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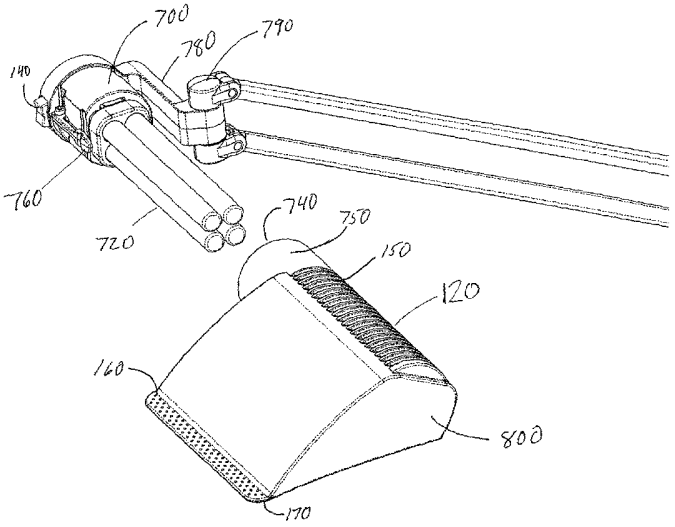
(54) Title: LAMP AND SHADE



(57) Abstract: The present lamp shade (120) pemlits one to readily change a compact fluorescent-type bulb (720) by allowing the user to easily slide the shade (120) off over the bulb (720). Once the shade (120) is removed, the bulb (720) can be readily changed. Additionally, as the axis of rotation of the shade (120) is coincident with the axis of the compact fluorescent-type bulb (720), the shade (120), no matter what position it is put in, is always in position to reflect the light generated by the bulb (720) to the maximum extent. In one embodiment of the present invention, a latch (760), mounted on the lamp (110), extends into the shade (120) and retainingly engages the shade (120) until the user applies a slight pressure to release the shade (120).

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LAMP AND SHADE

CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims priority from my earlier provisional patent application 60/298,519 filed June 13, 2001 and is a continuation in part of my earlier applications serial nos. 29/141,175, 29/141,189 & 29/141,174, each filed May 1, 2001, each of which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

This invention relates to electric lamps and has particular reference to an improved lamp shade adapted for use in residential and commercial lighting fixtures which are designed for use with either an incandescent-type lamp unit or a compact fluorescent-type lamp unit.

Fluorescent lamp units that are specially constructed for use in conventional lighting fixtures having screw-type, or plug-type, sockets are well known in the art. A lamp unit of this type having a triple-U-bent fluorescent lamp that is mounted on a base structure along with circuit means and is protected by a cover component which has one or more vent openings which cooperate with similar vent openings in the base structure to permit air to circulate through the lamp unit during operation and provide convection cooling is disclosed in U.S. Pat. No. 4,300,073 issued Nov. 10, 1981 to Skwirut *et al.* as well as U.S. Pat. No. 5,627,432 issued May 6, 1997 to Balazs *et al.*, which patents are hereby incorporated by reference.

It is also well known to provide a compact plug-in type fluorescent lamp unit with a base module that contains a miniaturized solid-state electronic circuit which permits the fluorescent lamp to be operated in a direct-current mode from an AC power source. A

fluorescent lamp unit having such an integral DC-operating circuit is disclosed in U.S. Pat. No. 4,173,730 issued Nov. 6, 1979 to Young *et al.*

A fluorescent lamp operates by converting ultraviolet energy into visible light. A fluorescent lamp is provided with a glass tube whose inner surface has a phosphor coating adapted to absorb radiant energy of a given wavelength and to reradiate it at a longer wavelength.

Contained in the glass tube are electrodes and a small amount of mercury. The electrodes provide a source of electrons to initiate an arc discharge which vaporizes the mercury to produce ultraviolet energy that excites the phosphors. A fluorescent lamp produces visible light at several times the efficiency of an incandescent bulb having a filament heated by current passing therethrough. Hence a 26 watt fluorescent lamp yields substantially the same light as a 100 watt incandescent bulb.

However, despite the advantages to using such a compact fluorescent type lamp, users still tend to use incandescent bulbs over the compact fluorescent-type bulb. One reason why the compact fluorescent-type bulbs are not used is believed to be that its geometry makes it harder to install and remove in a conventional light socket. Thus, there is a need for a lamp environment that makes it easy to screw, or plug, a compact fluorescent-type bulb in and out of a conventional light socket.

Additionally, because compact fluorescent-type bulbs are typically used in lamps designed for an incandescent bulb, the lamp shade does not accommodate the geometry of the compact fluorescent type bulb and thereby reduces the benefit of this bulb. Rather, most shades heretofore available have been designed with the geometry of the incandescent bulb in mind.

Thus, there is a need for a lamp shade that accommodates the geometry of a compact fluorescent-type bulb and concurrently make maximum use of the illumination generated by the compact fluorescent-type bulb.

BRIEF SUMMARY OF THE INVENTION

The present lamp shade permits one to readily change a compact fluorescent-type bulb by allowing the user to easily slide the shade off over the bulb. Once the shade is removed, the bulb can be readily changed. Additionally, as the axis of rotation of the shade is coincident with the axis of the compact fluorescent-type bulb, the shade, no matter what position it is put in, is always in position to reflect the light generated by the bulb to the maximum extent.

In one embodiment of the present invention, the invention comprising a housing having a shape that approximates half of an ellipse. In this embodiment, the housing is basically a thin, but stable, shell. At a first end of this housing, a substantially cylindrical cavity extends into said housing at least the length of a conventional compact fluorescent-type bulb so as to accommodate such a bulb. Additionally, at a first side at said first end of said housing, said substantially cylindrical cavity traverses the housing shell and forms a substantially circular aperture in said housing.

