

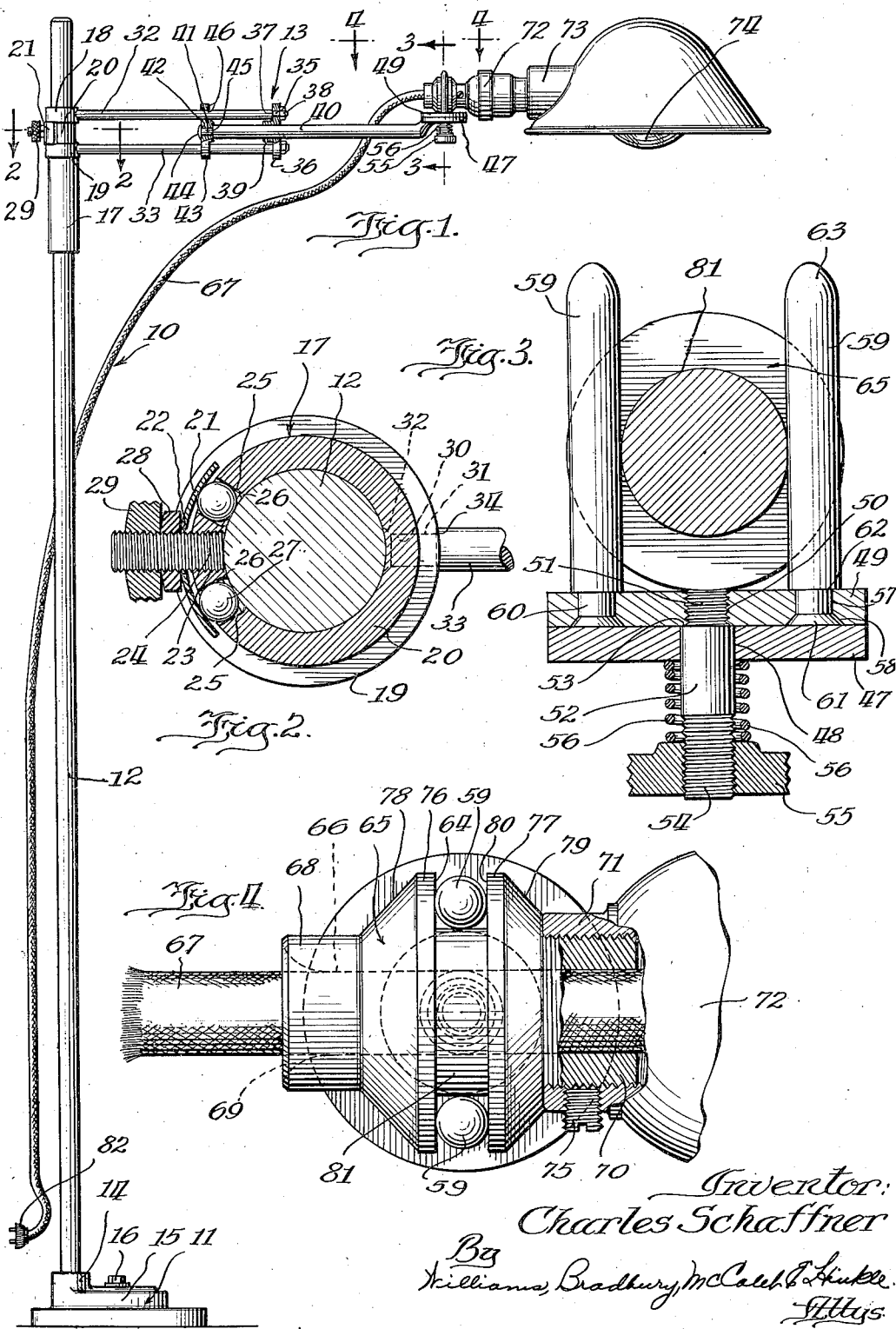
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LAMP

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LAMP

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The present invention relates to lamps, and is particularly concerned with lighting fixtures of the type adapted to be used by machine tool operators where it is necessary to have a brilliant source of light applied directly to the work without any glare in the eyes of the operator.

One of the objects of the invention is the provision of an improved lighting fixture for machine tool operators in which a shaded lamp is adapted to be adjusted and secured in any of a plurality of rotative positions at such a point that the light is applied directly to the machine tool work.

