March 14, 1944. K. H. BROWNLEE 2,343,880

METHOD OF PRINTING SERIAL NUMBERS

Filed Jan. 7, 1942 3 Sheets-Sheet 1

Fig. 1.

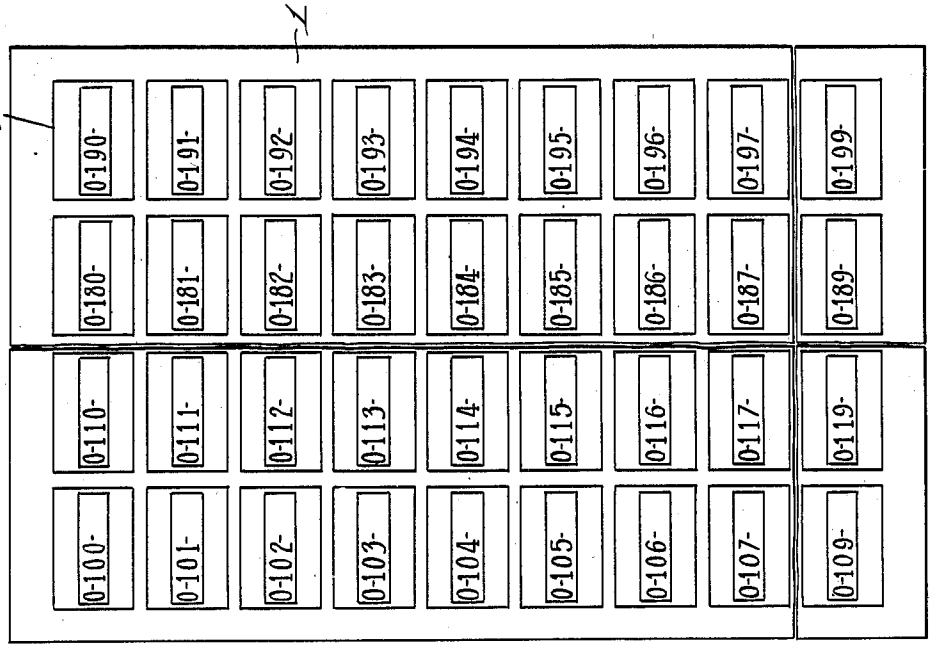
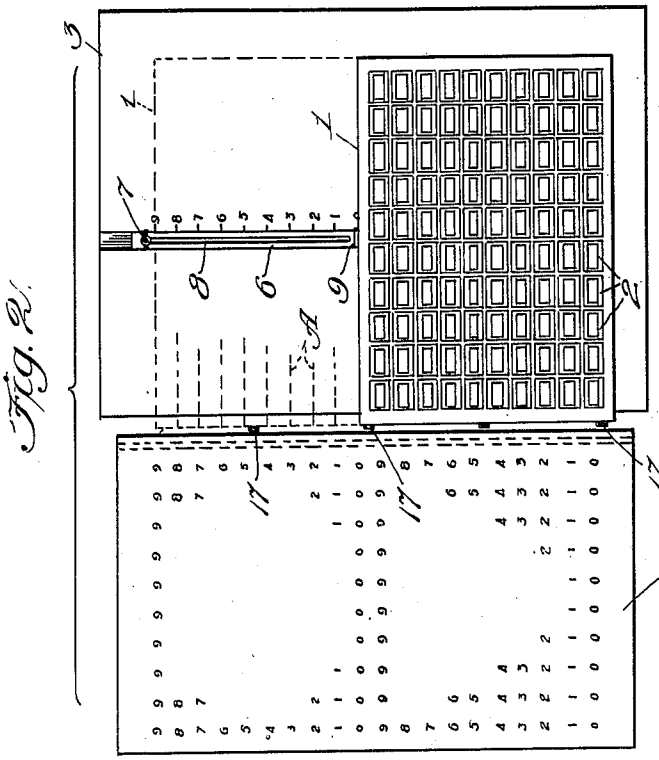


Fig. 2.