The lamp shade desirably has a plurality of vents.

In a particularly preferred embodiment, the lamp shade of the present invention has, on the interior surface of its circular aperture, a lip for engaging a retaining latch.

In another embodiment of the present invention, a latch, is mounted on the lamp that interfaces with the shade, which latch extends into the shade and retainingly engages the lip on the interior surface of the shade's circular aperture. Such a latch retains the shade in a

movable engagement with the lamp until the user applies a slight pressure on the latch to release the shade.

Yet another embodiment of the present invention is a modification of an otherwise conventional lamp to more readily accommodate a compact fluorescent-type bulb. For instance, starting with a conventional lamp base, such as a base that sits on a work surface, a base that attaches to a work surface, or a base that attaches to a vertical surface in the vicinity of a work surface, a conventional lamp arm -- or arms -- is mounted thereon and a bulb-socket mechanism is mounted on the end of the lamp arm away from the base. The bulb-socket mechanism used in the lamp of the present invention desirably departs from conventional bulb-socket mechanism in that it is adapted to have a shade removably mounted on said bulb-socket mechanism. In a preferred embodiment, the bulb-socket mechanism has a latch mechanism that releasably retains the shade on the bulb-socket mechanism. However, it is desired that in all embodiments of the lamp of the present invention, the shade can be rotated at least 180 degrees about its axis.

Another feature of a preferred embodiment of the present invention is that the rocker switch that turns the lamp on and off can be conveniently located substantially adjacent to the shade.

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 is a perspective view of a lamp showing an embodiment of a lamp using a shade of the present invention;

Fig. 2 is a rear view of a lamp showing an embodiment of a lamp using a shade of the present invention;

Fig. 3 is a first side view of a lamp showing an embodiment of a lamp using a shade of the present invention;

Fig. 4 is a front view of a lamp showing an embodiment of a lamp using a shade of the present invention;

Fig. 5 is a second side view of a lamp showing an embodiment of a lamp using a shade of the present invention;

Fig. 6 is a top view of a lamp showing an embodiment of a lamp using a shade of the present invention;

Fig. 7 is a view of a lamp showing an embodiment of a lamp and a removed shade of the present invention;

Fig. 8 is a view of the top of a shade of the present invention;

Fig. 9 is a view of the side of a shade of the present invention showing the aperture through which the bulb is inserted;

Fig. 10 is a sectional view of the underside of a shade of the present invention; and

Fig. 11 is a view of a lamp with the shade of the present invention showing the relationship of the bulb and shade.

DETAILED DESCRIPTION OF THE INVENTION

The present invention relates to a lamp shade and a lamp employing said lamp shade that is adapted for use with a compact fluorescent-type bulb. The present invention provides a shade that is small in size and yet permits one to readily change bulbs in a lamp employing this shade. Additionally, the present invention allows the user to rotate the shade so as to direct the light to where it is needed.

Figs. 1 through 6 illustrate several views of a lamp and shade of the present invention. Lamp **110** has switch **140** and shade **120** and shade extension **130**.

In general, the shade of the present invention has a housing, the shape of which corresponds roughly to half of an elliptical cylinder. For instance, turning to Fig. 7, looking at the side of shade **120** removed from bulb-socket mechanism **700** labeled **800** one can see the generally elliptical cylinder shape of the shade. However, the shade ends at what would be the long axis of the elliptical cylinder, hence, the shape of the shade **120** is only half of an elliptical cylinder.

Typically, the housing of shade **120** is a thin shell made on any conventional shade material for a shade that is in close proximity to bulb **720**. Generally, the housing of shade 120 is between about 1/8 and 1/32 inches thick, and preparedly, the housing of shade 120 is about 1/16 inches thick. Useful materials for the manufacturer of the housing include suitable plastic for strength and heat.

Additionally, it is preferred that the under side of shade **120** has a plurality of vents **150**. Desirably, vents **150** are baffled so that the bulb is not visible from the top of shade **120**. Vents **150** permit hot air to exit from the shade housing. Typically, vents **150** are about 1/8 inch wide and the length of vents **150** desirably is approximately 1/3 of the perimeter of an imaginary cylinder surrounding the bulb.

In a preferred embodiment of the present invention, shade **120** has a lip **170** having a plurality of raised dots **160**. Raised dots **160** provide the user of the lamp with tactile feedback as to the whereabouts of the proper position to hold shade **120** when repositioning shade **120**.

It is also preferred that the under side of shade **120** is coated with a conventional light reflective material suitable for use in close proximity to bulb **720**. Examples of such reflective material include white or reflective metallic layer that is either integral to the shade, or alternatively is a film applied to the interior of the shade.

An important geometric aspect of shade **120** is that one side of shade **120** has a substantially circular aperture **740** that communicates with substantially cylindrical cavity **900**. Substantially cylindrical cavity **900** is of sufficient length to accommodate a conventional compact fluorescent-type bulb and socket, *i.e.* preferably at least about 1.5 inches long. Additionally, it is also desirable that the substantially cylindrical cavity **900** has a diameter of between about 1.5 and 2.0 inches, and preferably about 1.85 inches.

Substantially circular aperture **740** is also desirably of a size so that it will slide onto bulb-socket mechanism **700** snugly, but not so tight that the interaction of substantially circular aperture **740** and bulb-socket mechanism **700** prevents shade **120** from rotating about bulb-socket mechanism **700**. Rather, it is desired that shade **120** is able to freely rotate about bulb-socket mechanism **700**.

