

May 5, 1936.

J. P. NIESEN

2,039,336

FUSED WALL RECEPTACLE

Filed May 31, 1935

2 Sheets-Sheet 1

Fig. 1

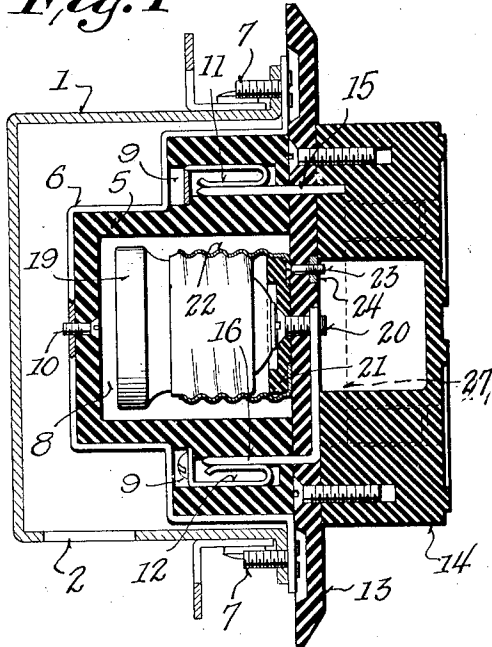


Fig. 2

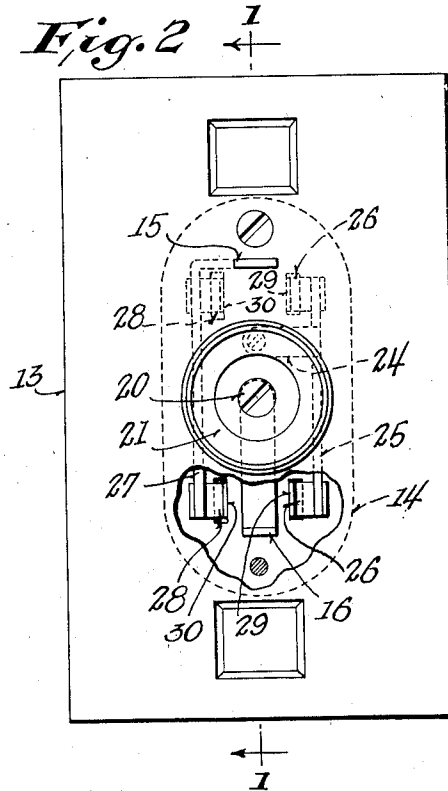


Fig. 3

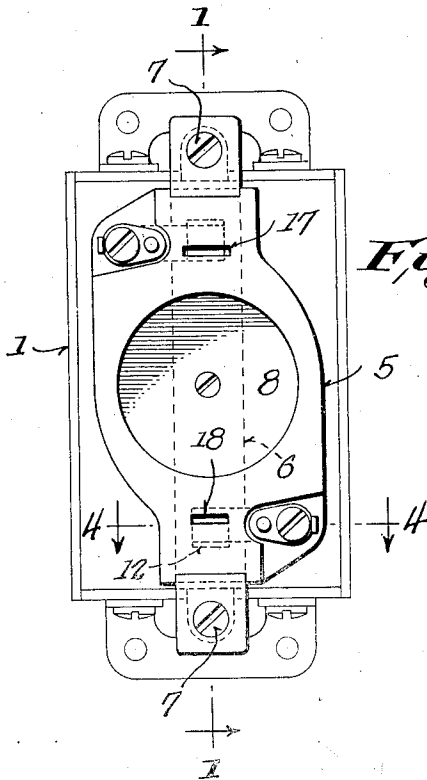


Fig. 4

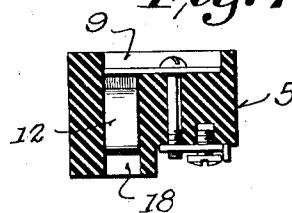
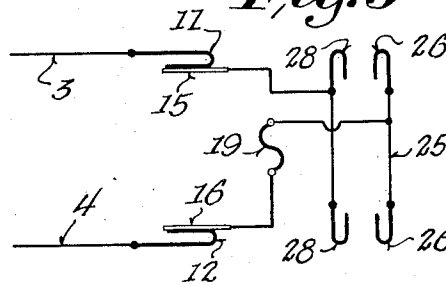


