

No. 812,816.

PATENTED FEB. 20, 1906.

W. H. BROWN.
PHOTOGRAPHIC PRINTING DEVICE.

APPLICATION FILED MAY 15, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

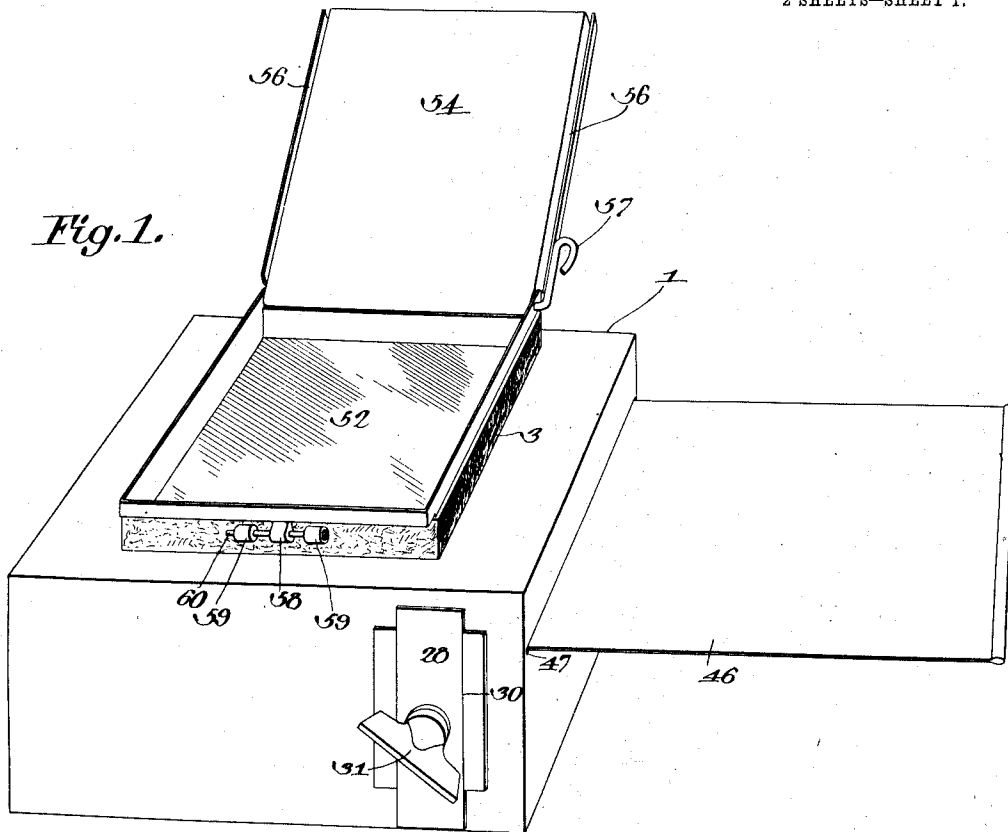
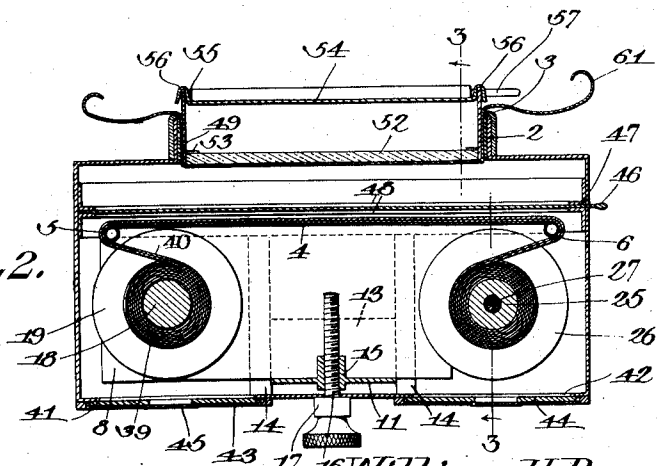


Fig. 2.



