Aug. 20, 1957 W. R. VAN DEUSEN, JR 2,803,166

BORDERLESS EASEL FOR PHOTOGRAPHIC PROJECTION PRINTING

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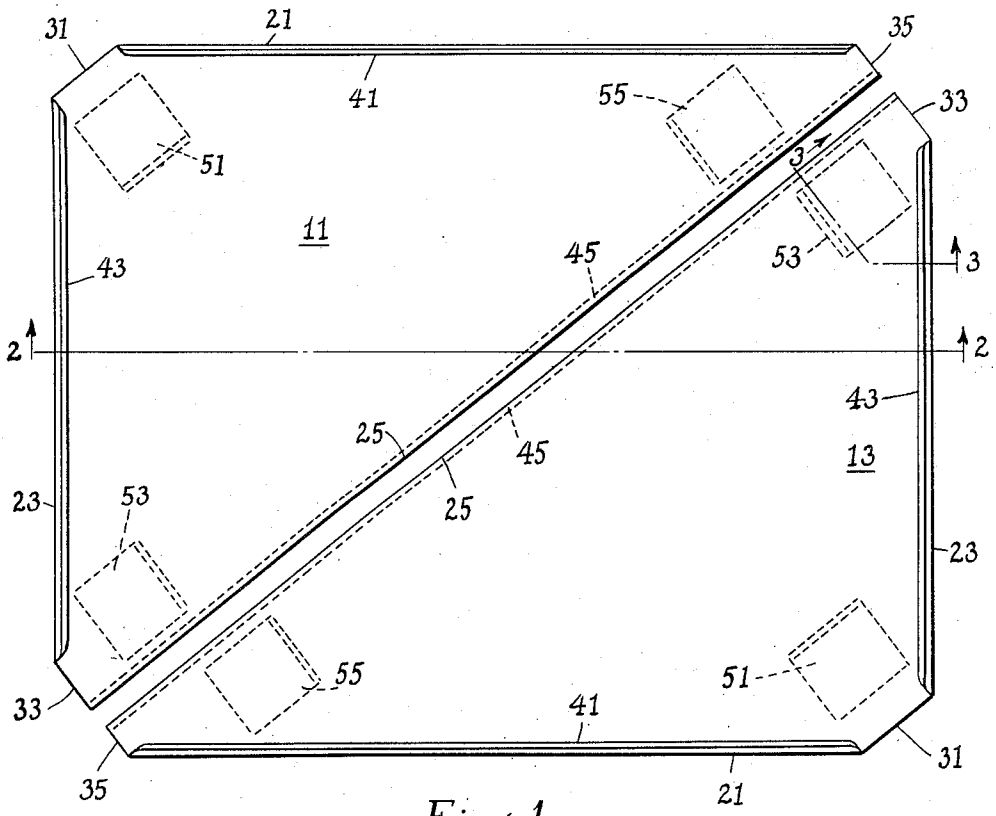


Fig. 1

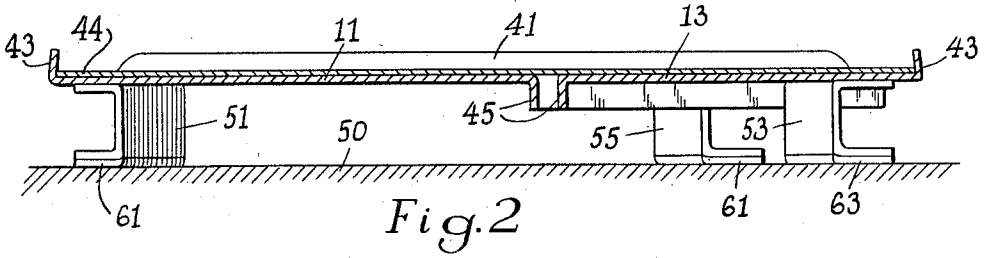


Fig. 2

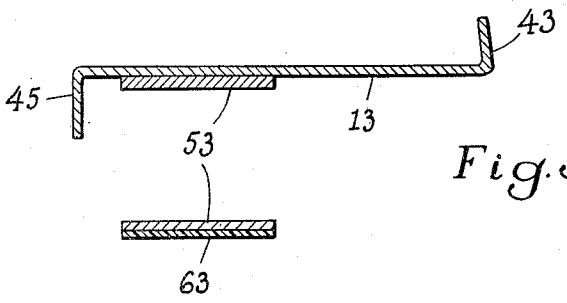


Fig. 3

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BORDERLESS EASEL FOR PHOTOGRAPHIC PROJECTION PRINTING

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7 Claims. (Cl. 88—24)

This invention relates to an easel for holding photographic print paper while a print is made by projected light, such as from an enlarger.