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Atty

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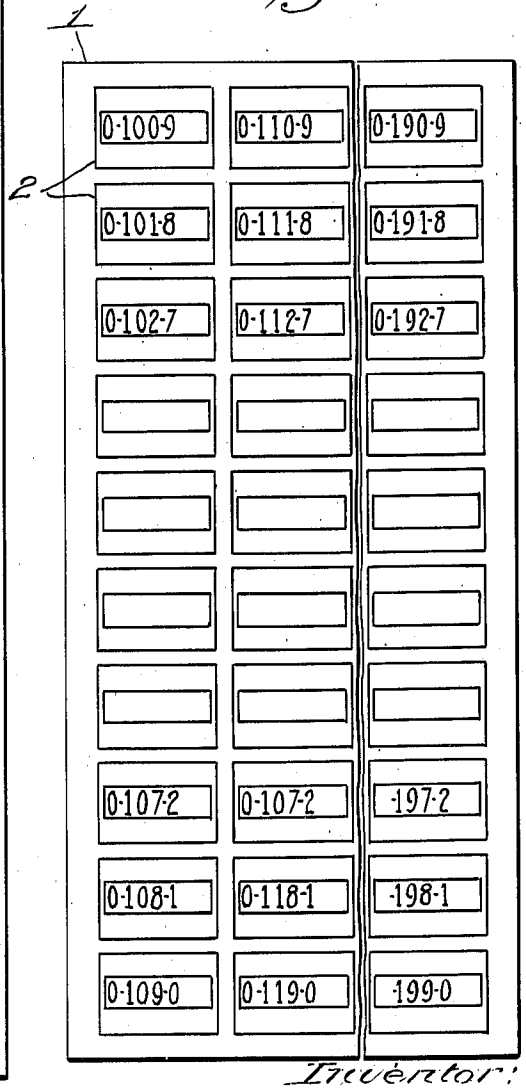
Filed Jan. 7, 1942 3 Sheets-Sheet 2

Fig. 4.

1	1	1
0	0	0
9	9	9
8	8	8
7	7	7
6	6	6
5	5	5
4	4	4
3	3	3
2	2	2
1	1	1
0	0	0

5

Fig. 3.



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March 14, 1944. K. H. BROWNLEE 2,343,880

METHOD OF PRINTING SERIAL NUMBERS

Filed Jan. 7, 1942 3 Sheets-Sheet 3

Fig. 10.

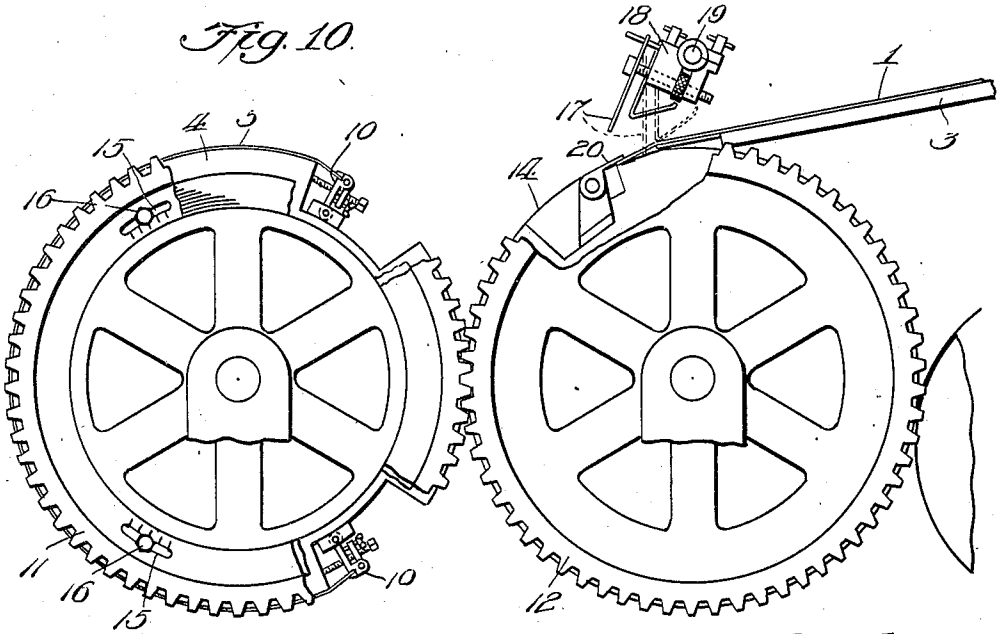


Fig. 6.

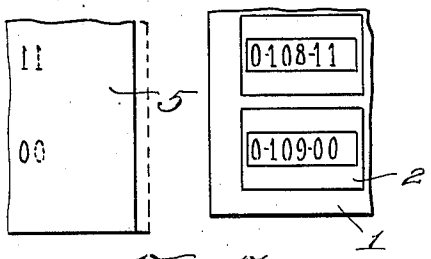


Fig. 5.

