

No. 707,516.

Patented Aug. 19, 1902.

C. J. KLEIN.
PLUG RECEPTACLE.

(Application filed Apr. 5, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1,

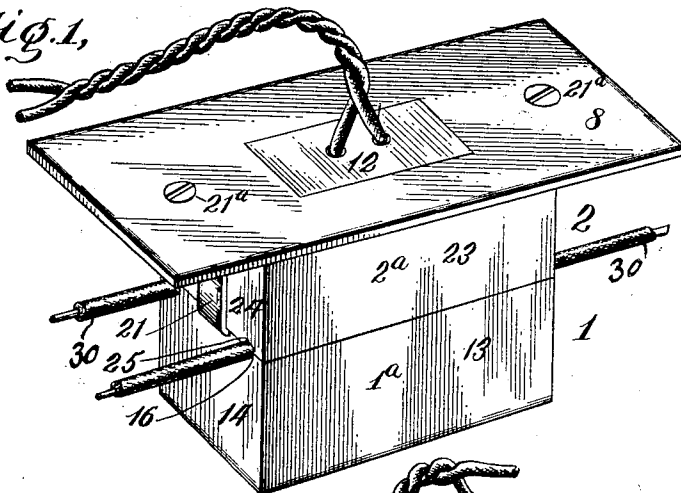


Fig. 2,

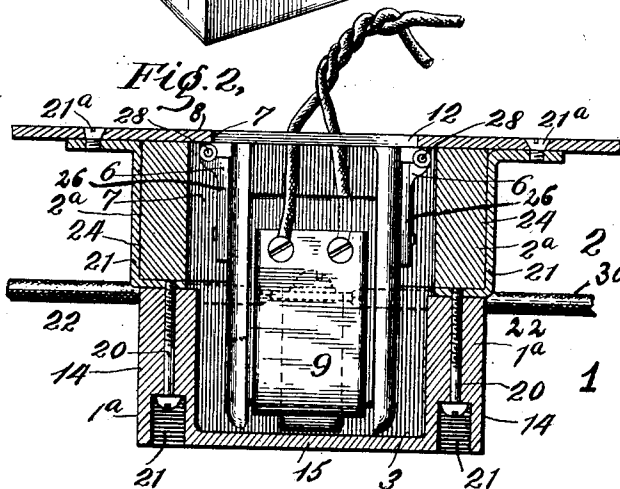
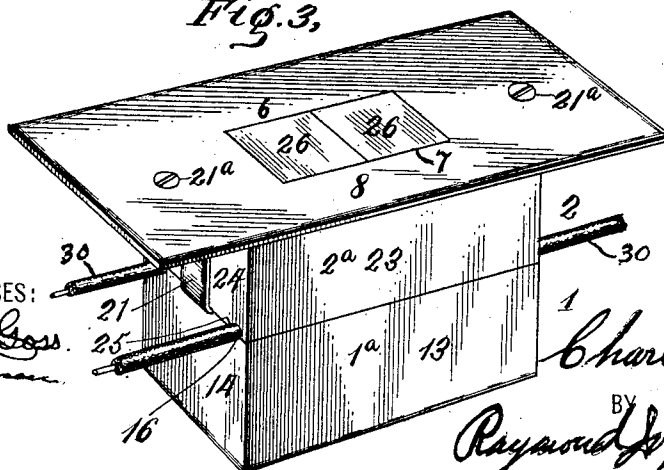


Fig. 3,



WITNESSES:

