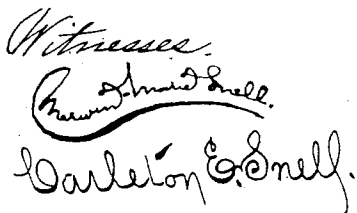


O. FRANCKE.
DEVELOPING DISH.

Patented Mar. 29, 1892.



Inventor
by his attorney Otto Francke
William Brown

UNITED STATES PATENT OFFICE.

OTTO FRANCKE, OF DRESDEN, GERMANY.

DEVELOPING-DISH.

SPECIFICATION forming part of Letters Patent No. 471,542, dated March 29, 1892.

Application filed June 22, 1891. Serial No. 397,109. (No model.)

To all whom it may concern:

Be it known that I, OTTO FRANCKE, a subject of the King of Saxony, and a resident of the city of Dresden, in Saxony, Germany, have invented a new and useful closed developing-dish for photographers for developing, fixing, &c., in daylight and in the same dish, of which the following is a specification.

The vessels heretofore commonly used for receiving the developing solution and the plate to be developed have ordinarily been shallow open receptacles. The plate contained in such vessel has to be repeatedly lifted out for inspection. As the plate in this operation has to be protected against daylight, such vessel can be used only in the dark-room. This is in itself very fatiguing and makes it desirable to find a remedy therefor; but, moreover, plates exposed, say, when traveling, where a dark-room is rarely accessible, can very seldom be developed forthwith, so as to enable the operator to know whether they are fit for use or not. This compels the operator to make several exposures for a given object, thus materially exhausting the limited stock of plates he carries for a proportionately small number of pictures.

The following considerations are also of importance: First, under the influence of the atmosphere the developing solutions deteriorate, and hence soon become useless; second, celluloid films, stripping-films, and sensitized (negative) papers are apt to curl up in the solution, or at least to buckle, so that unequal development is apt to take place; third, on board ship the ordinary developing-dishes are absolutely useless, owing to the movements of the vessel; fourth, in the usual practice of developing it is almost impossible to avoid spilling some of the solution, whereby clothing, fingers, and utensils become soiled. To overcome these defects, portable photographic closed developing-dishes have been employed, made partly of tinted glass, which, while impervious to the actinic rays of light, is nevertheless transparent, so that a film or plate within the dish can be observed without removing the film or plate from the dish. These dishes are adapted to receive a sensitized film or plate and to thereafter receive the proper developing-liquids without sub-

jecting the sensitized plate or film to the direct rays of light.

The present invention consists in improvements in the construction of this class of developing-dishes.

The improvements constituting the present invention are illustrated in the accompanying drawings, wherein—

Figure 1 is a longitudinal section of the developing dish or capsule employed. Fig. 2 is a transverse section thereof. Fig. 3 is a detail view of one end thereof, showing the cover for the ends of the capsule and the means for its attachment. Fig. 4 is a longitudinal section of the capsule and of a filling-bulb therefor. Fig. 5 is a similar view to Fig. 4, showing a modification in the filling means.

The primary feature of the improved developing-dish consists in a flat capsule *a*, open at two opposite narrow sides and made of a transparent material—say glass, celluloid, or the like—covered with a red cover. The dimensions of the capsule are such as agree with a definite size of plate, the interior thickness being but little more than that of such a plate. The open sides of the capsule may be closed by a rubber cap *b*, as shown in Fig. 3, secured by a rubber ring *b'* placed around it, or by other means. This is the simplest form of the developing-vessel, and intended for home use the plate is inserted into the capsule *a*, one end whereof is closed by the cap *b*, the developing solution being introduced either before or after the plate, and, lastly, the second aperture is also closed. This is best done in the absence of sunlight in the dark-room, if one is at command. The progress of the development, however, can be watched in the light, as the red color of the capsule prevents the injurious effect the light would otherwise produce upon the plate, while its transparency allows the development to be watched without removal of the plate from the capsule.

It will be evident to experts that in developing-dishes of this character, first, the watching of the progress of the development is materially facilitated and little strain is put upon the eyesight, as the development need not take place in the distressing red light of a dark-room; second, great economy is attained in the use of developing solutions; third, ab-

solute cleanliness is obtained, which is of special value; fourth, the curling up of celluloid films, stripping-films, paper negatives, and the like is avoided, and thus every part of the same is equally acted upon by the developer.

A more perfect form of my improved developing-vessel serves to enable development to be effected away from home—say when traveling—so that the operator may develop his image at any desired place immediately after exposure and without the necessity of a dark-room. To this end one of the closing-caps *b* is connected with a pipe *c*, which joins either with a rubber bulb *d*, as shown in Fig. 4, or, as shown in Fig. 5, with a tube *f*, rising from a bottle *g*. The bottle *g* or the bulb *d*, of somewhat greater capacity than the capsule *a*, serves to receive the developer. The second cap *b* has a short narrow tubular extension *e* turned outward therefrom. If an image is to be developed, that cap *b* which is connected with the bulb *d* or the bottle *g*, as the case may be, is slipped over one aperture of *a*, and the flow of the developing solution to the capsule *a* is prevented by a clamp placed on the tube *c* in the usual manner. After the plate has been introduced under cover of a dark cloth, the second cap is also placed upon capsule *a*. No protection against light is required after this, as the color of the capsule is sufficient for this purpose. The clamp being removed from tube *c*, the developer is introduced into the capsule *a* by pressing upon the bulb *d*, (in the arrangement shown in Fig. 4,) or by forcing air into the bottle *g*, Fig. 5. By replacing the clamp on tube *c* the liquid is retained in the capsule. The tubular extension *e* on the other cap *b* allows the escape of air from the capsule *a* when the develop-

ing solution enters. When required, this extension is also closed by a clamp. On completion of the development the solution is returned to the bulb *d* or bottle *g* by passing the plate into other similar apparatus filled with water and fixing solution. The plate can be washed and fixed also without the aid of a dark-room.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. A developing-dish for photographers, consisting of a flat capsule open at its two opposite narrow sides or ends, said capsule being transparent and of a red color, in combination with inclosing caps for the open ends of said capsule, each of said caps being of an elastic material, such as india-rubber, so as to be drawn over the ends of the capsule, and an elastic band or ring *b'* for securing each of said caps in place on said capsule, substantially as set forth.

2. A developing-dish for photographers, consisting of a flat capsule open at its two narrow sides or ends, said capsule being transparent and of a red color, in combination with removable caps for the two open ends of said capsule, one of said caps having a tube *c*, whereby a developing or fixing solution may be introduced into said capsule and the other of said caps having a tubular extension *e* for allowing egress and ingress of air, substantially as set forth.

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

OTTO FRANCKE.

Witnesses:

PAUL ESSER,
PAUL DUCKEMK.