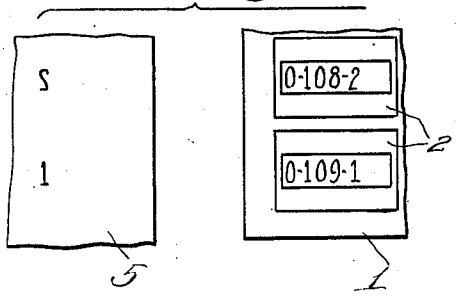


Fig. 7.

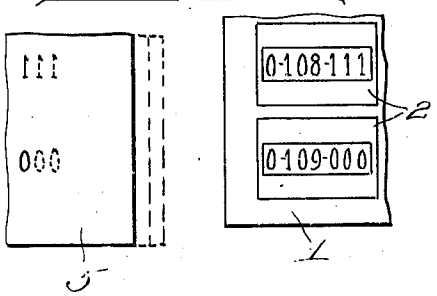


Fig. 8

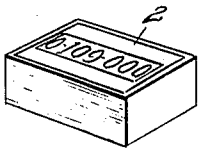
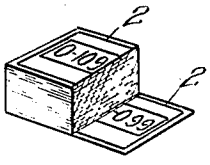


Fig. 9.



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Patented Mar. 14, 1944 2,343,880

UNITED STATES PATENT OFFICE

2,343,880

METHOD OF PRINTING SERIAL NUMBERS

Kenneth H. Brownlee, Skokie, Ill., assignor to The Meyercord Company, a corporation of Illinois

Application January 7, 1942, Serial No. 425,884

13 Claims. (Cl. 101—45)

It is becoming a practice, that is spreading, to print serial numbers on stamps, labels, license tags, etc. When the numerals are small, this can successfully be done with an ordinary numbering machine. However, when the numerals and the letters, when letters of the alphabet form part of the serial number, are large, the use of a mere numbering machine, even though it be a large one, gives rise to serious difficulties, which militate against the achievement of a perfect product. In cases where an inferior product might be acceptable, the cost of printing the large characters is very high.

The object of the present invention is to make it possible to apply the numbers, letters or other characters of a series by which a great many different similar pieces are to be distinguished from each other, by ordinary printing processes in a comparatively simple way, so that perfection of product may be attained at a reasonable cost.

An example of elements or articles that must be marked as aforesaid is the automobile license that must be displayed upon the vehicle. Such devices are commonly applied in the form of decalcomanias to windshields. If each license number can be applied in the same way as are the various other ink portions of the film, the whole will present a much neater appearance than if the numbers or other identifying characters are applied by a numbering machine, even though these characters be small. In the even that the subject is one to take the place of the usual metal license plates carried on the front and rear of an automobile, it is essential that the distinguishing characters be made as large as is usual with respect to the ordinary metal plate. In many states the automobile license numbers extend into the millions, and in most of them into the hundreds of thousands. In accordance with my invention, I provide a special printing plate for applying to the otherwise completed product such numerals or distinguishing characters that it is impracticable to apply at the time of printing the subject. This printing plate is adapted to print individual numerals on a large number of license tags at a time. The numerals are arranged in rows of which the first may contain only zeroes, whereas succeeding rows each may contain only a single numeral which may be anything from 1 to 9. These numerals are so placed that each may be made to register properly with the space that is to receive that particular numeral on a rectangular sheet of tags or labels; a convenient size of sheet being one containing ten rows of ten tags or labels. It will be seen that if, after the first printing on any number of sheets by this plate, the relative position of succeeding sheets with respect to the plate be shifted through a distance equal to the spacing between rows of numerals, the row of tags or labels corresponding to that which previously had zeroes printed thereon will now receive the imprint of the numeral 1 or the numeral 9, depending in which direction the relative shifting was done. In order to permit this relative shifting between the printing plate and a sheet, so that zero or any numeral from 1 to 9 may be printed on all of the tags or labels of any given row, it is necessary that the printing plate be double so as, in effect, to comprise two like printing plates arranged side by side; the spacing between the last row of characters on one plate and the first row on the next plate being equal to the spacing of the rows in the body of each plate or section. Then, when a sheet is shifted crosswise of the rows, so as to bring the trailing row of tags or labels into registration with the second row of characters on one section of the printing plate, the advance row of tags or labels registers with the first row of characters on the second section. Similarly, by shifting the sheet positions a step at a time, the last of the sheets to be printed may lie wholly above the second section of the printing plate.

