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COMBINATION ELECTRICAL OUTLET

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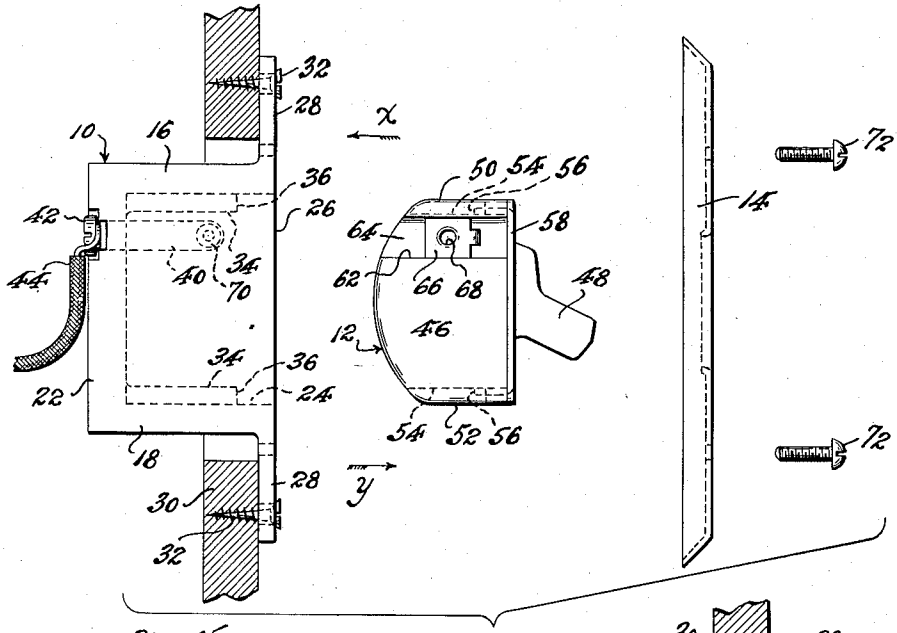


Fig. 1

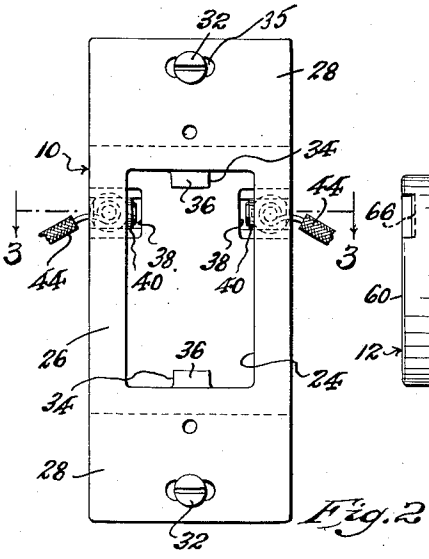


Fig. 2

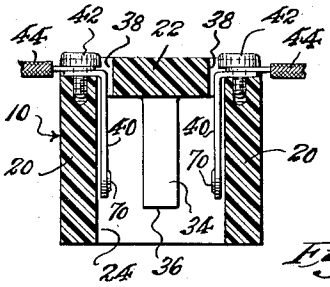


Fig. 3

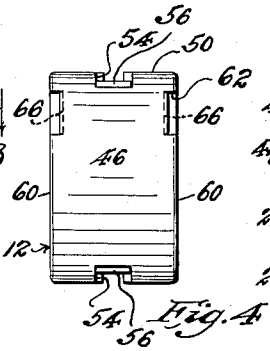


Fig. 4

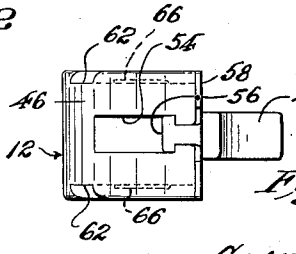


Fig. 5

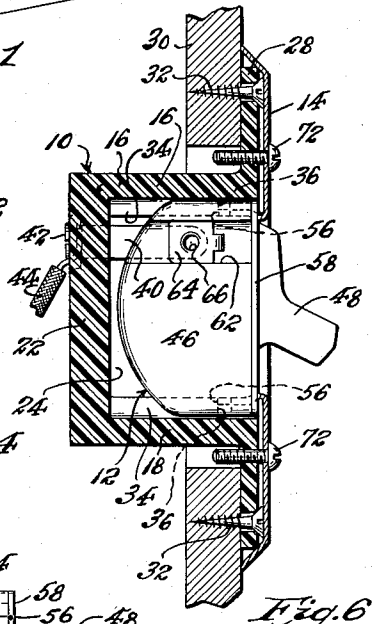


Fig. 6

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COMBINATION ELECTRICAL OUTLET

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1 Claim. (Cl. 174—58)

This invention relates to combination electrical outlets or switches, and more especially to those of the flush type.

