Jan. 4, 1949. C. J. HUGHEY 2,458,381

PHOTOGRAPHIC PRINT STRAIGHTENER

Filed Nov. 30, 1946

FIG. 1.

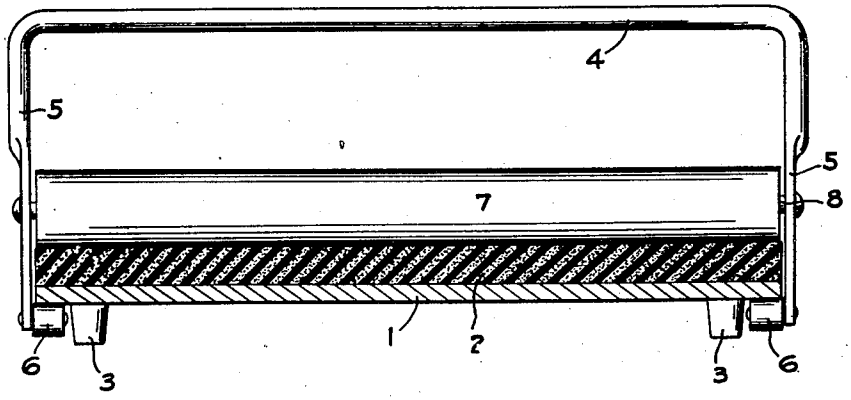


FIG. 2.

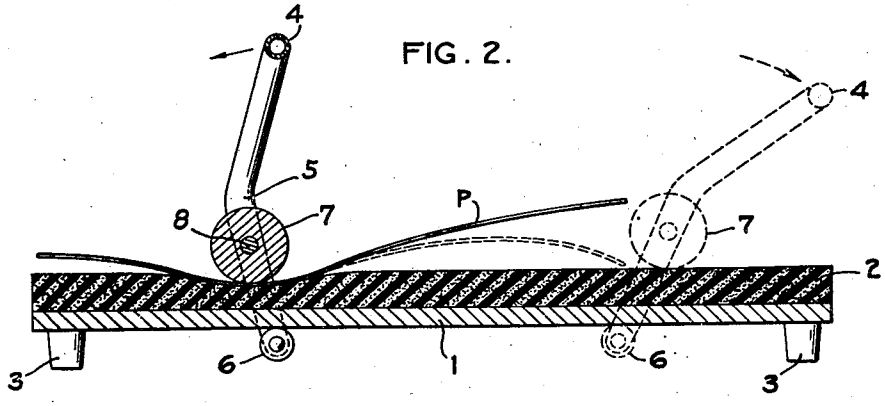
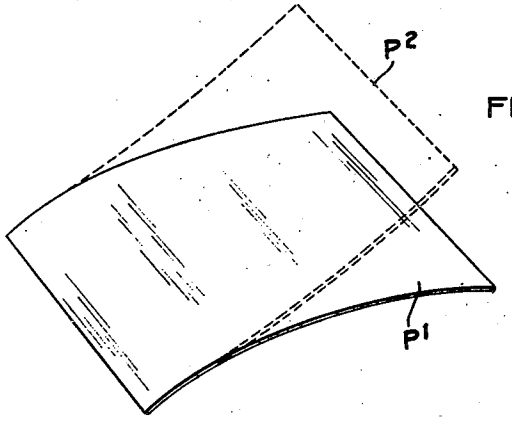


FIG. 3.



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PHOTOGRAPHIC PRINT STRAIGHTENER

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6 Claims. (Cl. 92—70)

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This invention relates to print straighteners, and particularly to devices for overcoming and correcting the natural curling or bowing of prints made on photographic paper.

It is well known that the emulsion and "sub" coatings of light-sensitive photographic paper shrink to a greater extent than the paper itself when the prints made on such paper are dried after processing. This invariably results in a curled print, the emulsion being on the concave side.

Many devices have been proposed for flattening or straightening curled prints. Some of these involve heating, moistening and pressing, or other difficult operations, which may damage the print surface or the paper, or both.

It is an object of the present invention to provide a print straightener that is simple in construction and operation and so arranged that a print is unlikely to be cracked, dented, or otherwise damaged, and which an unskilled operator may quickly learn to use. To this end, the invention consists of the combinations of elements herein described and as set forth in the claims at the end of this specification, and of which a specific example is embodied in the structure illustrated in the accompanying drawings, in which

Fig. 1 is a transverse vertical section of a preferred form of print straightner constructed according to this invention;

Fig. 2 is a longitudinal vertical section; and

Fig. 3 is a pictorial representation of a print before and after straightening.

The device as shown herewith comprises a stationary base and a manually movable element. The base is made up of a rigid sheet 1 of any suitable dense material, such as wood, wallboard, or plastic composition, to the upper surface of which is cemented or otherwise secured a matching slab of resilient or yieldable material 2. I have found "foam" or sponge rubber to be most suitable for the accomplishment of the desired results. However, thick felt is quite satisfactory, if it is sufficiently compressible. Rubber feet or blocks 3 may be attached to the underside of the base 1 to prevent abrasion of any surface on which the device may be placed, and also to help it cling to such surface, and at the same time to be spaced therefrom.