The adjustments just described permit the printing of the desired individual characters in the units, tens, and hundreds positions of each tag or label, depending upon which of these positions has been selected. In order to make this selection, it is necessary to provide for a relative shifting of the sheets and the printing plate at right angles to what I have termed the rows of numerals or characters; this shifting being through steps or distances corresponding to the spacing of the numerals or other characters in the finished tag or label. By providing the double printing plate and then effecting the relative shifting between sheet and plate in two directions at right angles to each other, the same plate serves to print all of the numerals (in the example given) from 000 to 999, which may be needed, regardless of how high the numbers run above the thousand mark, as long as each of the spaces for units, tens and hundreds must be filled with a zero or some numeral from 1 to 9.

Since only nine hundred ninety-nine different combinations of numerals are required for the first three digits of all numbers up to nine hun-

dred ninety-nine thousand, only ten different printing plates are needed to print, in sheets of one hundred elements or units each, all of the tags or labels which must bear numbers between one thousand and one million. In other words, the first three digits of these large numbers can be printed as a part of the subject at a cost not much greater than that of printing the subject without any of the identifying characters.

When the entire lot of sheets has been printed, and the sheets are in stack formation in the order in which they left the press during their last passage through the same, the tags or labels are so disposed that upon cutting the stack into many little stacks in which each piece represents only a single tag or label, each little stack contains all of the numbers that lie between the number on the lowermost tag or label in that stack, and the number which the uppermost tag or label bears. In other words, the tags or labels are automatically sorted so that the tags or labels in each final stack are consecutively numbered.

The various features of novelty whereby my invention is characterized will hereinafter be pointed out with particularity in the claims; but, for a full understanding of my invention and of its objects and advantages, reference may be had to the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is a plan view of a sheet of tags or labels ready to receive the last three digits of large serial numbers or the like; Fig. 2 is a plan view showing diagrammatically the sheet of Fig. 1 in position to be fed into the press in accordance with the present invention; Fig. 3 is a view similar to Fig. 1, illustrating the sheet after it has been passed once through the press; Fig. 4 is a plan view of a fragment of the printing plate, on a much larger scale than Fig. 2, but showing it in the same relation to the sheet in Fig. 3 as is the case in Fig. 2; Fig. 5 is a view showing fragments of the sheet and of the printing plate after the sheet has been shifted one step along the printing plate to cause the numeral 1 instead of zero, as in Fig. 3, to be printed on the lower row of tags or labels; Fig. 6 is a view showing fragments of the printing plate and of the sheet in the same relative positions as in Figs. 3 and 4 except that they have been displaced relatively to each other to cause the printing to be done in the tens spaces of the numbers; Fig. 7 is a view similar to Fig. 6, showing a further shifting in the direction to cause the printing to be done in the units spaces of the tags or labels; Figs. 8 and 9 are perspective views of a small stack of completely numbered tags or labels, a part of the entire stock except the lowermost tag or label being broken away in Fig. 9; and Fig. 10 is an end view of a fragment of a rotary printing press in which my improved method may be carried out.

In the drawings I have illustrated my invention as employed in the numbering of printed automobile license tags, labels or plates, whether they be decalcomanias, or direct printings on flexible backings, the printings which are applied to the otherwise completed number being simply numerals. The detailed description will be confined to this particular application of the invention, although it will be understood that letters or other distinguishing characters may be used alone or in conjunction with numerals. It will also be understood that, although I have illustrated a rotary press, of the type which requires that the sheets to be printed be flexible, the printing may be done on stiff or rigid sheets or plates.

Referring to the drawings, 1 represents a sheet containing one hundred tags or labels 2 arranged in ten rows, with corresponding elements in the different rows disposed directly above each other and constituting columns. This particular printing plate is designed to complete the numbers from one hundred thousand to one hundred ninety-nine thousand, nine hundred and ninety-nine; the first three digits of these numbers being preferably part of the original printing, and there being blank spaces left for the reception of the last three digits of each number. The first three digits on these one hundred tag or label elements are therefore the consecutive numbers from one hundred to one hundred ninety-nine, inclusive. In Fig. 2 this sheet is shown as resting upon the feed table 3 of a printing press, adjacent to which is the printing cylinder having thereon a printing plate 5; the printing plate being shown in a flattened condition in Fig. 2. This printing plate is at least twice as wide as that dimension of the sheet transversely of the rows of tags or labels or in the direction of what I have termed the columns of labels, and it contains rows of numerals from zero to nine having the same spacings as do the rows of tags or labels, and the numerals in each row having the same spacings as those of the columns of tags or labels. All of the numerals in each row are alike, so that the numerals in each column run consecutively from zero to nine. The two halves of the printing plate are just alike, the numerals in each half being so disposed that there may be caused to register with the corresponding digit spaces in all of the one hundred elements of a sheet when the plate is brought in printing relation to the sheet. The two sections of the printing field are so related that the last row of numerals of one section is spaced apart from the first row of numerals in the second section exactly the same distance as that which separates the rows of figures in each of the two sections. Consequently, a sheet may cooperate with any ten consecutive rows of numerals on the printing plate, whether such rows lie entirely in one section or whether one or more rows lie in one section and the remainder in the other section.