In some embodiments of the present invention, substantially circular aperture **740** is with tubular extension **750** of shade **120**. Typically, tubular extension **750** is of a length corresponding to bulb-socket mechanism **700**.

To prevent freely rotatable shade **120** from disengaging with bulb-socket mechanism **700**, desirably bulb-socket mechanism **700** has a mechanism to retain shade **120**. In one embodiment of the present invention, the retaining mechanism is latch **760**. In a preferred embodiment of the present invention, latch **760** engages a lip **920** inside shade **120**.

In a particularly preferred embodiment of the present invention, bulb-socket mechanism **700** is mounted on arm **780**. Desirably, arm **780** is connected to a lamp structure **110** at pivot joint **790**, which permits at least about 300° of rotation about pivot joint **790**. It is also desired that latch **760** and rocker switch **140** are mounted on the combination of bulb-socket mechanism **700** and arm **780**, and that any wiring is via a concealed wire path within these parts..

While the embodiments of the various aspects of the present invention that have been described are the preferred implementation, those skilled in the art will understand that variations thereof may also be possible. Therefore, the invention is entitled to protection within the full scope of the appended claims.

What I claim is:

1. A lamp shade comprising a housing having:

a) a shape that approximates half of an elliptical cylinder;

b) at a first end of said housing, a substantially cylindrical cavity extending into said housing at least the length of a conventional compact fluorescent-type bulb; and

c) at a first side at said first end of said housing, said substantially cylindrical cavity forms a substantially circular aperture in said housing.

2. The lamp shade of claim 1 further comprising a reflective surface on the inside of said housing.

3. The lamp shade of claim 2 further comprising a plurality of vents.

4. The lamp shade of claim 2 further comprising, on the interior surface of said circular aperture a lip for engaging a retaining latch.

5. A lamp comprising:

a) a lamp base;

b) an adjustable arm movably mounted on said base;

c) a bulb socket mechanism mounted on the distal end of said adjustable arm;

d) wiring sufficient to supply a current effective to operate a bulb inserted in said socket mechanism; and

e) a removably mounted shade, said shade having:

i) a shape that approximates half of an elliptical cylinder;

ii) at a first end of said housing, a substantially cylindrical cavity extending into said housing at least the length of a conventional compact fluorescent-type bulb; and

iii) at a first side at said first end of said housing, said substantially cylindrical cavity forms a substantially circular aperture in said housing.

6. The lamp of claim 5 further comprising, on the interior surface of said circular aperture, a lip for engaging a retaining latch.

7. The lamp of claim 6 further comprising said retaining latch mounted on said socket mechanism.

8. The lamp of claim 7 further comprising a switch on said socket mechanism.

9 A method of changing a bulb in a task lamp comprising:

a) releasing a shade retaining mechanism;

b) removing the shade by sliding said shade off over the bulb in said task lamp;

c) removing the bulb in the task lamp;

d) inserting a second bulb into said task lamp; and

e) replacing said shade by sliding said shade on over the bulb in said task lamp until said retaining mechanism is engaged.

