No. 670,165. Patented Mar. 19, 1901.

A. B. SHEPPARD.

DEVELOPING TRAY.

(Application filed June 6, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

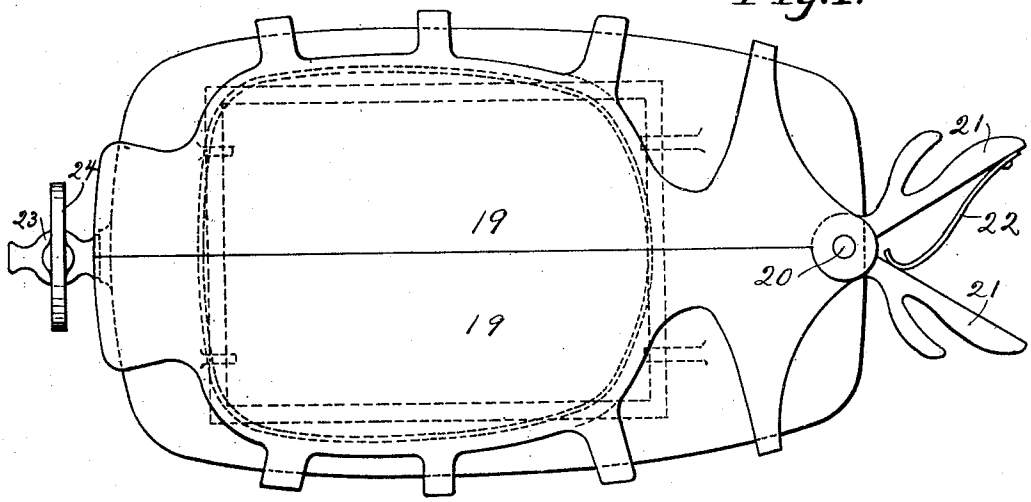


Fig. 2.

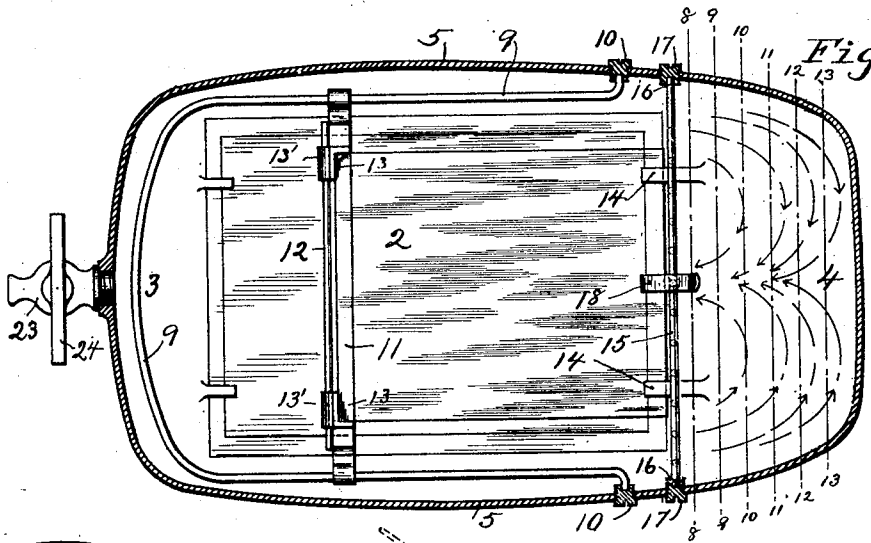
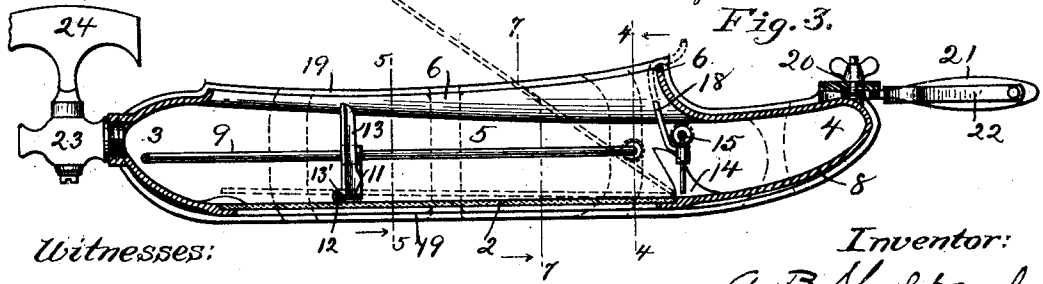


Fig. 3.



