

Jan. 10, 1933.

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1,893,944

METHOD FOR FORMING DESIGNS

Filed June 19, 1929

2 Sheets-Sheet 1

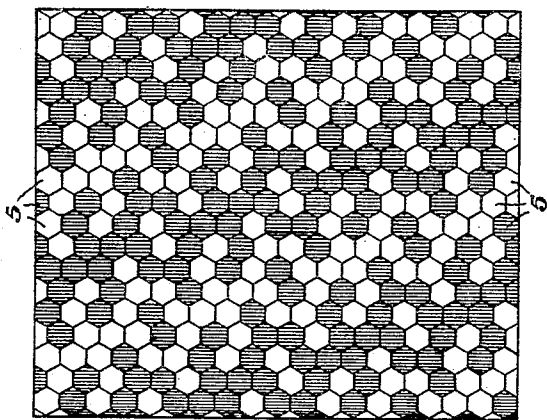


Fig. 1-B.

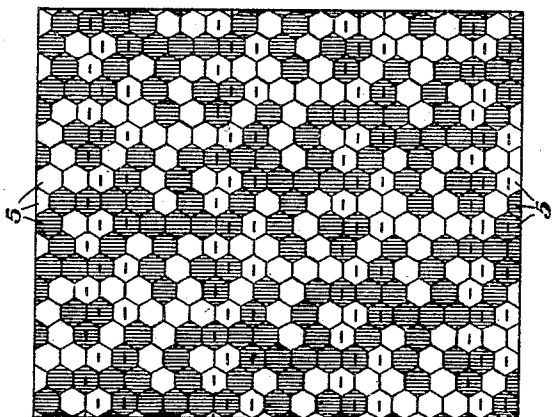


Fig. 1-A.

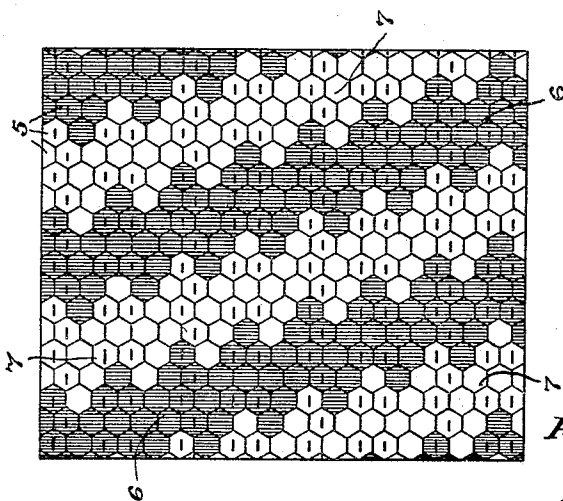


Fig. 1.

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2 Sheets-Sheet 2

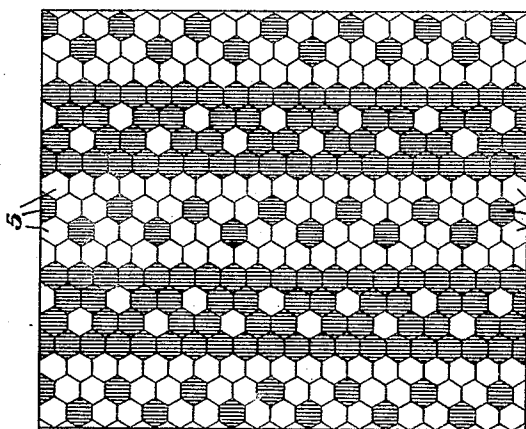


Fig. 2-B.

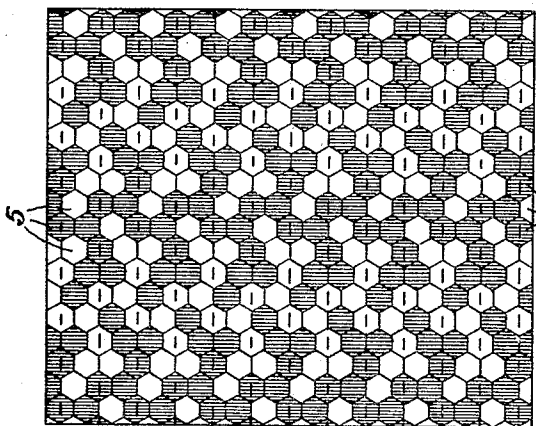


Fig. 2-A.

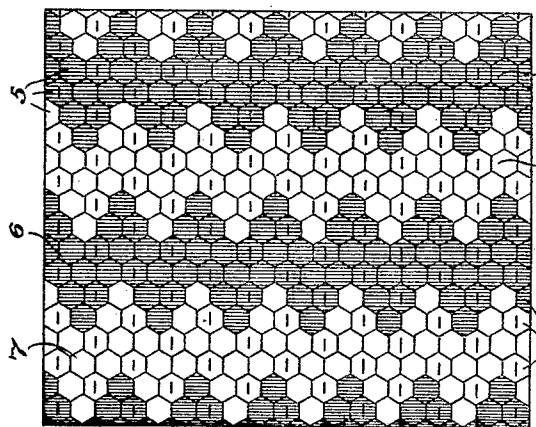


Fig. 2.