Photographic print paper often has a tendency to curl, sometimes only slightly, sometimes badly. When the paper is used in making what is called a contact print, the curling tendency of the paper presents no particular problem. But when prints are made with an enlarger or by other projected light process, it is desirable not to have a transparent plate over the print paper, and if the paper has a tendency to curl, it is often difficult to hold it sufficiently flat to obtain a good print, particularly if it is desired to make what is called a borderless print; that is, a print covering the entire area of the print paper, with no blank border or margin around the edges. In such a case, it is not possible to use a mask for holding the edges of the paper flat.

An object of the present invention is the provision of a generally improved and more satisfactory borderless holding device or borderless easel for holding the print paper flat notwithstanding a tendency to curl, while making photoprints with an enlarger or other projection printing means, enabling the print to cover the entire area of the print paper without wasting any border or margin.

Another object is the provision of a borderless easel so designed as to hold the print paper securely on all four sides, without masking any part of the paper or requiring a border or margin.

Still another object is the provision of an easel which automatically accommodates the holding means to minor variations in the nominal size of the print paper for which the easel is intended.

A further object is the provision of an easel so constructed that it may be manipulated very easily and quickly under normal conditions of use in the photographic darkroom.

A still further object is the provision of an easel having a construction of extreme simplicity, easy and inexpensive to make.

These and other desirable objects may be attained in the manner disclosed as an illustrative embodiment of the invention in the following description and in the accompanying drawings forming a part hereof, in which:

Fig. 1 is a top plan or face view of the easel in position to receive a print of sensitized photographic paper, but with the paper omitted in order to show the construction of the underlying parts of the easel;

Fig. 2 is a vertical section taken approximately on the line 2—2 of Fig. 1, but with a sheet of paper in place; and

Fig. 3 is a vertical section taken approximately on the line 3—3 of Fig. 1, on a larger scale.

The same reference numerals throughout the several views indicate the same parts.

The easel of the present invention comprises two body plates 11 and 13, conveniently of sheet metal, which are duplicates of each other except for a difference in the feet or supports of the respective plates as will be mentioned below. Hence a description of one will be sufficient for both, except for the above mentioned difference which will be further explained.

Each of these plates 11 and 13 is of the general shape of a right triangle, slightly truncated at the corners, having a long side 21 and a short side 23 at a right angle to each other, and a hypotenuse 25 forming the diagonal of the two sides 21 and 23.

Each corner of each plate is slightly truncated or cut off angularly. The corner between the sides 21 and 23 may be truncated at 31 at an angle of 45 degrees to the two right angular sides 21 and 23, or may be truncated along a line parallel to the diagonal 25, in either event being cut off at such point that the length of the line 31 is about one inch. The truncated end 33 between the side 23 and the hypotenuse 25, as well as the truncated end 35 between the side 21 and the hypotenuse 25, are both arranged preferably at a right angle to the hypotenuse 25, and are each about ½ inch in length.

On the two right-angle sides 21 and 23 of each of the triangular plates 11 and 13, there is an upstanding marginal flange 41 and 43 respectively, formed integrally from the same sheet metal from which the main body is formed, and bent up at an angle just a little less than 90 degrees to the plane of the main body of the triangle. Preferably the included angle between the upstanding flanges and the horizontal plane of the body is substantially 84 degrees. It is found in practice that this slight degree of overhang of the flange 41 or 43 is sufficient to hold the edge of the sensitized paper 44 down flat on the easel, notwithstanding any reasonable tendency to curl, and yet it does not interfere with projection of the printing image onto the entire area of the paper, without leaving any border or wasted margin. This is because the light coming down from the enlarger lens centered above the easel comes down in the form of a cone, with the extreme lateral rays in all cases (within practical limits of ordinary enlargers) making an angle of more than 6 degrees to a vertical line or less than 84 degrees to the horizontal printing surface, so that the rays of light projected down from the enlarger lens to the printing surface will cover the full area of the print paper notwithstanding the slight 6 degree overhang of the marginal flanges on the easel.

These upstanding flanges 41 and 43 terminate at the ends of the cut-off or truncated corners 31, 33, and 35, there being no upstanding flanges on these cut-off corners. The upstanding flanges themselves preferably have their ends slightly inclined or tapered as indicated in Fig. 1. The flanges are preferably about ⅜ of an inch in height. Along the hypotenuse or diagonal side 25 of each triangular plate, a flange 45, likewise about ⅜ of an inch wide, is turned down rather than up, to form a reinforcement or stiffening flange for this edge of the body, which thus is stiffened along all three sides so that the body will remain perfectly plane and flat even when made of a relatively light gauge of sheet metal.

