

No. 816,406.

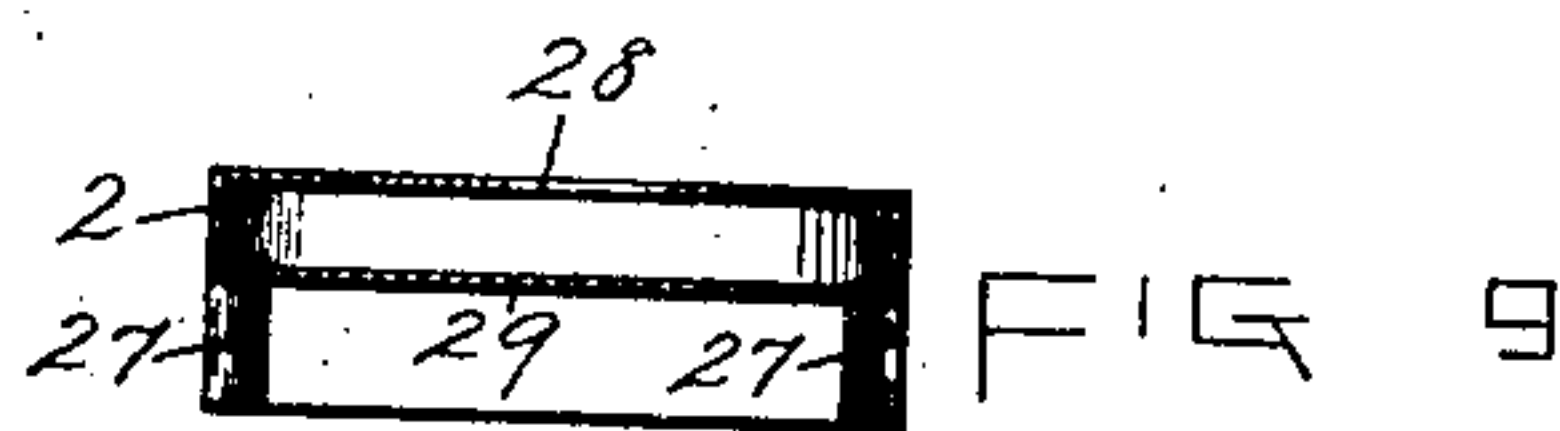