Another object of the invention is the provision of an improved lamp or lighting fixture of the class described which is provided with an adjustable stand and improved vertical and horizontal fixtures for facilitating the application of the light source to the work.

Another object of the invention is the provision of an improved lighting fixture of the class described in which the lamp may be very readily removed to be used as a trouble lamp or for application of light to other parts of the work apart from the fixture.

Another object of the invention is the provision of an improved adjustable structure whereby the lamp supporting arm is supported on a standard in such a way that the arm may be rotated or moved to any of a multiplicity of different vertical adjustments.

Another object of the invention is the provision of an improved structure of universal support for the lamp permitting the horizontal movement of the lamp and its securement in any of a plurality of rotative positions about a vertical axis and also permitting the rotation of the lamp about a horizontal axis so that the lamp has a substantially universal adjustment and may be applied to the work at any point and at any angle.

Other objects and advantages of the invention will be apparent from the following description and the accompanying drawing, in which similar characters of reference indicate similar parts throughout the several views.

Referring to the single sheet of drawing,

Fig. 1 is a side elevational view of a light fixture constructed according to the present invention;

Fig. 2 is a horizontal sectional view of the structure of the securing devices for adjustably supporting the lamp arm on the standard, taken on the plane of the line 2—2 of Fig. 1, looking in the direction of the arrows;

Fig. 3 is a vertical section taken on the plane

of the line 3—3 of Fig. 1, showing details of structure of the adjustable support for the lamp which permits removal of the lamp for use as a trouble lamp or adjustment of the lamp about a horizontal or a vertical axis.

Fig. 4 is a fragmentary top plan view of the adjustable support for the lamp of Fig. 3, taken on the plane of the line 4—4 of Fig. 1, looking in the direction of the arrows;

Referring to Fig. 1, the lighting fixture shown therein is indicated in its entirety by the numeral 10, and preferably comprises a base 11, provided with a standard 12 which carries the adjustable lamp supporting arm 13. The base 11 may consist of a cast metal member which is provided with a socket 14 adapted to fixedly receive the lower end of the standard 12, which may consist of a metallic pipe or shaft having a drive fit in the socket 14. The base 11 may be provided with a transverse aperture 15 for receiving a lag screw 16 to secure the base to the floor, if desired.

The standard 12 preferably extends to a height well above the machine work so that the lamp may be adjusted to any desired height. Slidably supported upon the standard 12 for movement in a vertical direction is the lamp supporting arm 13, which is mounted upon a metallic sleeve 17. Sleeve 17 is a slide fit with the shaft 12 and is preferably formed with a pair of collars 18 and 19, with a groove 20 between the collars. The groove 20 and collars 18, 19 serve to support and maintain the alignment of an arcuate spring 21 of substantially rectangular shape in elevation and provided with centrally located aperture 22.

The sleeve 20 is provided with a threaded bore 23 adapted to receive one end of a threaded stud 24 upon which the spring 21 is mounted. The aperture 22 is of sufficient size so that spring 21 may move inward and outward on the threaded stud 24.

On each side of the threaded bore 23 the sleeve 17 is provided with a pair of ball sockets 25 comprising cylindrical bores which terminate at the tapered shoulders 26 on the inside of the sleeve, the shoulders being provided for preventing escape of the balls when the sleeve is removed from the standard 12. Balls 27 are of slightly greater diameter than the thickness of the sleeve 17 at the groove 20 so that the balls project outside the sleeve into engagement with spring 21 which urges the balls into engagement with the standard 12.

A nut 28 and lock nut 29 on the threaded stud 24 are used to place tension on the arcuate spring 21, which resiliently engages the balls 27.

The sleeve 17 is thus provided with a friction device for securing the sleeve in any predetermined vertical position, and it is only necessary to move the sleeve upward and downward, as desired, and it will be retained in the place to which it is adjusted. The amount of friction may be regulated by means of the nuts 28 and 29.

The collars 18 and 19 are preferably provided with the bores 30 located diametrically opposite the bore 23 for receiving the reduced ends 31 of a pair of rods 32, 33. Bore 31 are enlarged or countersunk at 32 inside the sleeve 17 so that the reduced ends 31 of the rods 32, 33 may be riveted over. The rod is thus secured to the sleeve 17 by the riveted end of the rod and by means of engagement of the annular shoulder 34 outside of the collars 18 and 19, and the rods 32, 33 extend laterally of the sleeve 17 and parallel to each other.