Fig. 5



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2 Sheets-Sheet 2

Fig. 6

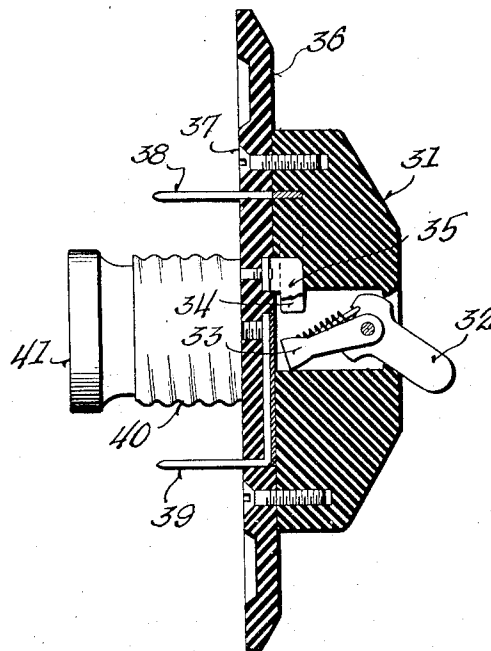


Fig. 7

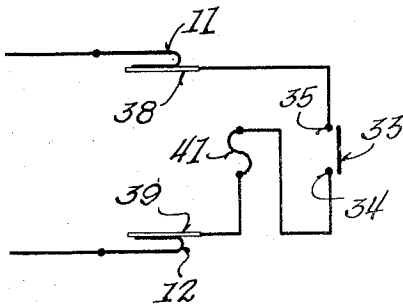


Fig. 8

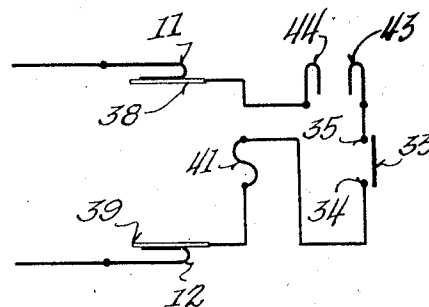
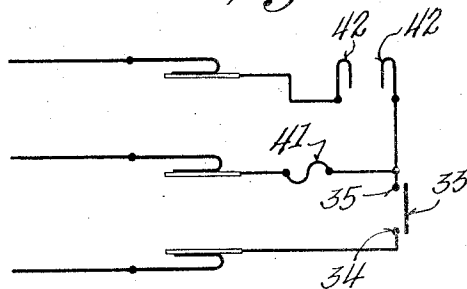


Fig. 9



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FUSED WALL RECEPTACLE

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Application May 31, 1935, Serial No. 24,267

5 Claims. (Cl. 200—115.5)

This invention relates to a fused wall receptacle.

It is the usual practice, in wiring and building, to provide a main fuse box in which all of the fuses for the several house circuits are located. Obviously, these house circuits branch to the different outlets and if an overload occurs at one alone of these outlets, it will blow the main fuse for that particular main circuit and render the other outlets supplied therefrom inoperative.

This invention is designed to overcome the above noted defects, and objects of this invention are to provide an independent fused wall or other outlet or receptacle or unit which is so made that it is provided with its own fuse and which, in one form, allows plugs from lamp cords or from other fixtures to be inserted therein in the usual way, but which nevertheless provides an independent fuse for each outlet so that an overload occurring at one outlet will render that outlet alone inoperative and will not disturb the functioning of the other outlets.

Further objects for another form that the invention may take are to provide a fused switch which is removable and carries its own fuse and controls a permanently wired fixture, but which nevertheless may be plugged into or removed from the stationary portion of the apparatus as may be needed, and which in still another form provides not only a fused switch for controlling a permanently wired fixture, but also provides such switch and a fused outlet member for receiving the plug of lamp cords, as hereinabove described, without in any way interfering with the action of the switch, the fuse in this case controlling both the switch and any device plugged into the outlet formed therewith.