Witnesses

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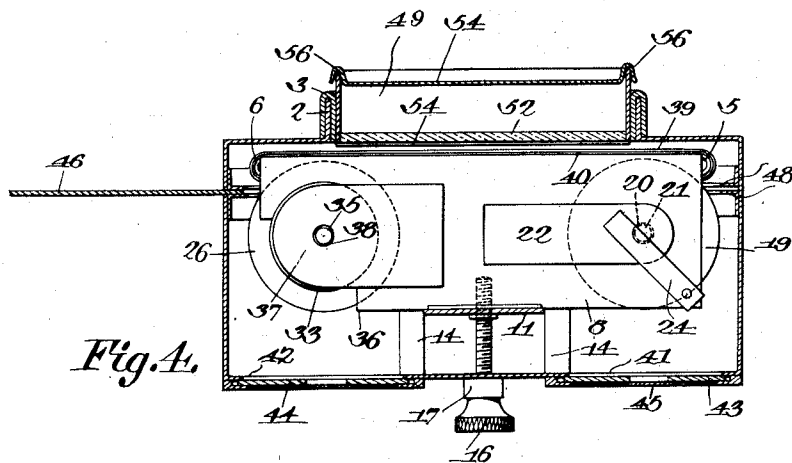
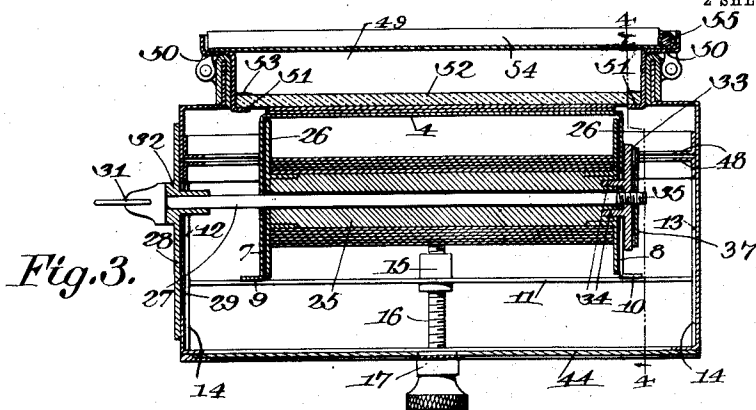
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Witnesses

E. J. [Signature]
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UNITED STATES PATENT OFFICE.

WILLIAM H. BROWN, OF LOCKHART, TEXAS.

PHOTOGRAPHIC-PRINTING DEVICE.

No. 812,816.

Specification of Letters Patent.

Patented Feb. 20, 1908.

Application filed May 15, 1905. Serial No. 260,529.

To all whom it may concern:

Be it known that I, WILLIAM H. BROWN, a citizen of the United States, residing at Lockhart, in the county of Caldwell and State of Texas, have invented a new and useful Photographic-Printing Device, of which the following is a specification.

This invention relates to photographic-printing apparatus, and has for its main object to provide an improved apparatus of this character whereby the charging of the apparatus with the developing-paper and the process of printing upon the paper may be conveniently, successfully, and expeditiously carried on without the aid of a dark room.

It is also proposed to arrange the device for printing from glass negatives and also from films.

Another object of the invention is to provide for conveniently making a succession of exposures upon a continuous roll of print-paper, this feature being particularly advantageous in printing panoramic views.

Other objects of the invention reside in the provision of novel means for supporting the developing-paper within the case of the apparatus for shifting the paper-holding mechanism so as to bring the paper into snug contact with the negative or film during the exposure period and to withdraw the paper therefrom to permit shifting of the latter for presenting a new surface to be exposed and to provide for conveniently inserting an unexposed roll of print-paper and for removing the roll of paper after exposure in a simple and expeditious manner.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a photographic-printing apparatus embodying the features of the present invention. Fig. 2 is a central sectional view thereof. Fig. 3 is a sectional view on the line 3 3 of Fig. 2. Fig. 4 is a sectional view on the line 4 4 of Fig. 3.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

The case 1 of the present apparatus is preferably rectangular in shape and of suitable proportions, according to the size of negative to be accommodated. In the top of the case

there is a rectangular opening surrounded by an upstanding rim or flange 2, which is embraced within a light-excluding covering 3, of felt or other material, said opening constituting the exposure-opening through which the negative is designed to be exposed.

