Aug. 11, 1970 A. N. TSERGAS 3,524,072

ELECTRICAL SOCKET FOR SELECTIVELY SUPPLYING DIFFERENT VOLTAGES

Filed Nov. 3, 1967

Fig. 1

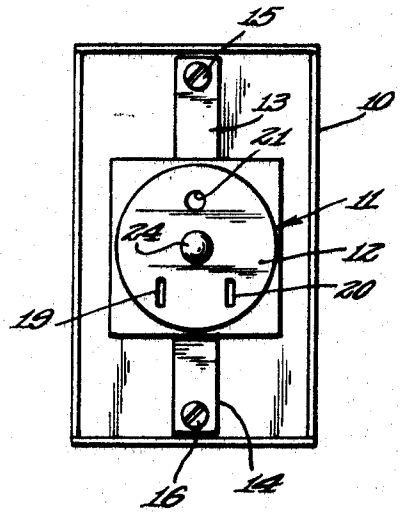


Fig. 2

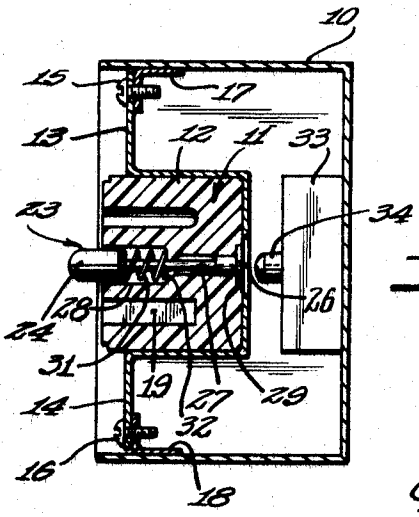


Fig. 3

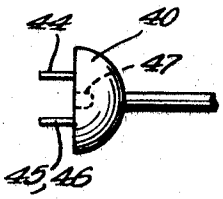


Fig. 4

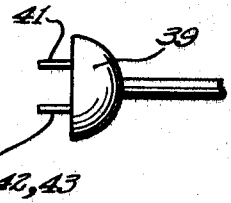
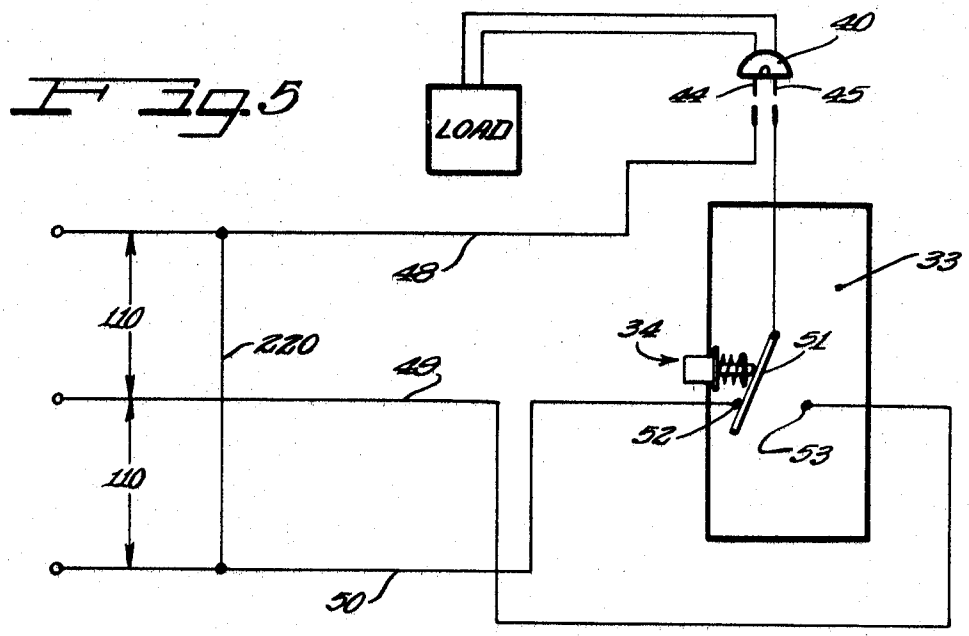


Fig. 5



INVENTOR.