The opposite ends of the rods 32, 33 are reduced and provided with ends 35 for receiving a crosshead 36. Crosshead 36 has a pair of bores for receiving the reduced threaded ends 35 and the crosshead is confined between the annular shoulder 37 and the nut 38 on each rod. Crosshead 36 is also provided with a centrally located horizontally extending bore 39 for slidably receiving rod 40.

Rod 40 is provided with a reduced end 41 which is fixedly secured in a bore 42 in a movable crosshead 43 by riveting over the end 44 of the rod 40. Movable crosshead 43 is confined between the riveted end 44 and the annular shoulder 45. The movable crosshead 43 is also provided with a pair of bores 46 of suitable size and location to slidably receive the rods 32 and 33. The rods 32, 33 and 40 are held in parallel and sliding relation to each other.

In effect, the arm 13 is adjustable longitudinally for extending or retracting the lamp. The arm 40 is preferably provided at its outer end with a flat plate or disc 47 having a centrally located cylindrical bore 48.

Another metallic disc 49 of similar size is provided with a threaded bore 50, into which is threaded the reduced vertical end 51 of a cylindrical stud 52 having an annular shoulder 53. The cylindrical stud 52 rotates in the bore 48 of the plate 47 and is threaded at its lower end 54 for receiving a knurled nut 55.

The helical coil spring 56 is compressed between the nut 55 and the lower plates 47 and 49 are brought into frictional engagement with each other and retained in any predetermined adjusted rotative position.

The upper plate 49 is preferably provided with a pair of apertures 57, each of which is countersunk at the lower end 58 so that a pair of metallic pins 59 may have their reduced ends 60 secured in the bore 57 by riveting over at 61.

The pins 59 each have annular shoulders 62 engaging the upper side of plate 49, and the pins are spaced from each other at equal distances from the center of the plate 49.

The upper ends of the pins 59 are preferably rounded as at 63 so as to facilitate the insertion of the pins into a groove 64 in the lamp supporting collar 65. The lamp supporting collar 65 comprises a metallic member which is provided with a centrally located bore 66 for passing the lamp conductors 67.

At one end the lamp supporting collar 65 may be provided with a cylindrical abutment 68 and the bore 66 may be provided with an outwardly curved surface 69 for preventing the metal from

cutting the insulation of conductors 67. At its opposite end the member 65 is provided with a reduced cylindrical threaded portion 70, upon which may be threaded the usual female threaded part 71 of a lamp socket 72 of conventional shape.

The lamp socket supports the conventional type of shade 73. In the socket is an incandescent bulb 74, which may be of the Mazda type or of some special type affording special illumination, when desired.

A set screw 75 threaded into a bore engages the threaded hub 70 and secures the socket 72 in predetermined position.

At its central part the member 65 is provided with a substantially cylindrical enlargement having a groove, or it may be described as a pair of radially extending flanges 76, 77. The flanges 76, 77 are provided with frusto-conical surfaces 78, 79 on the outside and with flat surfaces 80 on the inside of a groove 64 of substantially rectangular shape in section. The groove 64 is of a size adapted to receive the pins 59 and the middle cylindrical portion 81 of the member 65 is spaced sufficiently to be located between the pins 59.

The fit of the pins 59 in the groove 64 should be such that the lamp will be retained in any rotative position in which it is placed, or the pins may resiliently engage the cylindrical part 81 to guard against movement.

It will thus be observed that the lamp 74 with its shade 73 may move about a horizontal axis, the axis of the stud 52, and it is retained in any adjusted position by means of the frictional engagement of the plates 47, 49. The lamp may also be rotated about a horizontal axis, the axis of the socket 72, by means of the engagement of the pins 59 in the groove 64. The lamp may be pulled out or shoved back by means of the extensible feature of the arm 13, and the lamp may be lifted to any desired position on the standard 12 so that it is located immediately above the work with the shade below the eyes of the operator.

If desired, the lamp may be removed from a supporting fixture by merely lifting the member 65 out from between the pins 59, after which the lamp may be moved to any desired position and used as a trouble lamp.

