

Feb. 9, 1937.

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2,069,950

SURGICAL LAMP

Filed Nov. 2, 1933

2 Sheets-Sheet 1

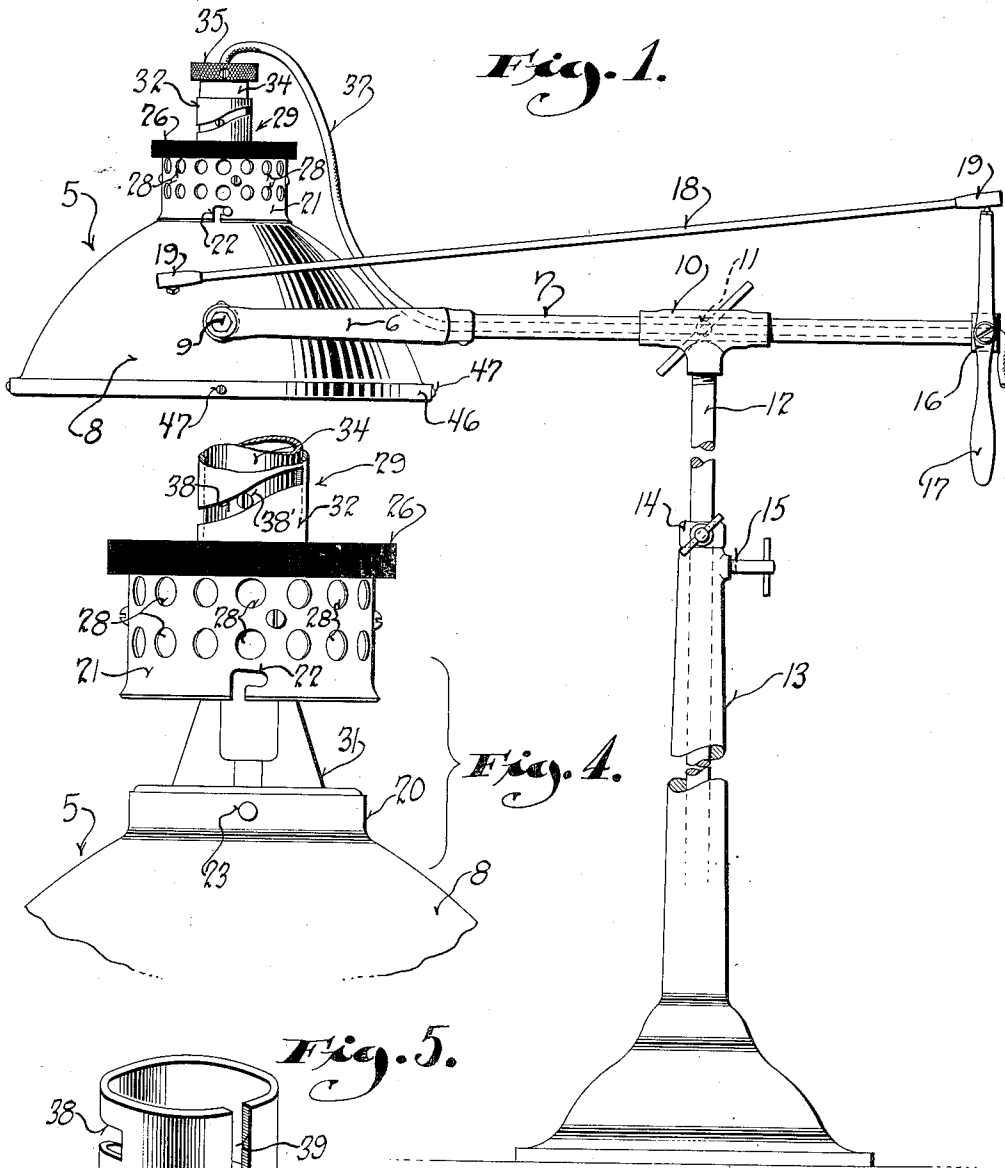


Fig. 1.

Fig. 4.

