July 5, 1938. H. P. COHEN 2,122,879

PLATE COOLER

Filed May 15, 1935

Fig. 1.

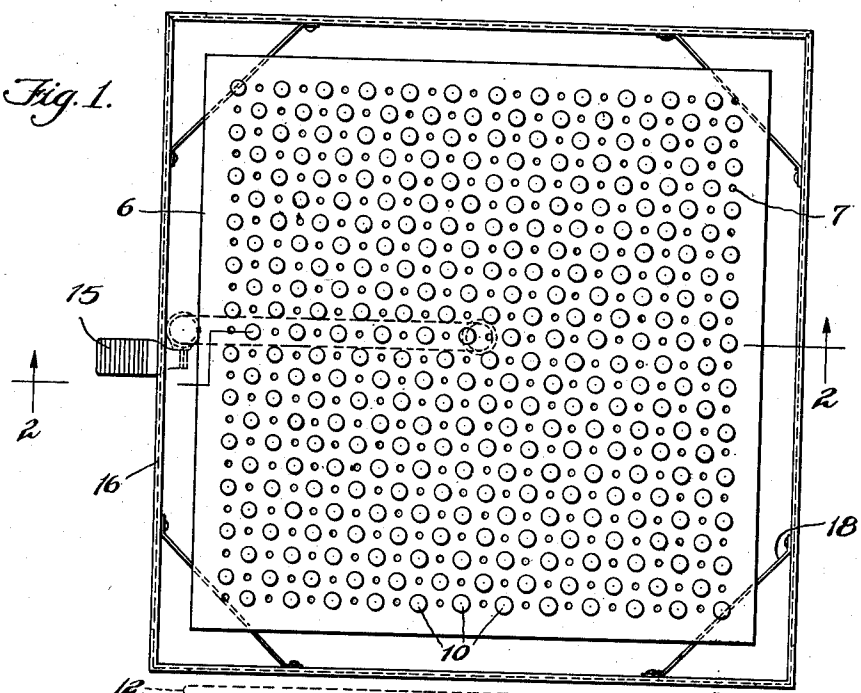
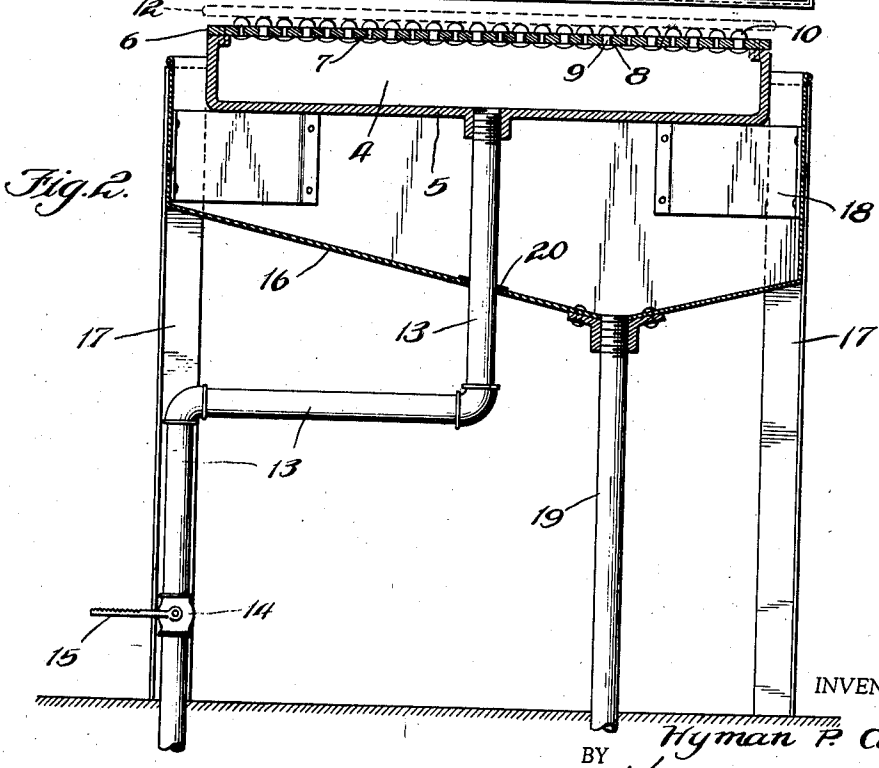


Fig. 2.



