

Fig. 140

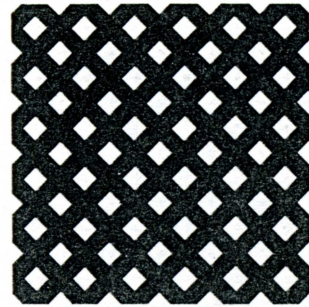


Fig. 141

A special glass screen is placed in front of the film inside the process camera (Fig. 140). The screen is formed by two sheets of optical glass on whose inner faces have been etched very fine parallel grooves which are filled with black pigment or magenta dye. The two sheets are cemented with the grooves in contact and perfectly at right together angles to each other. Normally the small transparent squares which result are of the same width as the black lines: in this case the screen is said to have a ratio of 1 : 1. The "finesness" of the lines, that is the number of the lines per cm. can be 20, 30, 40, 60, 70 and even greater. The appearance of the screen, greatly enlarged, is shown in Fig. 141.

Let us now return to Fig. 140. The light reflected by the original passes through the lens of the process camera as in a normal photographic exposure.

However, before reaching the film, the light passes through the glass screen, and it is here that it becomes modified, dividing itself into so many small luminous rays.

Every small transparent square of the screen behaves in fact like a tiny lens which collects an equally small part of the original, transforming it into a luminous ray which will affect a small part of the film. It is clear that the dot which will be formed on the film will be larger or smaller in proportion to the intensity of the small ray.