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Rogers

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[45] **Aug. 13, 1974**

[54] **LAMP HEAD ASSEMBLY**

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[52] **U.S. Cl.**..... **240/52 R,** 240/41.6, 240/73 BJ

[51] **Int. Cl.**..... **F21v 21/00**

[58] **Field of Search**..... 240/52 R, 52 BL, 61.8, 240/41.15, 41.6, 9 R, 73 BA, 73 BJ, 44.2, 2 R

[56] **References Cited**

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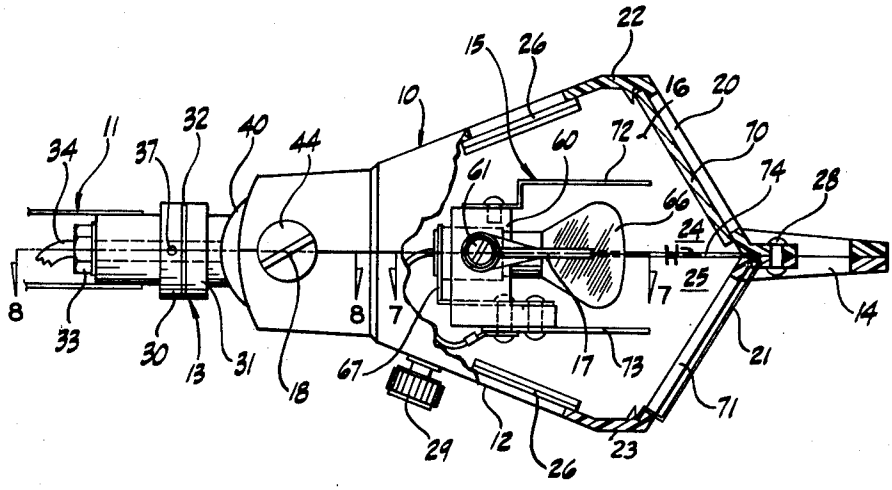
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Primary Examiner—Richard L. Moses

[57] **ABSTRACT**

This assembly includes a lamp housing mounted to a support at one end and having a pair of apertures at the other end providing reading and examination lights. A lamp base is journal mounted within the housing to the housing sidewalls by pivot elements which are fixed to the lamp base and extend outwardly of the sidewalls. Actuating levers are attached to each end of the pivot elements for manual rotation of the lamp base to direct the lamp beam through one or the other of the apertures. The housing is attached to the support by an elbow joint, which permits the angle of elevation of the housing to be adjusted and the support includes a swivel joint which permits the housing to be rotated about its own longitudinal axis.

12 Claims, 11 Drawing Figures



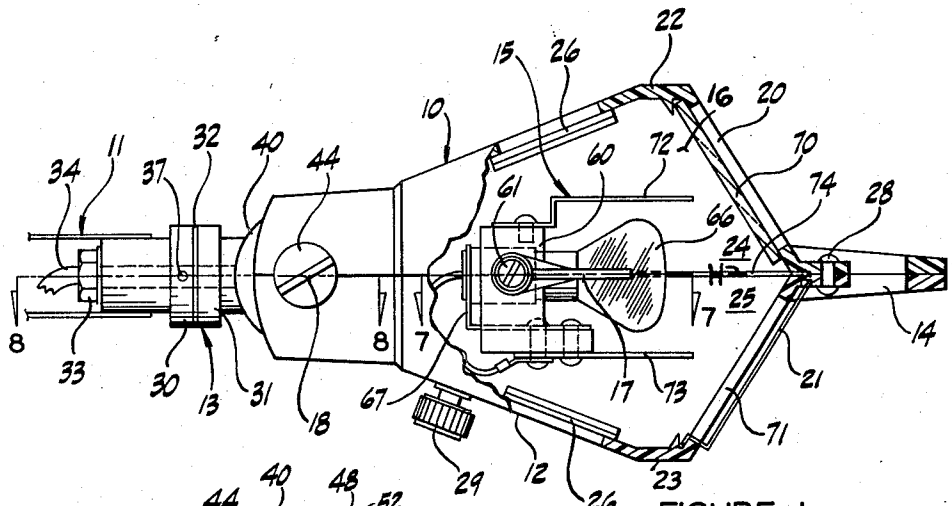


FIGURE 1.

