

W. G. RICE.
 PHOTOGRAPHIC TRAY.
 APPLICATION FILED JULY 24, 1909.

991,023.

Patented May 2, 1911.

Fig. 1.

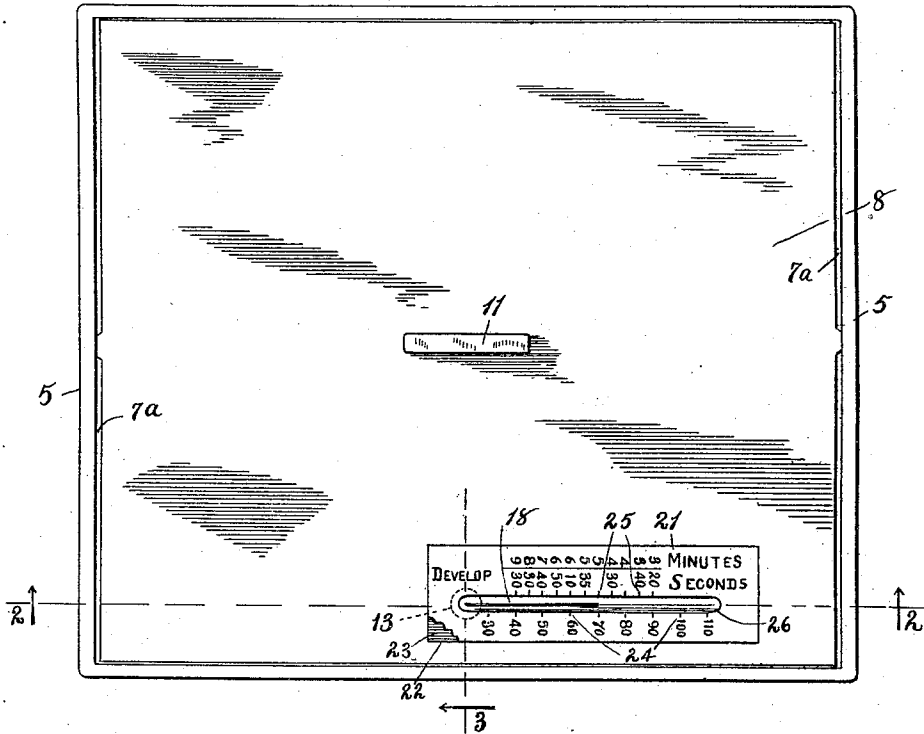


Fig. 2.

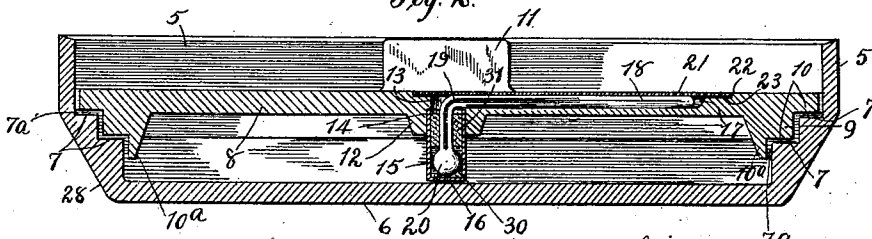


Fig. 3.

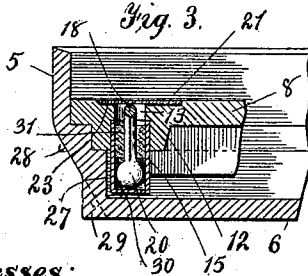
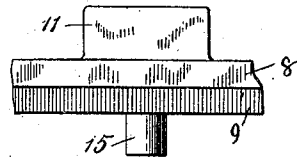


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

WALDO G. RICE, OF EDISON PARK, ILLINOIS.

PHOTOGRAPHIC TRAY.

991,023.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALDO G. RICE, a citizen of the United States, residing at Edison Park, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Photographic Trays, of which the following is a specification.

My invention relates to photographic apparatus and has especial reference to developing trays.

It is well known that in the successful development of a sensitive plate there are a number of elements to be taken into consideration, differences in the developing agents and variations in the formulæ and the proportions of the ingredients in the same formula being of importance, and in addition to these are the essential factors of time and temperature, and as the temperature of the developing agent will have a large influence upon the time required to produce a certain result, some means that will enable the operator to quickly and accurately ascertain the precise temperature of the contents of the tray during the process of developing without in any way interfering with that process, will prove of great advantage in such work.

The chief objects of the improvements which constitute the subject matter of this application are, to provide a thermometric attachment for a negative developing tray whereby the temperature of the developing fluid contained in said tray may be conveniently ascertained and to so arrange the said attachment that the indicated temperature may be observed without removing the cover or exposing the contents of the tray to the action of actinic rays.

Further objects of the invention are:—To furnish a device for the purpose stated, that will be protected from injury by a suitable housing supplied with a transparent covering through which the thermal scale may be easily read, and to so arrange the indicator that there will be no projections above the outer surface of the tray, thus avoiding any detracting from the appearance of the developing utensil.