Witnesses:

Walter Samariss

R. M. Strawbridge

Inventor:

A. B. Sheppard

by Jno. Herbert

Attorney.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 4.

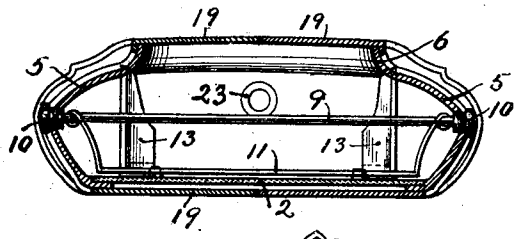


Fig. 5.

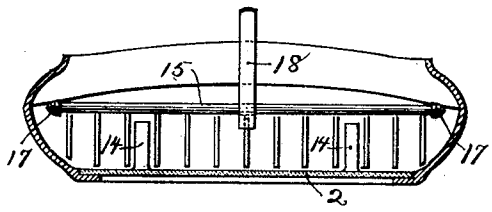


Fig. 6.

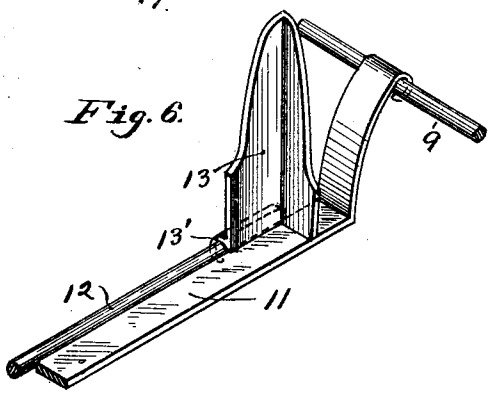


Fig. 8.

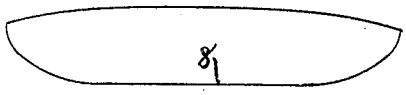


Fig. 9.

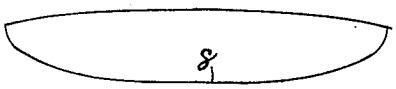


Fig. 10.

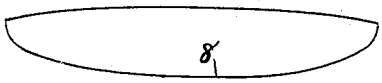


Fig. 7.

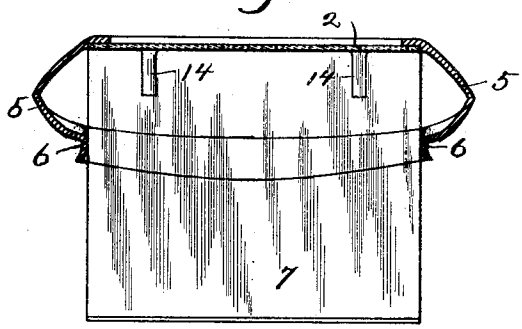


Fig. 11.

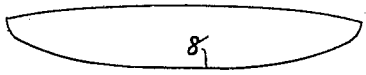


Fig. 12.

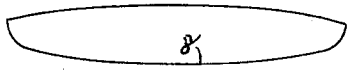
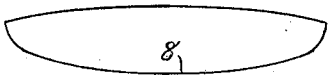


Fig. 13.



Witnesses:

Walter Samaris

R. M. Strawbridge

Inventor:

A. B. Sheppard

by Jno. Newlet

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

AULEY B. SHEPPARD, OF SOUTH BURGETTSTOWN, PENNSYLVANIA.

DEVELOPING-TRAY.

SPECIFICATION forming part of Letters Patent No. 670,165, dated March 19, 1901.

Application filed June 6, 1900. Serial No. 19,303. (No model.)

