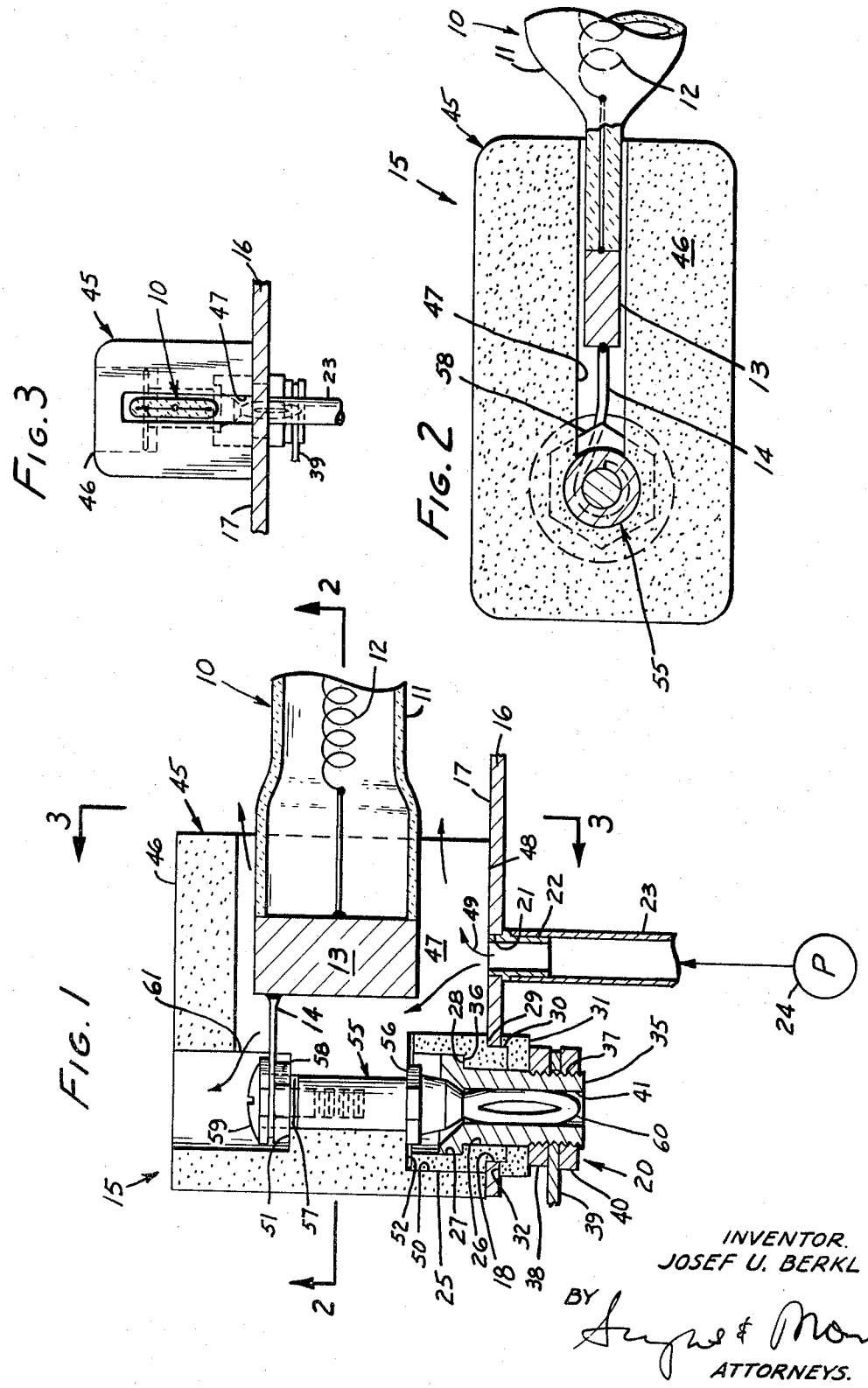
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LAMP TERMINAL ASSEMBLY

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LAMP TERMINAL ASSEMBLY

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This invention relates to a terminal assembly for holding the end of a longitudinally-extending lamp which heats a surrounding region. This class of lamp has a pair of conductive terminals and a heating element which puts out considerable quantities of radiant energy.

The lamp described above is well-known in curing and cooking operations, where lamps that supply radiant energy generate substantial quantities of heat which may be so large as to melt down their own connections. It is an object of this invention to provide a reliable means for holding the lamp so that it can be readily positioned, replaced, and cleaned. Further, it is desired to provide means for extending the life of the lamp.