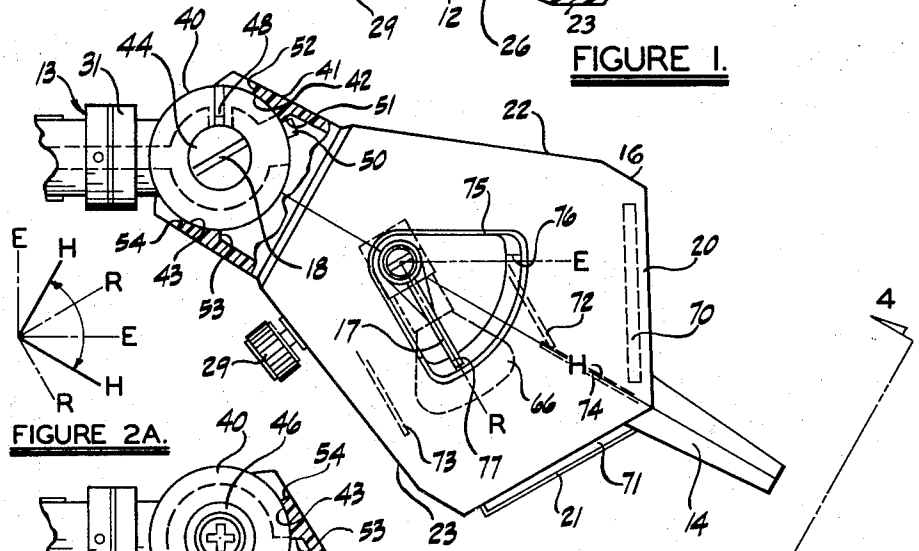


FIGURE 2.

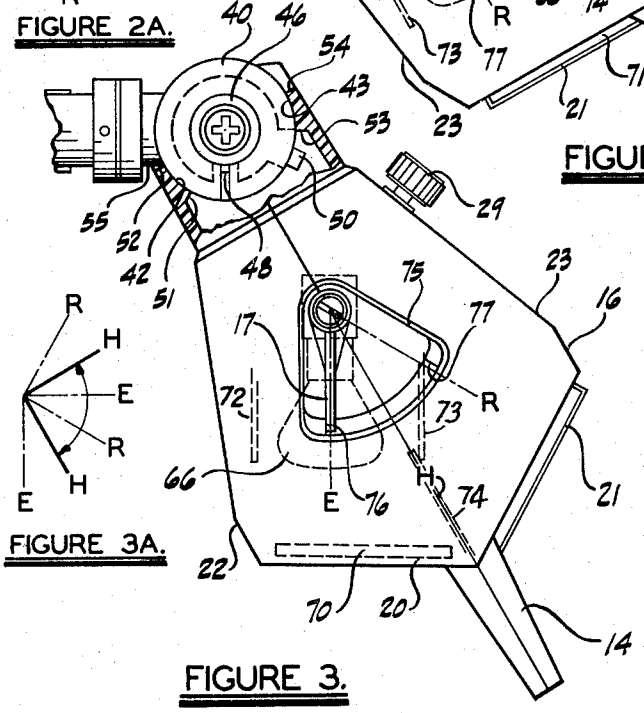


FIGURE 3.

FIGURE 2A.

FIGURE 3A.

