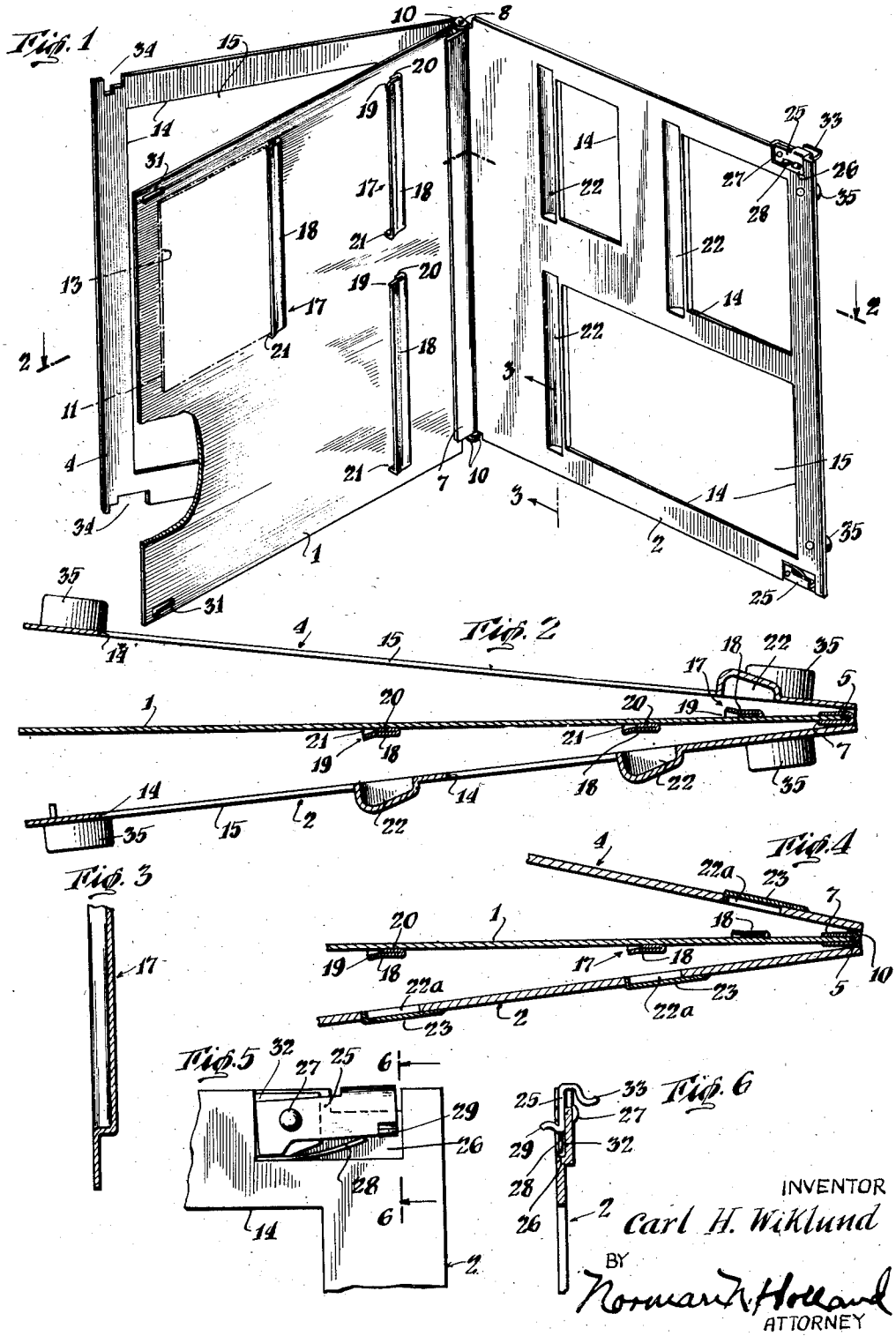
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PHOTOGRAPHIC PRINTING FRAME

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PHOTOGRAPHIC PRINTING FRAME

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1 Claim. (Cl. 95—77)

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The present invention relates to photography and more particularly to a photographic printing mechanism.

Numerous constructions have been utilized previous to the present invention for holding a sensitized sheet of material or both negatives and sensitized sheets of material during printing operations. These previous constructions have been frequently objectionable due, for example, to being quite complicated, excessively bulky and unhandy to use, limited to some particular purpose which prevented flexibility of use. With many previous devices either the photographic negative or the sensitized material, or both of them, would frequently accidently shift to one side or the other so that upon exposure during printing operations the light rays would not strike those parts of the sensitized material where it was desired to print the picture; the resulting imperfect print has to be discarded, thus resulting in a loss of both time and material.

The present invention aims to eliminate or minimize the above and other difficulties by providing a compact, convenient, and inexpensive means or mechanism adapted to be utilized for making prints from a photograph negative.

An object of the present invention is to provide an improved means or mechanism for making photographic prints.

Another object of the invention is to provide an improved means for holding a sensitized sheet of material or both a negative and a sheet of sensitized material.

Another object of the invention is to provide an improved means for facilitating accurate positioning of a negative and sheet of sensitized material.

