(54) Title: A BLANK FOR FORMING A FRAME AND A FRAME FORMED FROM SUCH A BLANK

(57) Abstract: The present invention relates to a blank for forming a framed surface, said blank comprising a cut-out cut out from said blank or at least defined by cut lines. The invention further relates to a frame formed from such a blank and to a method for forming a frame from such a blank.
A blank for forming a frame and a frame formed from such a blank

DESCRIPTION

According to a first aspect, the present invention relates to a blank from which a picture frame can be made.

Paintings or reproductions of paintings make up nice decorations. Usually, reproductions or drawings are framed to enhance their appearance. In many cases, however, the frame is relatively expensive and/or heavy in relation to the image displayed therein.

Accordingly it is an object of the present invention to provide a blank which not only comprises an image but which is integral with a framework that can be folded into a three-dimensional frame. This object is accomplished with a blank as defined in claim 1. Preferably, the polygon mentioned therein is a rectangle, so that a rectangular frame comprising a rectangular surface carrying an image can be formed.

By folding the flaps inward about the first score lines, i.e. upwards relative to the surface to be framed, and passing the lips through the slits, a frame can be folded around the first polygon. The shape of the lips and the corresponding slits with the oblique cuts make it possible to draw the flaps tightly against the blank through the slits and the cuts, with the parts of the lips that project outside the connecting portion forming barbs for locking the flaps that form the frame in the position thus created. Thus a flap, which forms a side of a frame in the folded and locked condition, can be drawn tightly against the plane to be framed and be held in that position, at least if the connecting portion extends from the flap to the wider part of the lip over a distance which corresponds with the thickness of the blank in question. Thus it is possible to obtain a frame made of paper or cardboard, for example, in a simple manner, which frame is capable of showing a picture on the framed plane to advantage. The part of the blank that is used for the frame may be provided with a print, for example a wood print or a single colour, so as to make the frame look even more attractive. Unless mentioned otherwise herein, the term "front side" of the blank or the frame is understood to mean the side that may carry the image.

Preferably, further cuts extending outside and parallel to the respective side of the first polygon are provided near the lips in question, the distance between a slit and a corresponding further cut being smaller than the
predetermined distance over which the corresponding lip extends outward. One millimetre shorter suffices. This makes it possible to pass the lips through said further cuts after being drawn thought the slits, so that they can be locked in a position in which they extend against the rear side of the frame.

Said further cuts comprise a recess which is preferably at least substantially rectangular in shape. Said recess provides space in order that the lip can be easily passed through the slit.

If the oblique cuts diverge in a direction away from the first polygon on either side of a slit, the oblique cuts will remain outside the surface being framed (or at least to be framed), because they are "hidden" behind the frame in the assembled condition of the cut-out. The diverging orientation is realised by the obtuse angles of the cuts relative to the slit. Said angles are preferably smaller than 175°, furthermore preferably smaller than 170° and preferably larger than 145°, more preferably larger than 155°. Angles in the aforesaid preferred ranges obviate the need to bend a lip unnecessarily far upon passing the lip through the slit and the cuts. In addition, an adequate first locking engagement on the "rear side" of the frame is thus provided.

To allow easy passage of a lip through the slit and the cuts, it is preferable if the oblique cuts comprise an at least substantially rectangular recess.

To ensure an adequate first locking engagement of a lip on the rear side of the frame, it is preferable if a lip widens from the connecting portion to a width which is substantially equal to the entire length of the corresponding slit plus the adjacent oblique cuts.

Locking the lip in the corresponding further cut will be easier if a lip narrows after the widened portion.

Said locking of the lip in the corresponding cut is also facilitated if the side of a lip remote from the corresponding flap is arcuate in shape.

Preferably, a flap is provided with two or more lips for which slits are provided in the blank. Thus, a flap can be drawn against the blank with the lips in question at locations distributed along the length thereof to ensure a better or more uniform attachment of the flap.