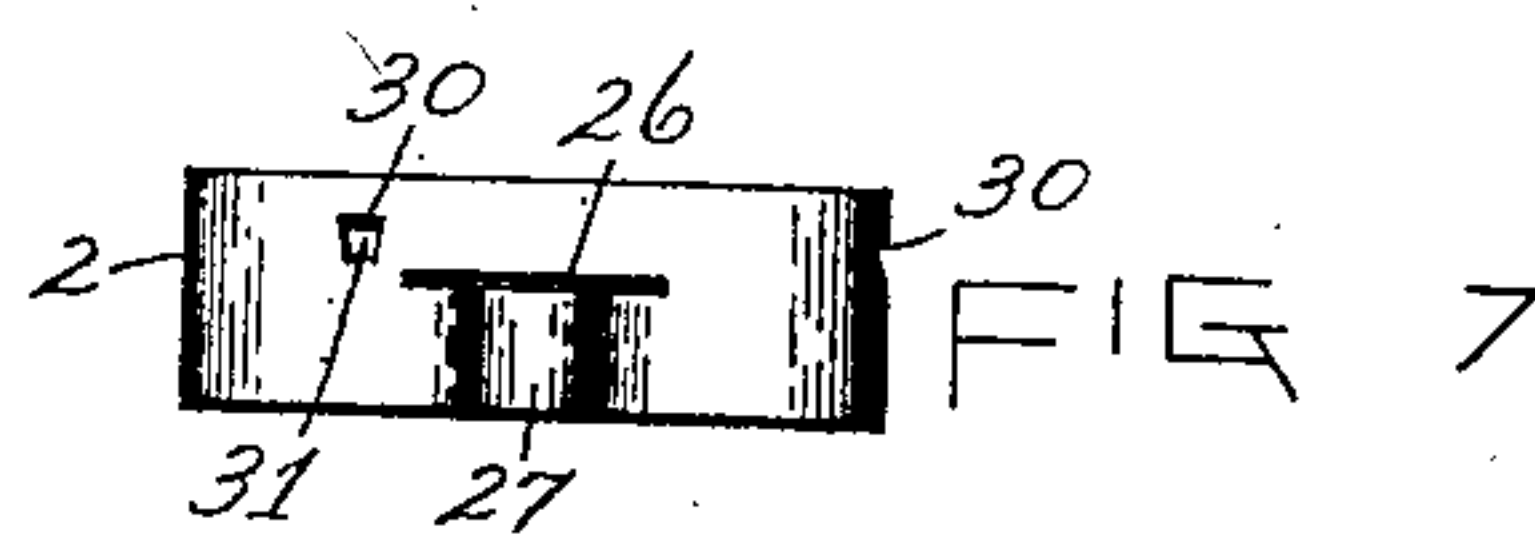
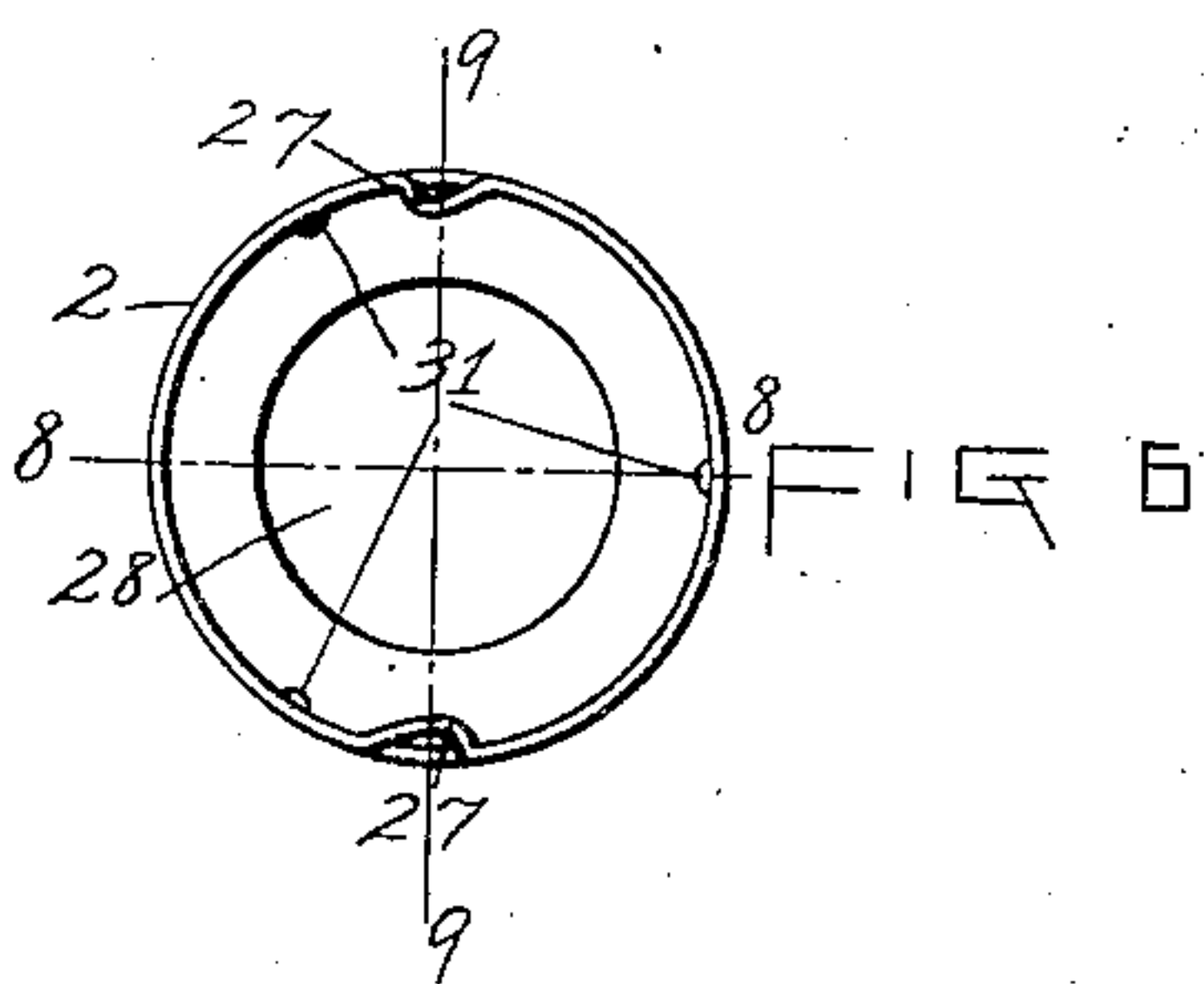