The two triangular bodies 11 and 13 are supported from the usual horizontal flat surface of the bed or copyboard 50 of the enlarger, by three legs or feet fastened to the under side of each body 11 or 13, respectively, approximately at the corners thereof, as indicated, respectively, at 51, 53, and 55. Preferably these legs are each formed of a piece of stiff sheet metal bent into a U-shape with parallel sides or legs and laid on its side with the top leg of the U welded to the bottom of the metal plate 11 or 13, respectively, and with the bottom leg of the U forming a support to elevate the easel body above the supporting surface or copyboard 50.

The only difference between the two triangular halves of the easel is that the bottom surfaces of the feet on the first easel unit 11 are coated with a thin layer of a high

friction material such as high friction rubber **61** (Fig. 2) whereas the bottom surfaces of all three feet on the other easel unit **13** are coated with a layer **63** of plastic material such as polyethylene, having a reasonable degree of friction but a substantially lower coefficient of friction than the high-friction rubber coatings **61**. Both coatings **61** and **63** are of the same thickness, and the feet on both units of the easel are of the same dimensions, so that both units or halves of the easel are held at the same elevation above the main supporting surface **50**. However, the higher friction of the coating **61** on the unit **11** tends to keep this unit stationary on the board **50** after it has been initially set in proper position, whereas the lower friction of the coating **63** on the feet of the second unit **13** permits this unit to be slid easily toward and away from the first unit **11**, over the top of the supporting board **50**, without marring or other damage to the board **50**, yet with enough friction so it will normally stay in place after it has been set in position.

The dimensions of the device are such that it will accommodate a given nominal size of photographic print paper, with allowance for reasonable minor variations in the dimensions of the paper, from one package to another or from one sheet to another within an individual package. For example, in the size of easel intended for a nominal print size of 8 x 10 inches, the dimensions are such that when there is a gap of about ½ inch between the two diagonal edges **25** of the two units **11** and **13**, the space between the upstanding flanges **41** along the two long right angle sides of the two units will be 8 inches, and the space between the two upstanding flanges **43** at the two short right angle sides of the respective units will be 10 inches. If the paper is a trifle oversize, it will still be securely held but the gap between the two diagonal edges **25** of the two units will be slightly larger than that above indicated. Likewise, if the paper is a trifle undersize, the two units can be pushed slightly closer toward each other. still holding the edges to the paper securely. Different easels are to be provided for different nominal print sizes, such as 5 x 7 inches, 11 x 14 inches, or any other standard or special size desired.

In use, the picture may be focused and composed on the top surface of the easel with the two sections close together, say about ½ inch apart. When composition and focusing have been completed, the first unit **11**, having the rubber coated feet, is left in position, and the second unit **13** is pulled slightly away from it to leave a gap of about one inch between the respective diagonal edges **25**.

The print paper **44** is then placed on the easel, emulsion side uppermost, and the second section or unit **13** of the easel is slid gently toward the first unit until all four edges of the print paper are gripped by the upstanding flanges **41** and **43**. The gripping of the paper is continuous along all four edges except for slight gaps in the gripping flanges at the corners, so that the paper is firmly held down in a flat condition notwithstanding any curling tendency. As already mentioned, the slight angularity of the upstanding flanges **41** and **43** causes them to overlie the edges of the paper to a sufficient extent to hold the paper down, and yet does not interfere with the projected image reaching all parts of the area of the paper, no margin or border being blanked off by the holding flanges. As well understood by those familiar with making photographic prints, any tendency of the paper to curl usually causes it to become concave on the emulsion side and convex on the uncoated side, so that the curling tendency would cause the edges, rather than the center of the paper, to rise, with the result that the entire expanse of the sheet will be held flat if the edges are held down in flat condition.

In case the print paper has an extreme tendency to curl, rather than the normal or slight tendency to curl, the extremely curly paper can still be loaded easily and quickly onto the easel, by using a weight strip such as a clean wooden dowel or a plastic cylinder of about one inch diameter and of a length slightly greater than the diagonal of the paper. The paper is placed on the two units or sections of the easel, as before, and the weight strip is laid along the diagonal of the paper which runs along the edges **25** of the easel. This weight strip will serve to hold down the two opposite corners of the curly paper, along this diagonal, and the absence of the side flanges at these corners enables the ends of the weight strip to project beyond both corners, if it is longer than the diagonal of the paper. Then the left hand of the operator grasps the easel section **11** with the thumb of the left hand overlying the corner of the paper at the corner **31** of the easel section **11**, and the right hand of the operator grasps the corresponding right angled corner of the second easel section **13**, with the thumb overlying this corner of the paper, and while holding these corners down with the thumbs, the second easel section or unit **13** is moved gently toward the first unit **11** until the upstanding flanges grip all four edges of the paper in the proper way. Then, of course, the weight strip or dowel which was temporarily used in mounting the paper on the easel, is removed from the paper and the paper is exposed to make the print. The omission of the upstanding flanges at the corners enables the user's thumbs to bear down on the exact corner of the paper, while loading curled paper in the easel. The truncated corners **31**, **33**, and **35** of the easel cause the corners of the paper to overhang the easel so that the paper may be quickly picked up by the corners when the exposure is completed.

