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(54) TOY PRINTING SET

(71) We, TOMY KOGYO Co., Ltd., a joint-stock company organised and existing under the laws of Japan, of No. 10, 9, 7-chome, Tateishi, Katsushika-ku, Tokyo, Japan, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a printing toy, and more particularly to a toy printing set so constructed as to be able to reproduce a wide variety of designs and/or patterns upon papers with a simple procedure.

A printing toy of the kind which comprises a plurality of printing panels each having on one surface thereof a relief which represents by itself a complete design or picture and adapted to reproduce such design or picture upon a paper as a paper is placed on that surface and is rubbed from above with coloring materials, such as a crayon, a pencil or the like is known.

With such printing panels of the prior art toy, however, it is impossible for the user to print varied designs or pictures, other than the specific complete designs or pictures represented by such reliefs of the printing panels, on papers. Thus, the known printing toy soon bores the user due to lack of variety of change in printing play. In addition, the prior art toy has no holder means for securely holding a printing panel during the printing action and is difficult for the user to produce clear and attractive prints.

The present invention is intended to provide a toy printing set of the kind stated above which not only is free from such drawbacks indicated with the known printing toy, but also can provide much amusement for children.

In accourdance with the invention, there is provided a toy printing set comprising a plurality of printing panels each having on one surface thereof a relief, the relief of each printing panel being so shaped as to represent a different respective partial design, said printing panels being classified into groups so that by selecting a desired printing panel from each of the groups and arranging the selected printing panels in a predetermined order, the total of the reliefs of the arranged printing panels can reproduce a complete design upon a paper sheet, and means for holding the selected printing panels in an arranged state, said means for holding the selected printing panels comprising a base plate having in its upper surface a recess in which the selected printing panels can be fitted and a frame pivotably mounted on said base plate and having an opening corresponding substantially to said recess so that when the frame is superimposed on said base plate, said opening can overlie the selected printing panels fitted in said recess and a paper sheet may be sandwiched between said base plate and said frame.

The present invention will now be further described by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a perspective view of one embodiment of the present invention, illustrating the state in which a rotatable frame of a holder for printing panels is open;

Figure 2 is a perspective view of the embodiment shown in Figure 1, illustrating the state in which the frame is closed and the manner in which a design is printed on a paper:

Figure 3 is a plan view of printing panels having on upper surfaces thereof reliefs representing different, partial designs and classified into three groups;

Figure 4 is a bottom view of printing panels having on lower surfaces thereof reliefs representing different patterns;

Figure 5 is a plan view of the three printing panels respectively selected from each of the three groups and arranged in a predetermined order to thereby form on the upper surfaces of the panels a complete design to be reproduced on a paper; and

Figure 6 is a perspective view of a printing member comprising a holder and coloring materials.

Referring now to the drawings, particularly in Figure 1, reference numeral 1 indicates a holder means for holding printing panels or plates which will be described later. This

holder means 1 comprises a base plate 2 and a pivotable frame 3 which are moulded from plastics material into rectangular shape, respectively. The base plate 2 is provided with a pair of bearing members 4a, 4b which projects upwardly from the upper surface of the base plate 2 near one end thereof. The frame 3 is provided with a pair of pivot pins 5a, 5b which projects laterally outwardly from both sides of the frame near one end thereof and which are rotatably supported by the bearing members 4a, 4b, respectively so that the frame 3 can be rotated about the axis of said pivot pins 5a, 5b.

The base plate 2 is provided, in its upper face, with a rectangular recess 6 which extends longitudinally along the centre line thereof and which serves for holding therein a plurality of the printing panels A1 to A3. B1 to B3, C1 to C3 in an arranged state. The base plate 2 is also provided with a plurality of semi-circular recesses 7 which are located on both sides of the rectangular recess 6. These circular recesses 7 communicate with rectangular recess 6 so that they may facilitate manipulation for setting such printing panels in the rectangular recess 6 and for removing such panels therefrom.

The frame 3 is provided with a longitudinally extending opening 8 corresponding substantially to the rectangular recess 6 of said base plate 2 so that when the frame 3 is rotated and superimposed on the base plate 2, the opening 8 may face printing panels held in the recess 6. A permanent magnet 9 is mounted in the lower surface of the frame 3 at a portion adjacent to the free end thereof, while a magnetizable metal piece 11 is mounted in the upper surface of the base plate 2 at a portion adjacent to the free end thereof, so that when the frame 3 is rotated and superimposed on the base plate 2, the frame 3 can be magnetically held upon the upper surface of the base plate 2 by contact of the magnet 9 with the metal piece 11. The base plate 2 is also provided, at its portions adjacent to said bearing members 4a, 4b, with projections 12, 12 which serve for regulating the position of a paper 16 placed on the base plate 2 for the purpose of printing.