I accomplish the desired results by the development of the device illustrated in the accompanying drawing which forms a part of this application the important details of

construction being disclosed in the following views:—

Figure 1 is a top plan view of a photographic developing tray embodying my invention; Fig. 2 is a sectional view on the line 2—2 of Fig. 1; Fig. 3 is a fragmentary section on the line 3—3 of Fig. 1, and Fig. 4 is a fragmentary view of the cover showing the cylindrical housing for the thermometer bulb.

Referring to the details of the drawing, the numeral 5 indicates the sides and 6 the bottom of a rectangular developing tray having stepped ledges or shoulders 7 extending entirely about the periphery of the tray upon the inner wall, the said ledges being higher along the sides than at the ends of the tray. A cover 8 fitting within the tray has a peripheral flange 9 extending entirely around the cover a short distance from the margin and parallel therewith thus forming steps or shoulders 10 adapted to rest upon or interlock with the said shoulders 7, thus forming a light excluding joint. As the end ledges are lower than those at the side there will be a space 7^a between the shoulders at each end through which the developing fluid may be poured without removing the cover. As a precaution against the possible trickling of light through the interval the under surface of the cover is provided with downwardly projecting shields 10^a.

The cover is supplied with a central projection 11 which serves as a handle, and is provided upon its under side near one margin with a reinforcement or boss 12, through which is formed a circular aperture 13 counterbored below as indicated at 14 to admit a cylindrical cap or housing 15, closed at the lower end 16. The upper face of the cover is furnished with a groove 17 one end of which communicates with the aperture 13 and in this groove is arranged the greater portion of the stem 18 of a thermometer. This stem is bent at a right angle at a point 19, a suitable distance from the bulb 20, the latter occupying the casing or housing 15, and extending to within a short distance of the closed end 16. In order to secure the thermometer in its seat and to protect the exposed side, I cover the groove 17 and aperture 13 with a transparent plate 21, preferably made of celluloid, which is let into a

recess 22 formed in the cover so that the said plate will be flush with the surface. This recess is made slightly deeper than the thickness of the transparent plate to accom-
5 modate a thin plate 23 which may be of metal or card board or if preferred of paper, upon which are printed or impressed suitable graduations calibrated to form a ther-
10 mometric scale 24 and a time scale 25, indicating respectively degrees of temperature and times of exposure corresponding there-
with. This plate or scale is supplied with a slot 26 which permits the entire horizontal
15 portion of the thermometer stem to be exposed so that the height of the mercury column may be readily compared with the scale.

It is necessary to place the cup or housing
15 close to one side of the tray in order that it may not interfere with the sensitive plate, and the tray wall at this point is cut away
20 forming a recess 27 to receive the said housing 15 and as the side walls of the tray are chamfered opposite the location of the steps
25 or ledges 7, as indicated at 28, this part of the wall is thickened or reinforced as shown at 29 to prevent weakening of the wall by said recess.

In order to provide for more perfect con-
30 duction of the heat from the tray contents to the bulb 20 of the thermometer, the housing 15 is filled with mercury 30 which thus surrounds said bulb, materially increasing the sensitiveness of the instrument and en-
35 abling it to give an accurate indication of the temperature condition of the developing liquid. To prevent the mercury from escaping from the cell the upper part of the cavity 15 is sealed by a suitable layer of wax
40 or cement 31.

The manner of using my improved ther-
mometric developing tray will be readily
understood by those skilled in the art. The
tray having been supplied with the required
45 amount of the reagent, the sensitive plate

immersed therein and the cover then applied in the usual manner, there will be no occasion for further observation of the plate, during the developing process since all the
50 data necessary may be obtained by the thermometer reading compared with the temperature coefficients of the scale 25.

While this device is especially applicable to thermo-development, the tray, when thus
equipped, is not disqualified for the factorial
55 method of treating the sensitive plate.

Having thus described my invention, what I claim as new, is:—

1. In a photographic developing tray including a receptacle and a cover having co-
60 operating light excluding portions on the inner walls of the receptacle and the edges of the cover, and said cover having an opening therethrough, a thermometer having its
65 bulb extending through said opening into the tray and its stem fitting a recess in the top of the cover, a scale-bearing member arranged on said cover in operative relation to
said thermometer, and means for preventing
70 the passage of light through the opening in said cover around said bulb.

2. In a photographic developing tray, including a cover having an opening there-
through and with a recess in the upper face
75 thereof and a groove in the bottom of said recess communicating with said opening, a thermometer having its stem arranged in
said groove and its lower end bent to extend
through said opening, a protective casing
80 for said lower end, a transparent protective plate for said stem arranged in said recess, and a scale card in said recess beneath said plate.

In testimony whereof I affix my signature in the presence of two witnesses.

WALDO G. RICE.

Witnesses:

M. A. MILORD,
CHAS. F. BASSETT.