

Answer #230

The answer is (e): the light on the screen will form a sharp image with the same orientation as the "pinhole images" shown in the photographs. This final image is seen in the photograph below. Its formation from the five individual pinhole images can be seen in an mpeg video by clicking your mouse on the image.



The six individual "pinhole images" are not really images at all, but rather a sort of "inverted shadow" of the light from the filament formed as the light passes through the six holes. The "image" of each hole is therefore upside down, as is the real image formed by the lens. Note also that the final image is brighter than the original pinhole images, because all of the pinhole images are combined into a single image that is much better focused. If we were to remove the foil, the image would be even brighter, because more light from the filament would then pass through the lens, becoming part of the image focused on the screen.

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