Harry L. Goss
E. G. Goss

INVENTOR

Charles J. Klein

BY

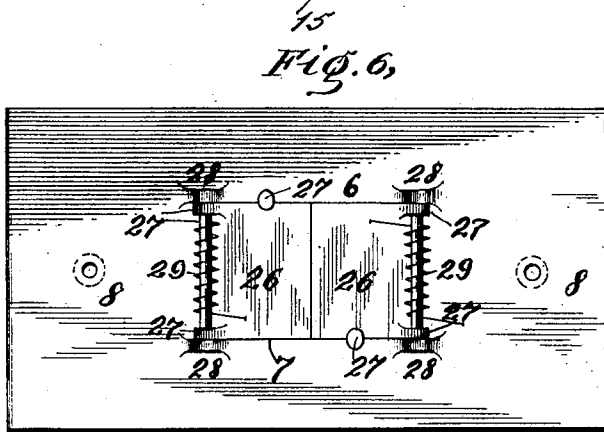
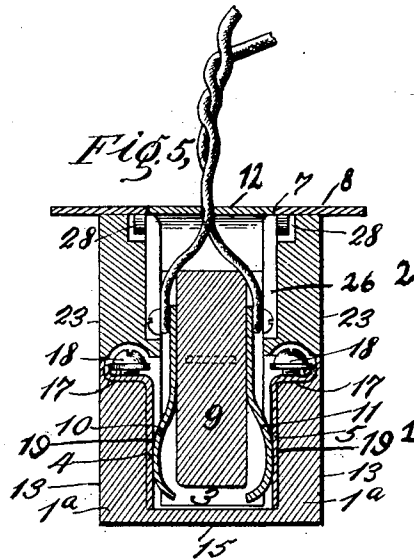
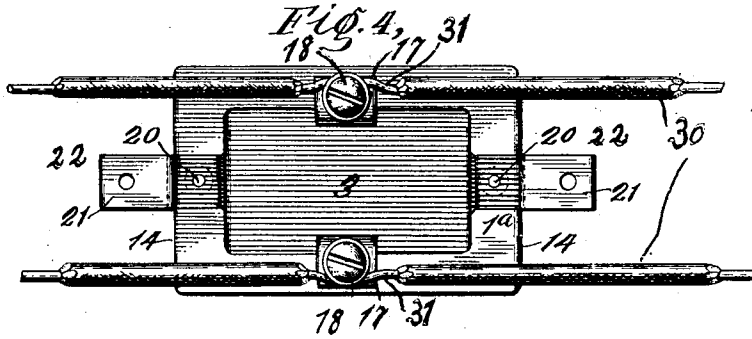
Raymond J. Blakesley
his ATTORNEY.

C. J. KLEIN.
PLUG RECEPTACLE.

(Application filed Apr. 5, 1902.)

(No Model.)

2 Sheets—Sheet 2.



WITNESSES:

Harry Cross,
E. Gudeman

INVENTOR

Charles J. Klein,
BY
Raymond J. Blakely,
his ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES J. KLEIN, OF NEW YORK, N. Y., ASSIGNOR TO THE C-K MANUFACTURING COMPANY, OF NEW YORK, N. Y., AND JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

PLUG-RECEPTACLE.

SPECIFICATION forming part of Letters Patent No. 707,516, dated August 19, 1902.

Application filed April 5, 1902. Serial No. 101,474. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. KLEIN, a citizen of the United States, residing at New York, county and State of New York, have
5 invented new and useful Improvements in Plug-Receptacles, of which the following is a specification.

This invention relates to plug-receptacles for electric circuits, and more particularly to
10 flush-plug receptacles; and it has for its object to provide an improved device of this class which will be relatively simple and inexpensive in construction, convenient and
inexpensive in installation and "connecting
15 up," convenient in use, unobstructive and neat in appearance, and generally superior in point of efficiency and adaptability to varying conditions of use.

In flush-plug receptacles as heretofore designed various closure means for the plug-
20 opening in the face-plate have been provided; but the same have been open to the objection that the closure means have required independent manipulation to permit insertion or
25 withdrawal of the plug, and, furthermore, said closure means have ordinarily embodied doors or covers liable to be left in an open position, thus permitting entrance of foreign substances into the receptacle and causing danger
30 of short-circuiting in various manners. These doors or covers have ordinarily been mounted to open outwardly, thus presenting obstruction and unsightly appearance.