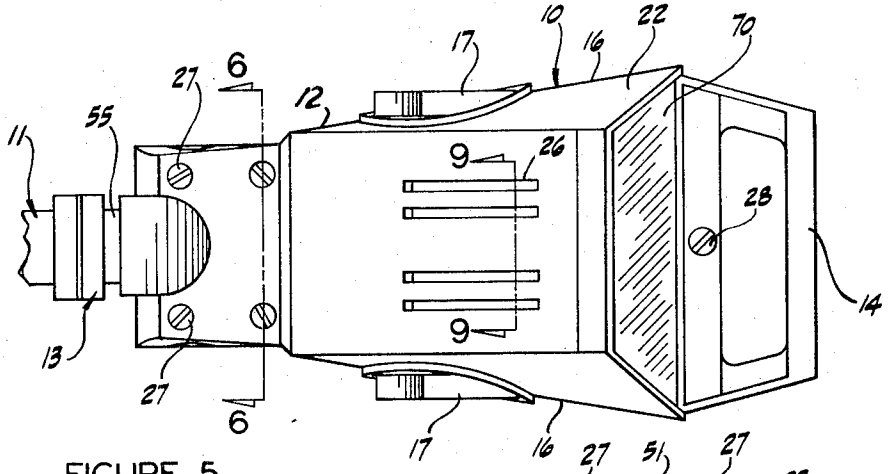


FIGURE 5.

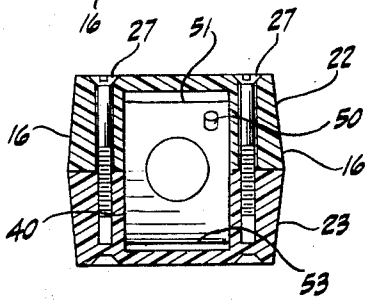


FIGURE 6.

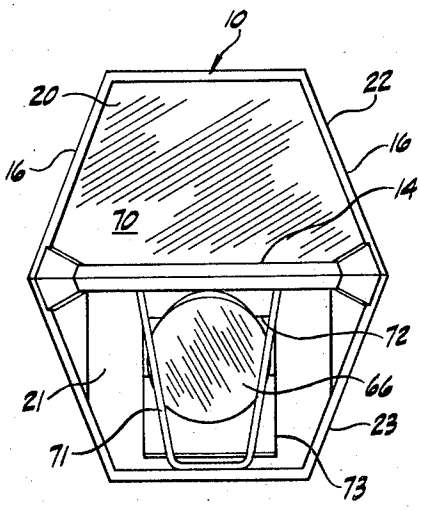


FIGURE 4.

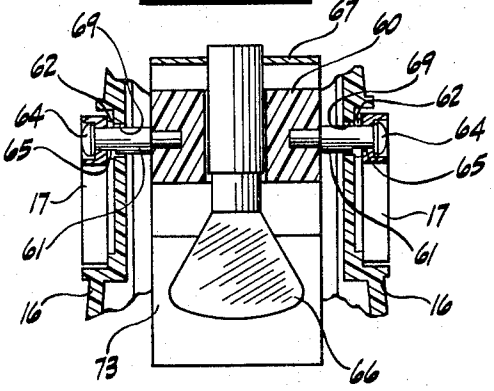


FIGURE 7.

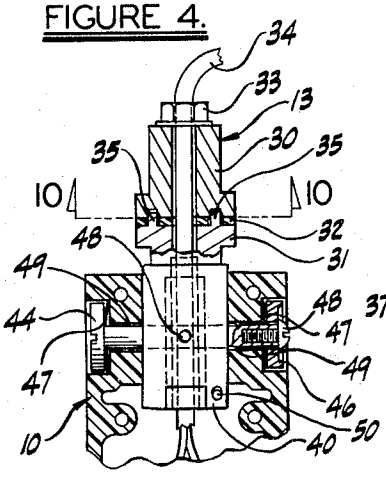


FIGURE 8.

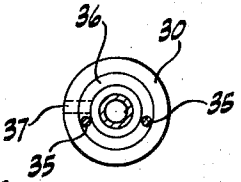


FIGURE 10.

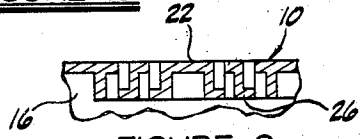


FIGURE 9.

LAMP HEAD ASSEMBLY

BACKGROUND OF THE INVENTION

This invention relates generally to lamp heads and particularly to an articulated lamp head having a single lamp to provide a dual lighting purpose.

It is necessary in some situations to provide lighting equipment having the capability of supplying two qualities of lighting, each suitable for a specific purpose. An example of this is to be found in a hospital room where the patient requires a particular quality of light for reading purposes and the attending physician requires a different quality of light for examination purposes.