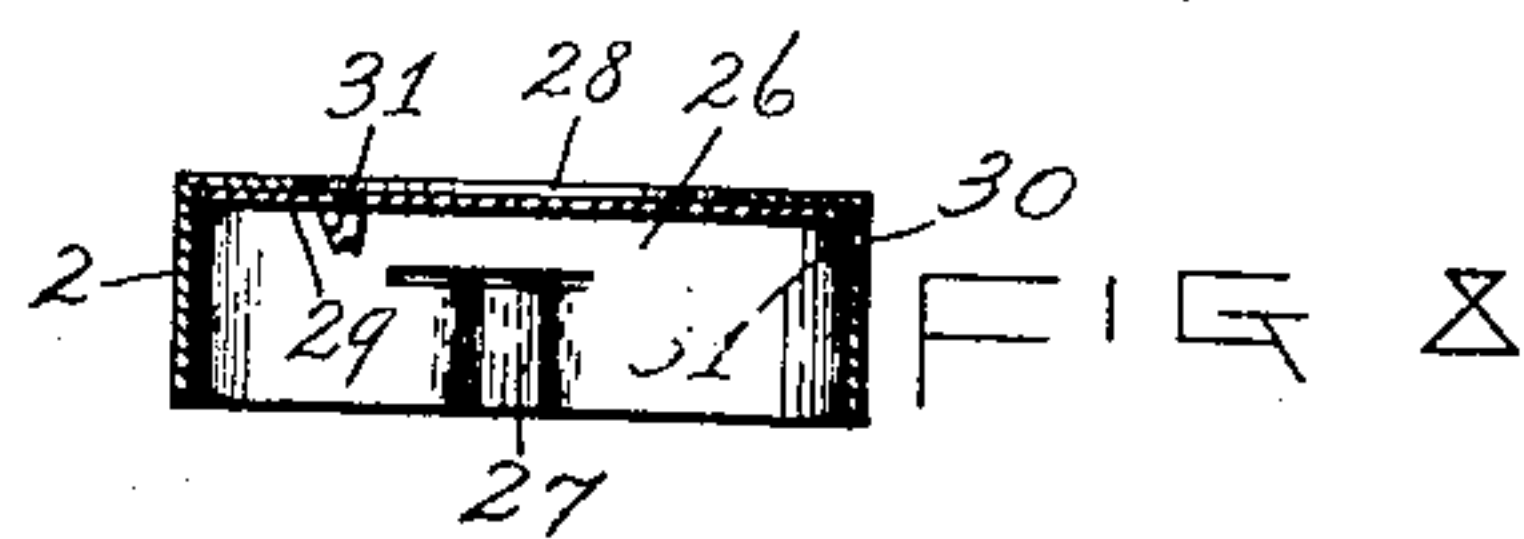
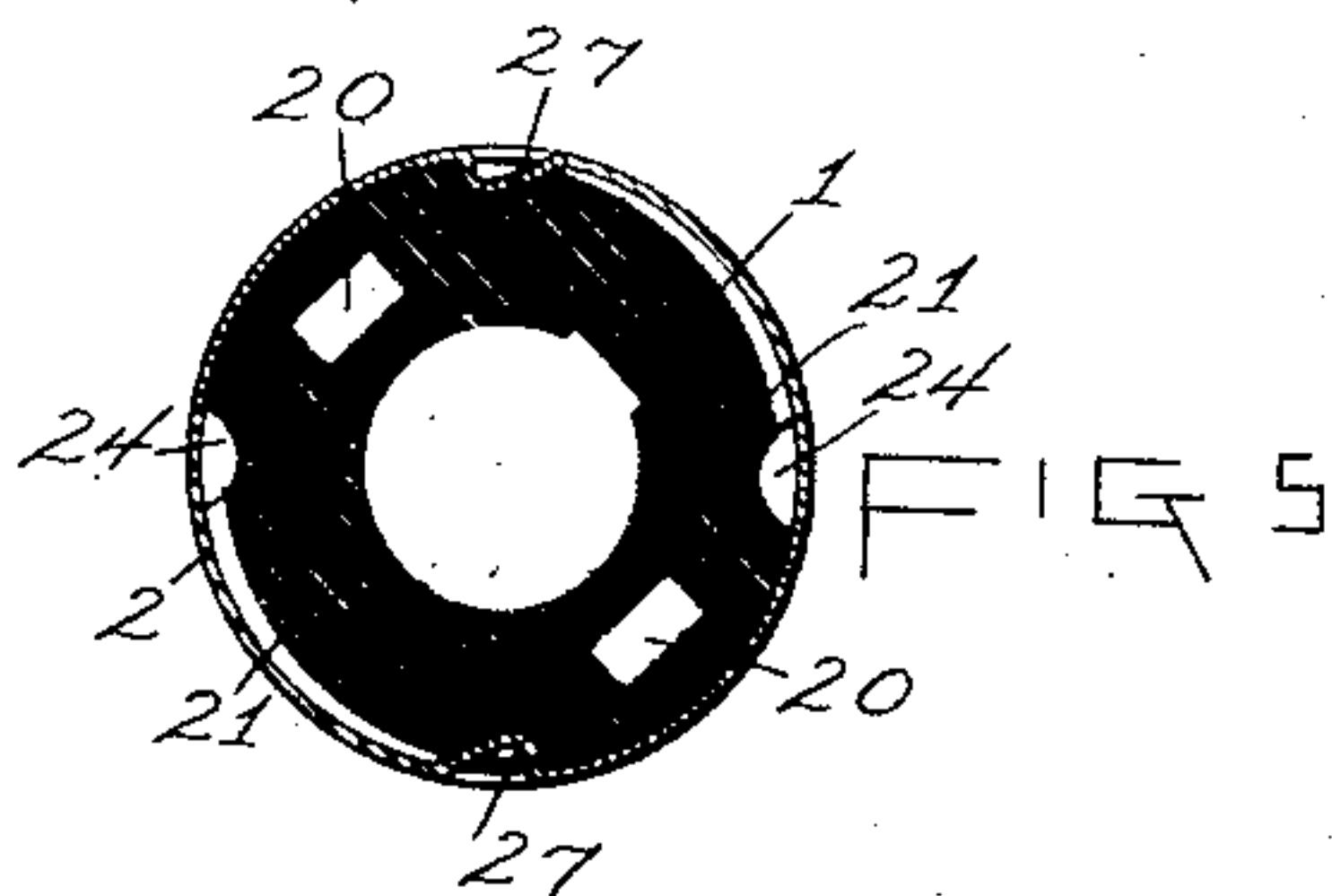