Fig. 5.

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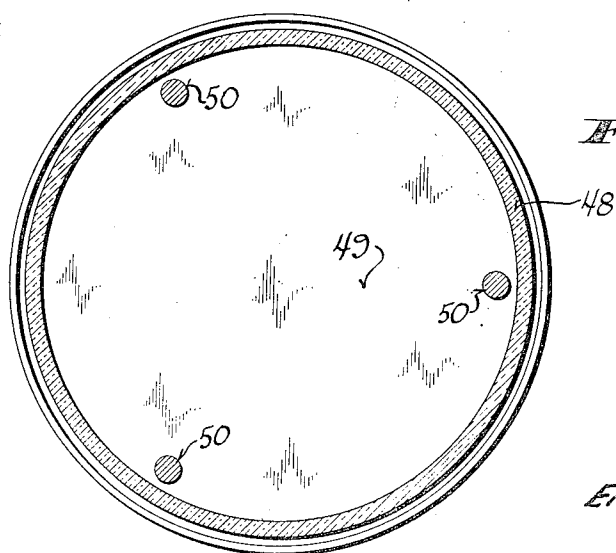
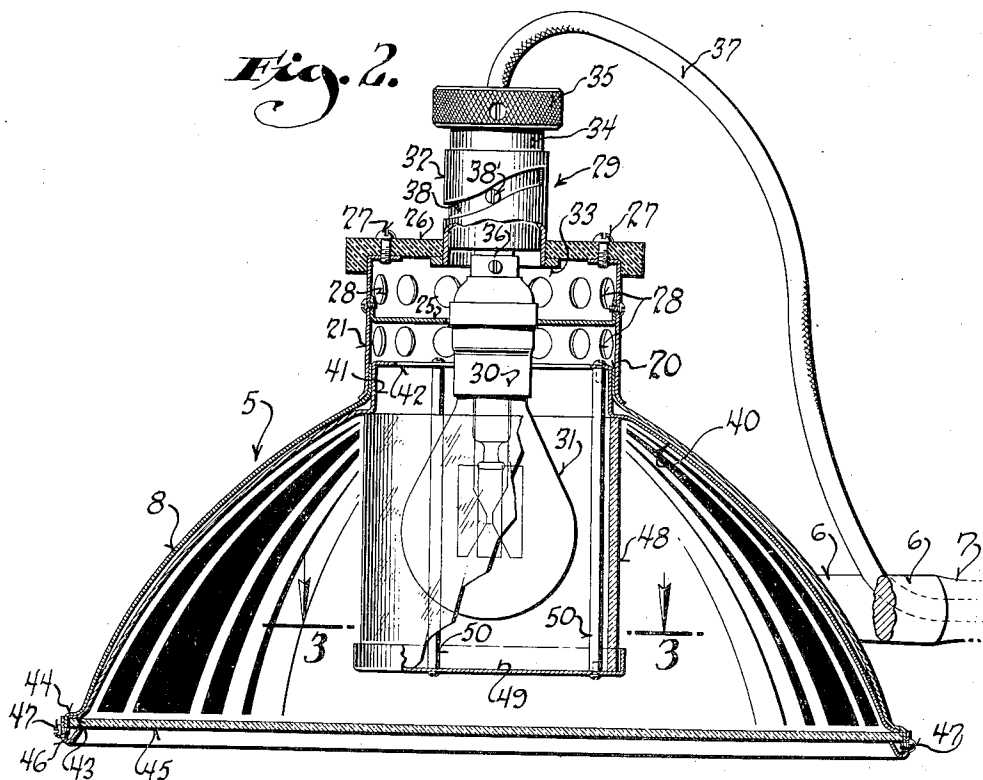
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2 Sheets-Sheet 2



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SURGICAL LAMP

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2 Claims. (Cl. 240—1.4)

This invention relates to improvements in surgical lamps and has as an object to provide novel means for adjustably supporting the lamp.

Another object of this invention resides in the provision of improved means for focussing the light source.