In the past these requirements have been satisfied by providing two independent pieces of lighting equipment each serving one specific purpose. This is an expensive solution particularly where articulating lamps are concerned. A possible alternative solution lies in the provision of either dual lamp heads or compound lamp heads having dual light bulbs. Neither of these solutions is particularly attractive, however, because of the expense involved in providing two heads and the complexity involved in providing a compartmentalized housing for a compound head. In addition, the need to provide duplicate switches and wiring is a considerable drawback.

The present lamp head assembly overcomes these and other problems in a manner not disclosed in the known prior art.

SUMMARY OF THE INVENTION

This lamp head assembly provides two qualitatively different light sources, suitable for reading or examination purposes, using a single housing and a single lamp. The housing includes dual apertures and the lamp is pivotally mounted within the housing so that the lamp beam can be directed through either aperture.

The housing is particularly adapted for elevation angle adjustment and is attached to a support by means of an elbow joint for this purpose. The support is provided with a swivel joint so that the housing can be rotated about its longitudinal axis to modify the range of elevational angle movement without changing the amount of such movement.

This lamp head assembly is relatively simple and inexpensive to manufacture and install and can be used by anyone without special instruction.

It is a primary object of this invention to provide a lamp head assembly, which includes a housing mounted to a support at one end and having dual light apertures at the other end, and to provide lamp means pivotally mounted within the housing for movement of the lamp beam to direct said beam selectively through one of the apertures and said lamp means being actuated manually by exterior levers attached to said pivot means.

It is another object to provide a lamp base carrying the lamp, said base having stub shafts fixedly attached thereto to provide the pivot means.

A further object is to provide actuating levers, attached to each end of said stub shafts outwardly of the housing sidewalls, which are aligned with the lamp axis to indicate the position of said axis and the direction of the lamp beam.

Another important object is to provide lamp means having opposed light shields extending generally in the direction of the beam to shield light from one housing aperture when the lamp is directed through the other aperture.

Yet another object is to provide a light shield attached to the housing between the apertures and cooperating with the light shields of the lamp means.

It is another important object of the invention to provide support means which include a longitudinal swivel axis and a transverse axis and to provide swivel means including forward and rearward relatively swivelable portions one of said portions being connected to the housing for swiveling said housing 180° about the longitudinal axis and one of said portions being attached to the housing for rotating said housing about the transverse axis to permit adjustment of the angle of elevation of said housing.

It is another object to provide one of the swivel portions with an enlarged cylindrical end and to provide the housing with opposed coaxial arcuate bearing surfaces engageable with said enlarged cylindrical end for providing an elbow joint between the housing and the support to facilitate said housing elevational adjustment.

Another object is to provide the enlarged cylindrical end with circumferentially spaced stop means and to provide the housing with cooperating circumferentially spaced stop means to define the elevational angle range of the housing.

It is an important object to provide a different range of angular elevational movement above and below the horizontal so that the housing can be adjusted to different positions when it is twisted through 180° about the swivel axis.

Yet another important object is to provide stop means on the housing sidewalls cooperating with the actuating lever to define the range of movement of the lamp means on either side of the longitudinal axis of the lamp housing.

It is another object of the invention to provide one of the housing apertures with an examination lens to produce light having a different quality to that emitted from the other aperture.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an elevational view of the lamp head assembly showing the housing partly in cross section with the interior lamp base in an intermediate position;

FIG. **2** is an elevational view showing the housing partly in cross section and depressed to the low point of the first elevational range with the lamp in the reading position;

FIG. **2A** is a diagrammatic representation of the first elevational range;

FIG. **3** is an elevational view showing the housing partly in cross section, swiveled through 180° to a second elevational range and depressed to the low point of said range with the lamp in the examination position;

FIG. **3A** is a diagrammatic representation of the second elevational range;

FIG. **4** is an end view of the assembly;

FIG. **5** is a plan view of the assembly;

FIG. **6** is a cross sectional view taken on line **6—6** of FIG. **5**;

FIG. **7** is a sectional view taken on line **7—7** of FIG. **1**;

FIG. **8** is a sectional view taken on line **8—8** of FIG. **1**; and

FIG. 9 is a sectional view taken on line 9—9 of FIG. 8.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now by characters of reference to the drawings and first to FIGS. 1 through 3 it will be understood that the lamp head assembly generally indicated by numeral **10** is mounted to the end of a support arm such as the telescopic arm indicated in phantom outline by numeral **11.** In FIG. 1 the lamp head **10** is longitudinally aligned with the support arm **11** and includes a housing **12** which is attached to the support arm **11** by means of a swivel assembly generally indicated by numeral **13** and constituting a support means. The longitudinal axis of the housing is indicated by H.