Further objects are to provide a fused outlet which may employ any standard type of fuse or fuse cartridge, which is absolutely safe even when the fuse is in the act of blowing, and which protects the user from damage and the house in which it is installed from fire hazards.

Further objects are to provide a fused outlet receptacle which is safe when refusing, in which no live contacts are presented the user when the device is being refused, and in which a coin or slug cannot be put back of a burned out fuse plug and thereby close the circuit.

Further objects are to provide a fused outlet which has a removable fuse carrying portion so that the fuse, as stated, may be renewed while the contacts of the removed part are dead, thus providing safety for the user, and which is so

made that it cannot be inserted in any but one position when re-inserting the removed part so that the grounded side of the line will always be connected to the same prong receiving contact of the re-inserted outlet unit.

Embodiments of the invention are shown in the accompanying drawings, in which:

Figure 1 is a sectional view through the device, such view corresponding to a section on the line 1—1 of Figures 2 and 3.

Figure 2 is a view from the underside of the cover plate as it appears when removed from the remainder of the receptacle or outlet box.

Figure 3 is a view looking into the outlet box after the cover and the parts carried thereby have been removed.

Figure 4 is a detail sectional view on the line 4—4 of Figure 3.

Figure 5 is a diagrammatic view, showing the circuits in the outlet box.

Figure 6 is a sectional view corresponding to Figure 1, showing the invention as applied to a removable switch which is adapted to control a permanently wired fixture as hereinafter described.

Figure 7 is a diagrammatic view of the switch and fuse as shown in Figure 6.

Figure 8 is a diagrammatic view of a further form of the invention in which the switch directly controls a plug receiving outlet or member.

Figure 9 is a view in which the switch is independent of the plug receiving outlet or member and is adapted to control a permanently wired fixture.

The device comprises the usual outlet box formed of metal and provided with an aperture for the reception of the conduit and line wires, such conduit and line wires being omitted from Figure 1, the line wires being indicated by the reference characters 3 and 4 in Figure 5.

An insulating receptacle 5 is housed within the casing 1 and is supported therefrom in any suitable manner as by means of the strap like member 6 whose ends are secured by means of screws 7 to out turned ears formed on the housing 1. The member 5 is provided with a central cavity 8 and with small cavities 9 on opposite sides of the central cavity.

Any suitable means may be employed for securing the member 5 to the strap 6, for instance it may be secured by means of a screw 10 as indicated.

The line wires are attached to spring like terminal members or fingers 11 and 12 positioned within the cavities 9. That portion of the appa-

ratus described to this point is stationary and is permanently retained within the housing 1.

The removable portion of the apparatus comprises a face plate 13 which is equipped with a plug receiving portion 14. The portion 14 may be formed either separate from the plate 13 or integral therewith and it may have its outer face flush with the outer face of the plate 13 or may be formed as shown in Figure 1. The members 13 and 14 are formed of insulating material, such, for example, as a phenolic condensation product, and a similar or different insulating material can be used in forming the member 5.

The removable portion consists of the members 13 and 14 and is provided with a pair of main prongs 15 and 16 which normally engage the spring contacts 11 and 12, respectively.

Slots are provided, as indicated at 17 and 18, in the member 5, as shown most clearly in Figure 3, and these slots as well as the corresponding prongs 15 and 16 are of different widths so as to allow the prongs to be inserted only in one manner to thereby maintain the polarity the same whenever the removable portion is removed or replaced.

One of the prongs 16 is connected to any suitable standard type of fuse. In the form chosen for illustration, a screw type fuse, indicated generally at 19 see Figure 1, is employed.