Another object of this invention resides in the combination of diffusing and reflecting means whereby the rays of light are so directed over the field to be illuminated, as to practically eliminate shadows.

A further object of this invention resides in the provision of means for absorbing some of the heat radiated from the light source.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the hereindisclosed invention may be made as come within the scope of the claims.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a side view of a lamp and its support constructed in accordance with this invention;

Figure 2 is an enlarged vertical section view through the lamp;

Figure 3 is a cross section view taken through Figure 2 on the plane of the line 3—3;

Figure 4 is a detail side view of the lamp body and the removable head shown separated; and

Figure 5 is a detail perspective view of part of the adjustable support for the light source.

Referring now more particularly to the accompanying drawings in which like numerals indicate like parts throughout the several views, the numeral 5 designates an illuminating unit which is supported between the forked ends 6 of a horizontal bar 7, the extremities of the forked ends 6 being pivotally connected to the outer shell 8 of the illuminating unit as at 9. The horizontal bar 7, which is preferably in the form of a hollow tube, is slidably and rotatably mounted in the head of a "T" fitting 10. A clamping screw 11, carried by the fitting serves to lock the horizontal bar against movement with respect thereto.

The "T" fitting 10 is fixed to the upper end of a vertical standard 12, which is movably

mounted in a pedestal 13 adapted to rest on the floor. A collar 14 is adjustably clamped to the standard 12 to support the standard against downward movement while permitting the same to turn in the pedestal so as to accommodate swinging movement of the lamp about the axis of the pedestal, and a clamping screw 15 carried by the pedestal is adapted to bear against the standard and lock the same against movement with respect to the pedestal.

As stated, the lamp unit is pivotally mounted from the extremities of the forked arms 6 carried by the horizontal bar 7. Pivotaly mounted on the opposite end of the horizontal bar 7, as at 16, to swing about an axis parallel to the axis of the pivotal connections 9, is an adjusting handle lever 17. The upper end of the lever 17 is connected by a link 18 to the body 8 of the lamp so that upon swinging movement of the handle lever about the axis of its mounting 16, a corresponding motion will be imparted to the lamp unit. To accommodate the relative motion between the handle lever and the link 18 and between the lamp body and the link, the connections 19 of the link to these elements are swivel joints.

The pivotal connection 16 of the handle lever 17 to the horizontal bar 7 prevents relative turning motion of the handle with respect to the horizontal bar about the axis of the bar, so that upon loosening of the set screw 11, the bar and consequently the lamp unit carried thereby, may be swung by means of the handle lever, about the horizontal axis of the bar. In this manner, all adjustment of the lamp unit may be effected from a point remote from the lamp without interfering in any way with work being performed in the field of illumination.

The lamp structure per se will now be described. The outer housing or body 8 is substantially semi-spherical and has a central opening through its upper end encircled by an upstanding neck 20. Fitted on the neck 20 over the central opening is a lamp supporting head having a cylindrical shell 21. The lower end of the shell telescopes over the neck and is detachably secured thereto by a pair of diametrically opposed bayonet slots 22 pressed into the shell and engageable with raised projections or buttons 23 formed on the upstanding neck.

A partition wall 25 is secured to the shell 21 intermediate its ends and its upper end is closed by a top plate 26 preferably formed of insulating material, the top plate 26 being removably secured to the shell by screws 27. The interior

of the shell is ventilated by a plurality of openings 28.

Carried by the top plate 26 in axial alignment with the lamp unit is an adjustable support indicated generally by the numeral 29, for a lamp socket 30 in which an incandescent lamp 31 is secured. The adjustable support 29 consists of an outer sleeve 32 secured at its lower end to a plate 33, which is fixed to the under-surface of the top plate 26 by screws or other suitable fastening means, with the sleeve 32 projecting up through an opening in the top plate.

Slidably and rotatably received in the sleeve 32 is a cylindrical supporting member 34, the upper end of which is closed by an insulated disc 35. Depending from the disc 35 is a tubular stem 36 to the lower end of which the socket 30 is secured. A conductor cord 37 passes down through the tubular stem 36 for connection with the terminals of the socket and the outer end thereof projects through the insulated disc 35 to lead to a source of current supply, the cord preferably continuing through the tubular horizontal bar 7.

