

## Abstract

There is a need for providing a projection optical system that is appropriate for maintaining high resolution with low distortion, miniaturizing a reflector, decreasing the number of reflectors, and decreasing the depth and the bottom (or top) of a display used for a rear projection television, for example. The projection optical system according to the invention enlarges a reducing side to a secondary image surface existing at an enlarging side. The projection optical system has a first optical system L11 and a second optical system L12. The first optical system L11 forms an intermediate image (position II) of the primary image surface. The second optical system L12 has a concave reflector AM1 that forms the secondary image surface resulting from the intermediate image. A light beam travels from the center of the primary image surface and to the center of the secondary image surface and crosses an optical axis. The light beam is reflected on the concave reflector, crosses the optical axis again, and reaches the secondary image surface.