An object of this invention is to provide a combination electrical switch of the flush type which is easy and safe to install and replace, whether the current is turned on or not.

A further object is to provide combination outlets of the type described which are simple in construction, efficient in operation and which are adapted to be used with conventional electrical equipment and in accordance with standard electrical procedures.

Other objects of this invention will become apparent from the following description.

The replacement of defective electrical switches has long been recognized as being in an unsatisfactory state of development. For one thing, there is danger of broken lead-in wires resulting from the necessary handling involved in repairing or replacing conventional switches and other electrical outlets. Additionally, there is considerable inconvenience entailed in turning the current off during such operations. It is only infrequently that a complete circuit diagram is available for the premises and the person replacing a switch has the choice of either turning off all of the electrical power or of removing the fuse applicable to the switch circuit by a trial and error process.

Replacement of conventional switches while the current is still on is merely an invitation to trouble and should be avoided.

The situation is becoming increasingly more important, by reason of the tremendous increase in the use of electricity in the average home, particularly in the United States of America. Such increased use is of course accompanied by the need for more outlets. Accompanying such increased use is the fact that switch failures are often liable to happen during the day, as a result of the use of appliances such as electric washing and drying machines for clothes and dishes, ironing machines, etc. At such times the chances are that there is no one available for the quick and safe replacement of the switch.

This problem has been recognized by others and suggestions have been made to improve the situation. The suggestions which appear to have greatest merit involve the use of easily-removable switches in receptacles without the need to touch the terminal wires from the power source. While this approach appears to have much merit, theoretically, as a practical matter suggestions based on this approach have not been successful, either because of the need for special units too far removed from conventional ones, or because of the complexities inherent in the so-called solutions, or because the suggested solutions were not effective, or for other reasons.

By my present invention I have succeeded in accomplishing the foregoing objects, as well as others, by providing an electrical outlet which is adapted to be mounted in a wall or other suitable place. The outlet has a receptacle and a switch insert.

The receptacle is box-like, having an open front and

top, bottom, side and rear walls. On the interior of the receptacle, along the top and bottom walls, are projections. Along the interior of the side walls are laterally-yieldable electrical contact members.

The removable switch is of such size and shape as to be telescopically-receivable by the receptacle so as to be held firmly in place without screws or other securing means, while allowing for electrical contact between the switch and the receptacle, the latter being electrically joined to the conventional lead-in wires. This simultaneous accomplishment of firm receptacle-switch telescopic relation and electrical contact is accomplished in a simple, effective and novel manner as hereinafter shown. The switch insert has recesses along the top and bottom walls which are of such size, shape and in such position as to engage slidably with the aforementioned projections on the interior of the receptacle. The recesses have stop members near the front of the switch which abut with the front edges of the aforesaid projections when the switch and receptacle are in telescoped flush-fit relation.

The switch insert also is provided with recesses along each side of such size, shape and location as to slidably and frictionally engage the aforesaid latterally-yieldable electrical contact members of the receptacle. Flush with the surfaces of the recesses in the switch are electrical contacts which engage the laterally-yieldable members of the receptacle to provide electrical contact.

With the foregoing in mind, my invention consists of certain novel features of construction and combinations and arrangements of parts which will be more fully hereinafter described, and which will become apparent from the following detailed description taken in connection with the accompanying drawings in which like characters represent like parts throughout and which form a part hereof.

In the drawings:

Fig. 1 is an exploded side elevational view of a preferred embodiment of my novel electrical outlet, including an escutcheon or cover plate, and showing the receptacle secured to a wall, shown in section;

Fig. 2 is a front elevational view of the receptacle of Fig. 1, this view being in the direction shown by the arrow "X" of Fig. 1;

Fig. 3 is a section taken along the line 3—3 of Fig. 2, looking in the direction shown by the arrows of Fig. 2;

Fig. 4 is a rear elevational view of my novel switch insert of Fig. 1, looking in the direction indicated by the arrow "Y" of Fig. 1;

Fig. 5 is a plan view of the switch insert of Fig. 1; and

Fig. 6 is an assembled view of the parts shown in Fig. 1, the receptacle and cover plate being shown in central vertical transverse section.

Referring to the drawings, my novel electrical outlet comprises a box-like receptacle **10**, a switch insert **12**, and, if desired, a cover or escutcheon plate **14**. These parts may be made from any suitable material, such as phenol-formaldehyde molding material, e. g., "Bakelite," hard rubber, porcelain, etc.