The outer sleeve 32 has a cam slot 38 formed therein in which the head of a screw 38' carried by the cylindrical support 34, is received so that upon rotation of the cylindrical support by the handle disc 35, longitudinal motion will be imparted to the support and consequently the light source carried thereby.

As best illustrated in Figure 5, the cylindrical sleeve 32 is split as at 39 and partially slotted near its base as at 39' so that the upper portion thereof may grip the cylindrical support with a frictional engagement and thus hold the same in any position of adjustment. In this manner, simple and efficient means are provided with focusing the light source with respect to the reflector 40 carried on the inside of the housing as now about to be described.

The reflector 40 consists of a metal shell having its inner face plated and polished to provide a reflecting surface. The upper end of the shell forming the reflector carries an upstanding neck 41 adapted to be snugly received in the neck 20 of the outer housing. At its upper extremity, the neck 41 is flanged inwardly as at 42 for a purpose to be described.

The lower peripheral edge portion of the reflector is flanged outwardly as at 43 to engage a shoulder 44 formed on the adjacent peripheral edge portion of the outer housing 8. Outwardly of the flange 43 is a lens 45 held in place with the flange 43 of the reflector confined between its inner surface and the shoulder 44, by a ring 46 secured to the outer shell by screws 47. The ring 46 thus serves to readily detachably assemble the lens and the reflector with the outer housing or shell 8.

Suspended from the upper flange 42 of the reflector is a heat absorbing cylinder 48. This cylinder 48 is formed of glass substantially opaque to infra-red rays and is supported in position by a metal plate 49 suspended from the flange 42 by three rods 50.

As shown, the internal diameter of the cylinder 48 is substantially equal to that of the upstanding neck 41 so that the upper end of the cylinder bears against the adjacent portion of the reflector. Being formed of a glass which is substantially opaque to infra-red rays, much of the heat generated by the light source is absorbed before it reaches the metal parts of the lamp structure so that the degree of heat radiation is materially reduced.

From the foregoing description taken in connection with the accompanying drawings, it will be readily apparent to those skilled in the art, that this invention affords a novel construction, for surgical lamps and that it particularly provides convenient means for adjusting both the position of the lamp and the focus of the light source.

What I claim as my invention is:

1. In a lamp device of the character described, 20 an illuminating unit including a hollow body having a central opening, a light source, and means to adjustably mount the light source comprising, a supporting head fitted over the central opening of the body, said supporting head including a 25 cylindrical shell, and a wall closing the outer end thereof, said wall having an opening there-through, a cylindrical sleeve carried by said wall, a lamp socket to receive the light source, a member to carry the socket, said member being slid- 30 ably and rotatably mounted in said cylindrical sleeve, and cooperating cam means carried by the cylindrical sleeve and said member to effect longitudinal movement of said member and the light source supported thereby upon rotation of said 35 member, said cylindrical sleeve having a split portion frictionally gripping said member to hold the same in any position of adjustment.

2. In a lamp device of the character described, 40 the combination of a hollow body having a central opening encircled by an upstanding neck, a reflector shell disposed within said hollow body and likewise having a central opening, a light source, a heat absorbing glass cylinder encircling the 45 light source, means to support said heat absorbing glass cylinder from the reflector shell with one end thereof adjacent the central opening in the shell, and means to readily detachably and adjustably support the light source from the body 50 comprising, a supporting head including a cylindrical shell detachably secured to the neck of the hollow body, a lamp socket within said cylindrical shell, a wall having an opening therethrough 55 closing the outer end of said cylindrical shell, a cylindrical sleeve carried by said wall in alignment with the opening therein, a member slidably and rotatably disposed in said sleeve to which the lamp socket is connected, and cooperating means 60 carried by said member and the sleeve to effect axial movement of said member carrying the lamp socket and light source upon rotation of said member.

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