A terminal assembly according to this invention includes a reflector plate adapted to reflect energy from the lamp, this reflector plate having a hole therethrough. An adaptor assembly is mounted to the reflector plate and passes through this hole. The adaptor assembly comprises a tubular temperature-resistant insulator. This insulator has a bore and a counterbore therein which form an internal shoulder. A conductive, externally-shouldered and threaded jack is placed in said bore and counterbore, the jack having a stud-receiving port therein. The shoulders abut each other and thereby hold the jack in an appropriate position. A nut is threaded to the jack to hold it in the insulator to the reflector plate.

A lamp holder includes a body which has an open slot for the reception of a lamp end, and also has a shrouding port. A conductive stud extends through the shrouding port and beyond the body and is adapted to enter the stud-receiving port in the adaptor assembly. The insulator is adapted to enter the shrouding port. The slot in the body opens onto at least a portion of the stud. Means is provided conductively to attach a portion of the lamp to the stud.

The above and other features will be fully understood from the following detailed description and the accompanying drawings in which:

FIG. 1 is a side elevation mainly in cutaway cross-section of the presently preferred embodiment of the invention;

FIG. 2 is a cross-section taken at line 2—2 of FIG. 1; and

FIG. 3 is a right-hand end view of FIG. 1 taken at line 3—3 therein.

The purpose of the terminal assembly of this invention is to hold a lamp 10 in position so as to direct its energy on a selected object such as a surface to be cured, or even food to be cooked. Lamps of this type characteristically include a glass envelope 11 which encloses a heating element 12. A metal terminal 13 is conductively connected to element 12, and a pigtail lead 14 extends from terminal 13 so as structurally to hold the lamp in the terminal assembly and also to provide means conductively to attach the terminal into a circuit.

The terminal assembly 15 of the invention includes a reflector plate 16 which has a reflecting surface 17 facing the lamp. This plate has a hole 18 therethrough for the purpose of receiving and supporting an adaptor assembly 20.

There is also a coolant port 21 spaced from hole 18. A tubular press nut 22 is attached to the coolant port so as to provide means for connecting a coolant conduit 23, such as a plastic hose, to the coolant port. Coolant, such as air, is received from a pump 24 or other pressure source and can be discharged toward the lamp as is yet to be described.

The adaptor assembly includes a tubular temperature-resistant insulator 25 (sometimes called a "first part") which includes a bore 26 and a counterbore 27. An internal shoulder 28 is formed at the junction of the bore and counterbore. There is also an external shoulder 29 on insulator 25. This shoulder abuts against the reflector plate around hole 18 and there is included a neck 30 which passes through hole 18 so as to be engaged in the same. A second part 31 of insulator 25 has a hole through its center and also has an external flange 32. This flange is capable of being brought against the opposite side of the reflector plate.

A conductive jack 35 is placed within the bore and counterbore of the insulator 25. It has an external shoulder 36, and external threads 37. A clamp nut 38 is engaged to threads 37 and bears against the second part 31, so that the two parts of the insulator are firmly clamped against the reflector plate. A lead 39 is held to the conductive jack by means of a second nut 40, thereby completing an electric circuit to the conductive jack. The jack includes an internal stud-receiving port 41.

A lamp holder 45 includes a body 46 made of insulating heat-resistant material such as a ceramic. It includes a slot 47 which opens onto a side of the body so as to admit the lamp. Preferably, this slot also opens on a second side 48, that side which abuts the reflector plate, and overhangs the coolant port 21. Coolant is discharged through the coolant port to cool the end of the lamp. Arrows 49 show the circulation pattern of the coolant.

A shrouding port 50 is formed in side 48 and embraces the upper portion of insulator 25. A pair of shoulders 51, 52 are formed in the body, shoulder 52 being formed in the shrouding port. A conductive stud 55 includes a flange 56 adapted to abut against shoulder 52, and a threaded neck 57 to which a nut 58 is threaded so as to bear against shoulder 51. This holds the stud in place. There is a screw 59 threaded into the upper end of the stud which captures lead 14 and thereby completes the electrical contact between lead 39 and the lamp.

