

G. P. WHITTLESEY.
FLUSH RECEPTACLE AND PLUG.

APPLICATION FILED SEPT. 13, 1905.

Fig. 1.

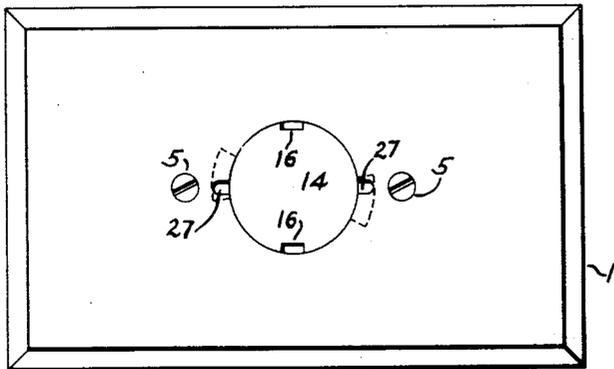


Fig. 7.

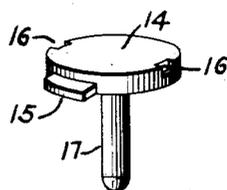


Fig. 6.

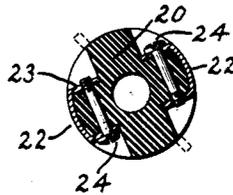


Fig. 5.

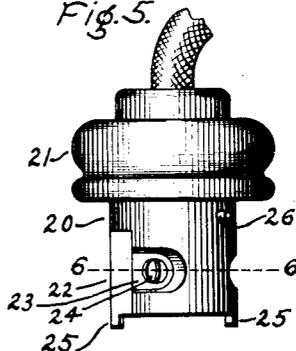


Fig. 2.

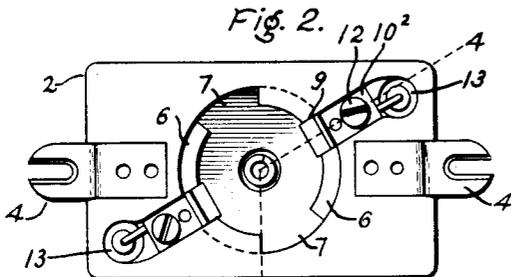


Fig. 3.

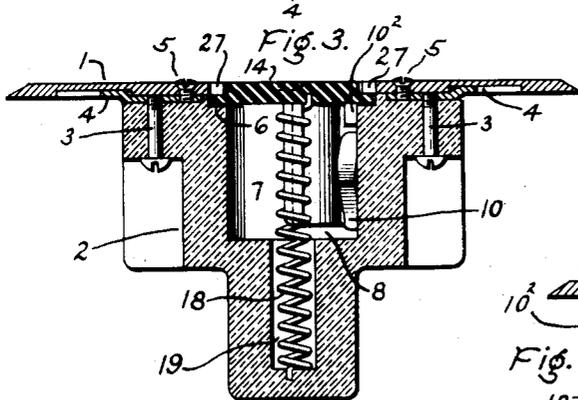
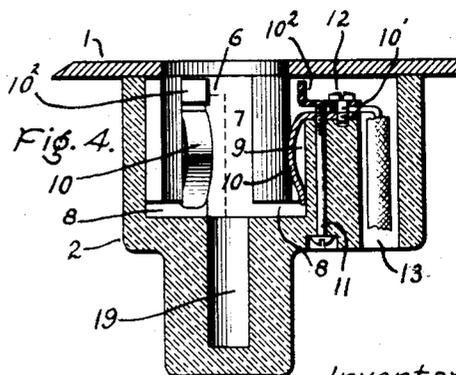


Fig. 4.



Witnesses:

Benjamin B. Blue
Allen Oxford

Inventor:

George P. Whittlesey.
by *Albert H. Davis*
Att'y.

UNITED STATES PATENT OFFICE.