FIG. 1

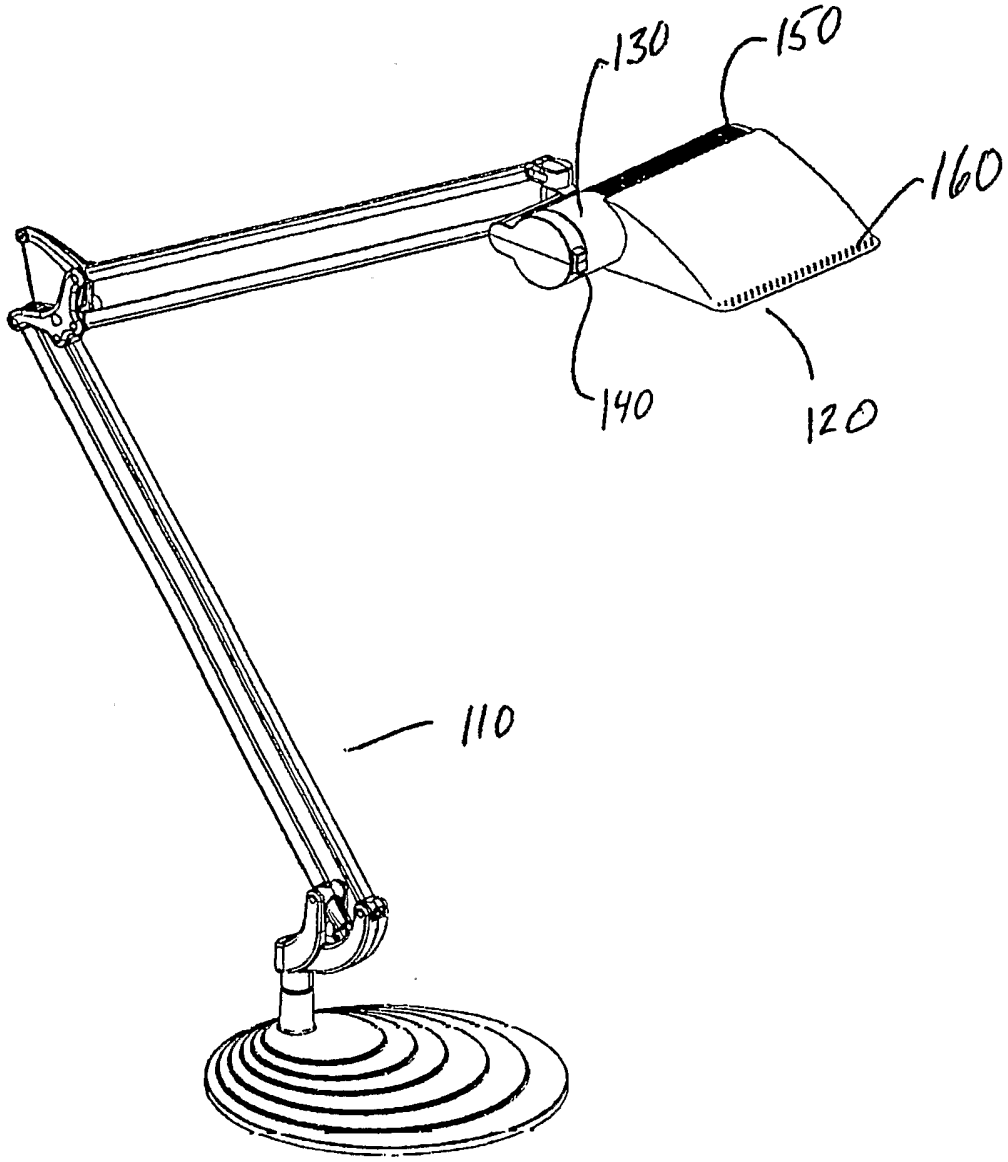


FIG. 2

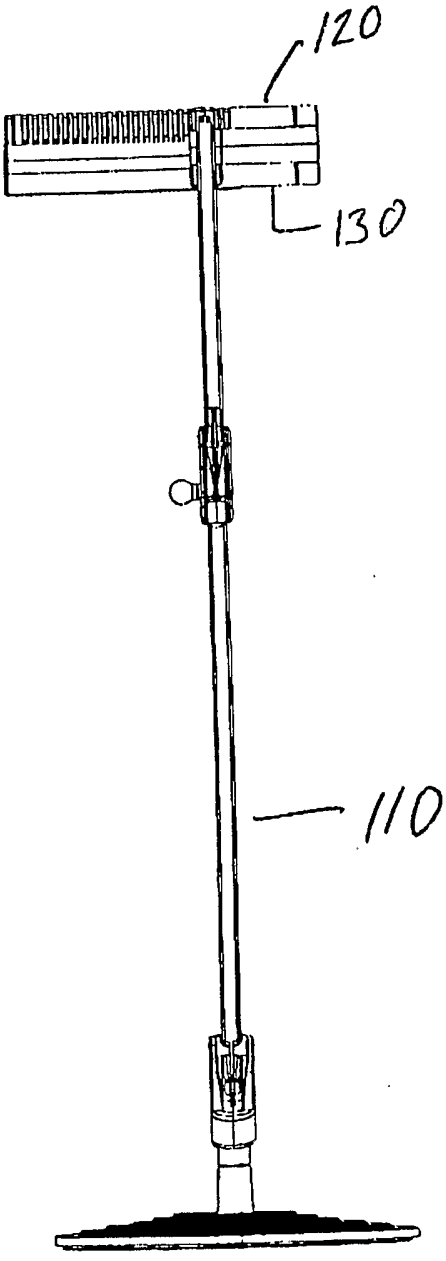


