

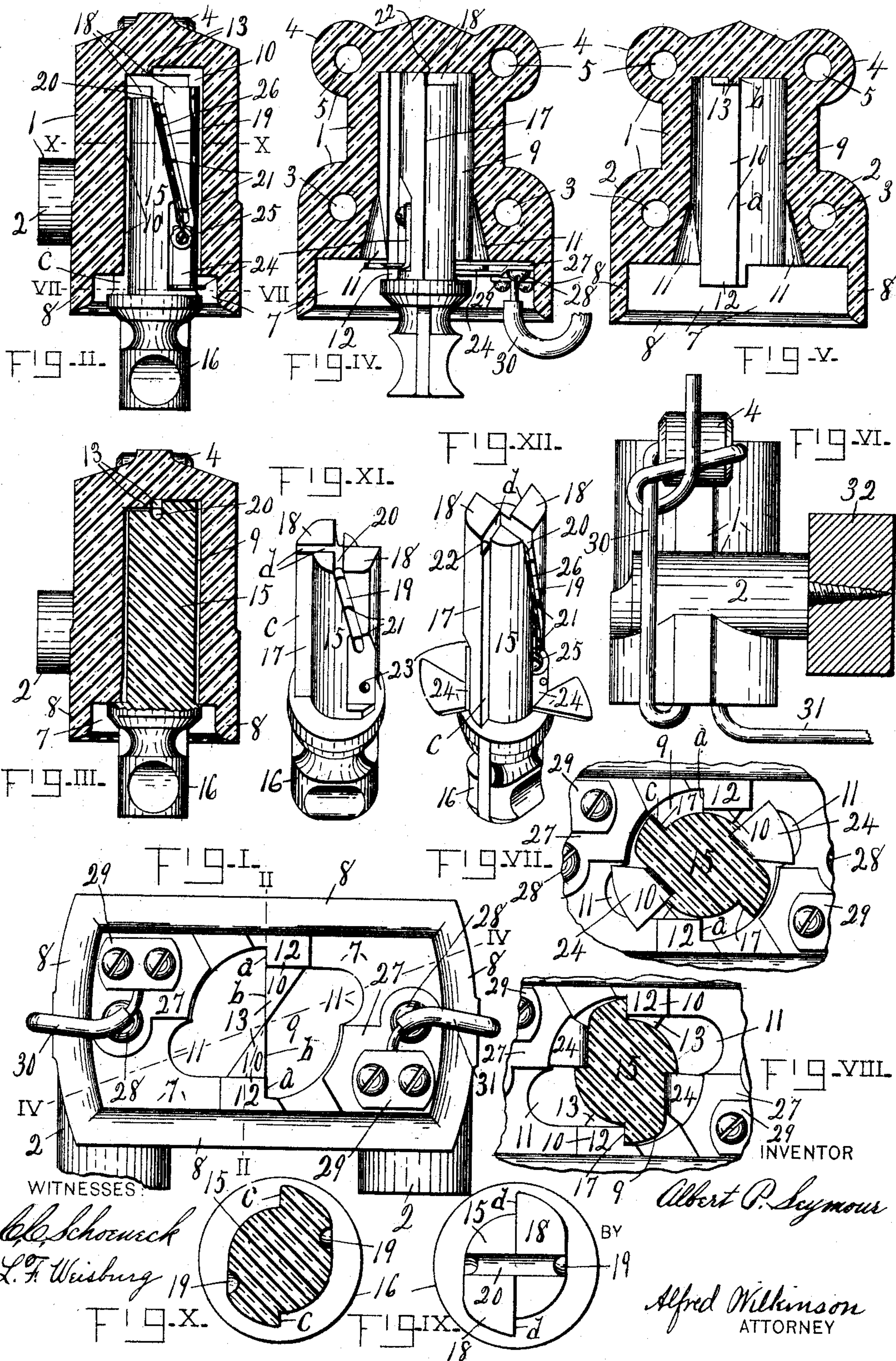
No. 617,608.

Patented Jan. 10, 1899.

A. P. SEYMOUR.  
ELECTRICAL CUT-OUT.

(Application filed Nov. 1, 1897.)

(No Model.)





# UNITED STATES PATENT OFFICE.

ALBERT P. SEYMOUR, OF SYRACUSE, NEW YORK.

## ELECTRICAL CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 617,608, dated January 10, 1899.

Application filed November 1, 1897. Serial No. 657,007. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT P. SEYMOUR, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Electrical Cut-Outs; and I do hereby declare that the following, in connection with the accompanying drawings, is a full, clear, and exact description of the invention.

