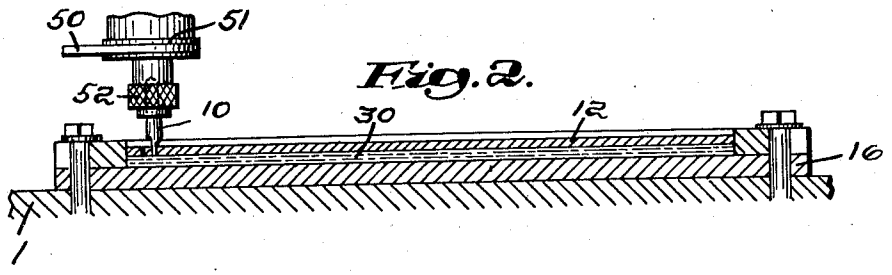


Fig. 2.



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Jan. 24, 1950 O. W. GREGSON ET AL 2,495,519

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Filed Aug. 23, 1946 2 Sheets-Sheet 2

Fig. 3.

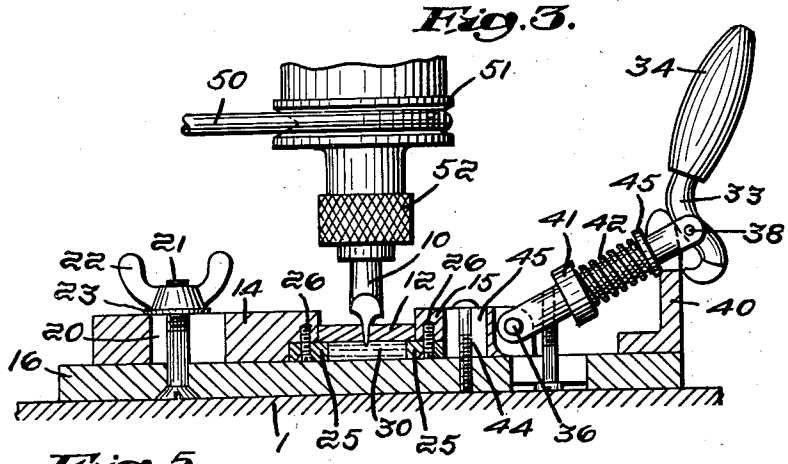


Fig. 4.

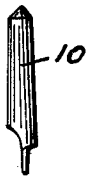


Fig. 5.

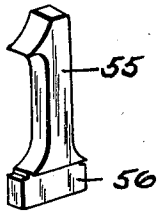


Fig. 6.

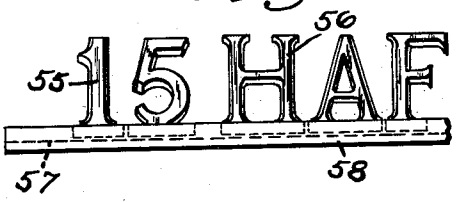


Fig. 7.

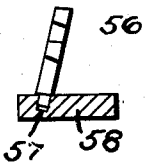


Fig. 8.

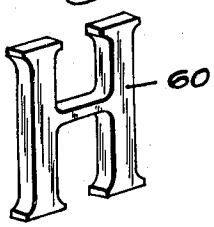


Fig. 9.



Fig. 10.

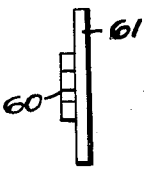
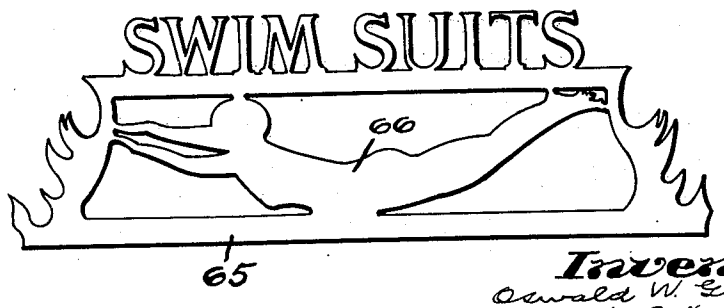


Fig. 11.