The stud includes a typical banana plug 60 which passes through the shrouding port and extends beyond the body for engagement inside the jack as shown in FIG. 1. It will now be seen that a completed assembly is one wherein two of these lamp holders may be attached to respective ends of the lamp and then the total assembly is plugged into the respective adaptor assemblies, so that the assembly is complete and ready for use. The use of a coolant is optional, but it generally greatly extends the life of the lamp, and is preferred in high-temperature installations.

Attention is called to passage 61 through which the pigtail lead passes. This passage permits coolant to be applied to the lead in steady flow, and also permits the lead to be passed to the head of the conductive stud. It will also be observed that slot 47 opens onto the stud over its entire length, so that coolant contacts and cools the entire stud, although this is optional.

There results from the foregoing construction, means for enabling easy snap-in installation and removal of pre-assembled lamps or holders, which easy removal feature simplifies the cleaning of reflectors and maintenance of the entire device. The pre-assembly of the lamp and lamp holders eliminates the wiring of lamp lead wires at critical times, and the optional air cooling of the lamp ends extends the lamp life when this feature is used.

This invention is not to be limited by the embodiments shown in the drawings and described in the description which is given by way of example and not of limitation, but only in accordance with the scope of the appended claims.

I claim:

1. A terminal assembly for the end of a longitudinally-extending lamp, which lamp has a conductive terminal, said holder comprising: a reflector plate adapted to reflect energy from said lamp, said reflector plate having a hole therethrough; an adaptor assembly mounted to the reflector plate and passing through the hole, said adaptor assembly comprising a tubular temperature-resistant insulator passing through the hole, said insulator having a bore and a counterbore therein which form an internal shoulder, a conductive externally-shouldered and threaded jack in said bore and counterbore, the jack having a stud-receiving port therein, the shoulders abutting each other, and a nut threaded to the jack to hold it and the insulator to the reflector plate; a lamp holder including a body having an open slot for reception of a lamp end, and a shrouding port, a conductive stud extending through the shrouding port and beyond the body and adapted to enter the stud-receiving port, and the insulator being adapted to enter the shrouding port, the slot in the body opening onto at least a portion of the stud; and means conductively to attach a portion of the lamp to the stud.

2. A terminal assembly according to claim 1 in which the shrouding port is internally-shouldered, the stud is externally-shouldered and threaded, and nut means is provided to engage the stud to the body in opposition to engagement of the latter shoulders, and to be held by the said nut means when engaged to the stud.

3. A terminal assembly according to claim 1 in which the attachment means comprises a threaded object adapted to be threaded to the stud and to connect to the stud a lead from the lamp.

4. A terminal assembly according to claim 1 in which the insulator is made in a first and a second part, the first part including an external step adapted to bear against one side of the reflector plate, and the second part including a flange adapted to bear against the other side of the reflector plate, one of said parts including a portion which fits into the hole in the reflector plate to center the adaptor assembly.

5. A terminal assembly according to claim 4 in which the shrouding port is internally-shouldered, the stud is externally-shouldered and threaded, and nut means is provided to engage the stud to the body in opposition to engagement of the latter shoulders, and to be held by the said nut means when engaged to the stud.

6. A terminal assembly according to claim 1 in which the slot opens additionally on the same side of the body as the shrouding port, and in which the reflector plate is provided with a coolant port from which coolant is dischargeable into the slot when the lamp holder is engaged to the adaptor assembly in order to cool the lamp end and attachment means.

7. A terminal assembly according to claim 6 in which the shrouding port is internally-shouldered, the stud is externally-shouldered and threaded, and nut means is provided to engage the stud to the body in opposition to engagement of the latter shoulders, and to be held by the said nut means when engaged to the stud.

8. A terminal assembly according to claim 6 in which the attachment means comprises a threaded object adapted to be threaded to the stud and to connect to the stud a lead from the lamp.

9. A terminal assembly according to claim 6 in which the insulator is made is a first and a second part, the first part including an external step adapted to bear against one side of the reflector plate, and the second part including a flange adapted to bear against the other side of the reflector plate, one of said parts including a portion which fits in the hole in the reflector plate to center the adaptor assembly.

10. A terminal assembly according to claim 9 in which the shrouding port is internally-shouldered, the stud is externally-shouldered and threaded, and nut means is provided to engage the stud to the body in opposition to engagement of the latter shoulders, and to be held by the said nut means when engaged to the stud.

11. A terminal assembly according to claim 1 in which connector means is provided on the adaptor assembly to make conductive contact therewith.

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