My invention relates to cut-outs for electric circuits; and it consists in a new principle of construction by which the arc formed when a fuse blows is broken with great certainty, as well as in certain details which make my cut-out safer, cheaper, and more economical.

In my cut out, which is of the fuse-box and plug type, the box, made of porcelain, is provided with a recess whose surface is formed with ribs or projections, and the porcelain plug for sustaining the fuse and fitting loosely in the recess is formed with similar ribs or projections, so that when the plug is inserted in position the recess is divided into two absolutely distinct chambers connected only by a small aperture in the end of the plug, large enough to receive the fuse. By this construction the arc is at once broken, it being difficult for the arc to maintain itself through a small aperture and there being no chamber for the collection of the expanded air and heated gases, which act as a conducting medium. For the quick expulsion of these gases generated on the blowing of a fuse flaring channels are formed in the sides of the recess. These are the more important features of my invention and may be embodied in cut-outs of various forms supported in various ways; but the particular form I have here shown has decided advantages. It may be secured easily in position by screws without the use of a metallic bracket, and the wires may be attached to the ears without using an extra insulator.

My invention will be understood by reference to the accompanying drawings, in which the same reference letters and numerals indicate the same parts in all the figures.

Figure I is a bottom plan view of the fuse-box without the plug. Fig. II is a vertical section of the fuse-box on line II II of Fig. I,

the plug in process of insertion being shown in elevation. Fig. III is a corresponding vertical section of the fuse-box and plug, showing the plug pushed home. Fig. IV is a vertical section on line IV IV of Fig. I, showing the plug in elevation. Fig. V is a corresponding section without the plug or metallic parts. Fig. VI is a side elevation of my cut-out. Fig. VII is a bottom plan view of the box, portions being broken away, with the plug in process of being inserted shown in cross-section on line VII VII of Fig. II. Fig. VIII is a view corresponding to Fig. VII after the plug has been turned into position with the terminals interlocking. Fig. IX is an end plan of the plug. Fig. X is a section of the plug on line X X of Fig. II. Fig. XI is a perspective view of the plug, the metallic parts being removed. Fig. XII is another perspective of the plug, taken from a different point, the terminals and fuse being shown in position.

In the figures, 1 indicates the fuse-box, provided with shoulders 2 2, formed with screw-holes 3 3 for receiving the screws to secure the cut-out in position, and with ears 4 4, formed with holes 5 5 for the attachment of the wires. The box is provided with an enlarged base having a substantially rectangular opening 7, surrounded with a marginal wall or "petticoat" 8.

9 is the central recess of the box, having its internal wall formed with the ribs 10 10, having the substantially radial faces *a a*, and with the flaring grooves 11 11, the ribs extending outwardly below the mouth of the recess, forming the projections 12 12 on the lower plane surface of the box, whose function is to prevent a short-circuit that otherwise might be formed between the metallic terminals secured to said lower surface. On the upper wall of the recess is formed the depending projection or ridge 13 13, having the radial faces *b b* continuous with the faces *a a*.

15 is the porcelain plug, formed with the handle 16, ribs 17 17, having radial faces *c c*, projection-tips 18 18, side grooves 19 19, and end grooves 20 to receive the fuse, and teeth or knife-edges 21 21 (best shown in Figs. II and XI) in these side grooves to keep the fuse off the porcelain. The tips 18 18 are slightly



set back at 22, as best shown in Figs. IV, XI, and XII, to avoid danger of breaking when turned against the ridge 13 13, and are also formed with radial faces *d d*. When the plug is rotated, the radial faces of the ribs 10 contact or engage with the radial faces of the ribs 17, and the tips 18 engage the faces of the ridge 13, thus dividing the recess or chamber into two separate and distinct chambers connected by the passage 20. Near the handle the plug is formed with depressions 23 23, in which are secured the metallic knife-blade contact-plates 24 24, provided also with screws 25 25 for the attachment of the fuse 26.

27 27 are the metallic terminals, secured in position on the lower surface of the fuse-box by screws 28 28, on which are also secured plates 29 29 for clamping the wires 30 30. These terminals 27 27 are composed of double plates for receiving between them the contact-plates 24 24, by which the plug is held in position.

