

C. B. BUXTON.
 DAYLIGHT PHOTOGRAPHIC PLATE DEVELOPING APPARATUS.
 APPLICATION FILED JULY 15, 1911.

1,048,444.

Patented Dec. 24, 1912.

2 SHEETS—SHEET 1.

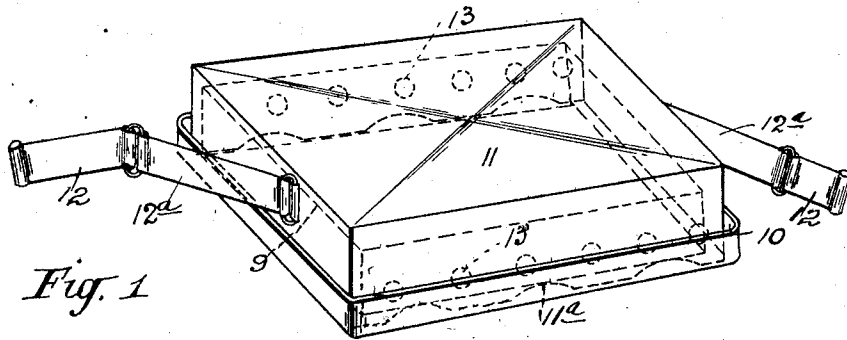


Fig. 1

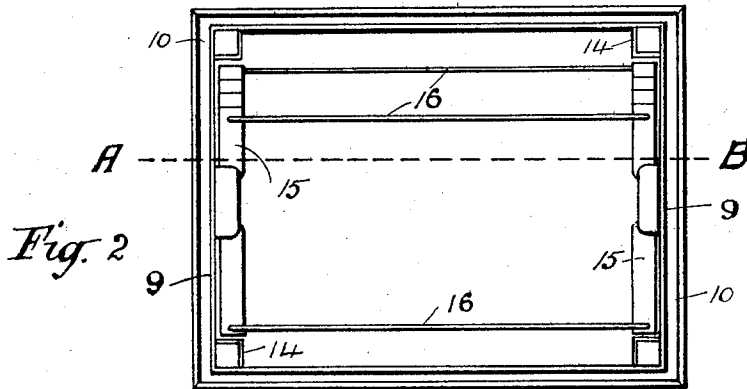


Fig. 2

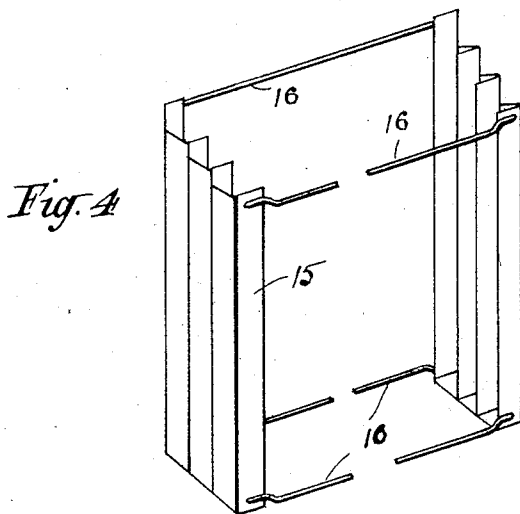


Fig. 4

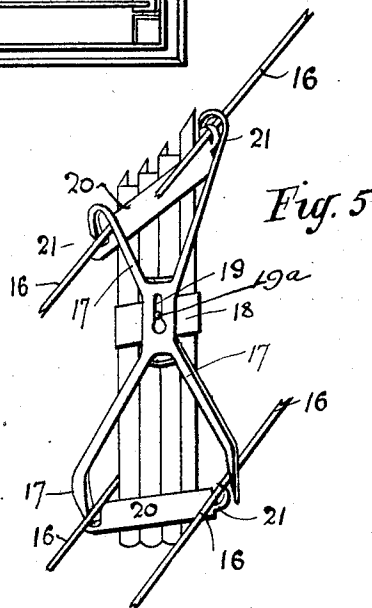


Fig. 5

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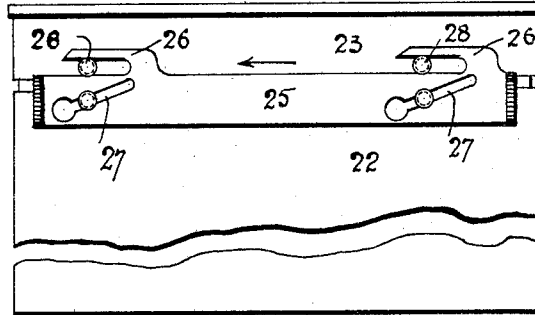


Fig. 6

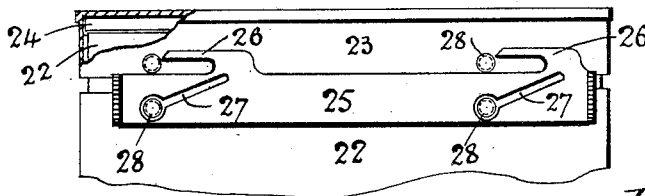


Fig. 7

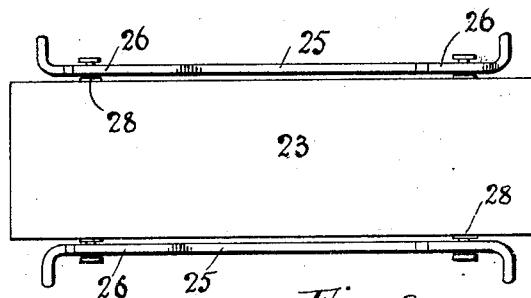


Fig. 8

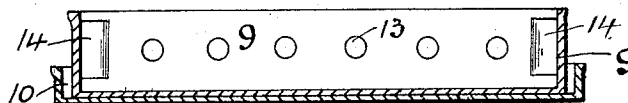


Fig. 3

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UNITED STATES PATENT OFFICE.

CHARLES BURDON BUXTON, OF ORMISTON, KIRIBILLI, NEAR SYDNEY, NEW SOUTH WALES, AUSTRALIA.

DAYLIGHT PHOTOGRAPHIC-PLATE-DEVELOPING APPARATUS.

1,048,444.

Specification of Letters Patent.

Patented Dec. 24, 1912.

Application filed July 15, 1911. Serial No. 638,789.

To all whom it may concern:

Be it known that I, CHARLES BURDON BUXTON, a subject of the King of Great Britain, residing at Ormiston, Kiribilli, near Sydney, New South Wales, Australia, have invented a new and useful Daylight Photographic-Plate-Developing Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to photographic plate developing apparatus such as is used without a dark room.

In the construction of apparatus of this class, care must be taken to insure that it can be easily loaded by touch without risk of the plates being put into the wrong groove. As most fast plates now made are easily fogged by light coming through at so called "safe-light" apertures it is desirable to be able to load the apparatus easily by touch or feel alone, and thereby to use a dark bag which has no such "safe-light" apertures.

When plates are loaded into grooves the apparatus should be such that they are secured against light rays while still in the bag and that the developing liquid itself may be contained in a vessel which does not require to be placed in the dark bag.

It is further desirable that the apparatus be so made that the danger of freak marks occurring on the plates may be minimized as much as possible. As the developer acts more rapidly while in a state of agitation, as when moving across the plate in currents or streams, these freak marks result from such irregular flowings.

Cleanliness being imperative in successful photography it is important that all baffle plates, false bottoms and other parts of the apparatus be so constructed as to be readily adapted for washing.

It is also desirable that such apparatus shall be so constructed as to be capable of developing any sized plates up to the maximum measurement of the plate tray. The vessel for holding the developer must be water tight when closed, the method of closing must be simple, quick and safe, and the general appearance of the whole apparatus must be neat and as compact as possible.