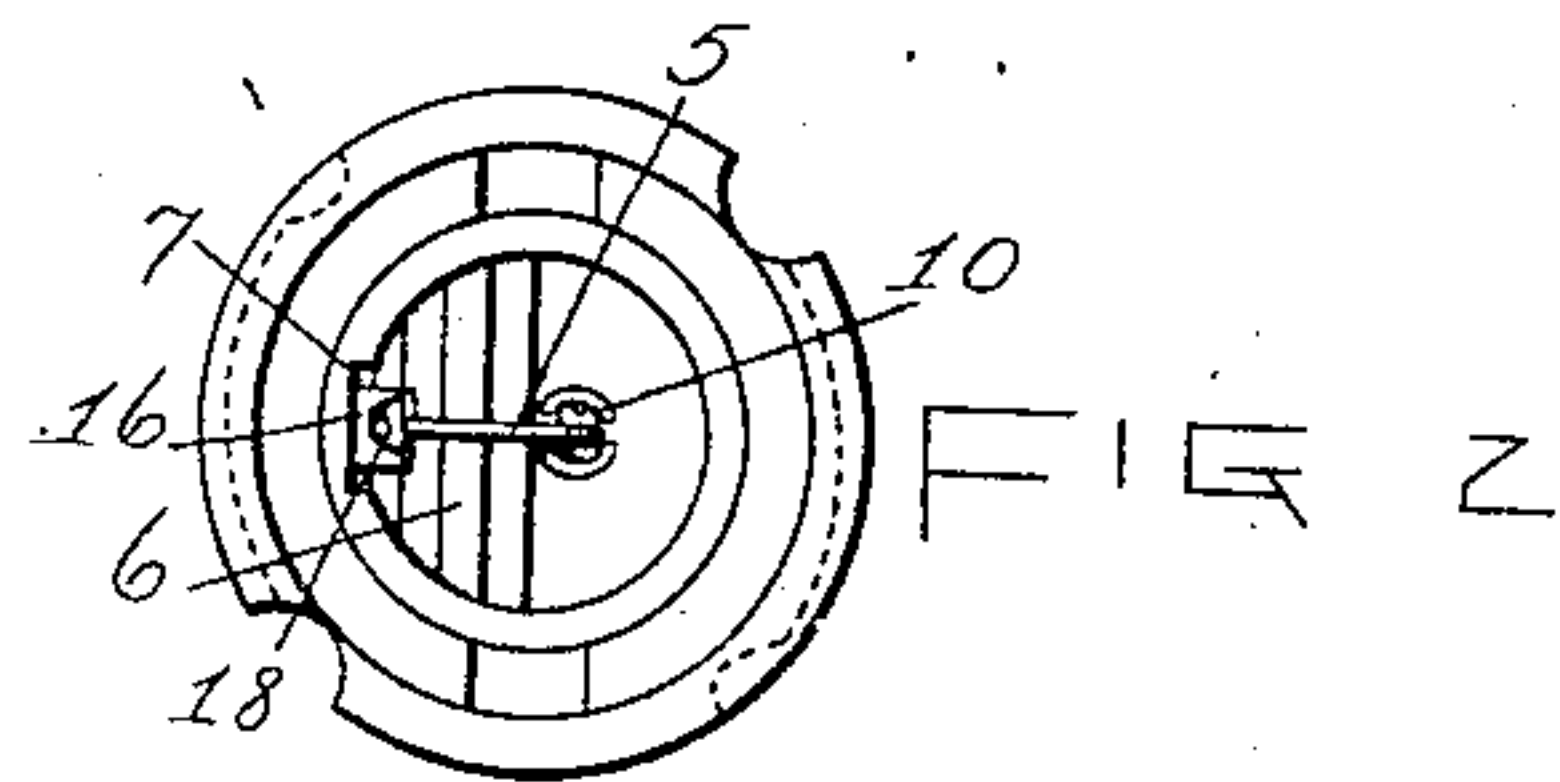