From this description the operation and advantages of my cut-out will be clear. The plug is inserted in the recess longitudinally as far as it will go, which brings its contact-plates in the same plane with the terminals on the box. The plug being then turned is locked securely in position, so that it cannot be dislodged by shock or vibration. When the plug is thus inserted and turned home, the faces *d d* of its tips 18 18 engage with the faces *b b* of the ridge and the faces *c c* of its ribs with the faces *a a* of the recess-ribs 10 10, whereby the recess 9 is divided into two absolutely distinct chambers connected only by the small aperture formed by end groove 20, through which passes the fuse, so that the heated gases generated by the blowing of a fuse cannot accumulate in a single chamber in the top of the recess and act as a conducting medium. Furthermore, by means of the flaring grooves 11 11 provision is made to permit the expelling of these heated gases as quickly as possible from the recess, and by the direction of these grooves the flash is outwardly from the center and not directly down into the hand or face of the lineman who may be there at work.

My cut-out may be used in various locations, being shown in Fig. VI secured to the cross-bar 32 of a pole for use with a transformer. The line-wire 30 is hitched through an ear 4, forming a water-loop between that and the terminal. The other wire 31 leads directly from the other terminal to the transformer.

In Figs. I, II, and III is illustrated an important feature of my invention—namely, the prolongation of the shoulders 2 2 on the fuse-box into rearward extensions, by which the cut-out is sustained clear from the support, as best shown in Fig. VI, so that there is a considerable break between the support and the terminals 27 27, rendering a short-circuit therebetween impossible, whereas but for these rearward prolongations or projections

the fuse-box would be supported with its rear wall against the support and there would be great danger, particularly in wet weather, of a short-circuit being formed over the marginal wall between the support and a terminal. The function of these rearward projections being as aforesaid it is evident they may be much varied in form and arrangement. They are also useful for supporting the fuse-box in process of manufacture after the glaze has been applied.

As stated, my cut-out is convenient and safe. The plug may be withdrawn easily to break the circuit or replace the fuse. The fuse-box and plug are made of porcelain with the minimum of metal, and by their peculiar form and arrangement break the arc with the greatest certainty. Many thousands have been tested for several months without failure.

Having thus fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In an electrical cut-out, the combination of a fuse-box, of suitable material, provided with a chamber having interior longitudinal radially-projecting faces, a rotatable fuse-carrying plug, provided with exterior longitudinal radially-projecting faces, adapted to contact with the radially-projecting faces of the chamber, whereby said chamber is divided into two separate chambers, metallic terminals on the fuse-box, and contact-plates on the plug for engaging said terminals.

2. In an electrical cut-out, the combination of a porcelain fuse-box, provided with a chamber having oppositely-faced longitudinally-projecting ribs or shoulders, a rotatable porcelain plug, provided with correspondingly-faced projecting ribs or shoulders, adapted to engage the ribs or shoulders of the chamber, dividing said chamber into two separate chambers, the end of said plug provided with a communicating passage, metallic terminals on the fuse-box, and contact-plates on the plug for engaging said terminals.

3. In an electrical cut-out, the combination with a fuse-box, of suitable insulating material, provided with a chamber having oppositely-faced longitudinal ribs, connected at their upper end by a radial-faced ridge, of a rotatable fuse-plug, of suitable insulating material, provided with longitudinal ribs having faces adapted to engage the faces of the chamber-ribs and projecting ends to engage the faces of the ridge, whereby the chamber is divided into two separate chambers, metallic terminals on the fuse-box and contact-plates on the plug for engaging said terminals.

4. In an electrical cut-out, the combination with a porcelain fuse-box, provided with a substantially cylindrical chamber having oppositely-projecting integral ribs, formed with radial faces, of a rotatable porcelain plug, provided with correspondingly-faced integral ribs, adapted to engage the radial faces of



the chamber-ribs, said plug being provided with contact-plates adapted to engage with terminals on the fuse-box, when the plug is rotated.

5 5. In an electrical cut-out, in combination, a porcelain fuse-box having a recess extending upwardly from its lower surface, a channel or channels formed in the side wall of said recess for the expulsion of flame and gases  
10 generated by the blow of the fuse, said channel or channels being located at one side of the metallic terminals and flaring outwardly and downwardly away from the plug-handle, and a fuse-carrying plug fitted to said recess.