The prong 16 may go to a central screw 20 whose head is countersunk or inset in a cut away central portion of an insulating disk 21 so that the outer face of the head of the screw 20 is sunk beneath or positioned beneath the outer face or surface of the disk or washer 21. This washer 21 is positioned inside of the threaded metal ferrule 22 which receives the screw threads of the fuse plug. A small screw 23 holds the ferrule in place in addition to the clamping action of the disk 21 and serves to connect the ferrule to the metal tongue 24 of the conducting bar 25, see Figure 2. This conducting bar 25 carries spring contacts 26 at opposite ends thereof.

By having the screw 20 set in the recess of the insulating plug 21, it precludes putting a coin in the socket and screwing the burned out fuse back in place, as the coin will not reach the head of the screw, the recess being smaller in diameter than a coin.

The other prong 15 is continued as the conducting bar 27, see Figures 1 and 2, which carries the spring contacts 28 at opposite ends thereof, the contacts 28 and 26 forming pairs for engagement with the contacts of the usual cord plugs. One or more pairs may be employed. In the form shown, two pairs have been illustrated, though it is obvious that the invention is not limited to this exact number.

The spring fingers 26 and 28 are positioned within suitable recesses formed in the member 14, as is apparent from Figures 1, 2, and 3, and these recesses have outwardly opening slots 29 and 30, the slot 29 being smaller in each instance than the slot 30.

The well known type of cord plug having one prong larger than the other may be used with this device and when plugged into the device, the polarity will always be the same due to the construction hereinbefore described.

Referring to Figure 5, it will be seen that the removable fuse 19 is interposed in the circuit to the spring contacts 28 and 26.

It is obvious that if an overload should occur in the particular device plugged into one of these

receptacles, that the fuse of that receptacle would blow without disturbing the main line fuses. Obviously all the operator would have to do is to withdraw the movable part of the apparatus, thereby disconnecting the main prongs thereof from the stationary prongs in the housing. It is apparent also that the blown fuse may be readily removed without danger to the operator as all parts thereof are now dead and wholly detached from the circuit. A new fuse is easily substituted and the device plugged back into position ready for use.

Figure 6 shows how the invention may be applied to a removable switch. The switch block or body portion is indicated by the reference character 31 and the operating toggle lever by the reference character 32. A portion only of the switch is shown. The details thereof, of course, may be varied as desired. The movable contact is indicated at 33 and the usual spaced stationary contacts at 34 and 35.

The body portion of the switch is held to the face plate 36 in any suitable manner, as by means of the screws 37. The switch is provided with a pair of prongs 38 and 39 which correspond to the prongs 15 and 16 of Figure 1. The prong 39 is connected directly to the center of the fuse as indicated, and the prong 38 is connected to the stationary contact 34, a part of the stationary contact 35 being broken away to show the stationary contact 34. The stationary contact 35 is connected to the ferrule 40 into which the fuse plug 41 is screwed.

The prongs 38 and 39, see Figure 6, similarly to the prongs 15 and 16, see Figures 1 and 2, may be of different sizes so as to preclude the positioning of the device in any except one predetermined manner thereby maintaining the correct polarity.

This switch may control an independent fixture, the wiring diagram being partially indicated in Figure 7, the spring contact prongs 11 and 12 engaging the prongs 38 and 39.

If desired, the switch body portion may be provided with means for receiving a plug similar to that shown in Figure 2, the prongs for receiving the fixture plug being indicated at 42 in Figure 9. The fuse 41 in this case supplies current to both the outlet having the prongs 42 and the switch as well, and the switch controlling an independent permanently wired fixture.

If desired, the switch may control the outlet itself which may be formed in the switch body portion, as described hereinabove. In this case the switch is connected to one of the prongs, for example the prong 43, the other prong 44 being connected to the line.

It will be seen that a very simple type of individually fused outlet receptacle has been provided by this invention which is eminently practical, which may be readily manufactured, and which is easy and safe to refuse.

It will be seen further that a fused outlet has been provided in which the fuse carrying member, whether it be a fuse plug device or a switch, may be removed from the body of the outlet and may be refused with safety to the operator as all of the parts are dead. Further, the fuse is readily accessible when the device is removed and also when the device is reinserted with a new fuse, it is obvious that ample protection is afforded as the fuse is properly housed and adequate protection against fire hazards provided.