In a preferred embodiment of the present invention, the flaps are provided with further fold lines which jointly define a polygon, which polygon is
preferably identical in shape to and larger than the first polygon, which first and which further polygon have a common centre of gravity and an identical orientation. This makes it possible to realise an acute transition in the frame, for example a flap part that extends obliquely from the outer circumference of the frame and a flap part that is oriented perpendicularly relative to the blank from the fold line.

Said flaps preferably converge outward from said second polygon or from a further polygon. The angles of the flaps can be selected so that the oblique side edges of the flaps closely abut each other or even partially overlap in the folded condition so as to provide a substantially continuous frame. If further fold lines are provided, the flaps may converge outward from said further polygon.

Preferably, the length of a flap on the side facing the second polygon or an outer further polygon corresponds to the length of the adjacent side of said second or said outer further polygon.

It is moreover preferable if the length of a flap on the side remote from said second polygon corresponds to the length of the corresponding side of said first polygon.

If the length of a flap near the second fold line or an outermost further fold line corresponds to the length of the corresponding side of the first polygon, a frame can be provided whose inner side extends perpendicularly to the plane of the blank.

In a preferred embodiment of the present invention, the blank is rectangular in shape, in which blank the outer circumference of the flaps with the lips is defined by means of die cut lines, at least with the exception of connecting portions. Such a blank is easy to produce by providing a rectangular blank with a print and subsequently punching the respective lines into the blank, with small interruptions in the die cut line forming the connection between the cut-out and the rest of the blank. The blank can subsequently be presented in a condition in which the punched-out part is still connected to the rest of the blank, so that a user must detach the part to be folded from the other part of the blank prior to use. It is also possible, of course, to present the part of the blank that is to be folded in punched-out form. The supports may also be provided in another blank, which has the advantage that another type of material more suitable for the intended application can be used for that purpose, for example a heavier type of cardboard.
The blank preferably comprises a further part from which, at least with the exception of connecting portions, the outer circumference of a shape for a support has been punched. The advantage of this preferred embodiment is that both the frame and the support can be formed from one blank.

The present invention, according to a second aspect thereof, relates to a frame comprising a framed surface, formed from a blank according to the first aspect of the present invention. The second aspect of the invention in fact concerns the first blank, albeit in the situation after the cut-out has been folded into a frame.

According to a third aspect thereof, the present invention relates to an insert to be placed in a frame according to the second aspect of the invention, comprising a circumferential edge substantially corresponding to said first polygon and projecting wings on sides located opposite each other, preferably at locations that correspond to locations where no slits are present in the blank. Said sides may be located directly opposite each other, but they may also be located obliquely opposite each other, for example in the case of a polygon having an uneven number of sides. Thus it is possible to place another image in the frame in a simple manner. Said image may be provided in place of another image already depicted on the blank.

According to a fourth aspect thereof, the present invention relates to a method for forming a frame with a framed surface from a blank, from a blank according to the first aspect of the invention. This is accomplished by using a method as defined in claim 19. Said method will be explained in more detail hereinafter in the discussion of the second aspect of the invention.

The present invention will be explained in more detail hereinafter on the basis of a description of an exemplary embodiment of a blank and a preferred method for forming a picture frame according to the present invention, in which reference is made to the following figures, in which:

Figure 1 is a front view of a blank according to the present invention;
Figure 2 is a rear view of the blank of figure 1;
Figures 3a-3f show successive steps for forming a picture and frame from a blank as shown in figures 1 and 2;
Figure 4 is a front view of a card carrying a picture, which is to be placed in a frame according to the present invention;
Figure 5 shows a blank having supports for the frame defined therein
by means of die cut lines and score lines;

Figure 6a shows a blank for an alternative embodiment of a frame according to the present invention; and

Figure 6b shows a picture and frame formed from a blank as shown in figure 6a.

