Sept. 22, 1953 F. P. ROBBINS 2,652,757

PHOTOREPRODUCTION DEVICE

Filed June 7, 1949

Fig. 1

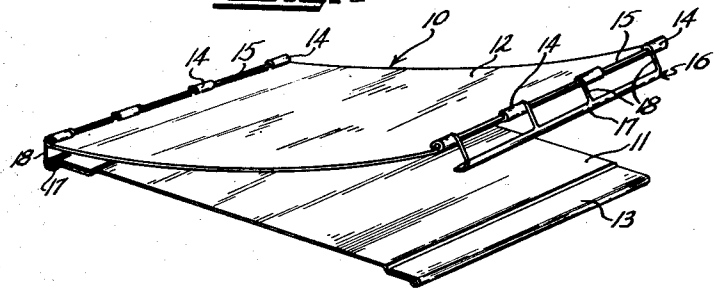


Fig. 2

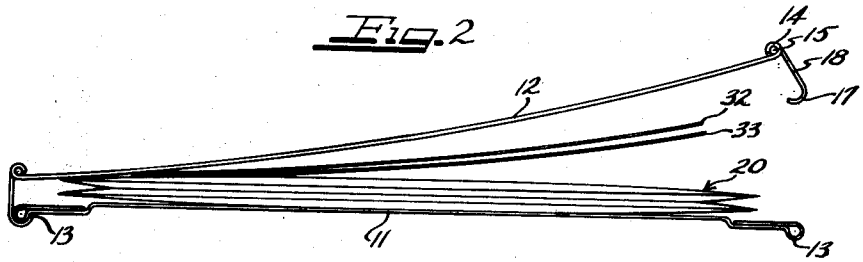


Fig. 3

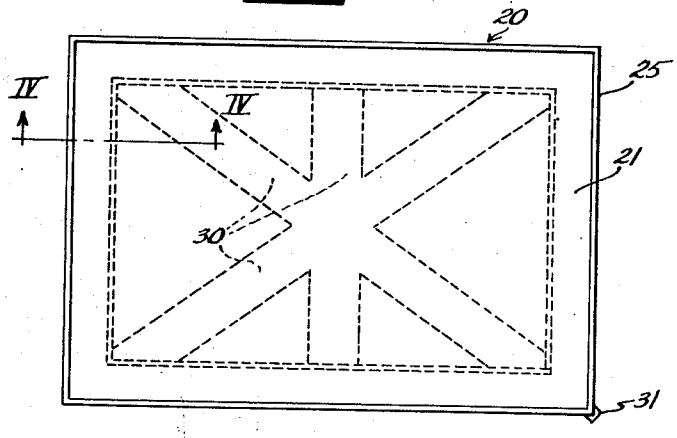
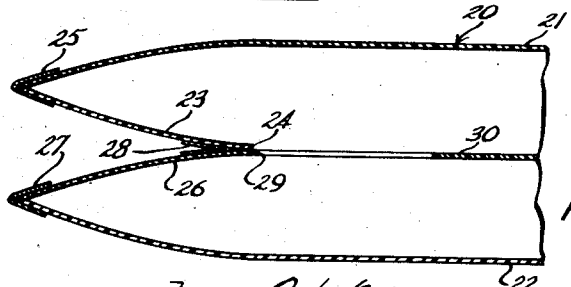


Fig. 4



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PHOTOREPRODUCTION DEVICE

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3 Claims. (Cl. 95—76)

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The present invention relates to a reproduction device and more particularly to a device for reproducing indicia by the exposure of light sensitive media.

There has been a long felt need in the photographic and reproduction art for a readily employed, simply constructed portable device for exposing light sensitive media to light. For example, a simple, easily employed means for utilizing photographic or other reproduction processes to reproduce and permanently preserve the notes and sketches of field engineers and surveyors has not heretofore been available.

The present invention is concerned with such reproduction means and contemplates the employment of extremely simple apparatus to carry out the desired operation.

In general, the present invention comprises a rigid, sheet-like backing member and a translucent cover secured to the backing plate in generally parallel relation thereto. Easily detachable, readily employable means for securing the cover to the backing plate are provided, the securing means preferably taking the form of elongated latches or clips extending along and about corresponding edges of the backing plate and the cover.

Resilient means insertable between the backing plate and the cover are employed to insure smooth, continuous surface engagement between a reproducing medium inserted between the backing plate and the cover. The resilient means thus employed may take the form of a deformable pad or, preferably, of an inflatable bladder. By employing such a pad or bladder, the use of relatively massive pressure exerting means, such as springs or the like, is obviated and the portability and ease of employing the device are enhanced.

The medium upon which the indicia is to be reproduced and the medium upon which the indicia is present, are inserted between the cover and the resilient pad, the cover is closed by the employment of the clamping means, and the reproducing medium is exposed to light from a suitable source, the translucent cover transmitting the light to the reproduction medium. The reproduction medium employed may suitably be of such light sensitive means as a photographic paper, ozalid paper and the like.

It is, therefore, an important object of the present invention to provide improved, readily employed, inexpensive reproduction devices.

Another important object of the present invention is to provide a reproduction device in-

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cluding a rigid backing plate, a cover, means for securing the cover to the backing plate in spaced relation thereto, and a resilient pad insertable therebetween for maintaining a reproduction medium in position to underlie the cover.

A further important object of the present invention is to provide a reproduction device including a rigid backing plate, a translucent cover substantially contiguous with the plate, means for securing the cover to the plate in spaced relation thereto, and an inflatable bladder insertable between the cover and the backing plate and having thickness greater than the distance therebetween, said inflatable bladder serving to maintain a reproduction medium in flush surface engagement with an inner surface of said cover, so that the medium may be exposed to light transmitted through the cover.