Because of the swivel assembly **13** the housing is capable of being rotated about the longitudinal axis of the support **11** through 180° by twisting the housing handgrip **14.** An elbow joint **18** between the housing **10** and the support **11** permits the housing **12** to be moved through a first angular elevational range having limits indicated by H in FIG. 2A. The housing is shown at the low point of this range in FIG. **2.** When the housing is swiveled through 180° a second angular elevational range is available having limits indicated by H in FIG. **3.** The housing is shown at the low point of this range in FIG. **3.** The first and second angular ranges are qualitatively the same, 90° in the preferred embodiment, but are differently located relative to the swivel axis.

As clearly shown in FIG. **1** a lamp assembly generally indicated by numeral **15** is mounted interiorly of the housing **12.** Said assembly **15** is pivotally mounted between the sidewalls **16** of the housing **12** for movement relative to said housing **12.** The lamp assembly is manually actuated by means of a pair of levers **17** mounted to the lamp assembly **15** exteriorly of the housing **12,** said levers constituting an actuating means selectively directing the lamp assembly **15** through either an examination aperture **20** or a reading aperture **21,** which are provided at the remote end of the housing **12.** It will be understood from FIGS. **1 – 3** that the lever **17** is aligned with the lamp and provides an indicator showing the location of the lamp assembly. The range of movement of the lamp assembly **15** on either side of the housing axis H is indicated by E and R.

Turning now more specifically to the details of the device it will be understood that the housing **12** is formed from a pair of similar portions **22** and **23** which define an examination chamber **24** and a reading chamber **25** each being provided with a plurality of light and ventilation baffles generally indicated by numeral **26** and shown in detail in FIG. **9.** The housing portions **22** and **23** are attached at the elbow joint end by a plurality of self-tapping threaded fasteners **27** as shown in FIG. **5** and at the handgrip end by a single threaded fastener **28.**

The swivel assembly **13** is best shown in FIGS. **8** and **10** and includes a rearward portion **30** and a forward portion **31** having a washer **32** therebetween to facilitate relative rotation. The forward and rearward portions **31** and **30** are held together by means of a hollow bolt **33** which is threadedly connected to the forward portion **31** and constitutes a swivel shaft. The hollow bolt **33** receives the electric cord **34** and provides a means by which said cord is directed to the interior of the housing **10** for connection to the lamp assembly **15** and the switch indicated by numeral **29.** The swivel assembly forward portion **31** includes a pair of opposed pins **35** and the rearward portion **30** includes an annular groove **36,** which is provided with a stop pin **37** so that the swivel assembly portions can be relatively rotated substantially 180° in each direction.

The elbow joint **18** between the housing **10** and the support **11** is formed as follows. The swivel assembly forward portion **31** includes an enlarged generally cylindrical head **40** and the housing includes a joint portion **41** in the nature of a socket providing arcuate surfaces **42** and **43** which receive the head **40** in bearing relation. The structural cooperation of parts provides an elbow joint having an axis of rotation defined by a bolt **44** which holds the housing portions **22** and **23** together and constitutes shaft means. The bolt **44** provides a means of adjusting the tension of the elbow joint and when the desired tension is achieved by tightening the screw **45** against the nut **46** and washers **47** the set screw, indicated by numeral **48** in FIG. **8,** is tightened to lock the cylindrical head **40** to the bolt **44.** The cylindrical head **40** is hollow to permit passage of the cord **34** therethrough as indicated in FIGS. **2** and **10.**

The range of angular movement permitted by the elbow joint **18** is determined stop means provided by engagement between the housing **12** and the swivel assembly forward portion **31.** In the preferred embodiment the total range of movement is 90° which, in the first angular range shown in FIG. **2A,** permits the housing **10** to be depressed to an elevation of 30° below the horizontal and raised to an elevation of 60° above the horizontal and, following the twisting of the lamp about the swivel axis through 180° to the second angular range shown in FIG. **3A,** permits the housing to be depressed to an elevation of 60° below the horizontal and raised to 30° above the horizontal.