Within the case there is a roll-holding frame or carrier for the support of the roll of print-paper, said frame or carrier comprising a metallic back or plate 4, which is beaded at opposite edges, as at 5 and 6, so as to form rounded corners around which the print-paper is designed to pass, so as to avoid damage thereto, as will be hereinafter explained. The other unbeaded edges of the back plate are provided with pendent sides 7 and 8, which are provided at their lower edges and substantially midway between their ends with outwardly-directed flanges 9 and 10, there being a comparatively narrow cross plate or bar 11 secured to the undersides of the flanges 9 and 10 and projecting beyond the sides 7 and 8 with its ends upturned to form slides 12 and 13, working in corresponding guideways formed upon the inner faces of the adjacent sides of the case, preferably by means of spaced metallic strips 14.

As best indicated in Fig. 2 of the drawings, it will be noted that the length of the plate or back 4 between its beaded edges exceeds the corresponding dimension of the exposure-opening in the top of the case, while upon reference to Fig. 3 it will be noted that the other dimension of the paper-supporting back 4 is somewhat less than the other dimension of the exposure-opening. At the center of the cross-bar 11 there is a fixed nut or internally-threaded bearing 15, piercing the cross-bar for the reception of an adjusting-screw 16, which is swiveled in a bearing 17 upon the exterior of the bottom of the case, so that by manipulating the exposed head or finger-piece of the adjusting-screw the paper-holding frame may be fed toward and away from the exposure-opening.

A paper-roll holder 18 is mounted between the left-hand ends of the sides 7 and 8 of the paper-holding frame or carrier, said roll being in the nature of a spool having a flange or head 19 at each end, and each end being further provided with a socket 20 for the reception of a suitable journal or pivot-pin 21, carried by a spring plate or arm 22, having one end soldered or otherwise secured to the exterior of the adjacent side of the paper holder or carrier with the pivot passing through a per-

foration in said side and received within the socket, whereby the spool or roll is rotatably supported in place. Each end of the roll or spool is mounted in the same manner, and there is a swinging guard or keeper 24 pivoted upon the exterior of the adjacent side of the paper-holder and designed to lie across the free end of the spring-arm 22, so as to maintain the pivot 21 in the socket of the roll or spool. By swinging each of the guards or keepers 24 away from the adjacent spring-arm 22 the latter may be forced outwardly, so as to withdraw the pivot from the roll or spool, and thereby permit convenient removal and application thereof.

Opposite the roll-holding spool 18 there is a similar receiving spool or roller 25, which is provided at each end with a head 26 and is tubular in form for the reception of a shaft or supporting-bar 27, which pierces the side 7 of the paper-holder and is carried by a slide 28, covering an opening 29 in the adjacent side of the case and working in a guideway 30 upon the exterior of the case, there being a button or finger-piece 31 provided upon the outer end of the rod or shaft for convenience in rotating the same. As best shown in Fig. 3, it will be noted that the slide 28 is provided with a tubular bearing 32, in which the shaft or bar 27 is rotatably supported. Opposite the finger-piece end of the shaft or bearing 27 the spool or roller 25 is provided with a washer 33, which has lugs or projections 34, taking into corresponding seats or notches in the adjacent end of the spool, so as to interlock the washer and the spool, the washer having a threaded opening for the reception of the threaded terminal 35 of the shaft or rotatable bar. As indicated in Fig. 4, it will be noted that the adjacent end portion of the side 8 is cut away, as at 36, so as to expose the adjacent end of the roller 25 to receive the projections 34 of the washer 33, there being a spring-arm 37 secured to the side and overlapping the cut-away portion and also provided with an opening 38, forming a bearing for the reception of the threaded terminal of the shaft, the spring constituting a tension device or brake to prevent looseness of the roller or spool. The print-paper 39 is of course put up in the usual manner upon the spool or roller 18 and is secured to a backing-tape 40, as usual, each end of the tape being projected a suitable distance beyond the print-paper, so as to permit of said projected portion of the backing being secured to the receiving-roll 25 without exposing the print-paper. As usual, the back or exposed side of the backing-tape is provided with a series of numerals indicating the successive sections of the print-paper.

To enable the insertion of the spools or rolls 18 and 25, the bottom of the case is provided with the respective openings 41 and 42, which are normally closed by the slides 43

and 44, each slide being provided with a central opening covered by a ruby glass 45 or other transparent material which will exclude actinic rays of light from the interior of the case and at the same time permit of the convenient examination of the numbers upon the back of the backing tape or web. It will here be explained that the print-paper is originally wound upon the spool 18 with its sensitized face wound next to the spool and the web or backing-tape upon the outer side, whereby the numbers upon the back of the web can of course be seen through the glass 45.

