My invention relates to the art of illumination, and especially to devices adapted to control and modify light rays emanating from selected positions in a fixture provided with a plurality of light sources.

My object is to produce a device with a reflector of broad and expansive area adapted to receive and redirect rays impinging upon it from a multiplicity of sources so as to deliver illumination, not intense, upon an area comprising the general working plane and in addition thereto to provide means, preferably comprising a system of lenses, for receiving the maximum light rays from the various sources and delivering them into a concentrated and common area in the working plane—that particular area in which the operation on a patient is taking place.

My invention consists of certain details of construction hereinafter set forth, pointed out in my claims and illustrated in the accompanying drawings, in which

Fig. 1 shows a side elevation view, partially in section, of my improved lighting fixture, and

Fig. 2 shows a partial inverted plan view of the same.

Referring to the accompanying drawings, the reference numeral 10 is used to indicate the hollow stem of the supporting means, secured to a junction box (not shown) of my fixture, to the lower end of which is secured the hollow ball, or sphere, 11, open at its base, as shown at 12. The reflector 13 is of extensive area curving downwardly at its periphery, as shown at 14, there being no opening whatever in the central part of the reflector as is customary, to permit of the projection therethrough of supports for a light source.

On the upper surface, centrally, of the reflector, I have provided means, as shown these means comprise an open ended cup 15 having an turned flange 16 (or I may, if desired, substitute arms with turned ends in place of the open ended cup with the turned flange) engaging the ball 11 above the central portion thereof, the distance between the turned ends 16 (or the inner diameter of an turned flange on an open ended cup) not being as great as the diameter of the ball 11. On the upper surface of the reflector, I have provided a plurality of conduits 17, preferably evenly spaced and arranged and radiating from near the center of the reflector, their outer ends being near the periphery of the reflector and communicating with their respective light sockets 18, secured to their respective rigidly mounted supporting means 19 on the under side of the reflector. The supporting means 19 is so positioned as to bring the light bulb 20 (secured in its respective socket 18) in close proximity to the periphery of the reflector and cause it to lie within the downwardly curved portion 14, as shown.

Rigidly secured to the periphery of the reflector so as to be lined, radially, with its respective conduit 17, and supporting means 19, is a bracket 21 adapted to receive and position, in a stationary manner, a lens 22 below its respective light bulb 20.

The brackets 21 are so positioned with relation to their respective light bulbs 20, and are so formed as to receive light rays impinging thereon, concentrating them and delivering them in a small concentrated area below the direct center of the reflector 13. As I have provided a multiplicity of light sources, each of which is provided with its lens 22, mounted and formed as described, it is obvious I have a battery of concentrated light delivering means all directing their beams on the same small concentrated area below the center of the reflector, thus producing an intensely illuminated spot in the central portion of the area generally illuminated through the medium of the reflector 13. As my reflector, mounted as described, is rotatably and tiltably movable upon the ball 11, it is obvious, the general illumination from my fixture as well as the concentrated illumination may be controlled and directed at will by the operator. Also, as the opening in reflector is covered, the illumination is enhanced, and dirt and dust will not come through the reflector to lodge upon the patient, during the operation.

Having thus described my invention what I regard as new and desire to secure by Letters Patent of the United States is:

1. A lighting fixture comprising a reflector; light sources positioned below the reflector; lenses positioned with each light source to direct the rays impinging thereon upon a concentrated area common to all the light sources and means to move the reflector upon its mounting.

2. A lighting fixture comprising a reflector; light sources positioned below the reflector; lenses positioned with each light
source to direct the rays impinging thereon upon a concentrated area common to all the light sources, said light sources and lenses being fixed in their positions.

3. A lighting fixture comprising a reflector; light sources positioned below the reflector; lenses positioned with each light source to direct the rays impinging thereon upon a concentrated area common to all the light sources, said light sources and lenses being fixed in their positions, and said reflector being rotatably movable upon its mounting.

EDWIN F. GUTH.