Figures 3 and 4 show a number of printing panels which are moulded from plastics material. A number of these panels are classified into a plurality of groups, for example, two, three or more groups. In the illustrated embodiment, there are provided nine printing panels A1 to A3, B1 to B3 and C1 to C3 which are classified into three groups A, B and C. The first group A comprises three panels A1, A2 and A3 each of which is to be placed in a first predetermined position in the rectangular recess 6 of said base plate 2. The second group B also comprises three panels B1, B2 and B3 each of which is to be placed in a second predetermined position in said recess 6. Similarly, the third group C comprises three panels C1, C2 and C3 each of which is to be placed in a third predetermined position in said recess 6. Each of these panels A1 to A3, B1 to B3 and C1 to C3 is formed, on its upper surface, with a relief a1, a2, a3, b1, b2, b3, c1, c2, c3. As shown in Figure 3, these reliefs a1 to a3, b1 to b3, c1 to c3 are so shaped as to represent different designs which are capable of forming varied designs of dressed girls.

In the illustrated embodiment, the relief a1, a2, a3 of each of the printing panels A1, A2 and A3 which belong to the first group A represents a picture of a head part with a portion of neck of a girl that differs from each other in appearance, as shown in Figure 3. The relief b1, b2, b3 of each of the printing panels B1, B2 and B3 which belong to the second group B represents a picture of a main body part with arms of a dressed girl that differs also from each other in appearance. Similarly, the relief c1, c2, c3 of each of the printing panels C1, C2 and C3 which belong to the third group C represents a picture of a lower part of the body inclusive of legs of a dressed girl that differs from each other in appearance, as shown in Figure 3. All of the printing panels have substantially the same width as that of the rectangular recess 6 of said plate 2 so that each of them can be snugly fitted therein, anc all the printing panels which belong to the same group are formed to have the same size and shape. As shown in Figure 4, each of the printing panels A1 to A3, B1 to B3 and C1 to C3 is also formed, on its lower surface, with a relief $a1^1$, $b1^1$, $c1^1$, which represents a textile pattern differing from each other.

Figure 5 shows the state in which three printing panels A1, B1 and C3 each selected from each of the groups A, B and C are arranged in a predetermined order. As shown, when the three printing panels A1, B1 and C3 are arranged in the predetermined order, the relief a1 representing the head part, the relief b1 representing the main body part with arms and the relief representing the lower part of body with legs are connected together to form an entire figure of a girl wearing a dress.

In this connection, it is to be noted that in order that a natural and beautiful appearance may be given to a complete design to be formed in the manner described, it is desirable that connecting ends of the reliefs a1 to a3 of the printing panels A1 to A3 which belong to the group A and first connecting ends of the reliefs b1 to b3 of the printing panels B1 to B3 of the group B that are designed to be connectible respectively with the connecting ends of said reliefs a1 to a3 are in strict agreement with each

other in size and also that similarly, second connecting ends of the reliefs b1 to b3 of the printing panels B1 to B3 which belong to the group B and connecting ends of the reliefs c1 to c3 of the printing panels C1 to C3 of the group C that are designed to be connectible respectively with the second connecting ends of said reliefs b1 to b3 are also in strict agreement with each other in size.

Figure 5 illustrates that the connecting end of the relief a1 and the first connecting end of the relief b1, and the second connecting end of the relief b1and the connecting end of the relief c3 of the printing panel C3 are in strict agreement with each other in size, respectively, and that a unified design without discontinuous or discrepant connecting ends between the reliefs a1, b2 and c3 is therefore formed.

Figure 6 shows a printing member 13 for use in printing a picture on a paper 16 in co-operation with said printing panels. This printing member 13 comprises a grip 14 having a semi-cylindrical holder portion 14^1 and solid coloring materials 15, such as a crayon, replaceably secured to the holder 14^1.