The stop means providing the limits of elevational movement are best shown by FIGS. **2** and **3,** which indicate the structural arrangement of parts in the two limit positions. The arcuate faces **42** and **43** which receive the elbow joint cylindrical head **40** are defined by shoulders **51, 52** and **53, 54** respectively. As shown in FIG. **2** the cylindrical head **40** includes a projecting stop pin **50** which is engageable with shoulder **51** when the angle of elevation of the housing **10** is at the low point of the first angular range. The swivel assembly forward portion **31** includes a shank **55** which is engageable with shoulder **52** when the angle of elevation of the housing is at the high point of the first angular range. This high point, of course, corresponds to the low point of the second angular range shown in FIG. **3** and this engagement is clearly shown in FIG. **3.** It will be recalled that in order to achieve this second angular range the housing **10** must be twisted through 180°.

The pivotal mounting of the lamp assembly **15** within the housing is best indicated by reference to FIGS. **1** and **7.** As shown in FIG. **1** the lamp assembly includes an L-shaped insulator block **60** of nylon or similar material constituting a base. As shown in FIG. **7** the block **60** includes a pair of stub shafts **61** fixedly attached thereto in non-rotatable relation. The sidewalls **16** are provided with bushings **62,** which receive said stub shafts in rotatable relation. The actuating levers **17** are attached to the remote ends of said stub shafts **61** as by fasteners **64,** said shafts including flats **65,** which preclude relative rotation between the levers **17** and the shafts **61.** It will be understood that this arrangement

provides that, as the levers **17** are rotated, the insulator block **60** is also rotated. A lamp **66,** which is carried by the block **60** by means of a bracket **67,** is also rotated by said actuating levers **17** and may thereby be directed through either the examination aperture **20,** which includes an examination lens **70,** or the reading aperture **21,** which includes a light guard **71.** The lamp includes a beam axis which is defined by the general direction in which the lamp is oriented to emit light selectively toward the apertures. In the preferred embodiment the lamp beam axis is coincident with the longitudinal axis of the incandescent lamp **66.** The lamp **66** is flanked by light shields **72** and **73,** which cooperate respectively with a housing partition shield **74** located between the examination chamber **24** and the reading chamber **25.** The housing partition shield **74** cooperates with the shields **72** and **73** so that when the lamp **66** is directed through one of the apertures **20** or **21,** light is concentrated only through that aperture.

In the preferred embodiment the range of angular movement of the lamp **66** is substantially 30° on either side of the housing longitudinal axis H shown in FIG. **1.** As shown in FIGS. **2** and **3** the actuating levers **17** are movable within segmental pockets **75** formed within the sidewalls **16** and the range of movement of each actuating lever **17** is defined by stops indicated by numerals **76** and **77** which are formed in said segmental pockets **75.** When the housing **10** is in the position indicated in FIG. **2** and stop **77** is engaged by the actuating lever **17,** light passes through the reading aperture **21** in the direction of the lamp beam axis indicated by R and when stop **76** is engaged by said actuating lever **17** light passes through the examination aperture **20** in the direction of the lamp beam axis indicated by E. As shown in FIG. **3** when stop **76** is engaged by the actuating lever **17** light passes through the examination aperture **20** in the direction of the lamp beam axis indicated by E and when stop **77** is engaged by said actuating lever **17** light passes through the reading aperture in the direction of the lamp beam axis indicated by R. Thus, in the preferred embodiment, with the support arm **11** in the horizontal position, the examination lamp beam can be directed through 90° above and below the horizontal while the reading lamp beam can be directed through 60° above and below the horizontal.

It is thought that the structural features and functional advantages of this lamp head assembly have become fully apparent from the foregoing description of parts but for completeness of disclosure the installation and operation of the assembly will be briefly described.