My improved developing apparatus has been designed in view of the above condi-

tions, and aims at providing a tank at once compact and easy of manipulation.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a general view of the plate tray, Fig. 2 is a plan of same, with the plate rack in position. Fig. 3 is a sectional elevation on line A—B, Fig. 2. Fig. 4 is a perspective view of the plate holder. Fig. 5 shows in perspective a spare nest of plate rack grooves and means for securing it in the rack frame to hold various sized plates smaller than the rack proper. Fig. 6 is a side elevation of the water tight tank for holding the plate tray and showing the means for locking on the lid. Fig. 7 is a similar view, but with the locking means slackened off, and Fig. 8 is a plan of same.

The plate compartment consists of a rectangular tray 9 that is surrounded by a trough 10 on two or more of its sides and into which the lid 11 is adapted to come. On the lid 11 is a pair of handles 12 fitted with double jointed hinges 12^a by means of which the tray may be turned through 180 degrees by a quick turning motion of the handles. The front and back lower edges of the lid 11 are scalloped as shown in dotted lines 11^a in Fig. 1, and immediately behind the lid in the tray 9 are a number of holes or perforations 13, horizontally arranged.

Means of any convenient kind are provided for securing the lid 11 to the tray 9 or trough 10, which latter parts are integral.

In each interior corner of tray 9 is a distance piece or abutment 14, and reposing on the floor of the tray between the distance pieces is the plate rack frame 15 which is composed of a suitable number of bent pieces forming grooves and held together by wires 16.

Reference to Figs. 2 and 4 will show that the upper ends of the grooves are stepped in such a way that it will be easy to stack two plates in the longest pair of grooves with their film surfaces outward and when this is done to stack two more plates in the next groove which, being so stepped, is shorter than the groove already loaded and therefore more easily felt. This I have found to be of great importance in the process of charging the rack with plates in the dark bag, as with it, it is possible to feel each and all of the grooves with the fingers and so by touch to assemble the plates prop-

erly in the frame. When the tray has been charged the lid is put on and secured and the apparatus removed from the dark bag. The handles 12 are then taken hold of and the whole device dipped slowly into the developer liquid. This will flow into the trough 10, underneath lid 11, up between lid and tray 9 and through the perforations 13 in the tray and so to the plates.

10 In order that the developer issuing through the perforations 13 may flow in bulk and free from irregular currents up the plates I provide immediately within the tray, by means of the distance pieces 14, a region where the developer liquid may collect prior to flowing up to the plates. By so doing I avoid making freak marks on the latter which are usually caused by the developer coming on to them in currents, for instance, as a jet issuing through the perforations 13 and immediately coming in contact with the plates. By means of the area of dead water so formed by my distance pieces, which may be formed of stout wire of close mesh, the liquid has a chance to collect and become steady before flowing up the plates. In order to guard against freak marks being made by the swish of the liquid past the wires 16 which act as stays to the plate rack and pass across near the plates. such wires are bent outward at each end so as to stand quite clear of the plates, as shown in Fig. 4 of the drawings. By so shaping the wires outward any deleterious effect of the action of the developer upon the plate as its flow is arrested by the wires is minimized if not eliminated.

When the tray has been immersed fully from one side it is withdrawn and capsize 40 by means of the double jointed handles and immersed from the other side, when the process is repeated.

It is sometimes desirable to treat plates of varying sizes in the same tray, and to insure of such being done, I provide a spare nest 5^a of bent pieces forming plate holder grooves which is fastened in the frame 15 by any suitable means coöperating with the wires 16. One method of securing the extra nest may be by the spider device 17 illustrated in Fig. 5, which is provided with a slot 19 receiving the pin 19^a mounted on a plate 18 attached to the back of the nest of bent pieces. The vertical slot 19 in the spider is to permit of its having a limited movement in a vertical plane.

Near and attached to the top and bottom ends of the nest of bent pieces 17 are other plates 20 on which are hooks 21 adapted to engage the wires 16 while the ends of the spider are likewise adapted to engage the wires and when the device is pressed downward in the frame, said ends of the spider press the wires in the hooks 21 and, by

means of the inclined roughened surfaces 65 in the spider ends, hold the wires fast.