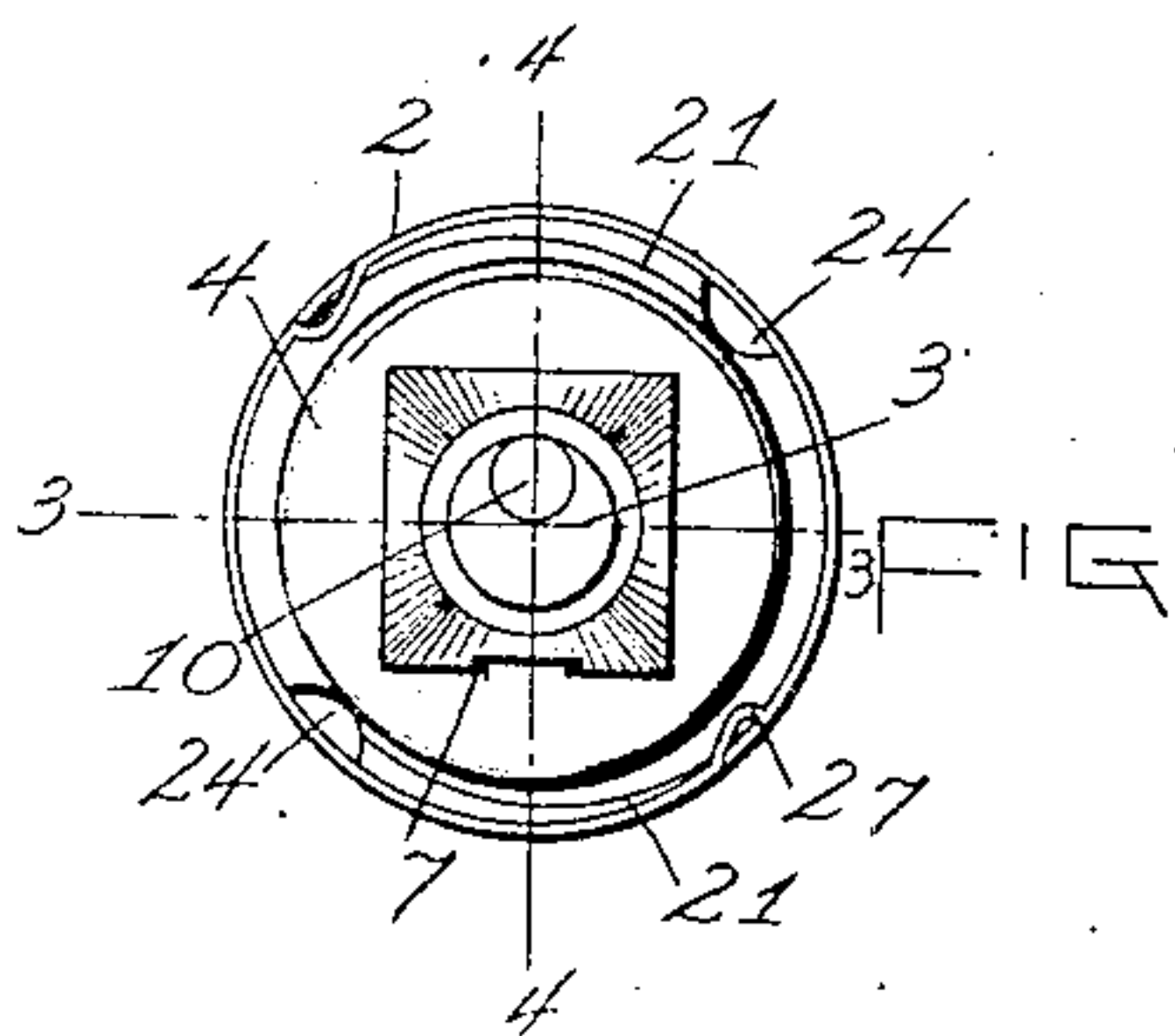
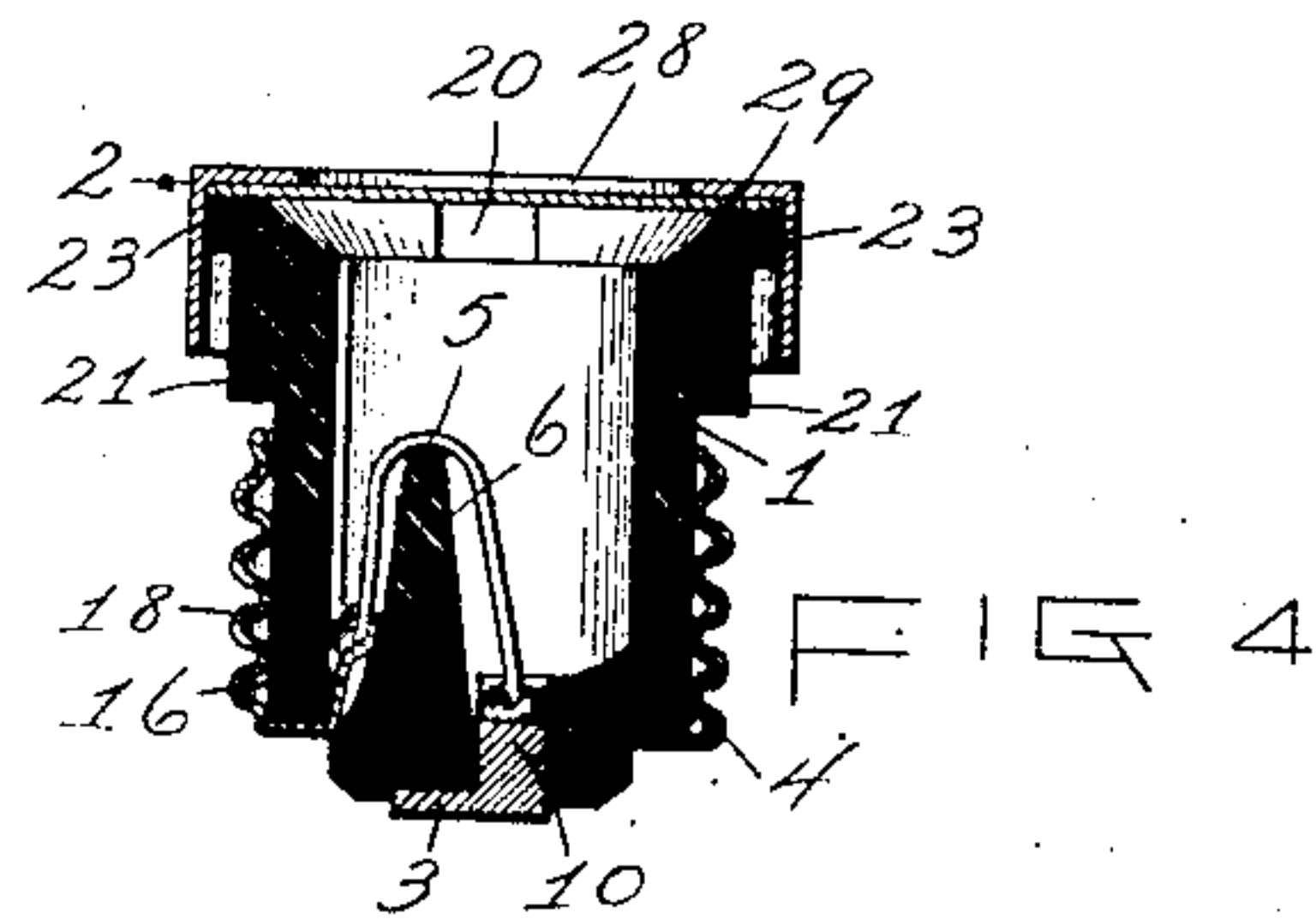