15 6. In an electrical cut-out, the combination of a porcelain fuse-box, provided with perforated ears for the attachment of the wires, perforated shoulders for receiving the securing-screws, and a margin or petticoat surrounding its lower surface, and having a substantially cylindrical recess extending upwardly from the lower surface, the wall of said recess being formed with inwardly-extending projections having contact-faces reversely arranged; of a plug adapted to be  
25 inserted into said recess longitudinally and rotatably, and having projections provided with reversely-arranged contact-faces adapted to engage with the contact-faces in the interior of said recess, when the plug is inserted therein; of metallic terminals secured to the lower face of said fuse-box, and for engaging therewith corresponding metallic contact-plates secured to said plug, and of a  
30 fuse secured to said contact-plates.

7. In an electrical cut-out, the combination of a porcelain fuse-box having a cylindrical upper portion and a substantially rectangular lower portion, integral perforated ears on the  
40 upper portion, integral perforated shoulders, and a substantially cylindrical recess extending upwardly from the lower surface, a fuse-carrying plug fitted to said recess, metallic terminals on the box, and for engaging therewith metallic contact-plates on the plug.

45 8. In an electrical cut-out, the combination of a porcelain fuse-box having perforated ears near its upper end for the attachment of the wires, perforated shoulders for receiving the securing-screws, an integral marginal wall or petticoat around its lower surface, a recess extending upwardly from said lower surface, projections in the walls of the recess having substantially radial faces, flaring channels  
50 in the wall of the recess; a plug provided with metallic terminals and a fuse secured thereto and arranged in a groove in the plug, the plug being formed with radial faces for engaging with the radial faces in the interior  
60 of the recess and for dividing the same into two chambers, communicating only by a small aperture in the end of the plug through which the fuse passes; and metallic terminals on the lower face of the fuse-box for the attachment  
65 of the wires and for engagement with the contact-plates on the plug.

9. In an electrical cut-out, the combination of a porcelain fuse-box having its lower surface surrounded by an integral depending margin or petticoat within which are secured  
70 on said lower surface metallic terminals, a substantially cylindrical central recess extending from said lower surface into the interior of said box, said recess having ribs extending from top to bottom and continued  
75 outwardly beyond said lower surface into projections, each rib and its continuous projection being provided with a radial face, a depending projection or ridge in the upper end of said recess, each half of which is formed  
80 with a contact-face continuous respectively with the contact-face of one of said ribs; and a plug adapted to be inserted longitudinally and rotatably in said recess formed with grooves on each side, and an end groove connecting said side grooves for receiving the  
85 fuse, with longitudinal ribs on each side, corresponding tips on its end, each rib and its corresponding tip being formed with a substantially continuous radial face for engaging  
90 with the radial face of the ribs in the interior of said recess, so that when the plug is inserted in position said recess will be divided into two chambers communicating only by said small end groove; metallic terminals secured  
95 to the lower face of said box on each side of the recess provided with means for securing the wires thereto, corresponding metallic knife-blade contact-plates secured in depressions on the plug and provided with  
100 means for the attachment of the fuse, said plug-terminals being adapted to engage with said fuse-box terminals when the plug is rotated into position for making contact therewith and securing the plug.

10. In combination, in an electrical cut-out, a porcelain fuse-box having a central recess provided with integral and substantially opposite longitudinal ribs in its side walls for  
110 having substantially radial faces, integral projections extending downwardly from the lower surface of said fuse-box also having substantially radial faces in continuation of the faces of the longitudinal rib, a fuse-carrying porcelain plug formed with integral  
115 ribs having substantially radial faces for engaging with said fuse-box radial faces when the plug is inserted with a longitudinal and rotary motion, and metallic contact-plates and terminals secured respectively to said  
120 plug and fuse-box for making connection and holding the plug in position when it is turned home.

11. As a new article of manufacture, an integral porcelain fuse-box for an electric cut-out having perforated ears for the attachment  
125 of the line-wire, perforated shoulders for the supporting-screws and a longitudinal recess for receiving the fuse-carrying plug.

12. In combination, in an electric cut-out,  
130 an integral fuse-box of suitable insulating material having perforated ears for the line-



wire and perforated shoulders projecting rear-  
wardly beyond the surface of the fuse-box, a  
fuse-carrying plug fitted to a recess in the  
fuse-box, and metallic terminals on said plug,  
5 for engagement to hold the plug in position  
in said recess.

In witness whereof I have hereunto set my  
hand, in the presence of two attesting wit-

nesses, at Syracuse, in the county of Onon-  
daga, in the State of New York, this 30th day 10  
of October, 1897.

ALBERT P. SEYMOUR.

Witnesses:

FREDERICK P. SCHENCK,  
L. F. WEISBURG.