To all whom it may concern:

Be it known that I, AULEY B. SHEPPARD, a citizen of the United States, residing at South Burgettstown, in the county of Washington and State of Pennsylvania, have invented new and useful Improvements in Developing-Trays, of which the following is a specification.

This invention relates to certain improvements in the developing-tray patented to me September 26, 1899, No. 633,912; and one object thereof is to so shape the tray-bottom as to cause the developing solution to flow uniformly over the entire width of the plate from end to end.

A further object is to provide the tray with an adjustable attachment, whereby plates of smaller size may be effectually developed.

Further objects are to provide the tray with an ice-retaining screen, to provide a detachable case or jacket for the tray for excluding light, and to provide the tray with a drainage-spigot.

The invention consists in the novel features of construction and combination of parts hereinafter fully described and claimed, and illustrated by the accompanying drawings, in which—

Figure 1 is a plan view of the tray inclosed in the light-excluding jacket. Fig. 2 is a sectional plan view. Fig. 3 is a vertical longitudinal sectional view. Fig. 4 is a cross-section on line 4 4 of Fig. 3. Fig. 5 is a similar view taken on line 5 5 of Fig. 3. Fig. 6 is a detail view of a portion of the adjustable rack within the tray. Fig. 7 is a cross-sectional view of the tray on line 7 7 of Fig. 3, illustrating the position of a plate just before being removed. Figs. 8 to 15, inclusive, are diagrammatic cross-sectional views of the tray, taken on the corresponding lines indicated on Fig. 2.

I now propose to construct the tray of suitable metal, as aluminium or of hard rubber, rather than of glass, as proposed in my patent above referred to, and at the same time retain the advantages of transparency by sealing a piece of glass 2 in the tray-bottom. The tray ends are formed with the cup-cavities 3 and 4, and the sides 5 are upwardly rounded toward the top opening in much the same manner as shown in said patent. The edge of the opening is, however, upwardly and outwardly rounded at 6, so that as the plate 7 is dropped forward for removal, as in Fig. 7, the edges thereof engage the inner portions of opening edge 6 and the solution on the plate drains back into the tray instead of running over the top thereof, as when the tray edge is formed in accordance with my former patent. The foot end of the tray or that part inclosing cup 4 has its bottom 8 curved transversely, the curvature being of gradually-increasing degree as the extremity of the tray is approached, so that while at line 8 8 of Fig. 2 the bottom has a perceptible flat central portion it has quite a sharp transverse curvature at line 13 13.

In operation the tray is oscillated longitudinally to cause the solution to flow from end to end thereof, and with the bottom of the foot end formed as described the solution flows toward the transverse center thereof before returning over the plate, as indicated by the arrows in Fig. 2, and being directed toward the plate in this manner the solution spreads thereover uniformly. With the bottom of the foot end flat, as in my former patent, the solution has a tendency to seek one side or the other of the tray, however much care may be exercised in keeping the tray transversely level, with the result that its action on the plate lacks uniformity.

While it is my invention to provide different trays for the several sizes of plates, I make provision for developing plates of smaller size in each tray by providing the elongated bale-shaped guide 9, lying within the bulged sides 5 of the tray and having its extremities trunnioned in bearing-screws 10 inserted in the tray sides.

11 is a transverse bar or strip having its ends upwardly extended to reach guide 9 and adapted to slide longitudinally thereon either toward or away from the foot of the tray, according to the size of plate. One edge of this bar or strip is rounded at 12 to bear on glass 2, preventing the strip from adhering thereto as by suction. Slidable toward and away from each other on bar 11 are the upright angular guides 13 for confining the upper end of the plate, its lower end resting on stops 14,

as in my former patent. The lower extremities of guides 13 are curled around rounded edge 12, and thus confined thereon, though free to slide as described. Thus the tray may be accommodated to both the length and width of the plate of smaller size, with the latter securely held. When not required, bale or guide 9 may be sprung from its bearings and removed.

15 is a screen arranged transversely over cup 4 to confine ice therein for maintaining the solution at proper temperature, the screen being provided with the end trunnions 16, removably secured in bearing-screws 17, inserted in the tray sides, and at the top having the clasp 18 for embracing opening edge 6 to prevent the screen from turning. When not required, the screen may be removed by springing its trunnions from their bearings.