Other and further objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

On the drawings:

Figure 1 is a perspective view of a reproduction device of the present invention;

Figure 2 is a side elevational view of the device of Figure 1;

Figure 3 is a plan view of an inflatable bladder shown in Figure 2; and

Figure 4 is a sectional view taken along the plane IV—IV of Figure 3.

As shown on the drawings:

In Figure 1, reference numeral 10 refers generally to a reproduction device of the present invention including a relatively rigid backing plate 11 formed of wood, metal, plastic, or the like and a semi-rigid cover 12 for the plate 11 formed of translucent or transparent material, such as glass, plastic, or the like.

As best shown in Figure 2, the central portion of the plate 11 is provided with a substantially plain upper surface, opposing end marginal edges of the plate 11 being provided with turned-back reinforcing terminal ribs 13 of double thickness.

The translucent cover 12 is preferably slightly warped or deformed from a true planar configuration so that its upper surface is slightly concave, as best shown in Figure 2. The cover is semi-rigid, but capable of sufficient deflection to be formed to a substantially plane shape. Opposing end marginal portions of the sheet 12, corresponding to the ends 13 and the backing plate 11, are turned inwardly, as at 14, to encircle a rigid rod 15 passing axially through the inturned portions along each edge of the cover. Each of the rods 15 carries a clamping member 16 secured

thereto and capable of pivoted movement, the clamping means including an elongated clamping plate 17 of arcuate cross-section, and spaced supporting members 18 preferably formed integrally with plate 17 and having their free ends encircling the rod 15 at points between the cover portions 14.

It will be seen from Figures 1 and 2 that the cover 12 is substantially coextensive with the backing plate 11 and that the clamping plate 17 is adapted to be positioned beneath the marginal portions 13 of the plate 11 to secure the cover to the backing plate in spaced relation thereto.

A resilient pad, preferably in the form of an inflatable bladder 20 is adapted to be interposed between the cover 12 and the plate 11. As shown in Figures 3 and 4, the bladder 20 is preferably formed of resilient, air impermeable material, such as rubber or a suitable plastic material. The bladder comprises spaced top and bottom sheets 21 and 22, respectively, and an intermediate sheet 23, centrally apertured as at 24 and secured at its outer marginal edge to the marginal edges of the sheet 21, by suitable means, as by tape 25 or by suitable adhesive. A second intermediate sheet 26 is secured at its outer marginal edge to the outer sheet 22 by tape or adhesive 27. The intermediate sheets 23 and 26 are secured together adjacent the marginal edge 24 of the sheet 23 by tape or adhesive, as at 28. The intermediate sheet 26 is also centrally apertured as at 29, the sheet 26 being cut so as to provide an integrally formed, inner spider 30 extending across the aperture 29 to join each of the inner corners of the sheet 26 and points intermediate the longer sides thereof. The spider 30 serves to retain the inflatable bladder 20 in the bellows-like configuration as shown in Figure 2 by preventing the billowing outwardly of the intermediate sheet 26 and the intermediate sheet 23 secured thereto.

A centrally apertured nipple 31, communicating with the interior of the bladder 20, is formed in one of sheets 21, 22, 23 or 26 to provide means for inflating the bladder, and the nipple to be closed by any suitable means upon inflation of the bladder.

As shown in Figure 2, the bladder 20 is adapted to be inserted between the backing sheet 11 and the cover 12, the bladder being so formed that, when inflated, the thickness of the bladder is slightly greater than the distance between the plate 11 and the cover 12 when assembled.

The operation of the device can be readily appreciated by those skilled in the art, and it will be understood that when a sheet 32 carrying the indicia to be reproduced and a light sensitive sheet 33 are inserted between the bladder 20 and the cover 12, the bladder will exert uniform pressure upon the sheets urging them into flush engagement with the under surface of the cover 12. The translucent properties of the cover 12 makes possible the ready exposure of the sheet 33 to light transmitted thereto.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention and it is, therefore, not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claims.

I claim as my invention:

1. A reproduction device for exposing light sensitive sheet material comprising a rigid backing plate, a translucent cover substantially coextensive with said backing plate, said cover being resiliently warped in one direction from a planar configuration to define a convex undersurface, clamping means movably connected to the plate and cover at each of two opposite sides and each having spaced parallel members in contact with the adjacent plate and cover sides connected thereby for maintaining the plate and cover in spaced apart relation, and an inflatable bladder inserted between said cover and said plate and having an inflated thickness in a free state greater in dimension than said spaced apart relation therebetween, said bladder serving to maintain light sensitive sheet material interposed between said cover and said bladder in flatwise contact with the normally convex under surface of said cover, said cover being resiliently deformed from its warped configuration to a substantially planar configuration by air pressure in said bladder, when said cover is held by the clamping means and the bladder is inflated.

2. A device as claimed in claim 1 wherein each of said clamping means is pivotally attached to one of the adjacent plate and cover sides connected thereby and removably engaged to the other of such sides.

3. A device as claimed in claim 2 wherein each of said clamping means is pivotally attached to the opposite sides of said cover and removably engaged with the adjacent plate side connected thereby.

FREDERICK P. ROBBINS.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
84,168	Buchtel	Nov. 17, 1868
263,242	Street	Aug. 22, 1882
895,577	McIntire	Aug. 11, 1908
1,107,879	Bates	Aug. 18, 1914
1,185,695	Marshall	June 6, 1916
1,492,960	Chambers	May 6, 1940
1,780,701	Crane	Nov. 4, 1930