FIG. 3

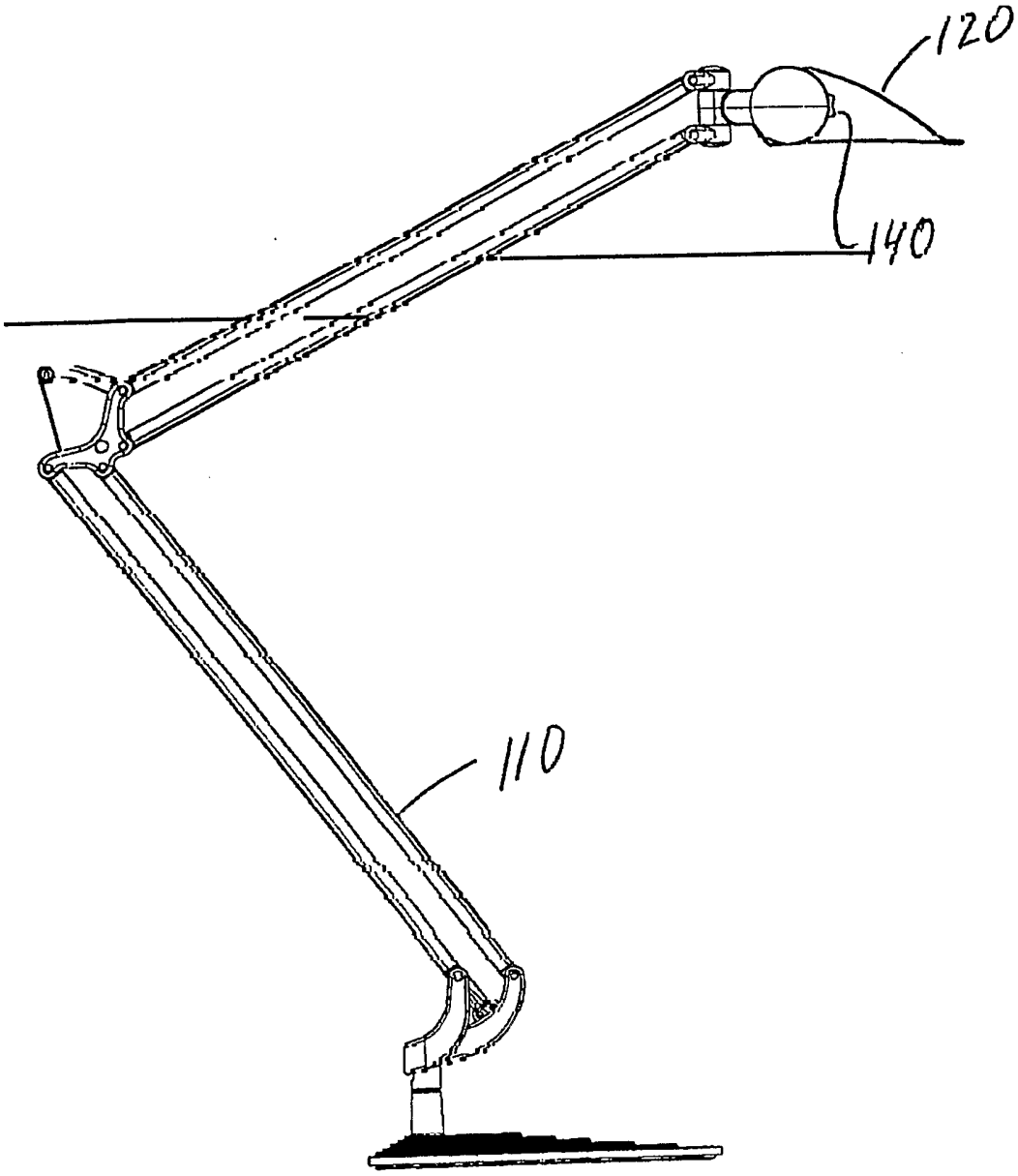


FIG. 4

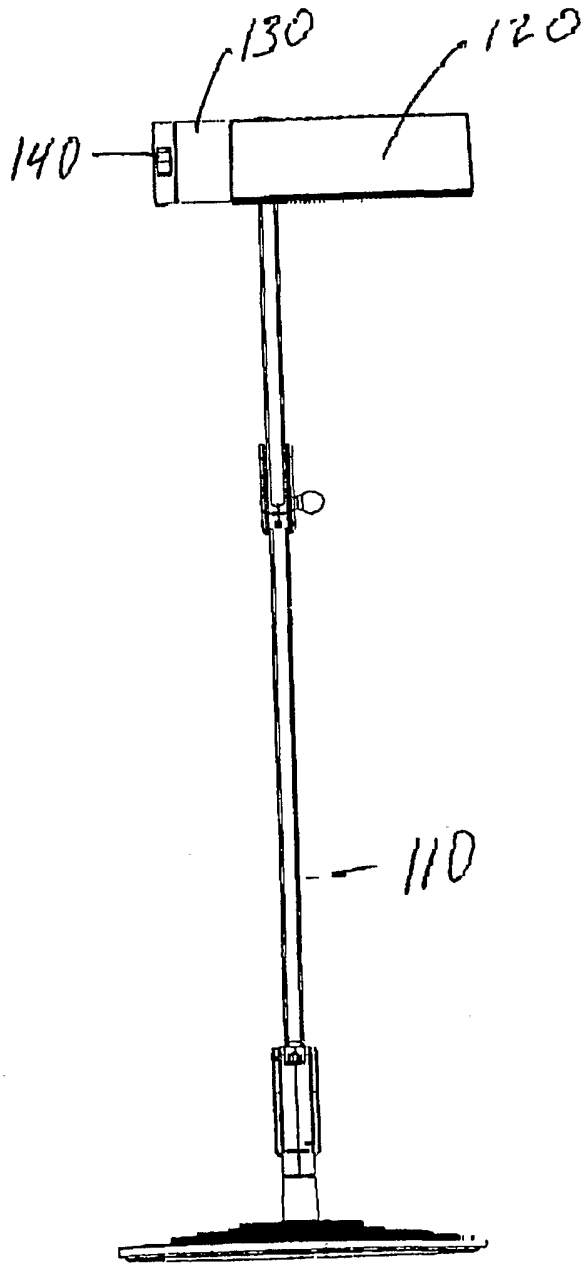