In charging the apparatus a full roll or spool of print-paper and an empty roll or spool are mounted upon the paper holder or carrier, the free end of the backing-web of course being drawn around the beaded edge 5 of the paper-supporting plate or table 4 across the upper face thereof, and thence around the opposite beaded edge 6 of the plate or table and connected with the empty spool 25, this operation of course being accomplished without exposing the print-paper by reason of the fact that the web is projected a sufficient distance beyond the outer end of the print-paper to enable the connection of the web with the empty spool 25 without unrolling any portion of the paper.

After the apparatus has been charged with a roll of print-paper the cut-off slide 46 is thrust inwardly through the slot 47 in the right-hand side of the case across the top of the paper-supporting plate or table 4, the interior of the case being provided at opposite sides with guideways 48 for the reception of the edges of the slide, whereby any light entering through the exposure-opening in the top of the case will be effectually excluded from the unexposed portions of the print-paper when being fed from the full roll or spool 18 to the receiving-spool 25 when the latter is rotated by manipulation of the finger-piece 31.

The negative-holding element of the present device consists of an open rectangular frame 49 of a size to fit snugly within the exposure-opening in the top of the case with the upper portion of the frame projected at opposite ends to form ledges 50 to rest upon the top of the flange 2, and thereby support the negative-holder in the exposure-opening. At the flanged ends of the negative-holder there are also internal flanges 51 at the bottom of the holder for the support of a negative or a glass plate, such a plate being illustrated at 52. The glass plate 52 is a piece of ordinary transparent glass, preferably bound around its edges with some suitable black light-excluding material 53, said glass plate being employed when printing from a film; but when printing from a negative plate said plate takes the place of the transparent plate 52. The open top of the negative-holder is

capable of being closed by a shutter 54, having one end hinged to the top of the negative-holder, as indicated at 55 in Fig. 3, whereby the shutter is adapted to close down upon the external ledges 50, each longitudinal edge of the shutter being provided with a grooved flange 56 to receive the upper edge of the negative-holder and exclude light from the interior thereof. The hinged end of the shutter is provided with a crank-handle 57 for convenience in opening and closing the shutter. At each end of the negative-holder there is an eye 58, designed to be received between corresponding eyes 59 upon the exterior of the flange 2, there being a suitable pin 60 capable of detachable engagement with the alined eyes to removably retain the negative-holder in place.

In practice the device is charged with a roll of print-paper, as hereinbefore described, the cut-off slide 46 being pushed in, so as to exclude light from the lower portion of the interior of the case. The negative-holder is then fitted in place, the shutter 54 opened, a negative fitted in the place of the glass plate 52, and the shutter then closed. The receiving-spool 25 is then rotated by manipulation of the finger-piece 31 until the numeral "1" appears through the sight-opening in the bottom of the case, which indicates that the first section of the print-paper is upon the upper face of the paper-supporting plate or table 4. The slide 46 is then withdrawn, the screw 16 manipulated to raise the carrier until the print-paper is brought into engagement with the negative, after which the shutter 54 is opened by means of the handle or finger-piece 57, so as to expose the negative for the desired length of time, whereupon the shutter 54 is closed, the screw 16 manipulated to withdraw the carrier from the negative, the slide 46 pushed in, and the finger-piece 31 manipulated to wind the exposed portion of the print-paper upon the receiving-spool 25.

When printing from a developed film, as shown in Fig. 2 of the drawings, it will be explained that the negative-holder 49 is removed from the exposure-opening, the film 61 placed across the opening, and then the negative-holder is replaced, thereby forcing the film down into the opening and drawing the same snugly across the bottom of the negative-holder, whereby the film occupies substantially the same position as that of the negative-plate and the printing operation is proceeded with as hereinbefore described. After one exposure has been made the negative-holder may be loosened, so as to permit of the film being shifted sufficiently to bring the next succeeding negative portion thereof into alinement with the exposure-opening of the case and the printing operation repeated, from which it will be understood that the present printing device is es-

pecially effective when printing panoramic views, as the views may be accurately matched in a very simple and expeditious manner.