A further object of the invention is to provide an improved mechanism for facilitating the making of various sizes of prints.

A still further object of the invention is to provide a printing device adapted to facilitate the formation of an accurately positioned border on a photographic print.

Other and further objects of the invention will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purpose of illustration and description and is shown in the accompanying

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drawings, forming a part of the specification, wherein:

Fig. 1 is a perspective view illustrating a preferred embodiment of the present invention;

Fig. 2 is a sectional view along the line 2—2 of Fig. 1;

Fig. 3 is a fragmentary sectional view along the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary sectional view illustrating a modified form of the invention;

Fig. 5 is a fragmentary view illustrating one form of retaining device; and

Fig. 6 is a sectional view along the line 6—6 of Fig. 5.

Referring more particularly to Figs. 1 and 2 there is shown a central or backing member 1 movably or pivotally connected adjacent one edge thereof with apertured side members or cover members 2 and 4. The side members 2 and 4 are adapted to be positioned against the intermediate member 1 or to be moved away from it in a manner similar to opening and closing of the leaves of a book.

As shown, the means retaining the members 1, 2 and 4 together comprises a rod or wire 5 held in position by a U-shaped channel 7; the latter channel may be spot welded or otherwise secured to the member 1 adjacent one edge thereof. The ends 8 of the rod or wire 5 project through apertures formed in projecting tabs or lugs 10 formed by turning inwardly end or corner portions of the outer members 2 and 4.

In manufacturing, the apertured tabs 10 may be formed on the outer members as shown, the channel 7 may be slipped over the edge of the intermediate member 1 so that the latter lies between the spaced sides of the channel member 7. The rod 5 may thereafter be inserted through the aligned apertures of the tabs 10 and the opening of channel member 7 and the channel member then spot welded, soldered or otherwise secured firmly to the intermediate member 1. The wire or rod 5 is thus held firmly in position against the edge of the intermediate member 1 and the ends thereof extend through the apertures of the tabs 10 so that the outer members 2 and 4 are pivotally secured to the backing member 1 and may be opened and closed against the backing member.

The intermediate or backing member 1 is adapted to hold and provide a support of a sheet of sensitized paper or other material 11 either separately or together with a photographic negative 13 placed over the sheet 11, and the outer members 2 and 4 are adapted to be moved into

position against the backing member 1 so that the edges 14 of apertures 15 in the outer members define the size of a picture and the inner edges of a border around a sheet of sensitized material held by the backing member 1.

The means for retaining the photographic negative and sheet of sensitized material, or the sheet of sensitized material separately, in position on the backing member 1 are shown generally at 17. As shown, each of these retaining means comprises a strip of flange 18 integral with the backing member adjacent one edge of the strip and with the opposite edge of the strip projecting out of the plane of the backing member to form a substantially V-shaped slot or groove 19. Sheets of material inserted into a slot are retained between the surface of the backing member 1 and the projecting edge of a strip 18. Generally the sensitized paper 11 will be cut to such size as to leave a space or border surrounding the desired picture area; the edges 14 of an aperture 15 define the inner edge of this border and the consequent size of picture. The particular size to which the paper will be cut depends upon the size of the corresponding negative 13 or the size of picture which is to be printed on the sensitized paper. As shown, the retaining groove is provided by spot welding, soldering, or otherwise affixing the folded edge 20 of a strip to the backing member, leaving the opposite free edge thereof projecting outwardly at an angle with respect to the plane of the backing member. The strip of flange 17 may be formed from some sufficiently flexible or yieldable material so that it may yield outwardly upon insertion of both a negative and sheet of developing paper, or of only the latter, into the groove 19 and yet will hold the paper firmly against the backing member 1.

To insure accurate positioning of material by the retaining strips 17, so that a sheet or sheets of material will be correctly centered with respect to an aperture 15 in an outer member, one end of the V-shaped groove is preferably provided with a stop or positioning member 21 that extends outwardly substantially perpendicular to the plane of the backing member. Sheets of material inserted into the V-shaped groove may have one edge thereof positioned against the stop or shoulder 21 to thus insure accurately locating the sheets so that the edges 14 of a cooperating aperture 15 in an outer member 2 or 4 may be in correct relationship to the sheet upon which it is desired to print a picture. While the foregoing method of manufacturing the retaining means 17 gives excellent results, the mass production method of forming the strips 18 and stops 21 by striking or bending portions of the member 1 out of the plane thereof is to be preferred as such assists in reducing manufacturing costs.

It will be understood that an appropriately sized sheet of printing paper should be inserted into the particular retaining groove corresponding to the size picture which it is desired to print. The construction illustrated in the drawing shows a printing mechanism adapted to retain and print four different sizes of pictures; three light-admitting apertures 15 and complementary retaining strips 17 and positioning stops 21 are shown at one side of the mechanism, and a single large size light-admitting aperture 15 and its complementary retaining strip and positioning stop are shown at the opposite side of the mechanism. When either one or both of the outer members is moved into juxtaposition with the intermediate or backing member 1, the light-admitting apertures 15 outline an accurate border adjacent the edges of a sheet of developing material correctly positioned by reason of a cooperating strip and stop member.