In the practice of my invention I provide
35 closure means for the plug-opening in the face-plate of the receptacle which normally automatically retain a position flush with the surface of the face-plate when the plug is out of the receptacle and cannot project in front
40 of or beyond the face-plate to cause obstruction or unsightly appearance. Furthermore, my improved closure means are constructed and arranged to open inwardly of the receptacle, which latter is formed to receive the
45 same, and so open inwardly automatically when the plug is inserted in the receptacle and automatically resume the normal position flush with the surface of the face-plate when the plug is withdrawn from the recep-

50 tacle. It thus results that to open and close the plug-opening in the face-plate of the receptacle for the purpose of inserting or withdrawing the plug requires no independent operation, and when the plug is formed at its outer end portion to exactly fit and fill
55 the opening in the face-plate a neat flush condition of the face-plate and the plug may be obtained when the plug is home in the receptacle.

My improved receptacle is, furthermore, 60 preferably formed of two body members or molded porcelains, which are detachably connected and with which the contacts for the plug are so associated as to permit highly-convenient and speedy connecting up of the re- 65 ceptacle with the circuit-wires.

In the drawings, Figure 1 is a perspective view of a flush-plug receptacle constructed in accordance with my invention, the plug being shown in operative position. Fig. 2 is
70 a central longitudinal sectional view of the same with the parts in the position shown in Fig. 1. Fig. 3 is a view similar to Fig. 1 with the plug detached from the receptacle, the closure means for the plug-opening in the
75 face-plate being shown in normal position. Fig. 4 is a detail top plan view of the inner body member of the receptacle. Fig. 5 is a detail transverse sectional view of the receptacle. Fig. 6 is a detail inner face view of
80 the face-plate of the improved receptacle.

Corresponding parts in all the figures are denoted by the same reference characters.

Referring with particularity to the drawings, my improved plug-receptacle comprises
85 two separate body members, an inner member 1 and an outer member 2, respectively, which are formed of insulating material, such as molded porcelain, and which when assembled form an inner receptacle-chamber 3,
90 within which the contacts 4 and 5 are arranged and within which are accommodated the closure means 6 of the plug-opening 7 in the face-plate 8, which covers the receptacle at the top when said closure means are en-
95 gaged by the plug 9 in the insertion of the same into the receptacle. The receptacle may be installed in operative position in

floors, walls, ceilings, or other parts of building construction in the customary or any suitable manner, so that the face-plate 8 is flush with the surface floor, wall, or other construction, and the closure means 6 normally occupy the position shown in Fig. 3 and in their outer surface portions constitute part of the perfectly flush outer surface portion of the face-plate 8. The plug 9 embodies the plug-contacts 10 and 11, which when the plug is inserted in the receptacle engage with the receptacle-contacts 4 and 5, respectively, in the customary manner, and said plug is preferably provided with a flat crown 12, which completely fills the plug-opening 7 in the face-plate 8 and the outer surface of which may be flush or substantially flush with the outer surface of the face-plate 8, as desired.

In the preferred form of construction the inner body member 1 of the receptacle consists of a hollow porcelain block 1^a, closed at its sides 13, ends 14, and bottom 15 and open at the top. The top edges of the sides 13 of said porcelain block 1^a are longitudinally grooved, as at 16. The receptacle-contacts 4 and 5 embody top end portions 17, which are lapped over the top edges of said side portions 13 at opposite points substantially intermediate of the ends of said side portions 13, and said top end portions 17 may be secured in position by binding-screws 18, which take into the block 1^a. The major portions 19 of the receptacle-contacts 4 and 5 project downwardly within the hollow block 1^a in opposed relation, whereby they may be closely engaged by the contacts 10 and 11 of the plug 9. The receptacle-contacts 4 and 5 may be of any preferred form or style best adapted to the service to which they are subjected. The end portions 14 of the block 1^a are centrally vertically bored to receive screws 20, the threaded ends of which project slightly above the top edges of said end portions 14 and the heads of which are received in chambers 21, formed in the block 1^a. Said screws 20 are combined with brackets 21, which are also screwed to the face-plate 8, as at 21^a, and constitute, with said screws 20, means 22 for securing the inner and outer body members 1 and 2, respectively, of the receptacle and the face-plate in assembled position and in complete form for installation for use.