The housing **12** is constructed from two substantially identical upper and lower portions **22** and **23** which fit together along the longitudinal axis H of said housing. This longitudinal axis splits the mounting apertures **49** of the elbow joint bolt **44** (FIG. **8**) and the mounting apertures **69** of the stub shaft bushings **62** (FIG. **7**) and facilitates the pre-assembly of lamp head components. The cylindrical head **40** of the swivel assembly **13** and the stub shafts **62** of the lamp assembly **15** can be aligned in position, for example, within the lower housing portion **23** (FIG. **1**). Once aligned for the shaft assembly bolt **44** can be installed and suitably tightened and the actuating levers **17** can be mounted to the stub shafts **61** following emplacement of the bushing **62.** It is a simple matter to then connect the housing portions **22** and **23** together by means of fasteners **27** and **28** and the lamp assembly can then be mounted to the support arm **11.** Once installed the lamp assembly **15** can be pivoted manually by means of the actuating lever until the lever **17** engages the appropriate housing stop **76** or **77** so that the lamp **66** is directed through either the examination aperture **20** or the reading aperture **21.** In effect, therefore, the lamp functions as both a reading lamp and an examination lamp it being understood that the examination aperture lens **70** provides the requisite quality of light for examination purposes.

The range of the "reading" lamp and the "examination" lamp are graphically illustrated in FIGS. **2A** and **3A.** The range of movement of the housing **10** about the elbow joint **18** is defined by engagement of the stop pin **50** with the housing shoulder **51** (FIG. **2**) and by engagement of the shank **55** with the housing shoulder **52** (FIG. **3**).

FIG. **2A** read in conjunction with FIG. **2** illustrates that with the housing oriented to move through the first angular range the reading lamp position R is clockwise of the housing axis H and the examination lamp position E is counterclockwise of the housing axis H. FIG. **3A** read in conjunction with FIG. **3** illustrates that with the housing oriented to move through the second angular range, following rotation of 180° about the swivel axis, the reading lamp position R is counterclockwise of the housing axis H and the examination lamp position E is clockwise of the housing axis H. In the preferred embodiment, the combined range of the examination lamp, with the support arm horizontal, is from vertical to vertical whereas the combined range of the reading lamp is less than this amount, it being understood that a greater examination range is desirable. It will also be understood that once the lamp is positioned, for example for examination purposes, it remains in that position and no further actuation of the lever **17** is required during the examination period. In the examination position the lamp shield **73** overlaps the housing partition shield **74** to substantially direct light through the examination aperture only. In the reading position lamp shield overlaps shield **74** to substantially direct light through the reading aperture only.

I claim as my invention:

1. A lamp head assembly comprising:

a. support means,

b. a housing including opposed ends and opposed sidewall means said housing being mounted to the support means at one end and including first and second apertures disposed in side by side relation at the other end,

c. lamp means disposed interiorly of the housing between said support means and said apertures and including:

1. a lamp, and

2. pivot means having a pivot axis transversely disposed of said sidewall means and pivotally mounting said lamp means to said sidewall means to direct said lamp in a direction to emit light selectively through one of said apertures, and

d. actuating means attached to the pivot means and disposed exteriorly of said housing to operatively pivot said lamp means.

2. A lamp head assembly as defined in claim **1,** in which:

e. the lamp means includes a base carrying the lamp,

f. the pivot means is attached to said base in non-rotatable relation and journal mounted to said sidewall means,

g. the actuating means includes a pair of actuating levers mounted to opposite ends of said pivot means to pivot said base and said lamp.

3. A lamp head assembly as defined in claim **1**, in which:

e. the lamp means includes a base carrying the lamp, the lamp having a beam axis.

f. the pivot means includes opposed stub shafts fixedly attached to said base and having opposed ends extending outwardly of said sidewall means in journal relation thereto.

g. the actuating means includes a pair of actuating levers fixedly attached to said opposed shaft ends and substantially aligned with the beam axis to indicate the direction of said beam axis,

h. the housing sidewall means includes stop means engageable with said actuating levers to determine the direction of the beam axis.