It will be noted that when a sheet has been moved step by step until it is clear of the lower half of the printing plate and lies wholly above the upper half, it will be printed in exactly the same form as though it were engaged solely with the lower half of the plate. Thus, the cycle of changes, through shifting lengthwise of the columns of numerals, is completed before the uppermost row of numerals in Fig. 2 is reached. Therefore, this uppermost row, consisting of nines, or the lowermost row, consisting of zeros, may be omitted, if desired. In other words, each of the characters will have been printed on the lowermost row of labels of the required number of sheets at the time when a sheet has been printed while its lower row of labels engages the row of nines in the lower half of the printing plate; and a further upward shift to bring the upper row of zeros into registration with a lowermost row of labels on a sheet would be simply starting another cycle. Obviously, the lowermost row of zeros could be omitted, instead of the upper

row of nines, thus leaving the necessary nineteen rows of printing characters.

In Fig. 2 the sheet is so positioned that when it is fed into engagement with the printing roller, the printing is done entirely by the lower half of the printing plate. By shifting the sheet bodily until its upper edge reaches one after the other of the dotted lines marked A, the printing area is progressively shifted across the plate until the printing is all done by the upper half or section. With this arrangement, nothing but zeroes are printed in the lowermost row of the sheet when the sheet is in the position shown in Fig. 2, upon feeding the sheet through the press. Upon shifting the sheet upwardly, as viewed in Fig. 2, through a single step, it will be seen that nothing but ones will be printed on the lower row of tags or labels. Also, whereas nothing but nines will be printed on the upper row of tags or labels in the position occupied by the sheet in Fig. 2, zeroes will be printed in this upper row when the sheet is shifted upwardly one step. By this means any numeral, from zero to nine, may be printed in any of the rows of tags or labels, each column of numerals thus printed consisting of numerals in consecutive order. Any suitable means may be provided to enable the operator accurately to adjust a sheet to any one of the several positions along the printing plate. In the arrangement shown, there is a long slide 6 mounted on the table 3 parallel with the axis of the printing roller. A screw fastening 7 extends down through a longitudinal slot 8 and into the table. On the inner end of the slide is a toe 9 against which the edge of a sheet may bear. Suitable graduations may be placed beside the slide to determine the position to which the toe should be brought to achieve the desired location for a sheet to be printed. All that need be done to adjust the slide is to loosen the screw, move the slide lengthwise until the toe registers with the proper graduation, and then tighten the screw.

In the case of a rotary printing machine of the general type illustrated, the adjustment in the direction of the lengths of the rows of elements and rows of numerals may conveniently be effected by shifting the printing plate relatively to the cylinder on which it is mounted, by shifting that cylinder relatively to the driving gear, or by adjusting stops against which the advance edges of the sheets on the feed table bear when the sheets are in position to be engaged by the usual grippers and be automatically fed between the printing rollers. By reference to Fig. 10 of the drawings, it will be seen that the printing plate 5 extends partway around the roller 4, each end being connected to a holding and adjusting device 10 as is customary in machines of this kind. By designing these adjusting devices so as to make it possible to shift the printing plate around the roller through a distance equal to the span of the three digit spaces in which numerals are to be printed on each tag or label, adjustment can quickly be made to print in any one of these three spaces. The second method of adjustment is that of shifting the roller or cylinder 4 bodily with respect to the gear wheel 11 that meshes with a similar gear wheel 12 on the feed cylinder 14. This is conveniently done by making the usual elongated slots 15 sufficiently long to permit the necessary angular adjustments between the cylinders 4 and 14. In the arrangement shown, the screws 16 that pass through the slots 15 and into the ends of the cylinder 4 are shown midway between the ends of the slots. This may represent the relative angular positions when a machine is adjusted to print in the hundreds spaces in the endmost row of tags or labels; the slots being long enough to permit angular shifting of the cylinder 4 in either direction for the purpose of printing in the tens or units spaces. Obviously, this same adjustment in either direction may be provided by the devices 10 that shift the printing plate relatively to the cylinder or roller 4. The sheets to be printed are adapted to be so positioned that their advance edges engage with fingers 17 supported by one or more carriers 18 mounted on a shaft 19 arranged above the feed table parallel with the axes of the printing rollers. When a sheet is being placed on the feed table, these fingers are in the positions shown in dotted lines in Fig. 10; but, when the grippers that drag the sheet from the table come into play, the fingers are swung up out of the way, as shown in full lines in Fig. 10. In other words, Fig. 10 illustrates the condition in which the grippers 20 on the feed roller or cylinder 14 have grasped the advance marginal portion of a sheet to be printed and have begun to withdraw the sheet from the feed table. It will be seen that by adjusting the carrier or carriers 18 angularly of the shaft 19, the normal working positions of the fingers 17, in which they serve as stops for the advanced edge of a sheet, may be shifted in the direction of the travel of the sheet to provide the same adjustment as may be secured by shifting the printing plate relatively to the sheet in either of the two ways previously described.