For protecting extremely-sensitive plates from light I provide the tray with the two-part case or jacket 19, divided longitudinally and having hinge 20 at one end, from which project handles 21, having spring 22 therebetween to hold the case normally closed. The case or jacket is of skeleton form on the sides to make it light, while at the top and bottom it is solid to exclude light from the tray. The edges of the tray-sections interlock when closed together, and the jacket is of such form as to closely fit the external contour of the tray. The jacket is here shown upon a tray unprovided with a screen-securing clasp 18, though an opening may be made in the same through which the clasp may project, if so desired.

A spigot 23 may be provided in the upper end of the tray, so that it will drain effectually when cup end 4 is hung uppermost. The wings or handle 24 of the spigot forms a convenient hold for the operator who prefers to rock the tray on a table or support rather than oscillate the tray with the hands.

My improved tray may be used with or without the several described adjuncts, as circumstances may require, and it will be apparent that various details of construction may be varied without departing from the spirit or scope of the invention.

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

1. An improved developing-tray, substantially as described, having the bottom of the solution-container, at one end of the tray, formed with a vertical transverse curvature at or adjacent the extremity of the tray, the curvature being of gradually-decreasing degree inward from said extremity.

2. An improved developing-tray, substantially as described, having a plate-retaining portion, and a solution-container between the plate and the extremity of the tray, the bottom of the solution-container being substantially flat adjacent the plate-retaining portion, said flat portion merging into a transversely-curved portion of gradually-increasing degree as the extremity of the tray is approached.

3. An improved developing-tray formed with a solution-containing cup at its lower end, a support for the lower end of the plate, and an opening in the tray-top, said opening having outwardly-rounded edges, whereby with the tray in upright position the upper end of the plate may be dropped forward, with its edges impinging the rounded edges of the tray-opening, and the solution on the plate drained or directed into the tray, substantially as shown and described.

4. The combination of an oscillating developing-tray, and a longitudinally and transversely adjustable plate-holding device in the tray-bottom, whereby plates of different lengths and widths may be held against displacement in the tray while being developed, substantially as shown and described.

5. An improved developing-tray formed with the end cups and the top opening, fixed rests for the bottom of the plate, and an adjustable support for the upper end of the plate, substantially as shown and described.

6. The combination of a tray having rests for the bottom of the plate, a guide extending longitudinally of the tray, and a transverse bar adjustable on the guide for supporting the upper end of the plate, substantially as shown and described.

7. The combination of a tray having rests for the bottom of the plate, a guide extending longitudinally of the tray, a transverse bar adjustable on the guide for supporting the upper end of the plate, and vertical guides adjustable on the bar for confining the plate thereon, substantially as shown and described.

8. The combination with the transverse bar formed with the rounded edge, of the vertical guides having their lower extremities curled around the said rounded edge and adjustable thereon, substantially as shown and described.

9. The combination of the developing-tray having bearings on opposite sides, the bale-shaped guide having its extremities trunnioned in said bearings, and the transverse bar adjustable longitudinally on the guide, substantially as shown and described.

10. The combination of an oscillating developing-tray having a solution-container at one end, and an ice-screen adapted to be arranged over said container, substantially as shown and described.

11. The combination of a developing-tray having a solution-containing cup at one end provided with securing-points on its sides, an ice-screen adapted to be removably confined at said securing-points, and a clasp on the screen for embracing the top of the tray, substantially as shown and described.

12. The combination with a developing-tray, of a light-excluding jacket therefor, said

jacket being divided vertically into two longitudinal sections, the sections being hinged together at one end and adapted to move horizontally when opening and closing, substantially as shown and described.

13. The combination with a developing-tray, of a light-excluding jacket divided longitudinally into two sections hinged together at one end, handles projecting from the pivot for separating the sections, and a spring for holding them normally together, substantially as shown and described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

AULEY B. SHEPPARD.

Witnesses:
J. K. McFARLAND,
ANNA McFARLAND.