The outer body member 2 of the receptacle consists of a hollow porcelain block 2^a, which is closed at the sides 23 and ends 24 and is open at the top and bottom. The bottom edges of the side portions 23 of the block 2^a are provided each with a longitudinal groove 25, which grooves 25 correspond with the grooves 16 in the top edges of the side portions 13 of the block 1^a, and the dimensions of the side portions 23 and end portions 24 of the block 2^a correspond with the dimensions of the corresponding portions of the block 1^a, whereby when said block 2^a is seated upon said block 1^a the entirety will complete a continuous receptacle-body, and the grooves 25

and 16 will extend in registration and constitute two continuous bores extending through the receptacle from end to end and at opposite sides of the same. The face-plate 8 rests directly upon the top edges of the side and end portions of the block 2^a and extends outwardly beyond the same to a predetermined extent. The plug-opening 7 in said face-plate 8 is formed centrally of the same and communicates directly with the receptacle-chamber 3, within which are arranged the receptacle-contacts 4 and 5.

The closure means 6 embody a pivoted inwardly-opening spring-actuated member 26, which is arranged to normally extend across the plug-opening 7 in a position flush with the outer surface of the face-plate and which upon insertion of the plug into the plug-receptacle is swung inwardly of the receptacle, space being provided for the same within the receptacle-chamber 3. Two of the members 26 of the closure means 6 are preferably provided, and said members 26 are arranged at the ends of the plug-opening 7, which is preferably rectangular and oblong in form, said members 26 being of identical proportions and dimensions and serving jointly to entirely close the plug-opening 7 when in normal position flush with the outer surface of the face-plate. Each of said members 26 may be provided with a laterally-projecting lug 27 or any suitable substitute to prevent the spring projection of the respective member 26 beyond the face-plate 8 or out of the normal position, in which the outer surfaces of said members 26 are flush with the outer surface of the face-plate. Each of the members 26 in the preferred form of construction is hinged to the face-plate, as at 28, beneath the same, and a suitable spring 29 or its equivalent is incorporated in the hinge construction at 28 and exerts a constant tendency to project the respective member 26 outwardly or into operative or "flush" position.

The operation and advantages of my improved plug-receptacle will be readily understood. When the receptacle is out of use and the closure means 6 are in operative position, the pivoted spring-projected members 26 extend in their outer surface portions flush with the outer surface portion of the face-plate 8, and the face-plate and closure means 6 present a substantially unbroken flush surface appearance. Likewise all foreign substances are excluded from the receptacle-chamber 3, and the danger of short-circuiting within said chamber is minimized. In order to electrically connect the plug 9 with the receptacle-contacts 4 and 5, it is only necessary to apply the plug to the hinged spring-projected closure-means members 26, with the contacts 10 and 11, respectively, in position to engage with the receptacle-contacts 5 and 4, and then to forcibly insert said plug against the tension of the springs 29, incorporated in the hinge connection at 28 of the members 26.

This forcible insertion of the plug swings the pivoted members 26 open in opposite directions into the receptacle-chamber 3 into the positions shown in Fig. 2, and the plug readily passes through the plug-opening 7 in the face-plate into position wherein the plug-contacts 10 and 11 engage electrically with the respective contacts 5 and 4. It will be noted that the displacement of the members 26 of the closure means from operative position is effected automatically by and simultaneously with the insertion of the plug into the receptacle and that the said members 26 are moved inwardly into the receptacle-chamber 3, wherein they are hidden and do not project outwardly from the face-plate 8 to present unsightly obstructions. When the plug is entirely home, its outer end portion, formed of the plate 12, as shown, may extend flush or substantially flush with the outer surface of the face-plate 8. The tension of the spring-projected members 26 upon the plug when the latter is home within the receptacle serves to positively hold and maintain the plug in circuit-making position within the receptacle and to avoid inadvertent detachment of the plug.