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METHOD OF MAKING DISPLAY CUTOUTS

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Application August 23, 1946, Serial No. 692,532

1 Claim. (Cl. 164—17)

1

Our present invention is a novel and improved method of making display cut-outs, and is particularly directed to making the same from sheets of suitable plastic material.

Our invention is particularly adapted for the manufacture of advertising display and design devices, price tags, named articles either alone or in combination with the design of the articles being displayed, and the reproduction of such designs, displays, and cut-outs in accurate duplication.

Heretofore it has been customary when making such articles of plastic material to utilize moldable plastics, either in powdered or liquid form, and such processes thus require the making of a separate mold for each article being produced. Various types of injection molding machines are employed for such a purpose.

Other efforts to make such display devices utilize jigsaw methods, but these were not satisfactory nor suitable as the jigsaw had to have an entering cut and no complete or separate cutting-out action was possible. Also, a hand-cut method using a pattern has been attempted but all these prior methods are expensive, slow, and difficult in carrying out the same, and involve various finishing and smoothing operations for the finished article.

By our present invention, we are enabled to form cut-outs, advertising display devices such as prices, designs, artistic and highly developed contoured figures, or novel and separate letters, figures, or design elements as may be desired, and to reproduce the same with perfect accuracy at relatively high speed, economically, and expeditiously, with a minimum of waste material.

In carrying out our present invention, we have discovered that we can form complete and finished designs and articles of wide variety of forms in plastic sheets, completely cutting out from the plastic sheet the surplus material to leave the desired design in finished form by utilizing a standard type of pantograph engraving machine, so arranging and fitting the engraving tool to cut completely thru the plastic sheet and to follow any design from a template pattern with the tracer stylus of the pantograph machine, which will cause the cutter to cut out the plastic at any desired set size, reduction, or enlargement desired and to reproduce the same with accuracy.

By our novel and improved method, we are thus enabled to follow any desired design by a continuous and complete cutting out operation and to produce a new and improved type of completely finished attractive article, particularly suited for display and advertising purposes.

2

Referring to the drawings illustrating various embodiments of our present invention as made by our novel method:

Fig. 1 is a diagrammatic view illustrating a strip of plastic material in position under the cutter of a pantograph machine, with the template to control the cutter being shown in diagrammatic form;

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

Fig. 3 is a cross-sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a side view of the cutter;

Fig. 5 is a perspective view of a single figure being cut from the template illustrated in Fig. 1;

Fig. 6 is a view of a plurality of individual cut-out figures or letters being assembled on a display stand;

Fig. 7 is an end view of the Fig. 6 assembly;

Fig. 8 is a perspective view of an individual letter formed by our novel cut-out method;

Fig. 9 is a diagrammatic view of a plurality of letters cut out and mounted on a backboard;

Fig. 10 being a side view of the same, and

Fig. 11 is a schematic view illustrating a design and letter designating the same, all integrally united and being cut out from a sheet of plastic material by our novel method.

Referring to the drawings, Fig. 1 illustrates in diagrammatic form the worktable or platen 1 of a standard type of engraving machine, to which is suitably attached a template 2, having a plurality of prepared designs 3—3 which is formed and adjusted to be applied by the tracing stylus indicated at 5 of the pantograph machine which controls the operation of the cutting tool 10 as the same is moved progressively over the blank or strip 12 in which the cut-outs on the template 2 are reproduced at any desired relation, reduction, or enlargement.

The blank 12 is supported between a fixed edge guide 14 and a movable edge guide 15, both being supported on a worktable 16. Adjustable end gauges 17 and 18 also attached to the worktable 16 are provided to completely engage and hold the sides and ends of the blank 12. To position the fixed guide 14 in desired position, a plurality of slots 20 are formed therethru thru which the shank of an adjusting screw 21 fitted thru the bottom of the worktable are supplied, on each of which screws 21 a wing nut 22 is threaded bearing against a washer 23 of greater diameter than the width of the slots 20, thus permitting move-

ment of the guide 14 into desired position and then clamping the same by rotating the wing nuts 22, as will be readily appreciated.