It will be seen further that the invention in other forms provides a fused switch for control-

ling either a permanently wired fixture or a fixture that may be plugged into the switch body portion itself, or which is so made as to provide both a fuse switch for controlling a permanently wired fixture and at the same time provide a fused outlet for a portable fixture that may be plugged therein.

Although this invention has been described in considerable detail, it is to be understood that such description is intended as illustrative rather than limiting, as the invention may be variously embodied and is to be interpreted as claimed.

I claim:

1. The combination of a stationary housing including a metallic box adapted for permanent mounting within a wall and constituting an outlet box, said outlet box having a permanently mounted insulating member located within said box and forming an insulating housing within said box, a pair of stationary contacts carried by said insulating member and adapted for attachment to line wires, and a removable member constituting a cover plate for said outlet box, said cover plate having an electrical instrumentality, a fuse carried by said cover plate and connected in circuit with said instrumentality, said removable member having a pair of contacts, said last mentioned pair of contacts acting in the dual capacity of engaging the first mentioned contacts and of holding the cover plate in place on said outlet box, said fuse being located within said insulating housing when said cover plate is in place.

2. The combination of a stationary housing including a metallic box adapted for permanent mounting within a wall and constituting an outlet box, said outlet box having a permanently mounted insulating member located within said box and having an internal cavity opening outwardly, said insulating member constituting an insulating housing, a pair of stationary contacts carried by said insulating member and adapted for attachment to line wires, and a removable member constituting a cover plate for said outlet box, said cover plate having an electrical instrumentality and having a fuse connected in circuit with said instrumentality and carried on the inner side of said cover plate and normally positioned within said insulating housing when said cover plate covers said outlet box, said removable member having a pair of contacts for detachably engaging the stationary contacts.

3. The combination of a stationary housing including a metallic box adapted for permanent mounting within a wall and constituting an outlet box, said outlet box having a permanently mounted insulating member located within said box and forming an insulating housing within said box, a pair of stationary contacts mounted adjacent opposite sides of said insulating member

and carried by said insulating member and adapted for attachment to line wires, and a removable member constituting a cover plate for closing said outlet box, said cover plate having a switch located on its outer side and having a fuse electrically connected in circuit with said switch and located on the inner side of said cover plate and normally positioned within said insulating housing when said cover plate is in place, said cover plate having a pair of contacts connected in circuit with said fuse and switch and adapted to engage the stationary contacts carried by said insulating member.

4. The combination of a stationary housing including a metallic box adapted for permanent mounting within a wall and constituting an outlet box, said outlet box having a permanently mounted insulating member located within said box and forming an insulating housing within said box, a pair of stationary contacts carried by said insulating member and adapted for attachment to line wires, and a removable member constituting a cover plate for said outlet box, said cover plate having an electrical instrumentality, a screw threaded shell carried on the inner side of said cover plate, a removable fuse plug screwed into said shell, said removable fuse plug being positioned within said insulating housing when said cover plate is in place, said cover plate having a pair of inwardly projecting contacts for engaging said stationary contacts when said cover plate is in place, said last mentioned contacts, said fuse and said electrical instrumentality being electrically in circuit with each other.

5. The combination of a stationary housing including a metallic box adapted for permanent mounting within a wall and constituting an outlet box, said outlet box having a permanently mounted insulating member located within said box and forming an insulating housing within said box, a pair of stationary contacts carried by said insulating member and adapted for attachment to line wires, and a removable member formed of insulating material and constituting a cover plate for said outlet box, said cover plate having an electrical instrumentality and having a fuse projecting from the inner side of the cover plate, said cover plate having a pair of inwardly directed contacts for engagement with the said stationary contacts, said inwardly directed contacts, said fuse and said electrical instrumentality being connected in an electrical circuit, said cover plate substantially closing said insulating housing and said fuse being positioned within said insulating housing when said cover plate is in place, whereby said fuse is completely housed by insulating material and is located within said metallic box.

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