In Fig. 3 the sheet is shown as having received one printing, zeros having been printed in the hundreds spaces of the lowermost row of tags or labels, ones in the next row, and so on, to nines in the upper row. In Fig. 6 there is shown a fragment of the printing plate and a fragment of the same sheet as that appearing in Fig. 3, during a second printing; the printing plate having been shifted toward the left through a distance equal to the spacing between consecutive digit positions. The sheet now has had added thereto two zeroes on each of the tags or labels in the lowermost row, and the numerals in all of the other hundreds spaces in the sheet have been duplicated in the corresponding tens spaces. Fig. 7 illustrates the condition existing at the time of making the third printing, the printing plate having been shifted to the left through another step.

When it is desired to print the numeral 1 in each of the hundreds spaces in the lowermost row of tags or labels in Fig. 1, the sheet is so placed on the feed table that the lowermost row of zeroes in Fig. 2 does not print, whereas the row of zeroes in the upper half of the printing plate is brought into action. This is illustrated in Fig. 5; the lowermost row of tags or labels on the sheet being in line with the row of ones in the lower half of the printing plate.

If the thousand sheets for any one hundred thousand consecutively-numbered sheets are placed one on top of another, after their third printings, corresponding tags or labels form stacks containing all of the consecutive serial numbers between those of the top and bottom tags or labels. If the first printings are those illustrated in Fig. 3, it means that the smallest number in each of these little stacks is at the bottom and the largest at the top. If it be desired to have this order reversed, so as to bring

the smallest number at the top, without re-arranging the sheets or the tags or labels themselves after the printing and cutting has been completed, the machine may be so adjusted that nines instead of zeros are first printed on the lowermost row of tags or labels in Fig. 1. In other words, in that case the printing would start with a sheet registering with the upper half of the printing plate in Fig. 2, instead of the lower half, and the shifting through successive steps would be in the downward direction, as viewed in Fig. 2, instead of upwardly. Then, after the third printing of the sheets necessary to make up one hundred thousand, consecutively numbered, the largest number in each little stack of individual tags or labels is at the bottom, and the smallest number at the top, as shown in Figs. 9 and 8, respectively.

It will thus be seen that in the practice of my invention, all of the numerals or other characters of a group such as constitutes one of a long series of different markings in the form of consecutive numbers or letters or combinations of the same, may be plate-printed in the same way that the subjects themselves are printed. This insures a product in which the printing is correctly done, so that the markings appear to be a part of the general design instead of something that is afterwards applied to the latter. This is of particular importance in the case of large numerals, letters or other characters which cannot satisfactorily be printed on a tag, label or the like by a machine of the numbering machine type, in situations where appearance is at least as important as the function to be served by the markings.

While I have illustrated and described my invention in connection with the marking of only a single type of element in the form of a tag, label or plate, I do not desire to be limited to this particular embodiment or field of use; but intend to cover all means and methods coming within the definitions of my invention constituting the appended claims. Furthermore, my method may be employed in situations where, as distinguished from printing with inks, characters are cut into a sheet or plate by means of dies, or are embossed in a plate by means of complementary dies between which the sheet to be embossed is placed. Therefore, when I refer to printing, I intend to cover also these other practices and, where I refer to a printing plate, I intend to include cutting dies or cooperating embossing dies.