GEORGE P. WHITTLESEY, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO
GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

FLUSH RECEPTACLE AND PLUG.

No. 866,105.

Specification of Letters Patent.

Patented Sept. 17, 1907.

Application filed September 13, 1905. Serial No. 278,256.

To all whom it may concern:

Be it known that I, GEORGE P. WHITTLESEY, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Flush Receptacles and Plugs, of which the following is a specification.

This invention relates to connectors for electric circuits, of the type in which a receptacle containing main-line terminal contacts is let in flush with a wall or floor while the terminal contacts of the branch line are carried on a plug adapted to be thrust into the receptacle in such a position as to bring the two sets of contacts together and connect the branch line with the main line. Heretofore the mouth of the receptacle has been closed by one or more covers or shutters, either hinged or sliding, which had to be opened by hand before the plug could be inserted. Moreover, the shutter had no lock to prevent meddlesome persons from opening it and getting access to the main-line contacts.

The object of my invention is to provide a flush receptacle with a shutter which can be opened automatically by the plug, but which will be locked against unauthorized tampering when the plug is withdrawn. To this end the invention consists in a wall receptacle containing stationary main-line terminals, a shutter yieldingly supported and constructed to be locked and unlocked by a partial rotation, and a plug carrying the branch line terminals and constructed to engage with said shutter to unlock it and force it inwardly when the plug is to be inserted into the receptacle.

The features of novelty are hereinafter set forth, and are particularly pointed out in the claims.

In the accompanying drawing, Figure 1 is a front elevation of my improved wall receptacle; Fig. 2 is a front elevation with the face-plate and shutter removed; Fig. 3 is a longitudinal section; Fig. 4 is a cross-section on the line 4-4, Fig. 2; Fig. 5 is a side elevation of the plug; Fig. 6 is a cross-section of the plug on the line 6-6, Fig. 5; and Fig. 7 is a perspective view of the disk shutter.

The receptacle has a metal face-plate 1 containing a circular opening which is normally closed by the yielding rotatable shutter hereinafter described. The face-plate is secured to a casing 2 of insulating material, such as porcelain, by means of screws 5 which enter tapped holes in small plates of metal 4 fastened to the casing by screws 3. The casing has a circular socket registering with the opening in the face-plate. At the top of the socket and on opposite sides are short circumferential grooves forming shoulders 6, adjacent to one end of which are the longitudinal grooves 7 extending to the bottom of the socket and

communicating with the short circumferential grooves 8 in the walls of the socket at or near the bottom thereof. At opposite points near the other ends of the shoulders 6 are longitudinal grooves 9 in which are placed slightly curved flat spring contact-fingers 10, projecting into the socket and having outwardly-bent portions 10' lying in recesses in the top of the casing. On each portion 10' is laid a piece of insulating material 10² having an upturned end to serve as a stop for the flange on the shutter. The fingers 10 and the pieces 10² are secured by screws 11, and binding screws 12 are inserted in them to clamp the terminals of the main leads which pass in through the holes 13 in the casing.

The shutter is a circular disk 14 of insulating material fitting easily in the opening in the face-plate and having on opposite sides two segmental flanges 15 which rest normally on the shoulders 6 under the overhanging edge of the face-plate, and abut against the stops 10². In the top of the disk, at two opposite points, are recesses 16. At the center of the disk on its under side is a guide pin 17, encircled by a helical spring 18, which is seated in a pocket 19 concentric with the socket in the casing. The ends of the spring are preferably anchored in the disk and the bottom of the pocket, so that a torsional strain can be put on the spring by rotating the disk.

The plug has a cylindrical tubular body 20, and a head 21. In opposite sides of the body are shallow recesses to receive the metallic contact segments 22, which are suitably secured to said plug, preferably by ears 23 turned back into recesses in the plug and fastened by a through bolt 24. The outer surfaces of the segments are flush with the plug, and the branch-line terminals are brought through the tubular body of the plug and are secured to the segments 22 by the heads of the bolts 24.