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UNITED STATES PATENT OFFICE

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METHOD FOR FORMING DESIGNS

Application filed June 19, 1929. Serial No. 372,021.

My invention relates to methods for forming designs and more particularly to methods for forming designs from hexagonal units of two contrasting colors. The designs produced by my method are especially adapted for use in laying shingles and tiles although it is not limited to such usage and may be employed in any other art or manufacture to which it is adapted. Certain objects of the invention are to provide a method for forming designs which, although very simple, will produce an indefinite number of ornamental designs each of which is original, natural and perfectly balanced. Further objects are to reduce the heretofore improvised manner of forming designs to a definite system whereby hundreds of original designs are made available for use.

With the above and other objects in view which will appear as the description proceeds, the invention consists of the novel arrangements and combinations hereinafter set forth. These objects are accomplished by the means shown in the accompanying drawings which illustrate several of an indefinite number of designs which may be produced; and wherein

Figure 1 shows a basic form; Fig. 1—A shows a design produced by reversing certain of the horizontal courses of hexagonal units as shown in Fig. 1; and Fig. 1—B shows a design formed by reversing certain courses of the units as shown in Fig. 1—A.

Figure 2 shows another basic form; Fig. 2—A shows a design produced by reversing certain of the courses of hexagonal units shown in Fig. 2; and Fig. 2—B shows a design formed by reversing certain of the courses of units shown in Fig. 2—A.

The method, first, consists in a series of basic forms comprising a number of hexagonal units that are laid or arranged in accord-

ance with the following table of basic forms:

Table of basic forms	
Form No. 1: 5x4	Form No. 23:10x 6
" " 2: 5x5	" " 24:10x 7
" " 3: 6x4	" " 25:10x 8
" " 4: 6x5	" " 26:10x 9
" " 5: 6x6	" " 27:10x10
" " 6: 7x4	" " 28:11x 4
" " 7: 7x5	" " 29:11x 5
" " 8: 7x6	" " 30:11x 6
" " 9: 7x7	" " 31:11x 7
" " 10: 8x4	" " 32:11x 8
" " 11: 8x5	" " 33:11x 9
" " 12: 8x6	" " 34:11x10
" " 13: 8x7	" " 35:11x11
" " 14: 8x8	" " 36:12x 4
" " 15: 9x4	" " 37:12x 5
" " 16: 9x5	" " 38:12x 6
" " 17: 9x6	" " 39:12x 7
" " 18: 9x7	" " 40:12x 8
" " 19: 9x8	" " 41:12x 9
" " 20: 9x9	" " 42:12x10
" " 21:10x4	" " 43:12x11
" " 22:10x5	" " 44:12x12

The foregoing table of basic forms may be continued on indefinitely as desired. Two of these basic forms, namely Forms No. 1 and No. 2 are shown in Figs. 1 and 2 of the drawings respectively. It will be understood that the hexagonal units by means of which the basic forms and designs are produced have contrasting colors on each of their sides and for the sake of illustration we will assume that each of said hexagonal units is black on one side and white on the other.

Referring to Form No. 1 in the table and to Fig. 1 of the drawings, it will be observed that 5 x 4 means that a double row of five of the hexagonal units of the same color are laid in one slantwise or angular direction and a double row consisting of four of said hexagonal units are laid in the reverse angular direction. The angular direction in which each double row of said hexagons takes is determined by the particular shape of the hexagons which are regular and uniform in size and shape and are laid with each of their adjoining edges touching each other and in parallel relation with the corresponding edges of all the other units throughout the entire arrangement. The numeral 5 is used

to designate each of said hexagonal units in the drawings.

Still referring to No. 1 in the table and Fig. 1 of the drawings it will be noted that the double row consisting of five of the hexagonal units slants upwardly to the left of the vertical and the double row consisting of four of said units slants upwardly to the right of the vertical. This arrangement holds true throughout the entire table of basic forms, namely that the first number designates the left slant and the second number designates the right slant of each double row of hexagonal units. It would however make no difference in the resultant designs if the table were reversed so that the first number would indicate the right slant and the second number indicate the left slant.

Assuming that double rows of black hexagons have been laid contiguously to form zig-zag columns as designated by the numeral 6 in the drawings, corresponding columns of white as designated by the numeral 7 are alternatively laid with said black columns to complete the basic form as shown in Fig. 1. The basic form shown in Fig. 2 of the drawings and designated as No. 2 in the table of basic forms is identical with that shown in Fig. 1 with the exception that one more hexagonal unit is added to each one of the double rows of units that slant upwardly to the right and no description in detail is considered necessary for this form.

It will now be obvious that the basic forms comprise contiguous columns composed of double rows of hexagonal units of the same color laid in zig-zag fashion alternatively with corresponding columns of another color and that the contour and slant of said columns is determined by the relative number of hexagonal units in each double row of said columns. The slant of said columns varies from the vertical, as shown in Fig. 2 where there are an equal number of units in each slanting row, to a maximum slant as determined by No. 36 in the table of basic forms insofar as this table goes and wherein twelve units are laid in one slant with only four units in the other slant of the double rows.