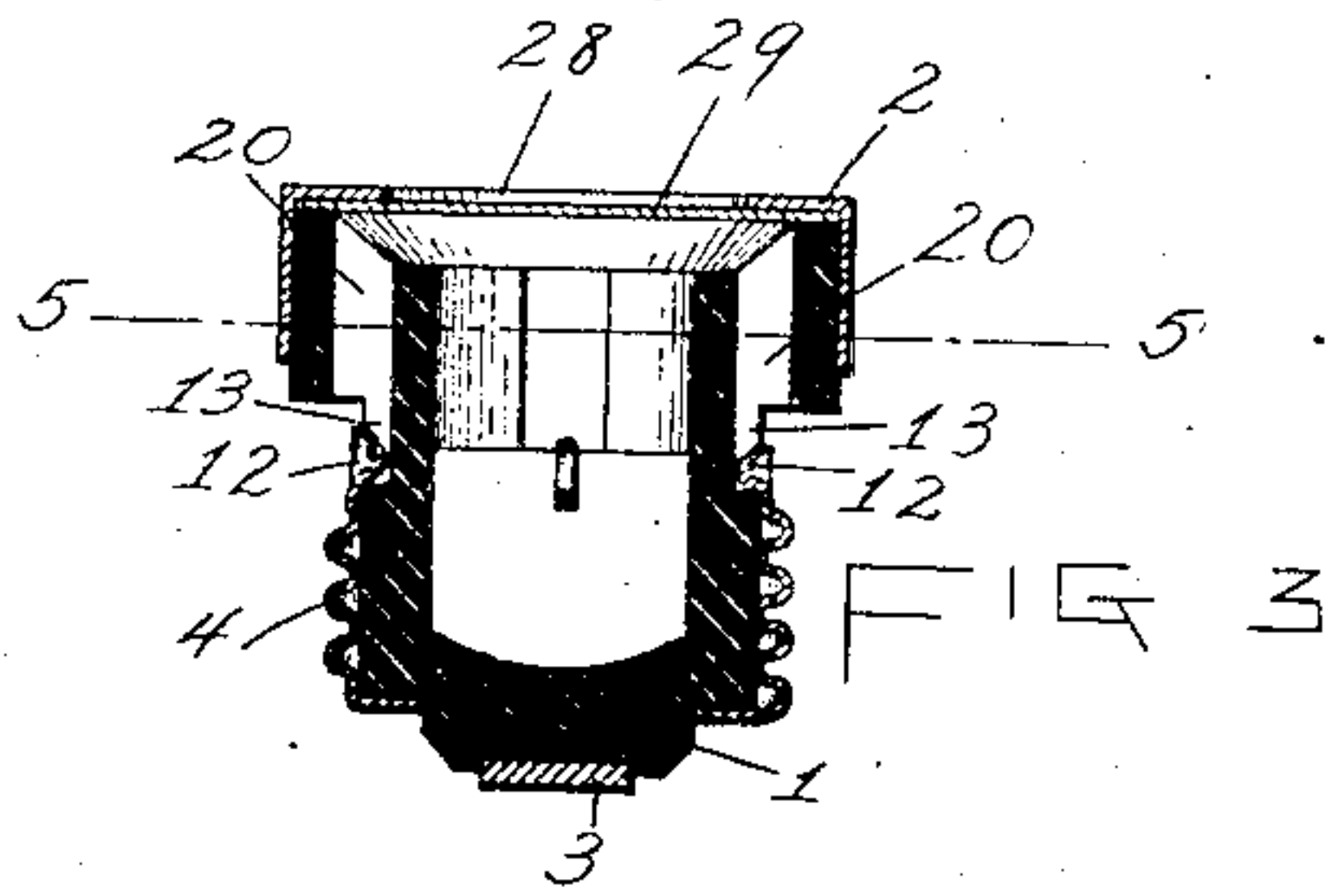
PATENTED MAR. 27, 1906.