FIG. 5

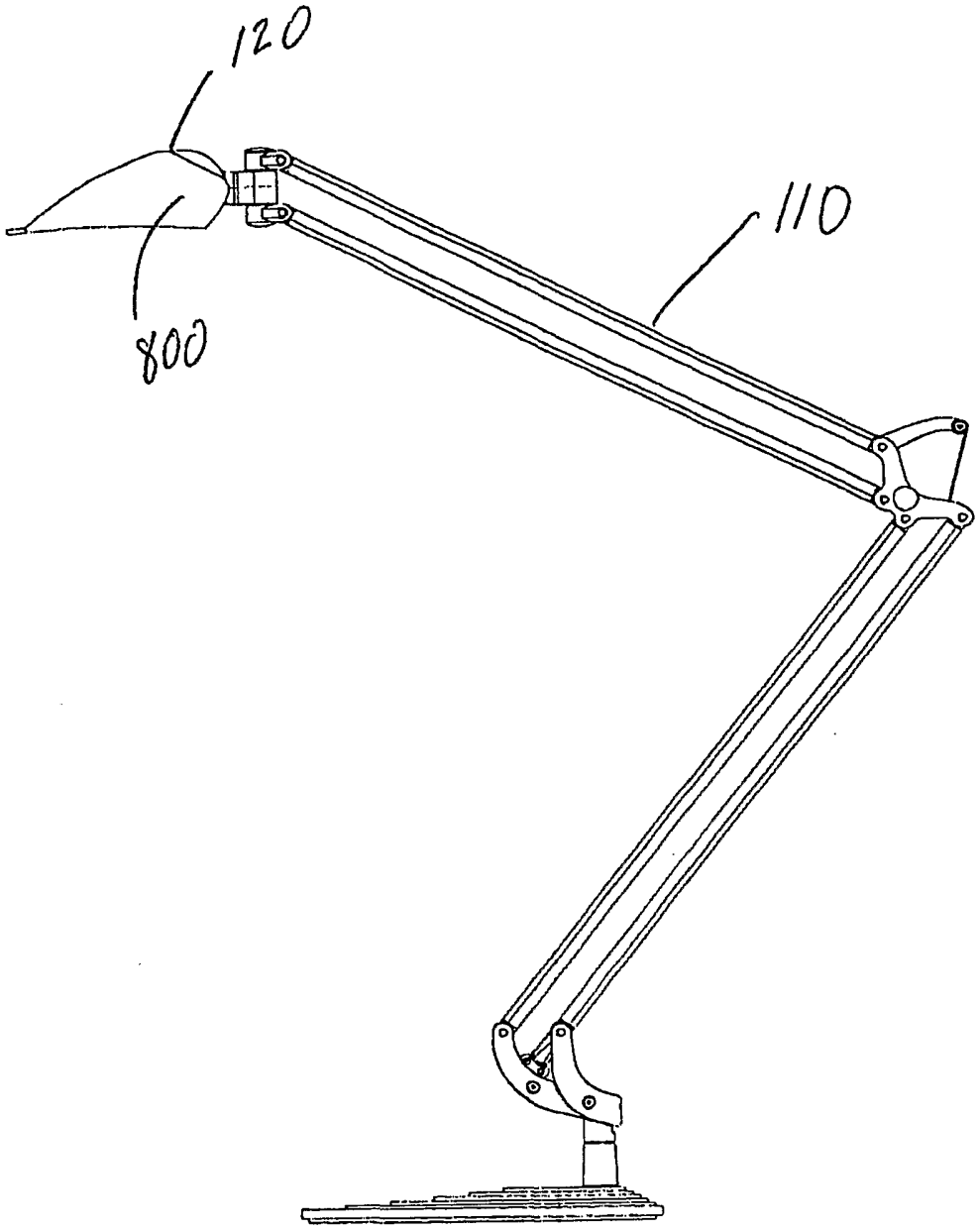
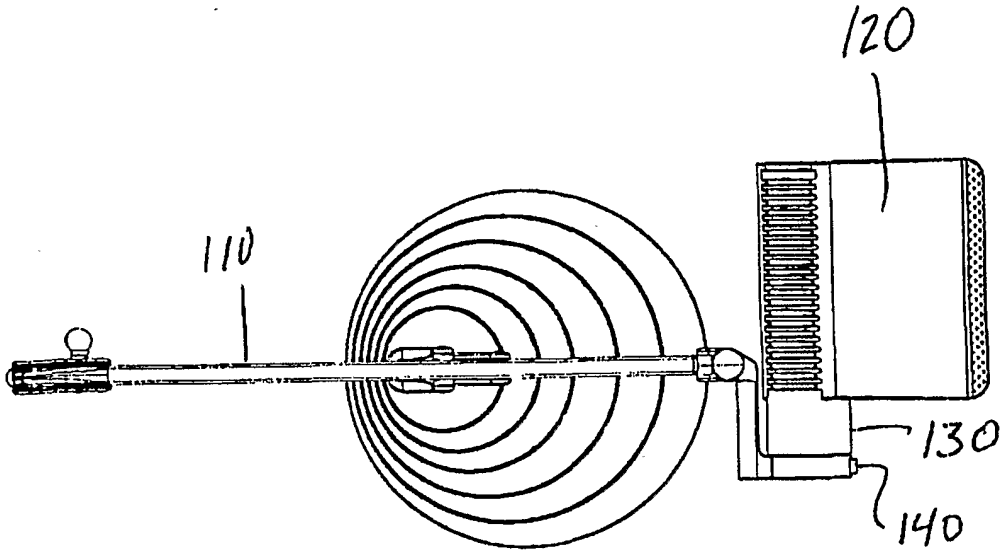