The rubber coating **61** on the feet of the section **11** holds this section in the position in which it has been placed, until it is purposely displaced therefrom. The plastic coating **63** on the second section or unit **13** also produces enough friction to tend to hold this unit in place, with sufficient force to hold the paper down while the operator's hands are busy with manipulation of the enlarger, but the frictional holding of the second section is less than that of the first section so that the second section can be more easily moved toward and away from the first section when loading and unloading the paper.

It is seen from the foregoing disclosure that the above mentioned objects of the invention are well fulfilled. It is to be understood that the foregoing disclosure is given by way of illustrative example only, rather than by way of limitation, and that without departing from the invention. the details may be varied within the scope of the appended claims.

What is claimed is:

1. An easel for holding a rectangular piece of photographic print paper flat in a substantially horizontal position while an image is projected onto the paper in a cone of rays coming downwardly from above, said easel including two flat body portions each approximately in the shape of a right angle triangle truncated at its corners, the two triangular body portions together forming, when in normal effective position, an approximately rectangular support for a rectangular piece of print paper, upstanding marginal flanges on the edges of both body portions corresponding to edges of the print paper, the inner face of each of said flanges making an angle of approximately 84 degrees to the flat surface of its body portion so as to overlie the edge of the paper sufficiently to resist any upward curling tendency of such edge, without interfering with projection of said image to the entire area of the paper, there being no upstanding flanges on said truncated corners of said body portions, supporting feet on the first body portion having high friction material on the bottom faces of said feet, and supporting feet on the second body portion having lower friction material on the bottom faces of such feet.

2. An easel for holding a rectangular piece of photographic print paper flat in a substantially horizontal position while an image is projected onto the paper in a cone of rays coming downwardly from above, said easel including two flat body portions each approximately in the shape of a right angle triangle truncated at its corners, the two

triangular body portions together forming, when in normal effective position, an approximately rectangular support for a rectangular piece of print paper, and upstanding marginal flanges on the edges of both body portions corresponding to edges of the print paper, the inner face of each of said flanges making an angle of approximately 84 degrees to the flat surface of its body portion so as to overlie the edge of the paper sufficiently to resist any upward curling tendency of such edge, without interfering with projection of said image to the entire area of the paper, there being no upstanding flanges on said truncated corners of said body portions.

3. An easel for holding a rectangular piece of photographic print paper flat in a substantially horizontal position while an image is projected onto the paper in a cone of rays coming downwardly from above, said easel including two flat body portions each approximately in the shape of a right angle triangle truncated at its corners, the two triangular body portions together forming, when in normal effective position, an approximately rectangular support for a rectangular piece of print paper, and upstanding marginal flanges on the edges of both body portions corresponding to edges of the print paper, the inner face of each of said flanges making an angle of approximately 84 degrees to the flat surface of its body portion so as to overlie the edge of the paper sufficiently to resist any upward curling tendency of such edge, without interfering with projection of said image to the entire area of the paper, there being no upstanding flanges on said truncated corners of said body portions, the sizes of said triangular body portions being so related to the size of the piece of print paper to be held thereby, that when the two upstanding flanges of one body portion are engaged with two adjacent edges of a rectangular piece of paper and the two upstanding flanges of the other body portion are engaged with the other two edges of the piece of paper,

the diagonal edge of one body portion will be slightly spaced from the diagonal edge of the other body portion.

4. A borderless easel for holding photographic print paper in flat condition, said easel including two approximately triangular bodies together forming an approximately rectangular flat support for underlying a rectangular piece of print paper, the two bodies being slightly separated from each other along a diagonal line approximately coinciding with a diagonal of said rectangular paper, and an upstanding flange on each of two edges of each triangular body for engaging corresponding edges of the piece of paper, each of said upstanding flanges having a paper-engaging face extending approximately vertically but tilted slightly inwardly to overlie the edge of the paper sufficiently to resist upward curling of the edge of the paper but not sufficiently to interfere with projection of a photographic image onto the entire area of the paper during normal conditions of use.

5. A construction as defined in claim 4, in which each of said flanges is tilted inwardly at an angle of approximately 84 degrees to the flat supporting surface of its triangular body.

6. A construction as defined in claim 4, in which each of said triangular bodies has its corners truncated, and in which there are no upstanding flanges at the truncated corners, so that the corners of the print paper project beyond the supporting bodies and may be easily grasped for quick removal from the easel.

7. A construction as defined in claim 6, in which both of said triangular bodies have feet for supporting both bodies at the same elevation above an enlarger board, and in which the feet of one body have bottom surfaces coated with rubber and the feet of the other body have bottom surfaces coated with plastic material.

No references cited.