When it is desired to effect the printing operation by the use of the toy printing set described, first, three printing panels are selected respectively from each of the three groups A, B and C and the selected panels are fitted in the rectangular recess 6 of said base plate 2 in the predetermined order, with their reliefs forming a complete design of a dressed girl directed upwardly. Second, a paper 16 is placed on the printing panels thus arranged, and the frame 2 is manually pivoted and magnetically coupled to the base plate 2 to thereby nip the paper 16 immovably between the base plate 2 and the frame 3. Third, the upper surface of the paper 16 exposed through the opening 8 of said frame 3 is rubbed with the coloring materials 15, as illustrated in Figure 2. As this is done, the coloring materials 15 is adhered to the portions of the upper surface of paper 16 that corresponds to the projecting faces of the reliefs by the friction of the coloring materials 15 with such portions, whereby the complete design representing a dressed girl such as shown in Figure 5 is clearly reproduced upon the upper surface of the paper 16 nipped between the base plate 2 and the frame 3.

If and when it is desired to further print a pattern on a wear portion of the figure thus printed, first, a relief representing a desired pattern is selected from the reliefs $a1^1$, $b1^1$, $C1^1$ formed on the lower surfaces of the printing panels A1 to A3. B1 to B3 and C1 to C3. Second the printing panel having the selected relief is fitted in the rectangular recess 6 of said base plate, with its lower surface directed upwardly. Third, the printed paper is placed on the surface, and then the wear portion is rubbed with a portion of the coloring materials 15 or a suitable colour pencil, whereby the desired pattern can be clearly reproduced upon the wear portion of the print.

It will be readily understood from the foregoing that according to the illustrated embodiment which includes the three groups A, B and C each consisting of the three printing panels A1 to A3, B1 to B3, C1 to C3 having the reliefs a1 to a3, b1 to b3, c1 to c3 of different, partial designs, twenty seven (27) kinds of varied designs or pictures of dressed girls can be reproduced upon papers by permutation—making all possible changes— of arrangement of three printing panels each belonging to each of the three groups A, B and C. Hence, it will be easily understood also that if each of the groups A, B and C consists of four printing panels of the kind stated, then sixty four (64) kinds of varied designs or pictures can be reproduced upon papers by such permutation and that if sixteen such printing panels are classified into four groups each consisting of four printing panels, then two hundred fifty six (256) kinds of varied designs or pictures can be printed on papers by permutation of arrangement of four printing panels which belong tothe four groups, respectively.

As may be seen from the foregoing description, the toy printing set as described, according to the present invention, makes it possible for children to print a number of varied designs and/or patterns which are clear and beautiful on papers with a very simple procedure.

Finally, if should be noted that although the invention has been described by way of the illustrated embodiment only which is suited for play by female children various modifications to the embodiment, particularly to the designs of reliefs or projections of printing panels may be made so that the toy may also be suited for play by male children.

WHAT WE CLAIM IS:—

1. A toy printing set comprising a plurality of printing panels each having on one surface thereof a relief, the relief of each printing panel being so shaped as to represent a different respective partial design, said printing panels being classified into groups so that by selecting a desired printing panel from each of the groups and arranging the selected printing panels in a predetermined order, the total of the reliefs of the arranged printing panels can reproduce a complete design upon a paper sheet, and means for holding the selected printing panels in an arranged state, said means for holding the slected printing panels comprising a base plate having in its upper surface a recess in which the selected printing panels can be

other in size and also that similarly, second connecting ends of the reliefs b1 to b3 of the printing panels B1 to B3 which belong to the group B and connecting ends of the reliefs c1 to c3 of the printing panels C1 to C3 of the group C that are designed to be connectible respectively with the second connecting ends of said reliefs b1 to b3 are also in strict agreement with each other in size.

Figure 5 illustrates that the connecting end of the relief a1 and the first connecting end of the relief b1, and the second connecting end of the relief b1and the connecting end of the relief c3 of the printing panel C3 are in strict agreement with each other in size, respectively, and that a unified design without discontinuous or discrepant connecting ends between the reliefs a1, b2 and c3 is therefore formed.

Figure 6 shows a printing member 13 for use in printing a picture on a paper 16 in co-operation with said printing panels. This printing member 13 comprises a grip 14 having a semi-cylindrical holder portion 14^1 and solid coloring materials 15, such as a crayon, replaceably secured to the holder 14^1.

When it is desired to effect the printing operation by the use of the toy printing set described, first, three printing panels are selected respectively from each of the three groups A, B and C and the selected panels are fitted in the rectangular recess 6 of said base plate 2 in the predetermined order, with their reliefs forming a complete design of a dressed girl directed upwardly. Second, a paper 16 is placed on the printing panels thus arranged, and the frame 2 is manually pivoted and magnetically coupled to the base plate 2 to thereby nip the paper 16 immovably between the base plate 2 and the frame 3. Third, the upper surface of the paper 16 exposed through the opening 8 of said frame 3 is rubbed with the coloring materials 15, as illustrated in Figure 2. As this is done, the coloring materials 15 is adhered to the portions of the upper surface of paper 16 that corresponds to the projecting faces of the reliefs by the friction of the coloring materials 15 with such portions, whereby the complete design representing a dressed girl such as shown in Figure 5 is clearly reproduced upon the upper surface of the paper 16 nipped between the base plate 2 and the frame 3.