4. A lamp head assembly as defined in claim **3**, in which:

i. the lamp means includes opposed light shields extending generally in the direction of the beam axis to shield light from one aperture when the beam axis is directed through the other aperture.

5. A lamp head assembly as defined in claim **4**, in which:

j. the housing includes a light shield disposed between said apertures and cooperating with the light shields of said lamp means to shield light from one aperture when the beam axis is directed through the other.

6. A lamp head assembly as defined in claim **1**, in which:

e. the support means includes a transverse axis substantially parallel with the pivot axis,

f. the housing includes a longitudinal axis and said housing is rotatable about said transverse axis of the support means for adjustment of the angle of elevation of said longitudinal axis.

7. A lamp head assembly as defined in claim **6**, in which:

g. the support means includes a longitudinal swivel axis, and,

h. the housing is swivelable about said swivel axis through substantially 180°.

8. A lamp head assembly as defined in claim **1**, in which:

e. the support means includes a longitudinal swivel axis and swivel means defined by said axis and having forward and rearward portions connected in swivel rotation,

f. one of said portions includes a transverse axis,

g. shaft means defined by said transverse axis interconnects the housing to said portion, and

h. the housing includes a longitudinal axis and said housing is swivelable about said swivel axis through substantially 180° to alternate the position of the housing apertures and said housing is rotatable about said transverse axis in elbow joint relation to adjust the angle of elevation of said housing longitudinal axis.

9. A lamp head assembly as defined in claim **8**, in which:

i. the longitudinal swivel axis and the housing longitudinal axis are alignable, and

j. stop means between the housing and said one portion define the limits of angular adjustment of the housing about the transverse axis of said one portion on either side of the axial alignment position, the counterclockwise limit being different from the clockwise limit.

10. A lamp head assembly as defined in claim **8**, in which:

i. said one support portion includes an enlarged head having arcuate bearing surfaces coaxial with said transverse axis, and

j. the housing means includes opposed compatible bearing faces receiving the enlarged head in rotatable relation.

11. A lamp head assembly as defined in claim **10**, in which:

k. said one support portion includes two circumferentially spaced stop means,

l. said housing means includes two circumferentially spaced shoulders selectively engageable by associated stop means to determine the rotational limits of the housing about the transverse axis of said one support portion,

m. one of said stop means is provided by a peg projecting outwardly of said cylindrical head, and

n. the housing is swivelable about the longitudinal swivel axis so that when the swivel axis is horizontal and the peg engages one shoulder the angle of elevation of the housing longitudinal axis is different from when the housing is swivelled through one hundred and eighty degrees (**180°**) with the swivel axis horizontal and the other stop means engages the other shoulder.

12. A lamp head assembly comprising:

a. support means including;
   1. a longitudinal axis and a transverse axis,
   2. swivel means, including forward and rearward portions connected in swivel relation 180° about said longitudinal axis, and
   3. one of said portions including an enlarged cylindrical end coaxial with said transverse axis said portion providing circumferentially spaced stop means,

b. a housing including;
   1. a longitudinal axis,
   2. opposed ends and opposed sidewall means extending between said ends,
   3. one of said ends including coaxial arcuate bearing surfaces engageable with said enlarged cylindrical end of the support means and including circumferentially spaced stop means engageable with said support portion stop means, and the other of said ends including first and second apertures disposed in side by side relation on either side of said housing longitudinal axis, and
   4. handgrip means at said other end disposed between said apertures,

c. lamp means disposed interiorly of the housing and including:
   1. a lamp having a beam axis,
   2. a base carrying the lamp,
   3. pivot means including opposed pivot portions fixedly attached to the base and having end portions extending through the sidewall means in journal relation thereto to direct said beam axis

to emit light selectively through one of said housing apertures, and

4. opposed light shields mounted to the base and extending generally in the direction of the beam axis to shield light from one aperture when the beam axis is directed through the other aperture,

d. actuating means including a pair of actuating levers attached to said pivot end portions exteriorly of said sidewall means and aligned with said beam axis to pivot said lamp and base and indicate the direction of the beam axis, and

e. said housing sidewall means including exterior stop means engageable by the actuating levers to limit the angular movement of the beam axis.

* * * * *