The lamp conductors 67, generally two in number, and preferably covered with insulation such as rubber, preferably terminate in the conventional wall plug 82, having the usual pair of prongs. The tension of the springs 21 and 56 may be changed or adjusted so that as the parts wear the tension may be increased and the fixture made to retain its adjustment as desired.

While I have illustrated a preferred embodiment of my invention, many modifications may be made without departing from the spirit of the invention, and I do not wish to be limited to the precise details of construction set forth, but desire to avail myself of all changes within the scope of the appended claims.

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

1. In an operating lamp, the combination of a standard comprising a base and a vertically extending shaft with a sleeve slidably mounted on said shaft for adjustment in a vertical direction, said sleeve having a pair of annular shoulders separated by a groove, a threaded stud mounted in said groove and extending radially from said sleeve, apertures on both sides of said stud through the sleeve and located in said groove, balls in said

apertures, and resilient means mounted on said stud for urging said balls into engagement with said shaft.

2. In an operating lamp, the combination of a
5 standard comprising a base and a vertically extending shaft with a sleeve slidably mounted on said shaft for adjustment in a vertical direction, said sleeve having a pair of annular shoulders separated by a groove, a threaded stud mounted
10 in said groove and extending radially from said sleeve, apertures on both sides of said stud through the sleeve and located in said groove, balls in said apertures, resilient means mounted on said stud for urging said balls into engagement with
15 said shaft, comprising an arcuate spring member slidably mounted on said stud and guided by said annular shoulders, said stud having threaded means for engaging said spring.

3. In an operating lamp, the combination of a
20 standard comprising a base and a vertically extending shaft with a sleeve slidably mounted on said shaft for adjustment in a vertical direction, said sleeve having a pair of annular shoulders separated by a groove, a threaded stud mounted
25 in said groove and extending radially from said sleeve, apertures on both sides of said stud through the sleeve and located in said groove, balls in said apertures, a lamp supporting arm carried by said sleeve, said lamp supporting arm
30 having means for extension of said arm, a lamp carried by the end of said arm, and a substantially universal joint connection between said lamp and said arm.

4. In an operating lamp, the combination of a
35 standard comprising a base and a vertically extending shaft with a laterally extending lamp supporting arm, said arm having a disc carried by its outer end, a second disc in frictional engagement with the first-mentioned disc, said second
40 disc having a stud passing through an aperture in the first-mentioned disc, resilient means for drawing said discs into frictional engagement with each other, and a lamp carried by said second disc and adapted to be rotated with the second disc and held in any of a plurality of pre-
45 determined positions, said second disc having a pair of upwardly extending pins, and said lamp being

carried by a metal sleeve having radially extending shoulders for engaging on both sides of said pins, whereby said lamp may be rotatably and removably supported by said sleeve between said pins.

5. In an operating lamp, the combination of a
5 standard comprising a base and a vertically extending shaft with a sleeve slidably mounted on said shaft for adjustment in a vertical direction, said sleeve having a pair of annular shoulders separated by a groove, a threaded stud mounted
10 in said groove and extending radially from said sleeve, apertures on both sides of said stud through the sleeve and located in said groove, balls in said apertures, resilient means mounted on said stud for urging said balls into engagement with said
15 shaft, and a lamp supporting arm carried by said sleeve comprising a pair of laterally extending rods, a cross-head carried by said rods and having a guide formed therein, a third rod slidably mounted in said guide and having a cross head
20 slidably engaging said first-mentioned arms.

6. In an operating lamp, the combination of a
25 standard comprising a base and a vertically extending shaft with a sleeve slidably mounted on said shaft for adjustment in a vertical direction, said sleeve having a pair of annular shoulders separated by a groove, a threaded stud mounted in
30 said groove and extending radially from said sleeve, apertures on both sides of said stud through the sleeve and located in said groove, balls in said apertures, resilient means mounted on said stud for urging said balls into engagement with said shaft, and a lamp supporting arm carried
35 by said sleeve comprising a pair of laterally extending rods, a cross-head carried by said rods and having a guide formed therein, a third rod slidably mounted in said guide and having a cross head slidably engaging said first-mentioned arms, a disc carried by the end of said third rod, a
40 second disc rotatably mounted on said first-mentioned disc, a pair of upwardly projecting pins carried by said second disc, and a lamp having a grooved hub for receiving said pins, rotatably and removably mounted between said pins.
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