A. WEBER, SR. & A. WEBER, JR.

FUSE PLUG.

APPLICATION FILED MAR. 8, 1904.

2 SHEETS—SHEET 1.



WITNESSES

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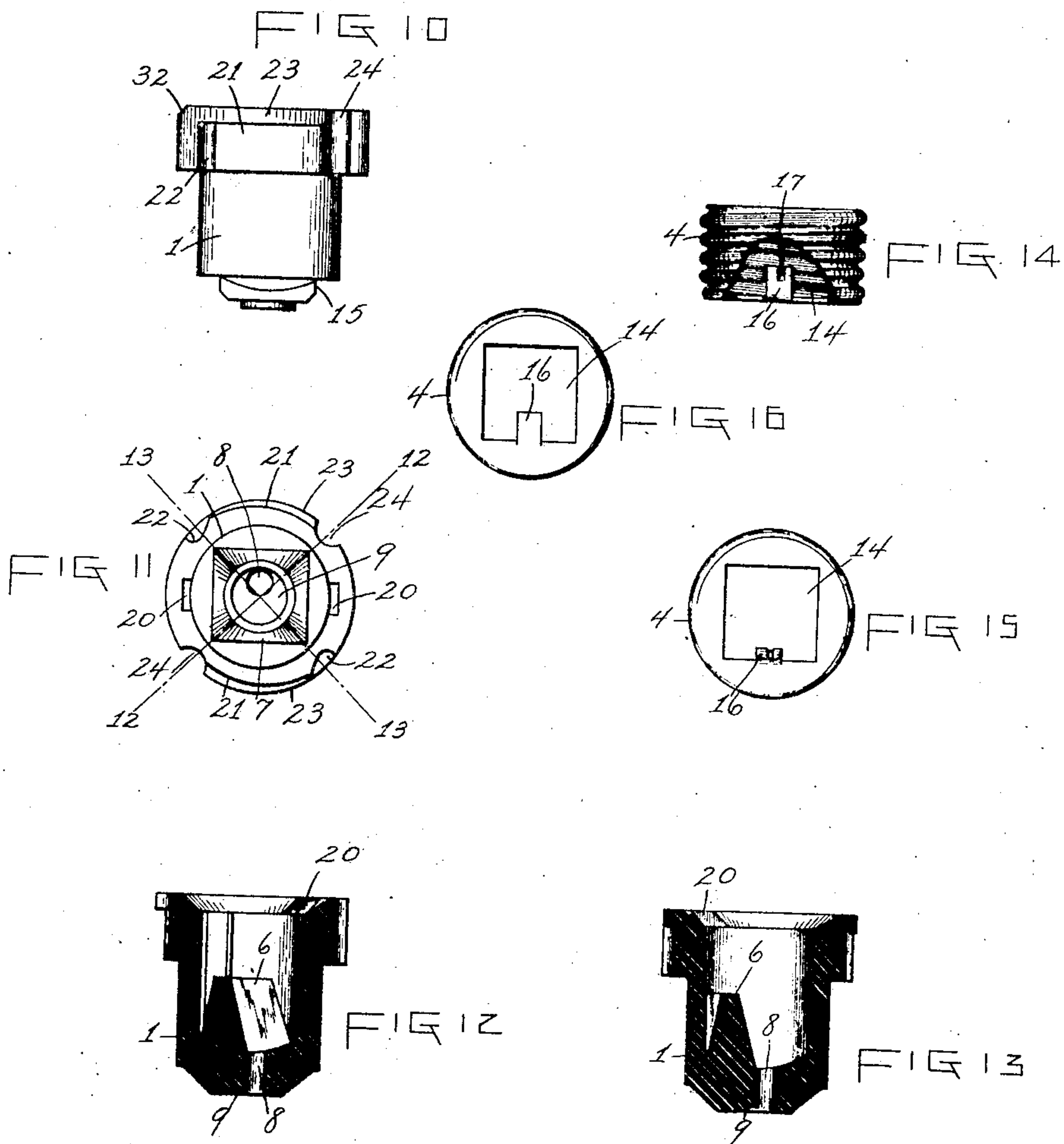
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2 SHEETS—SHEET 2.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

AUGUST WEBER, SR., AND AUGUST WEBER, JR., OF SCHENECTADY, NEW YORK; SAID WEBER, JR., ASSIGNOR TO SAID WEBER, SR.