Athanase N. Tsergas

BY Kill, Sherman, Meroni, Gross & Simpson ATTORNEYS

United States Patent Office 3,524,072 Patented Aug. 11, 1970

3,524,072

ELECTRICAL SOCKET FOR SELECTIVELY SUPPLYING DIFFERENT VOLTAGES

Athanase N. Tsergas, Des Plaines, Ill., assignor to Ram Tool Corporation, Chicago, Ill., a corporation of Illinois

Filed Nov. 3, 1967, Ser. No. 680,494
Int. Cl. H02j 9/06
U.S. Cl. 307—112 3 Claims

ABSTRACT OF THE DISCLOSURE

An electrical socket which includes a switch that may be selectively actuated by a plug is disclosed.

This invention relates in general to an electrical outlet socket and in particular to a novel socket in combination with a switch that may be selectively energized by a plug.

It is sometimes desirable to connect various appliances and circuits to different voltages. The novel electrical socket of this invention contains a switch that may be actuated dependent on the particular plug inserted into it.

It is an object of the present invention therefore, to provide a novel electrical outlet socket with a switch which may be selectively energized by an electrical plug.

Another object of the invention is to provide an improved electrical socket and an associated plug which will selectively energize a circuit associated with the socket when a particular plug is inserted into the socket.

A feature of this invention is found in the provision for an electrical socket formed with an actuating plunger for energizing a secondary circuit which may be either independent or associated with the circuit of the socket. A plug of varying configuration either actuates the secondary circuit or leaves it in its existing condition depending on the shape of the plug being utilized.

Further features, objects and advantages of this invention will become apparent from the following description and claims when read in view of the drawings in which:

FIG. 1 is a front view of the electrical socket of this invention;

FIG. 2 is a side sectional view of the socket of this invention;

FIG. 3 is a side view of a plug which does not actuate the switch associated with the socket;

FIG. 4 illustrates a plug which actuates the switch associated with the socket; and

FIG. 5 is a schematic diagram illustrating the secondary circuit associated with the plug of this invention.

FIG. 1 illustrates a conventional wall box **10** which supports the novel socket **11** of this invention. The socket **11** comprises a central insulating portion **12** which is formed with extending arms **13** and **14** which may be attached to the box **10** by screws **15** and **16**. The screws are received in brackets **17** and **18** attached to the walls of the box, as shown in FIG. 2. The socket portion **12** is formed with a pair of power openings with electrical contacts **19** and **20** mounted therein. A grounded contact **21** is also mounted in the central portion **12** of the socket.

An actuating plunger designated generally as **23**, is mounted in portion **12**. The plunger **23** passes through a central opening that extends from one side of the plug **12** to the other and forms an engaging cam portion **24** on one end and a switch actuator portion **26** on the other end. The cam and actuator portions **24** and **26** may be threaded or otherwise attached to a central shaft **27** of the actuator **23**. A first portion **28** of the central opening through the socket **12** is enlarged so as to

receive the switch actuator portion **24** within its confines when the plunger **23** is depressed. A second enlarged portion **29** is formed adjacent the actuating portion **26** in the socket. A spring **31** is mounted behind the cam portion **24** and rides against a shoulder **32** formed in the central opening of the socket so as to bias the actuator to the left relative to FIG. 2.

A switch **33** is attached to the wall box **10** behind the socket **12**. The switch **33** has an actuator **34** which is in alignment with the plunger **23** such that the portion **26** engages it to actuate the switch when the plunger **23** is depressed.