We desire to support the edge portions of the blank 12 slightly above the surface of the worktable 16 so that a supply of liquid 30 can be held in position under the blank 12 and thereby permit the cutter 10 to cut entirely thru the thickness of the blank 12 during the cutting out operation which liquid partially supports the blank and simultaneously cools both the blank and the cutting tool 10. For this purpose a pair of ribs 25 (see Fig. 3) are supplied, being fitted in correspondingly shouldered recesses in the blank-engaging edge of both the fixed guide 14 and the movable member 15, being held in position by headed screws 26, as shown, and on the projecting portions of which ribs 25 the edges of the blank 12 are supported. The liquid 30 is thus enclosed. The sliding edge guide 15 is arranged to be moved quickly into and out of blank-clamping position by a cam lever 33, having a handle 34 for operating the same, and being connected to the sliding gauge 15 by a link 35 secured by a pivot pin 36 to a fork 37 formed on the central portion of the movable guide 15.

This link 35 will have its opposite end pivoted at 38 to the cam 33 in position approximately as shown in Fig. 3, and a movement of the handle 34 to the right, viewing Fig. 3, will cause the lower part of the cam 33 to engage an upstanding angle iron 40 and slide the gauge 15, thus freeing the blank from clamped position and permitting removal of a cut-out blank and replacement of a blank for subsequent operation.

The link 35 is provided with a collar 41 and a coiled spring 42 encircles the link 35 between said collar 44 and a washer 45, thus affording a yielding pressure on the sliding gauge 15 when the clamp 33 is released and thus the blank is held under the yielding tension of the spring 42. This gauge 15 is held in position by the end members 17 and 18 and also by a set screw 44 passing thru a slot 45, and said set screw being threaded into a correspondingly tapped recess in the worktable 16, as clearly shown in Fig. 3.

It will be appreciated that the plastic blank 12 can be of any dseired width or length within reasonable limits and the capacity of the machine to handle the same to make the desired designs in accordancce with the template fitted to the machine. Such plastic material also can be of any color, thickness, and rigidity desired for the particular design and cut-out pattern to be formed therein.

With the apparatus adjusted as above explained and as shown in the drawing, the pantograph is set to follow the pattern and the cutter 10 rotated by a belt and pulley 50 and 51, the cutter being fitted and clamped in the usual check 52 and the cut-out operation is automatically performed in the blank.

Such cut-outs can be a complete design or a letter, figure, or a combination of the same.

As shown in Fig. 5 and with the pattern of Fig. 1, a simple figure as "1," designated as 55, is completely formed and is cut out as an individual figure. We have here illustrated such figures or letters being completely cut out as an individual figure or letter, and preferably formed with a foot or shoe 56 which can be employed to fit in a slot 57 of a stand 58, as illustrated in Figs. 6 and 7, thus permitting assembly of the figures and letters into desired prices, words, numbers, etc., and constituting a complete assembly display with a stand 58. If desired, the figures or letters can be cut out without the foot 56, as for example as shown at 60 illustrating the letter "H," see Fig. 8; and thereupon these letters may be mounted on a backboard 61, or the like, and assembled in desired relation with contrasting colors if advisable.

In Fig. 11 we have illustrated a complete design assembled with a legend or name in connection with a word or design, such design being shown for illustrative purposes as comprising an ornamental border 65, the representation of a bathing figure 66, and the letters integral therewith spelling out the name "Swim suits," or the like.

These various illustrations are typical of the capacity of our method of forming display and advertising cut-outs, novelties, and devices, and are each formed completely and quickly in finished design and permit of accurate reproduction in large number and quantities.

We claim:

The improved method of forming novelty display cut-out devices from plastic sheet material, which consists in providing a pantograph engraving machine with a receptacle to hold liquid in position to contact with and partially support the sheet material to be cut, supplying liquid thereto, assembling a plastic blank to be cut in position to be partially supported by said liquid and to permit an engraving cutter to penetrate entirely thru the blank during the cutting-out operation, the cutter extending into said liquid, and said liquid cooling both blank and said cutter, preparing a template of the design to be cut out, fitting said template in an engraving machine, and setting the machine for reproducing the template in the blank with a cutter operating to cut entirely thru the blank and in set relation with the design of the template.

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