Now, having described the basic forms, the method of producing designs from these basic forms will be described. This method consists in turning over and thus reversing the colors of certain entire horizontal courses of hexagonal units. There is no fixed rule governing the particular horizontal courses that are to be turned over to produce a different design, this being a matter of choice or selectivity. In fact the designer himself has no conception of the design which will be produced and each design comes as a surprise in its originality. The only directions in choosing the rows or courses that are to be reversed and changed in color in order

to produce an unlimited number of perfectly balanced designs are to turn the horizontal courses over at equal, regular and symmetrical intervals and in all conceivable ways.

To produce the design shown in Fig. 1—A of the drawings from the basic form shown in Fig. 1 it is merely necessary to reverse or change the colors of the hexagonal units marked by the dash in Fig. 1. It will here be noted that the two top horizontal courses are reversed, the next two courses below are skipped, the next course is reversed, the next course is skipped, the next course is reversed, the next three courses are skipped, the next two courses are reversed correspondingly with the two top courses and the rest of the courses below are reversed correspondingly and at equal intervals with the foregoing courses as will be understood. It will thus be seen that in forming this design the courses for reversal are selected at equal, regular and symmetrical intervals.

To form the design shown in Fig. 1—B from the design shown in Fig. 1—A it is simply necessary to reverse the colors of the units marked by the dashes in Fig. 1—A. It will here also be noted that the horizontal courses selected for reversal are chosen in equal, regular and symmetrical order. Another design may be formed from the design shown in Fig. 1—B by similar methods and so on until the number of desirable designs that may be formed appear to be exhausted. Without any description in detail it will be obvious that from the basic form shown in Fig. 2 the design shown in Fig. 2—A may be similarly produced by reversing the units marked with a dash, and from this design the design shown in Fig. 2—B may likewise be formed, and so on reversing entire horizontal courses in all conceivable ways adhering to the rule of equal, regular and symmetrical intervals until this basic series is apparently exhausted.

While I have shown only two basic forms with only two resultant designs for each in the drawings, it will be understood that all of the forty-four basic forms shown in the table, and more if desired, may be converted into an indefinite number of designs by my method. Thus it will be apparent that by means of my discovery hundreds of designs may be produced, each different and all of graceful, symmetrical and pleasing appearance. It will be noted that in each design as well as in the basic forms the black figures of the designs correspond exactly with the white figures, and that in each and every horizontal course of hexagonal units there are two black units alternating with two white units throughout the entire system.

In actually producing these designs I take a sheet of cardboard with contrasting colors on its two sides and cut it into hexagonal

units of about one inch in diameter. I then arrange these units on a table or other flat surface in exact conformity with any one of the basic forms enumerated in the table of basic forms herein set forth. Then with a relatively large needle I proceed to reverse certain selected horizontal courses of the hexagonal units as hereinbefore described. When the first design is completed I then make a copy of the same for reproduction and for use as a permanent record, after which I proceed in like manner to produce other designs as previously explained reversing the courses in all conceivable ways until there appear to be no more desirable designs that can be produced in the series originating from the particular basic form from which the series started.

The workmen are furnished a photograph or other copy of the designs for use in actual construction, such for instance as in laying hexagonal shingles on roofs, laying tile floors, weaving textiles, making prints and the like. In reproducing a design from the copy it is essential that the workman pay particular attention to the marginal edge portion of the design usually on the left side in order to start the design correctly. After this it is merely necessary for him to lay the horizontal courses of hexagonal units in alternating pairs of colors in each course, or in other words to arrange two units of the same color next to each other, then two of the contrasting color and then two more of the first color and so on until each course is completed.

Having thus described my invention what I claim and desire to secure by Letters Patent of the United States is:

1. A method for forming designs consisting in arranging a number of hexagonal units of two contrasting colors in a series of basic forms in accordance with the table of basic forms herein enumerated, and in reversing horizontal courses of said units at equal, regular and symmetrical intervals.

2. A method for forming designs consisting in arranging a number of hexagonal units of two contrasting colors in a series of basic forms in accordance with the table of basic forms herein enumerated, said basic forms comprising a plurality of columns with each column of one color arranged alternatively with a column of the contrasting color, each of said columns comprising double rows of hexagonal units of the same color disposed in zig-zag arrangement in accordance with said table of basic forms, and reversing entire courses of units at equal, regular and symmetrical intervals as herein specified whereby the colors of said units are reversed.

3. A method for forming designs consisting in arranging a number of hexagonal units of contrasting colors in a series of basic

forms and reversing entire rows of units at symmetrical intervals whereby the colors of said units are reversed, said basic forms comprising a plurality of columns of one color arranged alternatively with columns of other colors, each of said columns comprising multiple rows of hexagonal units of the same color disposed in zig-zag arrangement.

In witness whereof, I hereunto subscribe my name this 14th day of June A. D. 1929.

FRANK R. JOHNSON.