If and when it is desired to further print a pattern on a wear portion of the figure thus printed, first, a relief representing a desired pattern is selected from the reliefs $a1^1$, $b1^1$, $C1^1$ formed on the lower surfaces of the printing panels A1 to A3. B1 to B3 and C1 to C3. Second the printing panel having the selected relief is fitted in the rectangular recess 6 of said base plate, with its lower surface directed upwardly. Third, the printed paper is placed on the surface, and then the wear portion is rubbed with a portion of the coloring materials 15 or a suitable colour pencil, whereby the desired pattern can be clearly reproduced upon the wear portion of the print.

It will be readily understood from the foregoing that according to the illustrated embodiment which includes the three groups A, B and C each consisting of the three printing panels A1 to A3, B1 to B3, C1 to C3 having the reliefs a1 to a3, b1 to b3, c1 to c3 of different, partial designs, twenty seven (27) kinds of varied designs or pictures of dressed girls can be reproduced upon papers by permutation—making all possible changes— of arrangement of three printing panels each belonging to each of the three groups A, B and C. Hence, it will be easily understood also that if each of the groups A, B and C consists of four printing panels of the kind stated, then sixty four (64) kinds of varied designs or pictures can be reproduced upon papers by such permutation and that if sixteen such printing panels are classified into four groups each consisting of four printing panels, then two hundred fifty six (256) kinds of varied designs or pictures can be printed on papers by permutation of arrangement of four printing panels which belong tothe four groups, respectively.

As may be seen from the foregoing description, the toy printing set as described, according to the present invention, makes it possible for children to print a number of varied designs and/or patterns which are clear and beautiful on papers with a very simple procedure.

Finally, if should be noted that although the invention has been described by way of the illustrated embodiment only which is suited for play by female children various modifications to the embodiment, particularly to the designs of reliefs or projections of printing panels may be made so that the toy may also be suited for play by male children.

WHAT WE CLAIM IS:—

1. A toy printing set comprising a plurality of printing panels each having on one surface thereof a relief, the relief of each printing panel being so shaped as to represent a different respective partial design, said printing panels being classified into groups so that by selecting a desired printing panel from each of the groups and arranging the selected printing panels in a predetermined order, the total of the reliefs of the arranged printing panels can reproduce a complete design upon a paper sheet, and means for holding the selected printing panels in an arranged state, said means for holding the slected printing panels comprising a base plate having in its upper surface a recess in which the selected printing panels can be

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fitted and a frame pivotably mounted on said base plate and having an opening corresponding substantially to said recess so that when the frame is superimposed on said base plate, said opening can overlie the selected printing panels fitted in said recess and a paper sheet may be sandwiched between said base plate and said frame.

2. A toy printing set as claimed in claim 1, wherein each of said printing panels is moulded from plastics material.

3. A toy printing set as claimed in claim 1 or 2, wherein said printing panels have on the other surfaces thereof projections representing different patterns.

4. A toy printing set as claimed in claim 1, wherein said printing panels are classified into a first group, a second group and a third group, each of the reliefs of the printing panels of the first group representing a head part of a child, each of the reliefs of the printing panels of the second group representing a main body part of a child, and each of the reliefs of the printing panels of the third group representing a lower part of the body of a child.

5. A toy printing set as claimed in claim 4, wherein said children are girls wearing dresses.

6. A toy printing set as claimed in claim 1 to 4, wherein the reliefs of the printing panels each being selected from each of said groups are formed so that when the printing panels each selected from each of said groups are arranged in the predetermined order, said reliefs are caused to be subsequentially connected at their connecting ends to represent a unified design.

7. A toy printing set as claimed in any preceding claim, wherein said base plate and said frame are provided with magnetic members for magnetically coupling said frame to said base plate when the former is superimposed on the latter so that a paper sheet may be firmly sandwiched between said base plate and said frame.

8. A toy printing set as claimed in any preceding claim, further comprising a printing member which comprises a grip having a holder portion and colouring material, such as a crayon, replaceably secured to said holder portion.

9. A toy printing set, substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

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