When the present device is in closed position it is desirable that an outer member fit snugly against the intermediate or backing member to thereby minimize or eliminate leakage of light past the edges 14 of a light-admitting aperture 15 and thereby to clearly define the inside lines of a border around a picture. This desirable close contact or snug fit may be facilitated by forming recesses 22 in an outer member which are complementary to the retaining strips 17 and positioning stops 21 so that, in closed position, the strips and stops may be received within the recesses 22 of an outer member. This construction insures a tight fit or close contact between an outer and center member and minimizes or prevents leakage of light rays under the edges 14 of an aperture during printing operations.

In Fig. 4 there is shown a modified form of recess or groove 22a adapted to receive a retaining strip and positioning stop upon closing of an outer member against a backing member. In this form of the invention the recess is fashioned by cutting apertures in an outer member in line with and adapted to receive the retaining strips and positioning stops, and thereafter placing cover members 23 over the apertures. The cover members 23 may be made of relatively thin material and spot welded or soldered into position. The retaining and positioning means project into these complementary recesses in a manner similar to that described in connection with the preferred embodiment.

It is desirable to provide for locking together of an outer member and an intermediate member so that these members cannot open with respect to each other during printing operations. One form of catch or retaining device for achieving this is illustrated in Fig. 1 at the outer corners of the member 2 and in greater details in Figs. 5 and 6. The particular form of catch shown comprises a member 25 located in a recess 26 and secured by a rivet or pin 27 to one wall of the recess. A resilient member 28 located beneath the member 25 tends to urge it upwardly at all times so that a catch 29 thereon may be retained in engagement with the wall of a cooperating recess 31 of the backing member 1. The resilient member 28 is shown retained in position by an extension 32 intermediate the outer wall and the member 25. The members may be unlocked from each other by pressing downwardly upon a finger 33 of the pivoted member 25 in opposition to the spring 28. This particular form of catch or locking device is merely illustrative and it is to be understood that any kind of lock, clip or catch may be utilized for securing the members together during printing operations. Apertures 34 on the outer member 4 are adapted to receive any suitable type of catch or retaining means.

Each of the outer members 2 and 4 is preferably provided with rubber bumpers or feet 35 at each corner thereof for holding the device out of contact with a supporting surface and frequently desirable in connection with printing operations.

The present mechanism or apparatus may be used in connection with the making of enlargements by inserting a suitably sized sheet of sensitized material into a particular retaining groove 17 and against a stop 21, closing an outer

member (2 or 4) against the intermediate member so that the edges 14 of an aperture 15 therein form a correct border around the secured sheet of material, and thereafter causing a representation of a negative held by an enlarger to fall upon the sheet of sensitized material. A stop 21 may be provided at each end of a retainer 17, if desired. Where the mechanism is utilized for making contact prints, both a sheet of sensitized material 11 and negative 13 will be held and positioned by the retainer 17 and stop 21.

It will be seen that the present mechanism or device provides a new and improved means adapted to retain photographic negatives and sheets of sensitized material firmly and accurately in position. A sheet of sensitized material, or both a negative and sheet of printing paper, may be readily inserted into a groove or slot and in abutment with a stop member; when held by a retainer, the sheet, or negative and sheet, are in position to register correctly with an opening in an outer member so that the edges of the aperture in the outer member will give a perfect border around the resulting picture. The retaining and positioning means of a backing member fit into receiving means on an outer member and give a snug fit which minimizes leakage of light beyond the edges of an aperture. The device embodies considerable flexibility of use for it is adapted to be used in enlarging or printing of various sizes of negatives. The device may be constructed of some light material such as aluminum or magnesium or it may be formed from synthetic plastic materials. It is rugged in construction and well able to withstand any rough usage to which it may be subjected.

As various changes may be made in the form, construction and arrangement of the parts herein without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matter herein is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention, I claim:

An article of manufacture adapted for use in providing sheets of photographic material with borders, comprising the combination of a backing member, a plurality of elongate clip-like means carried by the backing member at one surface thereof each including an aligning edge generally parallel to and spaced from one edge of said backing member, each of said clip-like means and aligning edges being adapted to hold and align at said one surface of the backing member one edge of a sheet, a single similar elongate clip-

like means including an aligning edge carried by said backing member at its opposite surface generally parallel to and spaced from said one edge thereof adapted to hold and align at said opposite surface one edge of an additional sheet, stop means extending between said backing member and each of said aforementioned clip-like means adjacent one end of the latter for accurately locating second edges of said sheets, a pair of outer members hingedly connected with said backing member along said aforementioned one edge thereof and swingable against and away from the opposite surfaces of the backing member, one of said pair of outer members having a plurality of openings therethrough adapted to expose and outline borders around, when closed against one surface of the backing member, central areas of sheets held and aligned and located by said plurality of clip-like means and aligning edges and stop means, and the other of said pair of outer members having a single opening therethrough adapted to expose and outline borders around, when closed against said opposite surface of the backing member, central areas of a sheet held and aligned and located by said single clip-like means and aligning edge and stop means, each of said outer members having recessed portions adapted to house each of said clip-like means and stop means when closed against the backing member.

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