So far, I have described my invention for use in an open developer bath, but as it is often preferable to treat the tray containing the plates in a closed bath or tank, I have to this end provided a tank 22 whereon is a locking device for its lid, and means for rendering the whole water tight. The lid 23 of the tank is fitted interiorly with a cushion of rubber 24 that is removable, and against which the top of the tank is pressed by my closure. This latter consists of plates 25 having horizontal hornlike projections 26 on the upper edges thereof, while below the projections are slots 27 which are cut in the plates at acute angles with the said projections. The lower ends of the slots are enlarged to receive running studs 28 secured on the tank, like studs being on the lid and adapted to come between the projections 26 and the upper edge of the plate 25 when the latter is moved sidewise. If the plate is put on the studs and pushed to the left it will be readily seen that the studs 28 will be drawn together, thus closing down and firmly holding the lid in position.

To release the lid the plate or plates is or are slid toward the right to the position shown in Fig. 7.

I place the tray containing the plates in the tank 22 together with the requisite quantity of developer and then close the lid, when by turning over the tank the developer will flow into and out of the tray as described above.

My improved developing apparatus is such that its parts may be readily detached for cleansing and be easily reassembled.

The parts composing the tray are designed to baffle light rays and the whole is adapted to pack up compactly and to be of neat and attractive appearance.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In an apparatus of the kind described a tray provided with perforations in its sides and substantially surrounded by a trough; a light-proof lid having sides scalloped at its lower edges and engaging in said trough; a plate-rack in said tray for holding plates; and distance pieces in the corners of the tray for holding the edges of the plates away from the sides of the tray.

2. In an apparatus of the kind described a tray provided with perforations in its sides and substantially surrounded by a trough; a light-proof lid having sides scalloped at its lower edges and engaging in said trough; a plate-rack in said tray for holding plates; and distance pieces in the corners of the tray for holding the edges of the plates away from the sides of the tray;

said plate rack comprising spaced sides having respectively therein opposed grooves.

3. In an apparatus of the kind described a tray provided with perforations in its sides and substantially surrounded by a trough; a light-proof lid having sides scalloped at its lower edges and engaging in said trough; a plate-rack in said tray for holding plates; and distance pieces in the corners of the tray for holding the edges of the plates away from the sides of the tray; said plate rack comprising spaced sides having respectively therein opposed grooves stepped so that the grooves progressively diminish in length upwardly.

4. In an apparatus of the kind described a tray provided with perforations in its sides and substantially surrounded by a trough; a light-proof lid having sides scalloped at its lower edges and engaging in said trough; a plate-rack in said tray for holding plates; and distance pieces in the corners of the tray for holding the edges of the plates away from the sides of the tray; said plate rack comprising spaced sides having respectively therein opposed grooves stepped so that the grooves progressively diminish in length upwardly and wires connecting said sides and bent away from the plates held in the racks.

5. In an apparatus of the kind described a tray provided with perforations in its sides and substantially surrounded by a trough; a light-proof lid having sides scalloped at its lower edges and engaging in

said trough; a plate-rack in said tray for holding plates; and distance pieces in the corners of the tray for holding the edges of the plates away from the sides of the tray; said plate rack comprising spaced sides having respectively therein opposed grooves stepped so that the grooves progressively diminish in length upwardly and an adjustable piece provided with grooves and disposed between said sides of the plate rack.

6. In an apparatus of the kind described a tray provided with perforations in its sides and substantially surrounded by a trough; a light-proof lid having sides scalloped at its lower edges and engaging in said trough; a plate-rack in said tray for holding plates; distance pieces in the corners of the tray for holding the edges of the plates away from the sides of the tray; said plate rack comprising spaced sides having respectively therein opposed grooves stepped so that the grooves progressively diminish in length upwardly and wires connecting said sides and bent away from the plates held in the racks; an adjustable nest of bent pieces forming grooves; and means for adjustably securing the same to said wires.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES BURDON BUXTON.

Witnesses:

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JOHN H. HOVING.