The plug is provided with lugs 25 to engage with the recesses 16 in the shutter. Said lugs are preferably integral with the segments 22, as shown.

The operation is as follows: The plug is placed on the disk shutter, with the lugs engaging the recesses therein. A partial rotation of the plug and disk carries the segmental flanges 15 away from the stops 10² and off the shoulders 6 until said flanges come in line with the longitudinal grooves 7. The plug can then be thrust into the socket, carrying the shutter before it until the flanges 15 come in line with the bottom grooves 8. The plug can then be given a further partial rotation to carry said flanges into said grooves and lock the shutter in its innermost position. This last angular movement of the plug also brings the segments 22 into contact with the fingers 10 and closes the circuit from the main leads to the branch leads.

Since the plug is cylindrical it could be pulled out of the socket without releasing the shutter. To prevent this, the plug is provided with one or more pins 26 projecting laterally from its body and adapted to pass through a notch or notches 27 in the edge of the face-plate opening when the plug is nearly home, so that when the plug is given its final turn, said pin or pins will engage the under side of the face-plate and lock said plug in place. It can be released only by giving it a backward turn sufficient to release the shutter also. Should the plug be taken out without giving it a second backward twist to bring the flanges on the shutter over the shoulders 6, the spring 18 exerts a sufficient torque to return the shutter to its normal locked position, in which the flanges 15 abut against the stops 10² and lie between the shoulders 6 and the face-plate.

It will be seen that the bayonet-joint action of the flanges and grooves affords a simple but efficient means for locking the shutter both in its upper and lower positions, and that sufficient torsion can be given to the spring to hold the shutter closed against all ordinary meddling. In the closed position of the shutter, its flanges lie close under the notches 27 and thus prevent the entrance of dust or the insertion of a wire or the like.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In a flush receptacle, the combination with the casing, of a face-plate having a circular opening, a circular shutter fitting said opening and yieldingly supported, and bayonet-joint locking means therefor.
2. In a flush receptacle, the combination with a casing having a circular socket provided with shoulders, of a face-plate having a circular opening, a circular shutter having segmental flanges extending between said shoulders and the face-plate, and means for biasing said shutter outwardly and rotarily.

3. In a flush receptacle, the combination with a casing having a circular socket provided with longitudinal grooves and shoulders adjacent thereto, of a face-plate having a circular opening, a circular rotatable shutter having segmental flanges adapted to slide in said grooves and rest on said shoulders, and a spring supporting said shutter.

4. In a flush receptacle, the combination with a casing having a circular socket provided with upper and lower circumferential grooves and longitudinal grooves connecting the same, a face-plate having a circular opening, a circular rotatable shutter having segmental flanges co-operating with said grooves, and a spring supporting said shutter.

5. In a flush receptacle, the combination with a casing having a socket, of a face-plate having a circular opening, a circular rotatable shutter having a central guide-pin, a spring encircling said pin and connected to the receptacle and shutter to rotarily bias the latter, and bayonet-joint locking means for said shutter.

6. In a flush receptacle, the combination with a casing, of a face-plate having a circular opening, a circular rotatable spring-supported shutter having recesses, and a circular plug having lugs on its end to engage said recesses and rotate said shutter.

7. In a flush receptacle, the combination with a casing, of a face-plate having a circular opening, a circular rotatable spring-supported shutter having recesses, a circular plug having lugs on its end to engage said recesses and rotate said shutter, and bayonet-joint locking means for said shutter.

8. In a flush receptacle, the combination with a casing, of a face-plate having a circular opening provided with one or more notches in its edge, a circular rotatable shutter having recesses, a circular plug having lugs to engage said recesses, and one or more pins on said plug to pass through said notches and engage the under side of said face-plate.

In witness whereof, I have hereunto set my hand this twelfth day of September, 1905.

GEO. P. WHITTLESEY.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.