FIG. 6



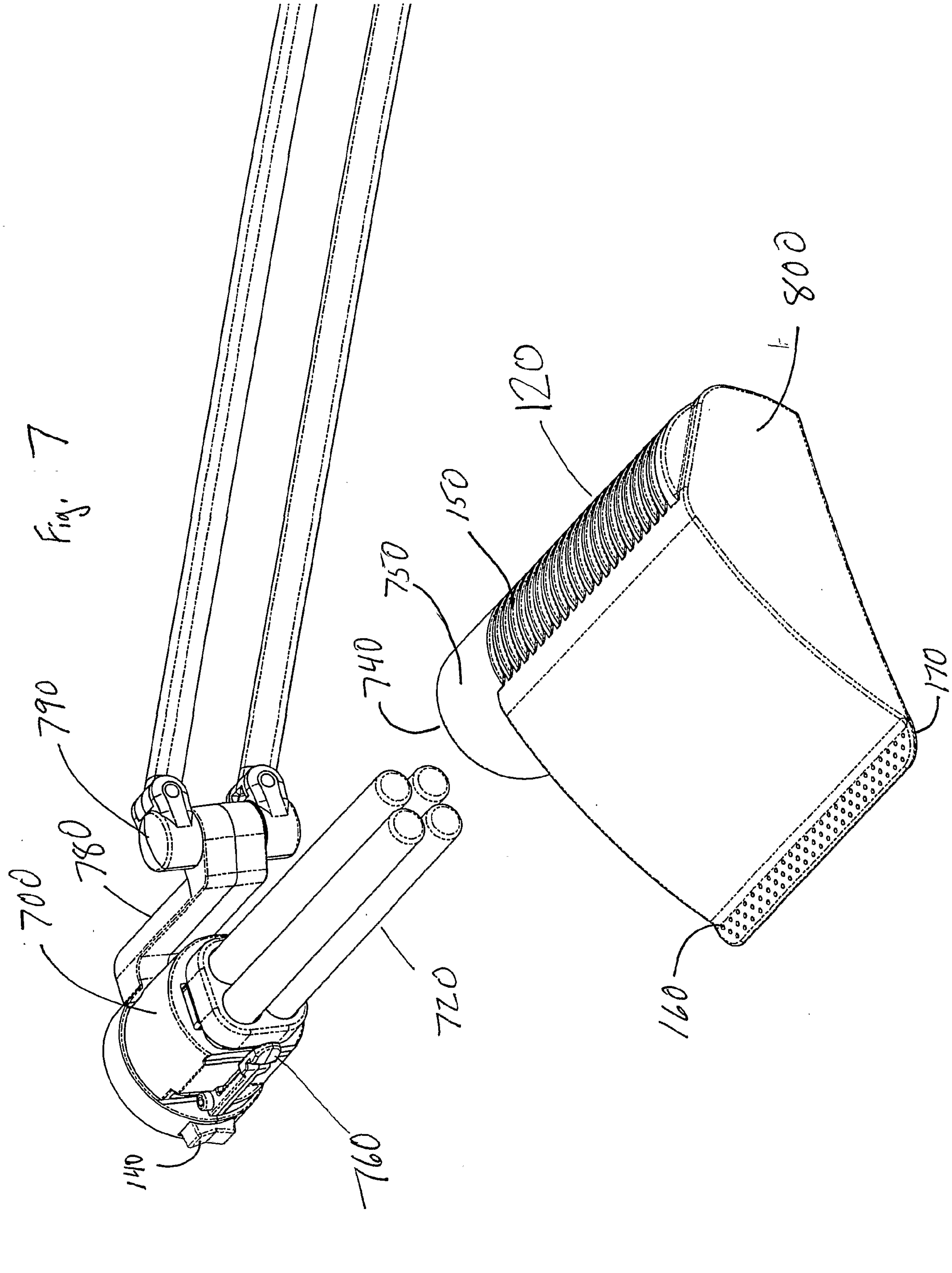


Fig. 7

FIG. 8

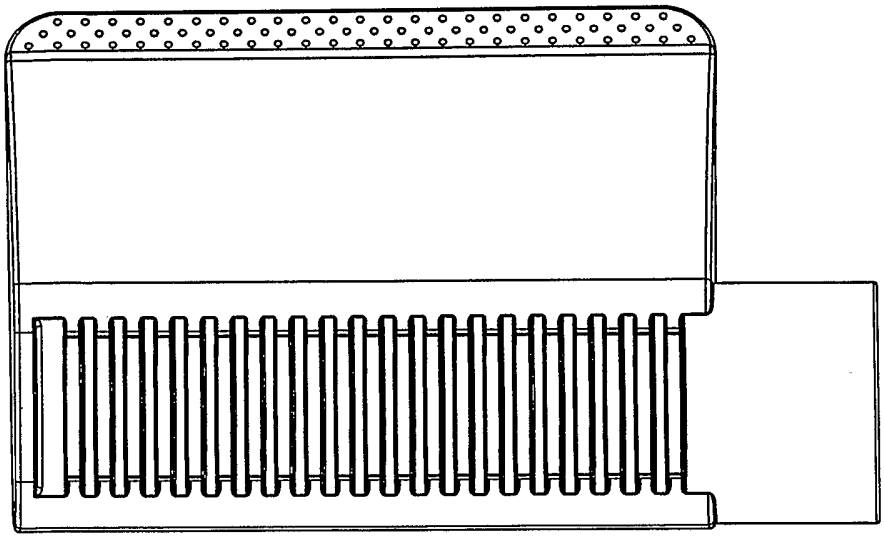


FIG. 9

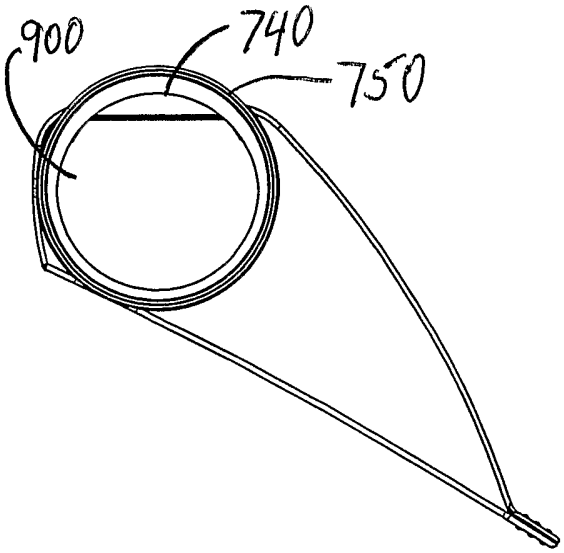
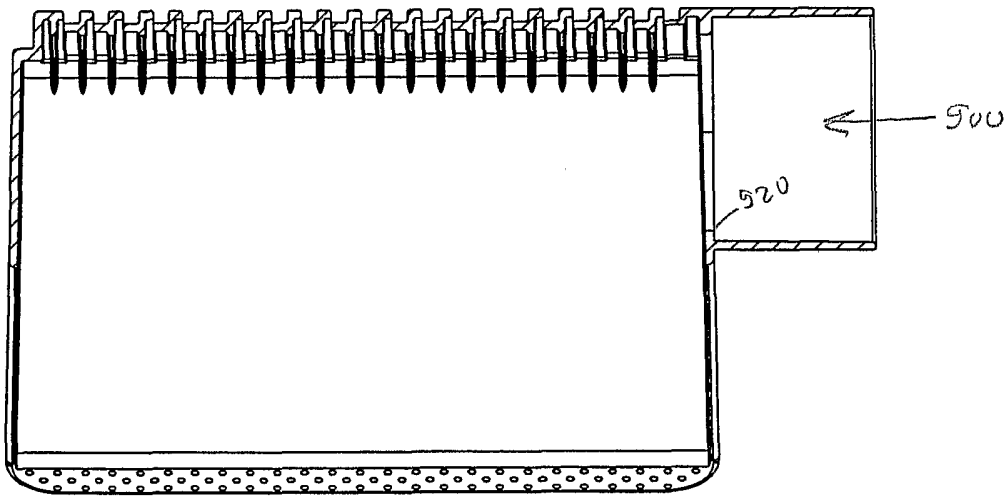