I claim:

1. The method of placing on elements such as stamps, labels, and the like unlike groups of identifying characteristics, which consists in producing sheets made up of such elements arranged in parallel rows so disposed that corresponding elements in the rows form columns, providing a printing plate having a field twice as wide as the length of one of said columns and containing individual characters arranged in twice as many rows as there are rows of said elements and in as many columns as there are columns of said elements, printing as many sheets in registration with one-half of said field as are required to carry as the first characters the characters so printed; printing other sheets which have been shifted lengthwise of said columns through a distance equal to the spacings between said rows; and effecting further printings after relatively shifting the sheets and the plate, between successive printings, lengthwise of the rows through successive distances corresponding to the spacings required between consecutive characters on an element.

2. The method of placing on elements such as stamps, labels, and the like unlike groups of identifying characteristics, which consists in producing sheets made up of such elements arranged in parallel rows so disposed that corresponding elements in the rows form columns, providing a printing plate having a field twice as wide as the length of one of said columns and containing individual characters arranged in twice as many rows as there are rows of said elements and in as many columns as there are columns of said elements, printing as many sheets in registration with one-half of said field as are required to carry as the first characters the characters so printed, effecting further printings after relatively shifting the sheets and the plate, between successive printings, lengthwise of the rows through successive distances corresponding to the spacings required between consecutive characters on an element, and effecting still other printings after relatively shifting the sheets and the plate, lengthwise of the columns through successive distances corresponding to the spacings between rows.

3. The method of numbering elements such as stamps, labels, and the like, which consists in producing sheets made up of such elements arranged in parallel rows so disposed that corresponding elements in the rows form columns, providing a printing plate having a field twice as wide as the length of one of said columns containing individual numerals arranged in twice as many rows as there are rows of said elements and in as many columns as there are columns of said elements, printing as many sheets in registration with one-half of said field as are required to carry as the first numerals the numerals so printed, effecting further printings after relatively shifting the sheets and the plate, between successive printings, lengthwise of the rows a distance corresponding to the spacings required between consecutive numerals on an element, and effecting still other printings after relatively shifting the sheets and the plate, lengthwise of the columns through successive distances corresponding to the spacings between rows.

4. A printing machine for serially numbering elements such as stamps, labels, and the like on sheets made up of such elements arranged in parallel rows so disposed that corresponding elements in the rows form columns, having a printing plate composed of two like sections disposed side by side and of a combined width which is twice the length of one of said columns and contains individual numerals arranged in twice as many rows as there are rows of said elements and in as many columns as there are columns of said elements, means to position each sheet so as to cause it to be fed to the printing plate in a manner to register its rows of elements with any equal number of consecutive rows of numerals on said printing plate, and means to adjust each sheet to cause the columns of printing elements to be shifted laterally relative to the sheet in order to print columns of characters beside other columns previously printed on a sheet.

5. A printing machine for placing unlike groups of identifying numerals on elements such as stamps, labels, and the like on sheets made up of such elements arranged in parallel rows so disposed that corresponding elements in the

rows form columns, having a printing plate composed of two like sections disposed side by side and of a combined width which is twice the length of one of said columns and contains individual numerals arranged in twice as many rows as there are rows of said elements and in as many columns as there are columns of said elements, means to position each sheet so as to cause it to be fed to the printing plate in a manner to register its rows of elements with any equal number of consecutive rows of numerals on said printing plate, and means to effect a relative shifting of the printing plate and the sheets lengthwise of said rows through steps equal to the spacings which the characters in each group are to have in the finished product.

6. The method of serially numbering elements such as stamps, labels, and the like, which consists in producing sheets made up of such elements arranged in parallel rows so disposed that corresponding elements in the rows form columns and each containing all of the characters of its serial number except the last three digits thereof, providing a printing plate having a field containing two like sections and which is twice as wide as the length of one of said columns and contains individual numerals arranged in twice as many rows as there are rows of said elements and in as many columns as there are columns of said elements, and printing each sheet three times with the plate in such a different position for each printing that numerals are printed successively in all three of the blank digit spaces on each element, the printing positions of the individual sheets being adjusted lengthwise of said columns to cause to be printed in corresponding digit spaces such different numerals as are required to obtain the necessary sequence.

7. The method of placing groups of identifying characters, one at a time in each group, on stamps, labels or the like joined together in a sheet and forming parallel rows across one dimension of the sheet and parallel columns across the other dimension, which consists in producing a printing plate having thereon individual printing characters arranged in rows each containing as many characters as there are stamps or the like in a row of the latter and in columns correspondings to the columns of stamps or the like, printing one or more sheets while in such position relative to the printing plate that a printing character registers with each of corresponding spaces in all of the stamps or the like, and making successive printings on such sheets after shifting them lengthwise of the rows of printing characters through steps equal in length to the spacings required between consecutive printed characters on the stamps or the like, and some of them lengthwise of the columns to select different groups of rows of printing characters.