A pair of plugs **39** and **40** may be utilized with the socket of this invention. The plug **39**, for example, may be utilized to apply conventional voltage (say 110 volts) to a load. It has a grounding prong **41** and a pair of power supplying prongs **42** and **43**. The plug **40** has a grounding prong **44** and a pair of power prongs **45** and **46**. The plug **40** is also formed with a central depression **47** which fits over the switch actuator **24** so that the switch actuator **24** does not move against the switch contact **34** to close it when the plug **40** is inserted into the outlet socket **11**. Plug **39**, on the other hand, moves the plunger **23** to the left relative to FIG. 2, when inserted into the socket because there is no mating opening for the plunger **23**.

The schematic diagram of FIG. 5 illustrates the novel socket and plug arrangement of this invention. Lines **48**, **49** and **50** may be connected to a power supply so that 110 volts exists between lines **48** and **49**, and between lines **49** and **50**, whereas 220 volts exists between lines **48** and **50**. Line **48** is connected to the socket contact **19** in the socket and contact **20** is connected to the movable contact **51** of the switch **33**. In the first position the first stationary contact **52** of the switch is connected to the line **50** and the contact **53** is connected to the line **49**.

When the plunger **23** is depressed by plug **39**, the switch contact **34** moves contact **51** to engage the contact **53** and this connects 110 volts between the socket contacts **19** and **20**, thus applying 110 volts to the load through prongs **42** and **43**.

On the other hand, when a plug **40** formed with an aligned opening **47** is inserted into the socket **12**, the switch actuator **24** will be received into the opening **47** and the switch **23** will remain in the position shown in FIG. 5. Under these conditions 220 volts will be applied to the socket contacts **19** and **20** and to the load through prongs **45** and **46**. It is to be realized that the switch **33** has a spring, not shown, which biases actuator **34**.

The plug **39** is a conventional plug having power prongs and a grounding prong so that the socket may be used in a conventional manner to supply 110 volts. The special plug **40** with the opening **47** will be attached to loads requiring 220 volts. Due to the opening **47**, the user cannot connect the wrong voltage to a device.

It is to be realized, of course, that the plunger **23** may control a secondary circuit associated with the switch **33** without necessarily changing the potential applied to the load connected to the plug, but such modifications would be within the normal skill of the art.

Although this invention has been described with respect to preferred embodiments, it is not to be so limited, as changes and modifications may be made which are within the full intended scope as defined by the appended claims.

I claim as my invention:

1. An electrical socket for receiving a standard power plug having a grounding prong and power prongs or a non-standard power plug having a grounding prong and power prongs, said socket formed with spaced power

contact openings containing power contacts and which align with the power prongs of the standard or non-standard plugs and a grounding contact opening which aligns with the grounding prong of the standard or non-standard plug, a spring biased actuating plunger moveably mounted in said socket and formed with an extending portion which is engaged by said standard power plug to move it when it is inserted into said socket, and said non-standard plug formed with a depression aligned with said extending portion when said plug is inserted into said socket so that said plunger is not moved when said non-standard plug is inserted into said socket.

2. An electrical socket according to claim 1 comprising a switch mounted adjacent said socket and formed with a moveable contact and said plunger engageable with said moveable contact to position it.

3. An electrical socket according to claim 2 comprising three power lines with one connected to one of said power contacts of said socket, said switch formed with two stationary contacts which are connected to the other two power lines, and the moveable contact of said switch

connected to the other of said power contacts of said socket such that a standard power voltage is applied to a standard power plug and a non-standard power voltage is applied to a non-standard power plug.

References Cited

UNITED STATES PATENTS

3,233,203	2/1966	Kennedy et al.	
3,280,278	10/1966	Ganzert	200—51.09

FOREIGN PATENTS

399,244	10/1942	Italy.
1,343,143	10/1963	France.

ROBERT K. SCHAEFER, Primary Examiner

D. SMITH, JR., Assistant Examiner

U.S. Cl. X.R.

200—51.09