With reference now to figure 1, there is shown a front view of a blank 1, in which die cut lines for a cut-out 2 for a picture are illustrated in chain-dashed lines. In figure 5, chain-dashed lines indicate die cut lines for two supports 23a, 23b for supporting the picture to be formed. Said supports may also be incorporated in the blank 1, provided that the blank 1 is large enough and sufficiently rigid for providing a good support.

At its front side, the cut-out 2 is provided with a rectangular image 4 with a printed border 5. Disposed just within the circumference of the image 4 are score lines for slits 6 which extend parallel to the adjacent circumferential edge of the image 4 and which define a first rectangle. The die cut lines further extend obliquely away from the image 4 on either side of the slits 6 and subsequently define rectangular cuts 7. Near each slit 6, a die cut line defining a rectangular locking opening 8 is located in the border 5. Furthermore, circular die cut lines are centrally provided in each side of the border 5, each circular line defining a suspension opening 9. At its outer circumference, the border 5 is bounded by four score lines 10, which intersect at their point of intersection with the die cut lines that define the cut-out 2. From the point of intersection with the score lines 10, two die cut lines extend obliquely away for forming flaps 11a, 11b. The flaps 11a on the long side have the shape of a trapezium 12a with a rectangular part 13 located adjacent thereto, which rectangular part projects beyond the connecting line with the trapezium 12 on either side. The rectangular part 13 is provided with mushroom-shaped projections 14. Score lines are provided at the boundary between the rectangular part 13 and the trapezium 12a and the boundary between the rectangular part 13 and the mushroom-shaped projections 14, which score lines are illustrated in dotted lines herein. The flaps 11b on the short side likewise comprise a trapezoidal part 12b with a rectangular part 15 located adjacent thereto, which rectangular part extends along the length of the respective base of the trapezium 12b in this case. The rectangular parts 15 are each provided with two mushroom-shaped projections 14.
Figure 2 shows a rear view of the cut-out 2. The score lines and the
die cut lines are illustrated in dotted lines and chain-dotted lines, respectively, on the
rear side of the cut-out as well. The flaps 11a, 11b are printed on the rear side.
The steps of a preferred method for working the cut-out are shown in
figures 3a-3f.

To form a picture from the cut-out 2, the cut-out 2 is removed from
the blank 1 along the die cut lines that define the cut-out 2. The result is a pressed-
out cut-out as shown in figure 3a.

In figure 3b the rectangular cuts 7, the rectangular locking openings
8 and the suspension openings have been cleared by removing material within the
die cut lines. Figure 3 further shows that a few of the flaps 11a, 11b have been folded
inwards along the score lines. The projections 14 of one flap 11b have been inserted
into the corresponding slits 6 and the adjacent cuts 7. They are illustrated in dotted
lines in figure 3b because they are located behind the cut-out 2.

Figure 3c shows the cut-out 2 from the rear side, with the lips 14 of
the flaps 11a, 11b pulled entirely through the respective slits 6 and cuts 7, whilst the
bottom side of the head of the mushroom-shaped projection 14 is pulled against the
cut-out 2 on the rear side. The projections 14 tend to return to their original flat
shape, so that the parts that have been pulled through the cuts 7 move away from
said cuts 7. This prevents the projections 14 from retracting from the slits 6. Because
the connecting part that is formed by the stem of the mushroom of the projections 14
only has a minimum height, the front side of the flap 11b is pulled tightly against the
front side of the cut-out 2.

Figure 3d shows that the projections 14 have been folded outwards
along their score lines and have been inserted into the rectangular locking openings
8, with the end (consistently illustrated in dotted lines in figure 3d) of a projection 14
extending just beyond the locking opening 8 in question. This additional locking
opening 8 causes the projection 14 to be pressed flat against the rear side of the cut-
out 2. In this way not only a flat rear side for the picture is realised, but in addition an
extra locking engagement is provided, which prevents the projection 14 from
retracting through the slit 6.