The receptacle **10** has top **16**, bottom **18**, side **20** and rear walls **22** and contains a chamber **24** to receive the switch insert **12**. The front **26** of the receptacle **10** has upper and lower portions **28** adapted to be placed in contact with the wall **30** and by means of screws **32** passed through holes **35** secured thereto.

As may perhaps be seen best from Figs. 2, 3 and 6, there are projections **34** of rectangular cross-section located along the interior of the top **16** and bottom **18** wallls. These projections 34, indeed, are desirably integral with the top and bottom walls and may be formed therewith, as by molding an insulating plastic, to form the receptacle **10**. The projections **34** terminate at a point **36** short of the front **26** of the receptacle **10**.

The rear wall **22** of the receptacle **10** has openings **38** for the electrical contact members **40**. These are similar to bus bars in appearance and are secured to the back of the rear wall **22** of the receptacle **10** by screws **42**. Terminal lead-in wires **44**, connected to the current source, are also secured in place by the screws **42**, thereby making for secure electrical contact between the lead-in wires **44** and the contact members **40**.

The switch insert **12** has a housing **46** which contains the mechanism (not shown) of conventional switches, the one shown being a toggle switch. The housing **46**, like the receptacle **10**, is made of electrically-insulating material, in this case, a suitable phenol-formaldehyde molding material. The lever **48** is used to turn the switch **12** on and off in the conventional manner.

Located along the top **50** and bottom **52** walls of the switch insert **12** are recesses **54** of such size, shape and location as slidably and frictionally to engage the projections **34** when the switch is inserted as far as it will go in the chamber **24**. Stop members **56** are provided near the front of the recesses **54**. These stop members **56** abut with the front edges **36** of the projections **34** so as to prevent further penetration when the insert **12** is in place in the chamber **24**. These stop members **56** are located so that when the switch insert **12** is in flush-fit relation to the receptacle **10** (as shown in Fig. 6) the switch insert **12** is not in contact with the rear wall **22** of the receptacle **10**. While desirable, this latter feature is not necessary.

In the embodiment shown, the stop members **56** are extensions of a front plate **58** secured to the forward face of the switch insert **12**. However, if desired, the switch insert **12** may be molded so that the recesses **54** terminate anteriorly with edges which would have the same function as the stop members **56**.

Located along the side walls **60** of the switch insert **12** are other recesses **62** of such size, shape and location as slidably and frictionally to engage the laterally-movable contact members **40**. Substantially flush with the surfaces **64** of recesses **62** are electrical contacts **66** for the switch mechanism. The contacts **66** shown have an opening **68** therein which engages with the grommet-like portion **70** of the electrical contacts **40** of the receptacle **10** when the switch insert **12** is in flush-fit relation to the receptacle **10**. If desired, the entire surfaces may be of electrically conducting material.

The operation and assembly of my novel electrical outlet combination is believed to be clear from the foregoing.

The lead-in wires **44** connected to a current supply source are secured to electrical contact members **40** by the screws **42**. The receptacle **10** is then secured to the wall **30** by screws **32** passing through the openings **35**.

The switch insert **12** is then placed in the chamber **24** so that a flush-fit relation is obtained. Even without the cover plate **14** the switch insert **12** is adequately secured to the receptacle **10** by reason of the snug fit resulting from the engagement between the contact members **40** and recesses **62** as well as by the engagement of the projections **34** and recesses **54**. Movement of the lever **48** controls the turning on or off of current to the fixture, appliance, or the like in the circuit.

If desired, the cover plate **14** may be used, being secured to the outlet by means of the screws **72**.

In the event of switch failure it is a simple matter to remove the insert **12** and replace it with another. No wires need be touched. The replacement can be made safely with the current on. There is no need to interfere with the current being supplied to any electrical devices such as lights, appliances, or the like.

While I have described my invention in detail in its preferred embodiment, it will be obvious to those skilled in the art, after understanding my invention, that various changes and modifications may be made therein without departing from the spirit or scope thereof. I aim in the appended claim to cover all such modifications and changes.

I claim:

An electrical outlet, which comprises, in combination, an insulated box-like receptacle having side, top, bottom and rear walls, and being open in front, projections on the interior of said top and bottom walls extending from the interior of said rear wall and terminating short of said opening, laterally-yieldable electrical contact members adapted for connection to a source of electric current and positioned adjacent the interior of said side walls, a removable switch comprising recessed means on the top and bottom walls slidably engaging said projections whereby said switch and said receptacle are in flush, telescoping relation to each other, said recessed means terminating anteriorly in stop members adapted for abutment with said projections, recesses in each side wall of said switch having vertical surfaces and electrical contact members therein, flush with said vertical surfaces, whereby when said receptacle and said switch are in flush-fit relation electrical contact is made between their respective electrical contact members and said receptacle and said switch are held together in operating relationship.

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