The entire device is extremely convenient in installation and in wiring. The line-wires 30, as shown in Figs. 1 and 3, are led through the grooves 16 in the inner body member 1 previous to the connection of the outer body member 2 and the face-plate 8 with said inner body member 1. Said line-wires 30 are bared or skinned, as at 31, where they engage with the top portions 17 of the receptacle-contacts 4 and 5, and said bared or skinned portions 31 are connected with said top portions 17 of said receptacle-contacts by means of the binding-screws 18. The outer body member 2 is then placed upon the inner body member 1, the face-plate 8 is placed upon the outer body member 2, and the brackets 21 are connected with the face-plate 8, as at 21^a, thus binding the two body members and the face-plate firmly together. The line-wires 30 thus lie within the bores extending longitudinally of the receptacle and consisting of the grooves 16 and 25, in which bores they are thoroughly insulated and protected.

The entire device is relatively simple in construction and highly convenient in installation, connecting up, and use, and the closure means for the plug-opening in the receptacle are automatically operated in the insertion of the plug, requiring no separate manipulation. Said closure means, furthermore, never project outwardly of the face-plate to cause unsightly appearance or obstruction.

I do not desire to be understood as limiting myself to the particular construction, formation, or association of parts as herein specified, but reserve the right to vary the same in adapting my device to varying conditions of use without departing from the spirit of

my invention and the terms of the following claims.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. A plug-receptacle provided with a face-plate having a plug-opening therein; and closure means for said plug-opening embodying a pivoted, tensionally-actuated member arranged to be swung inwardly of the receptacle upon the insertion of the plug.

2. A plug-receptacle provided with a face-plate having a plug-opening therein; and closure means for said plug-opening comprising two oppositely-disposed, pivoted, tensionally-actuated members arranged to be swung oppositely and inwardly of the receptacle upon the insertion of the plug.

3. A plug-receptacle provided with a face-plate having a plug-opening therein; closure means for said plug-opening embodying a pivoted, tensionally-actuated member arranged to be swung inwardly of the receptacle upon the insertion of the plug; and means for maintaining said pivoted member normally flush with the outer surface of said face-plate.

4. A plug-receptacle provided with a face-plate having a plug-opening therein; closure means for said plug-opening comprising two oppositely-disposed, pivoted, tensionally-actuated members arranged to be swung oppositely and inwardly of the receptacle upon the insertion of the plug; and means for maintaining said pivoted members normally flush with the outer surface of said face-plate.

5. A plug-receptacle provided with a face-plate having a plug-opening therein; and closure means for said plug-opening opening inwardly of the receptacle and operated by the insertion of the plug.

6. A plug-receptacle provided with a face-plate having a plug-opening therein; closure means for said plug-opening comprising two tensionally-actuated members which are pivoted to said face-plate at opposite sides of said plug-opening and are arranged to be swung oppositely and inwardly of the receptacle upon the insertion of the plug; and means for maintaining said tensionally-actuated members normally flush with the outer surface of said face-plate.

7. An improved plug-receptacle, comprising an inner body member and an outer body member jointly forming an inner receptacle-chamber; receptacle-contacts arranged within said receptacle-chamber; a face-plate covering said outer body member and having a plug-opening formed therein; closure means for said plug-opening comprising two spring-projected, pivoted members connected with said face-plate and arranged to be swung oppositely and inwardly of the receptacle upon the insertion of the plug; and means for maintaining said spring-projected members normally flush with the outer surface of said face-plate; said inner body member and said outer

body member being grooved in registration to receive line-wires in position for connection with said receptacle-contacts.

8. In an improved plug-receptacle, an inner
5 body member and an outer body member
jointly forming an inner receptacle-chamber;
receptacle-contacts arranged within said receptacle-chamber; grooves formed in registration in said inner body member and said
10 outer body member and adapted to receive

the line-wires in connection with said receptacle-contacts; and means for securing the said body members in operative connection.

In testimony whereof I have signed my name to this specification in the presence of 15 two subscribing witnesses.

CHARLES J. KLEIN.

Witnesses:

HENRY P. KLEIN,
WM. SCHNEIDER.