Having fully described the invention, what is claimed is—

1. A photographic-printing device comprising a case having an exposure-opening, a print-paper carrier mounted within the case, means mounted upon one end of the carrier for the rotatable support of a paper-holding spool, a paper-receiving spool mounted upon the other end of the carrier, means to rotate the receiving-spool to feed print-paper across the exposure-opening to the receiving-spool, and means to adjust the carrier toward and away from the exposure-opening.

2. A photographic-printing device comprising a case having an exposure-opening, a print-paper carrier mounted in the case and adjustable toward and away from the exposure-opening, and means upon the carrier for feeding print-paper across the exposure-opening to permit of successive exposures upon a continuous strip of print-paper.

3. A photographic-printing device comprising a case having an exposure-opening, a print-paper carrier mounted in the case and adjustable toward and away from the exposure-opening, means for feeding print-paper across the exposure-opening consisting of a receiving-spool mounted upon the carrier, means located upon the exterior of the case for rotating the feeding-spool, the case being provided with a slot to accommodate said operating means, and a closure-slide for the slot carried by the operating means.

4. A photographic-printing apparatus comprising a case having an exposure-opening, guideways leading toward the exposure-opening within the case, a print-paper carrier within the case and slidably engaging the guideways for adjustment toward and away from the exposure-opening, and means mounted upon the carrier for supporting and feeding print-paper across the exposure-opening.

5. In a photographic-printing device, the combination of a case having an exposure-opening, a print-paper carrier comprising a paper-supporting table having opposite side members, a cross-bar connecting the side members and projected beyond the same, guideways upon the case with the ends of the cross-bar working therein, means for supporting a roll of print-paper upon one end of the carrier, a paper-receiving spool mounted upon the other end of the carrier, and means piercing the case and connected to the cross-bar for adjusting the carrier toward and away from the exposure-opening.

6. A photographic-printing device comprising a case having an exposure-opening, a print-paper carrier mounted within the case, and carrier-adjusting means piercing that side of the case which is opposite the expo-

sure-opening and accessible at the exterior of the case for adjusting the carrier toward and away from the exposure-opening.

7. A photographic-printing device comprising a case having an exposure-opening, a print-paper carrier mounted within the case, and an adjusting-screw piercing that side of the case which is opposite the exposure-opening and connected to the carrier for adjusting the latter toward and away from the exposure-opening.

8. In a photographic-printing device, the combination of a case having an exposure-opening, guideways within the case leading toward the exposure-opening, a print-paper carrier comprising a table having opposite side members, a cross-bar connecting the side members and projected beyond the same with its ends working in the guideways, an adjusting-screw piercing that side of the case which is opposite the exposure-opening and connected with the cross-bar for adjusting the carrier toward and away from the exposure-opening, means for rotatably supporting a spool of print-paper between the sides of the carrier at one end thereof, a paper-receiving spool mounted between the sides of the carrier at the opposite end thereof, and means for rotating the receiving-spool to feed print-paper across the table to the receiving-spool.

9. A photographic-printing device comprising a case having an exposure-opening, a print-paper carrier within the case, said case being provided with an opening to give access to the carrier, a closure-slide for the opening, said slide being provided with a sight-opening, and a transparent cover for the opening

which is capable of excluding actinic rays of light.

10. A photographic-printing device comprising a case having an exposure-opening in one side and a pair of openings in the opposite side thereof and located at opposite sides of the middle of the case, a print-paper carrier within the case and provided opposite the openings with roll-holding means, closure-slides for the openings, one of the slides being provided with a sight-opening, and a transparent cover for the sight-opening which is capable of excluding actinic rays of light.

11. A photographic-printing device comprising a case having an exposure-opening surrounded by an outwardly-directed flange, a light-excluding lining for the flange, and a negative-holder capable of being detachably received within the lined flange.

12. In a photographic-printing device, the combination of a case having an exposure-opening in the top thereof, a print-paper carrier within the case, a negative-holder capable of detachable application to the exposure-opening, a cut-off slide working through one side of the case between the paper-carrier and the exposure-opening, and the bottom of the case being provided with a slide-covered opening to give access to the paper-carrier.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM H. BROWN.

Witnesses:

J. H. ROBERTSON,
J. C. FULPS.