FIG. 10



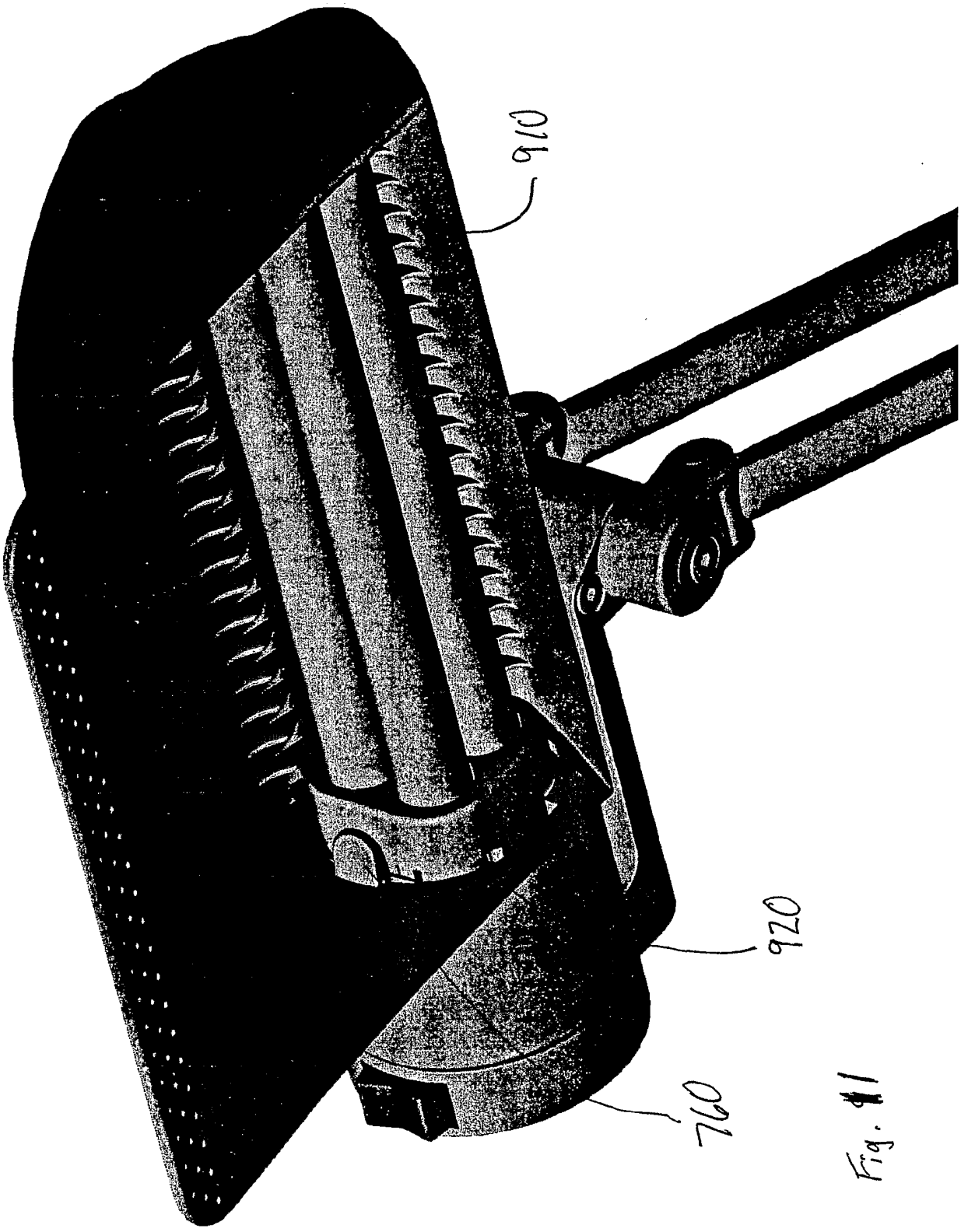


Fig. 11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/18888

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : F21S 8/08, 8/00; F21V 11/00, 29/00
US CL : 362/410, 414, 427, 413, 294, 353

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 362/410, 414, 427, 413, 294, 353

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,152,583 A (LANGNER) 28 November 2000 (28.11.2000), see entire reference.	1, 2, 3, 4 &9 --- 5-8
Y	US 5,590,957 A 9CHEN) 07 January 1997 (07.01.1997), see entire reference.	1-9
Y	US 6,010,232 A (CHEN) 04 January 2000 (04.01.2000), ssee entire reference.	1-9
Y	US 5,707,140 A (CHEN) 13 January 1998 (13.01.19980, see entire reference.	1-9
Y	US 5,097,400 A (CVEK) 17 March 1992 (17.03.1992), see entire reference.	1-9

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 September 2002 (21.09.2002)	30 SEP 2002
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer SANDRA O'SHEA Telephone No. (703) 308-7724

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