Figure 3e shows the front side of the cut-out 2 again, after all four
flaps 11a, 11b have been arranged around the image 4 in a comparable manner. The
picture is ready and can be hung from a nail, for example, via a suspension opening 9 (illustrated in dotted lines in figure 3e).

The blank 20 shown in figure 5 moreover comprises a second and a third cut-out part 20a, 20b for forming supports 20a, 20b, respectively, so as to enable placement of the picture on a surface, for example a table. The larger support 20a of the two supports is defined by chain-dotted lines. The support 20a comprises a substantially rectangular body 21a having four projecting parts 22a, which correspond to locking openings 8 in the short sides of a picture frame. From the centre line of the body 21a, a die cut line for a stand 23a illustrated in chain-dotted lines is defined. The stand 23a is connected to the body 21b via score lines (illustrated in dotted lines). The support 20b also has a substantially rectangular body 21b, in this case comprising two projections 22b and a stand 23b. The rectangular bodies 21a, 21b are slightly longer than the spacing between two opposite locking openings 8 on the short and the long sides, respectively, of the cut-out 2.

Figure 3f shows the rear side of a picture comprising a support 20b. The support has been formed by removing the support 20b from the blank 1 along the die cut lines and subsequently folding the stand at right angles to the body 21b. Subsequently a lip 24b was folded towards the stand 23b from the body 21b and the projections 22b were inserted into an upper and a lower locking opening 8.

Figure 4 shows a separate card 30, which can be inserted into a folded frame 2. The card 30 has a substantially rectangular circumferential edge, which substantially corresponds to the inner circumference of the frame folded in the abovedescribed manner. The long sides of the circumference are provided with wings 31 at locations which correspond to locations between adjacent slits 6 at the long sides of the image 4. The card 30 can be inserted into the frame of the folded picture, the wings 31 being clamped down in the cut-out 2 by ends of the flaps 11a that are located between the projections 14.

Figure 6a shows a blank 51 comprising a cut-out 52 for an alternative embodiment of a picture frame. Elements comparable to elements shown in the preceding figures are as much as possible indicated by the same numerals, augmented by 50. The cut-out 52 also comprises projecting parts 64 and slits and cuts 56 and 57, respectively. The cut-out 52 is different from the cut-out 2 in that additional score lines are provided between the second score lines 60 and the outer
edge of the flaps, so that rectangular surfaces 66a and 66b are formed between the score lines 60 and the corresponding trapezoidal parts 62a and 62b, respectively. From such a cut-out, a differently shaped frame is obtained (see figure 6b) than from the cut-out 2 (see figure 3e).

In the figures and in the above description, only one embodiment of a frame and a surface to be framed, which is to be folded from a blank, is shown and described, respectively. It will be understood that many variants, which may or may not be obvious to those skilled in the art, are conceivable within the scope of the present invention. The method according to the invention is only shown as carried out for forming a cardboard frame, but it is also possible to use blanks made of another material, which comprise resilient lips. Where one blank is folded and a short side edge of the blank is connected to the surface of the blank in question in the examples, it is also possible, for example, to connect two individual blanks together using a method according to the invention. In the figures, a rectangular frame is shown by way of example, but it is also conceivable to use triangular, pentagonal, hexagonal or polygonal frames. Furthermore, the surface to be framed need not carry an image. A user may provide the surface with an image himself. It is also possible to provide separate images, which can be inserted into the frame. The border need not be printed, because the border is present on the inner side of the frame in the folded position thereof. Nor does the rear side of the flaps need to be provided with a print or a pattern. It may also be left to a user to do so, or a blank frame may be used. The die cut lines and the score lines shown in the figures may be drawn on the blank, if desired, so that a user can form the die cut lines and the fold lines himself. Furthermore, more score lines may be provided in the flaps, for example, for realising a more complex shape of the frame. It is desirable in that case to adapt the side edges of the flap to the shape in question, to possibly provide said side edges with score lines if the flaps are to be folded at the sides. In the examples a distinction is made between slits (lines) and cuts (surfaces), but a cut may just as well concern a line or a slit may have the shape of a surface. Fold lines are indicated as score lines, but they may also be formed in a different manner, for example by perforations. Die cut lines may also be provided in a different manner than by blanking, for example by cutting.
CLAIMS