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PLATE COOLER

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2 Claims. (Cl. 62—11)

This invention relates in general to a plate cooler and is more particularly described as a device for cooling photo-engraving plates.

An important object of the invention is in the provision of simple and improved means for quickly cooling heated plates such as used in the photo-engraving art without wetting the upper surface thereof.

A further object of the invention is to provide means for continuously spraying the lower surface of a heated sheet with cooling liquid such as water, which contacts the lower surface of the plate and escapes or runs away to a catch basin.

A further object of the invention is in the provision of improved control means for applying the liquid to the bottom of a plate to be cooled.

Other objects of the invention will appear hereinafter, the accompanying drawing illustrating a preferred embodiment of the invention, in which,

Fig. 1 is a top plan view of an apparatus in accordance with the invention; and

Fig. 2 is a section taken on the line 2—2 of Fig. 1.

In making engraved plates it is sometimes necessary to frequently reheat the plate and to keep the face of the plate dry because of the etching material used thereon. In the past these plates have been cooled by laying them upon a stone cooling slab. This process is not very rapid and the present invention therefore provides an improved means for applying a cooling liquid to the under surface only of a plate to be cooled which therefore rapidly carries away the heat of the plate, cooling it more quickly and thereby expediting the preparation and completion of the plates.

Referring now more particularly to the drawing, a pressure chamber 4 is formed by means of a container 5 and a perforated cover plate 6 attached at the margin thereof and having a substantially flat top. In this plate are a great number of perforations 7 and 8, the former unobstructed but preferably of small size, and the latter openings 8 adapted to receive rivets or projections 9, the heads 10 thereof being rounded at the top to form point supporting contacts with the underside of the plate and extending above the upper surface of the plate to provide minimum obstruction for the contact of cooling water with the under surface of the plate to be cooled and providing a plane support for a plate 12 to be cooled, which is placed and supported upon the heads 10 and by them spaced from the top of the plate 6 so that the openings 7 are not clogged or obstructed.

Connected to the receptacle 5, preferably by threading it into the bottom thereof, is a pipe 13 which has a valve 14 near the floor with a pedal extension 15 by means of which the valve is opened more or less to admit water under pressure to the chamber 4.

The openings 7 being reduced in size will cause the liquid from the chamber 4 to contact with the under side of an engraver's plate 12 of any size which is placed thereon and the flow of water is regulated by the valve 14 so that even pressure is obtained and the water will not rise above a plate 12 thereon to wet the upper surface thereof.

A catch basin 16 is mounted upon legs 17 or in any suitable manner to extend around the edge of the receptacle 5 preferably below the upper level of the plate 6 so that it will catch any liquid which overflows the plate, and as an additional support for the receptacle 5 the upright plates 18 may be disposed at the corners of the catch basin to engage below the corners of the receptacle, thereby holding it in place and additionally bracing the corners of the catch basin 16. A drain pipe 19 is connected to the lower part of the catch basin for carrying away the overflow and the supply pipe 13 preferably extends through the bottom of the catch basin where a suitable packing 20 is provided for preventing leakage.

With this construction a plate 12 to be cooled is simply placed upon the perforated plate 6 and the cooling liquid is applied thereto by opening the valve 15 to the desired amount. The surplus liquid flows over the edges of the cooling receptacle 5 and escapes through the catch basin and its drain pipe 19. The plate to be cooled is easily applied and removed, the heat is quickly dissipated by the running water, and there is no danger that the upper face of the plate to be cooled is wetted by the cooling medium.

I claim:

1. A flowing liquid plate cooler, comprising a closed receptacle having a cooling liquid inlet for continuously flowing liquid and a perforated top with individual projections between the perforations defining a plane supporting surface raised above the plane of the top upon which a plate to be cooled is placed flatly, the projections having rounded heads to provide point contacts with the plate and minimum obstruction to the contact of cooling water against the bottom of the plate, and being spaced apart to afford free passage of the cooling liquid from each of the holes against the plate and around the projections and to allow the overflow or free flow of the liquid from the edges of the top.

2. A flowing liquid plate cooler in accordance with claim 1 in which the receptacle is supported within and the edges thereof spaced from all of the sides of a catch basin disposed below it so that continuously supplied cooling water will flow from the inside of the receptacle through the perforations against the bottom of the plate and between the projections to overflow the edges freely into the catch basin for continuous removal therefrom.

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