The movable portion of the straightener comprises a generally U-shaped yoke having a transverse handle portion 4 long enough to span the width of the base 1, 2, and having depending legs 5, each having a short anti-friction bearing

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6 projecting inwardly under the lower base piece 1. These bearings may be simply short cylindrical sections carried on pintles in the arms 5, or may be ball or roller bearings of stock design.

Spanning between the arms 5 and above the resilient pad 2 is a roller 7 of a length substantially coinciding with the width of the pad 2. A rod or shaft 8 is fixed in the arms 5, and the roller 7 freely revoluble on this rod.

The operation of straightening or flattening a curled print is carried out as follows: The print P is laid on the pad 2 with the emulsion side down, that is, with the convex face of the paper upward. The print at this stage resembles the full-line portion P' of Fig. 3. The operator then pulls the handle bar 4 forwardly, as indicated by the full-line arrow in Fig. 2, thus not only causing the roller 7 to press upon the print but also to force it into the soft mass of the block or pad 2. At the same time the roller 7, the yoke, 4, 5, and the bearings 6 are all moved toward the operator. When the yoke has reached the front edge of the print, the operator pushes it rearwardly, at the same time pressing the handle 4 downwardly, as indicated by the broken arrow, so that the leverage obtained by swinging the arms 5 about the fulcrum points (the bearings 6) creates considerable pressure on the print, and by forcing portions of it into the progressing depression made in the resilient pad by roller 7, actually curves successive portions of the print in a reverse direction so that the emulsion (lower) side becomes slightly convex downwardly, as indicated by the broken lines P2 in Fig. 3, and when it is removed from the pad the print will remain approximately flat.

Obviously the operator may quickly acquire the necessary experience to apply just the required pressure or leverage. As the whole assembly of yoke, roller and bearings is freely movable back and forth on the base, the operation is extremely simple and very rapid. The print does not need to be moistened or pretreated in any way, and the operation of depressing it into the soft pad has no tendency to crack the emulsion.

The form of the invention as shown is one specific example of the means for accomplishing the results desired, and it is intended that the invention may encompass any structures that may be designed to fall within the terminology of the following claims.

I claim:

1. A print straightener comprising a rigid base with a resilient top surface, a bar having bent ends extending downwardly at each side of the

base and tiltable forwardly and backwardly above the base, anti-friction bearings projecting inwardly from the ends of said arms under the base, and a roller pivoted between said arms above the resilient surface and movable thereon with said bar.

2. A print straightener having a rigid base and a resilient pad attached to the upper surface thereof, and a movable pressure member comprising a bar with downturned ends arranged to move adjacent the side edges of the base, anti-friction bearings extending under the base from the lower portions of said bar ends, and a roller supported in said bar ends between said pad and the main portion of the bar, the entire pressure member being freely rollable forward and backward on said pad and tiltable to various angles to the plane of said pad.

3. A print straightener having a base provided with a pad of resilient material, a roller adapted to be pressed against the pad and to be moved on the upper surface thereof, and means whereby the roller may be pressed against said pad comprising a U-shaped bar including pintles for said roller, the legs of said member being spaced to extend below and close to the sides of the base and having anti-friction bearings extending inwardly under the side edges of said base, said roller, bar and bearings being movable as a unit along the pad and the base at varying angles to the surface thereof.

4. A print straightener comprising a base with a resilient upper surface and a roller movable on and depressible into said surface, said roller being supported between the depending arms of a U-shaped member provided with anti-friction bearings at the lower ends of said arms, and engaging the underside of the base in such manner that they constitute a fulcrum for the U-shaped member, whereby said member becomes a second-order lever when its main portion is pressed toward said resilient surface to cause said roller to press and travel over a print on said surface.

5. A print straightener having a rigid base provided with a pad of resilient material, and a longitudinally-movable pressure member unattached to the base but movable longitudinally thereof, said member comprising a substantially U-shaped bar, the downturned arms of which clear the side edges of the base, anti-friction bearings extending under the base and pivoted in the lower ends of said downturned arms, and a roller pivotally supported between the arms and adapted to be pressed upon a print lying on the resilient pad when the U-shaped member is canted about the anti-friction bearings as a fulcrum, the entire pressure member being movable back and forth in any pressure position.

6. A print straightener comprising a rigid base, a soft resilient covering therefor, a generally U-shaped handle, a flattening roller pivoted to the handle and normally contacting with the resilient covering and being movable thereover, guide rollers carried by the ends of the U-shaped handles engaging the rigid base opposite the soft resilient covering, pressure on the flattening roller being controlled by rotating the handle about either the flattening roller or the guide rollers whereby flattening pressure on a print lying on the soft resilient cushion may be varied in accordance with the angular position of the U-shaped handle relative to the resilient covering.

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