1. A blank for forming a framed surface, said blank comprising a cut-out punched out or at least defined by cut lines, which blank comprises:
   - a first polygonal surface to be framed,
   - a second polygonal surface, which is defined by first score lines and which is identical in shape to and larger than said first polygonal surface, which first and second polygon have a joint centre of gravity and an identical orientation,
   - a flap extending outwards from the respective first score line on each side of the polygon, which flap is provided with at least one lip, which is connected to the flap in question, via a connecting portion having a length d1, on a side of the flap in question remote from said polygons and which has a length d2 ≥ d1 and which extends outward over a predetermined distance,
   - cut-open sections made up of slits having a length d4 ≥ d1 at the circumferential edges of the first polygon, through which cut-open sections the lips are to be passed, and of cuts extending from either end of said slit, at an angle relative to said slit, the length of the cut-open section being d3 ≥ d2.

2. A blank according to claim 1, characterised in that further slits extending outside and parallel to the respective side of the first polygon are provided near the lips in question, the distance between a slit and a corresponding further cut being smaller than the predetermined distance over which the corresponding lip extends outward.

3. A blank according to claim 2, characterised in that said further cuts comprise a recess which is at least substantially rectangular in shape.

4. A blank according to one or more of the proceeding claims, characterised in that the oblique cuts diverge in a direction away from the first polygon on either side of a slit.

5. A blank according to one or more of the proceeding claims, characterised in that the oblique cuts comprise an at least substantially rectangular recess.

6. A blank according to one or more of the proceeding claims, characterised in that a lip widens from the connecting portion to a width which is substantially equal to the entire length of the corresponding slit plus the adjacent
oblique cuts.

7. A blank according to one or more of the proceeding claims, characterised in that a lip narrows after the widened portion.

8. A blank according to claim 7, characterised in that the side of a lip remote from the corresponding flap is arcuate in shape.

9. A blank according to one or more of the proceeding claims, characterised in that a flap is provided with two or more lips for which slits are provided in the blank.

10. A blank according to one or more of the proceeding claims, characterised in that the flaps are provided with further fold lines which jointly define a polygon.

11. A blank according to one or more of the proceeding claims, characterised in that said flaps converge outward from said second polygon.

12. A blank according to one or more of the proceeding claims, characterised in that the length of a flap on the side facing the second polygon corresponds to the length of the adjacent side of said second polygon.

13. A blank according to one or more of the proceeding claims, characterised in that the length of a flap on the side remote from said second polygon corresponds to the length of the corresponding side of said first polygon.

14. A blank according to one or more of the proceeding claims, characterised in that the length of a flap near the further fold line or an outermost further fold line corresponds to the length of the corresponding side of the first polygon.

15. A blank according to one or more of the proceeding claims, characterised in that the blank is rectangular in shape, in which blank the outer circumference of the flaps with the lips is defined by means of die cut lines at least with the exception of connecting portions.

16. A blank according to one or more of the proceeding claims, characterised in that the blank comprises a further part from which, at least with the exception of connecting portions, the outer circumference of a shape for a support has been punched.

17. A frame comprising a framed surface, composed from a blank according to one or more of the proceeding claims.
18. An insert to be placed in a frame according to claim 18, comprising a circumferential edge substantially corresponding to said first polygon and projecting wings on sides located opposite each other.

19. A method for forming a frame with a framed surface from a blank, which method comprises the steps of:
   - providing a blank according to one or more of claims 1-16;
   - folding the blank along the first score lines; and
   - passing the lips through said slits and said cuts.