8. The method of placing groups of identifying characters, one at a time in each group, on stamps, labels or the like joined together in a sheet and forming parallel rows across one dimension of the sheet and parallel columns across the other dimension, which consists in producing a printing plate having thereon individual printing characters arranged in rows each containing as many characters as there are stamps or the like in a row of the latter and in columns containing a greater number of characters than there are stamps or the like in a column of the same, printing sheets while any desired group of consecutive rows of printing characters equal in number to the rows of stamps or the like register with the latter, making further printings on some of such sheets after shifting them lengthwise of the rows of printing characters through steps equal to the spacings required between consecutive printed characters, and making further printings on the remainder of the first mentioned sheets after shifting them lengthwise of both the rows and the columns of printing characters.

9. A printing machine for placing groups of identifying characters, one at a time in each group, on stamps, labels or the like joined together in a sheet and forming parallel rows across one dimension of the sheet and parallel columns across the other dimension, having a printing plate provided with individual printing characters arranged in rows each containing as many characters as there are stamps or the like in a row of the latter and in columns each containing a greater number of characters than there are stamps or the like in a column of the latter, a support for sheets to be printed, means to adjust the sheets on the support lengthwise of said columns of characters to select different groups of consecutive rows on the printing plate for printing, and means to adjust the sheets and the plate relatively to each other.

10. A printing machine for placing groups of identifying characters, one at a time in each group, on stamps, labels or the like joined together in a sheet and forming parallel rows across one dimension of the sheet and parallel columns across the other dimension, having a printing plate provided with individual printing characters arranged in rows each containing as many characters as there are stamps or the like in a row of the latter and in columns containing a greater number of characters than there are stamps or the like in a row of the same, and means to bring the aforesaid sheet into printing relation to the said plate with the rows of stamps in registration with any equal number of consecutive rows of characters, and means to effect a shifting of the sheet relative to the plate into any one of a plurality of positions lengthwise of said rows required to bring each of the characters to be printed in its proper place in the corresponding group of identifying characters.

11. A printing machine for placing a group of identifying characters, one at a time, in each group on stamps, labels or the like joined together in a sheet and forming parallel rows across one dimension of the sheet and parallel columns across the other dimension, having a printing plate in which there are printing characters distributed in uniform rows and columns corresponding to those in which corresponding individual characters are to lie on the printed sheet, together with additional rows of printing characters forming continuations of said columns, a support for sheets to be printed, means to adjust the sheets on the support lengthwise of said columns of characters to select different groups of consecutive rows on the printing plate for printing, and means to adjust the sheets and the plate relatively to each other lengthwise of said rows to cause the printed characters in each group to be located as desired with respect to each other.

12. The method of placing groups of identifying characters, one at a time in each group, on stamps, labels or the like joined together in a sheet and forming parallel rows across one di-

mension of the sheet and parallel columns across the other dimension, which consists in producing a printing plate containing individual printing characters so distributed that each character in a given field will register with a character position on one of the stamps, labels or the like in a given relative position of the sheet and plate and with a second character position when the sheet is shifted slightly along said rows, while other printing characters in another field will register in the same way with character positions on the stamps or labels when the sheet is shifted in the direction of the length of the columns of stamps or labels through one or more steps each as long as the dimension of a stamp or label transversely of said rows, printing any desired number of sheets so as simultaneously to place a character on each stamp or the like in a sheet, and subsequently making other printings on the sheets after they have been shifted lengthwise of said rows through a distance equal to the desired spacing between the characters of each printed group, some of the sheets being shifted lengthwise of said columns, relatively to the plate before the last-mentioned printings are made.

13. A printing machine for placing unlike groups of identifying characters, one at a time, on elements such as stamps, labels, and the like in the form of sheets in which such elements are arranged in parallel rows so disposed that corresponding elements in the rows form columns, having a printing plate provided with individual printing characters arranged in rows each containing as many characters as there are stamps or the like in a row of the latter and in columns containing a greater number of characters than there are stamps or the like in a column thereof, means to position each sheet so as to cause it to be fed to the printing plate in a manner to register its rows of elements with any equal number of consecutive rows of printing characters on the plate, and means to effect a relative shifting of the plate and the sheets lengthwise of said rows through steps equal to the spacings which the characters in each group are to have in the finished product.

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