## FUSE-PLUG.

No. 816,406.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed March 8, 1904. Serial No. 197,135.

*To all whom it may concern:*

Be it known that we, AUGUST WEBER, Sr., and AUGUST WEBER, Jr., citizens of the United States, residing at Schenectady, county of Schenectady, and State of New York, have invented certain new and useful Improvements in Fuse-Plugs, of which the following is a specification.

The invention relates to such improvements; and it consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings and the reference characters marked thereon, which form a part of this specification.

Similar characters refer to similar parts in the several figures.

Figure 1 is a plan view of the inner end of the improved fuse-plug. Fig. 2 is a plan view of the outer end of the same with the cap removed. Fig. 3 is a central vertical longitudinal section of the plug, taken on the broken line 3 3 in Fig. 1. Fig. 4 is a similar view taken on the broken line 4 4 in Fig. 1. Fig. 5 is a horizontal cross-section of the same, taken on the broken line 5 5 in Fig. 3. Fig. 6 is a plan view of the inner end of the cap. Fig. 7 is a side view of the same. Fig. 8 is a central vertical cross-section of the same, taken on the broken line 8 8 in Fig. 6. Fig. 9 is a similar view taken on the broken line 9 9 in Fig. 6, showing a modified form of cap. Fig. 10 is a view in side elevation of the insulating-base of the plug. Fig. 11 is a plan view of the inner end of the same. Fig. 12 is a central vertical longitudinal section of the same, taken on the broken line 12 12 in Fig. 11. Fig. 13 is a similar view, taken on the broken line 13 13 in Fig. 11. Fig. 14 is a side view of the screw-shell, partly broken away. Fig. 15 is a bottom plan view of the same as shown in Fig. 14. Fig. 16 is a similar view of the screw-shell in process of manufacture, illustrating the manner in which the integral connecting-tongue is formed.

The general objects of the invention are to facilitate the manufacture and increase the efficiency of fuse-plugs.

Specific objects of the invention will appear in connection with the following description.

Referring to the drawings, wherein the in-

vention is shown in its preferred form, the fuse-plug comprises a hollow base 1 of insulating material, having its outer open end closed by a cap 2, an exterior contact member 3 on its inner end, an inclosing screw-shell 4, adapted to connect with a suitable socket and to form the other contact member, and an inclosed fuse 5, connecting said contact members. The hollow base is preferably made of molded poreclain of general cylindrical form, with its inner end of somewhat smaller diameter than its outer end, and preferably has its cavity of greater diameter at the outer end than at the inner end.

Erected from the inner end of the base, integral therewith, is a partition 6, which extends across the contracted portion of the cavity, dividing the inner end thereof into two chambers or pockets. On opposite sides of said partition, near the foot thereof, are formed apertures 7 and 8, both preferably extending through the inner end wall of the base and in approximately the same plane perpendicular to the axis of the base. The inner end of the base is provided on its exterior with a depression 9, into which the aperture 8 opens eccentrically thereto. The exterior contact member 3 is seated in said depression 9, which it closely fits, and said contact member has a post 10 extending eccentrically therefrom through the eccentric aperture 8 into the cavity of the base on one side of the partition. The inner end of the post 10 is split and expanded, whereby it is secured to the base. The eccentric arrangement of the post and its aperture relatively to the contact member 3 and its depressed seat serves to prevent displacement of the contact member by rotative movement. The screw-shell 4, which forms the other exterior contact member, is adapted to receive the inner end of the base, upon which it is secured by inverting side portions 12 of the shell into side recesses 13, formed in the exterior of the base. By extending the partition 6 across the interior of the base in line with the respective side recesses 13 said partition serves to resist the inward thrust against the sides of the base, due to the forcing of the side portions 12 of the screw-shell into said recesses. In order to more securely lock the parts against rotative movement one upon the other, the screw-shell is preferably provided



in its end wall with an angular opening 14, adapted to receive a similarly-shaped angular exterior inner end 15 of the base. The screw-shell is also provided with a tongue 16, which extends through the aperture 7 into the cavity of the base on the opposite side of the partition from the post 10. The tongue 16 is formed of an integral portion of the end wall of the screw-shell in the manner illustrated in Figs. 15 and 16.

The fuse 5 extends over the partition 6 and is soldered or otherwise secured at one end to the split end of the post 10 and at its other end to the tongue 16, as shown in Fig. 4. To facilitate connecting the end of the fuse with said tongue, the end of the tongue is preferably grooved, as shown at 17, to receive the end of the fuse, which is preferably in the form of a wire. The two points of connection of the fuse with the contact members have a maximum distance of separation from each other, measured by the distance which must be traversed by a spark in passing from one to the other in the absence of the fuse, by reason of the fact that both said points of connection are located in approximately the same plane at the foot of and on opposite sides of said partition.

Both apertures 7 and 8, through which the circuit connections are made, being formed in the inner end wall of the base are located in use in the extreme inner end of the socket into which the plug is inserted, so that the escape of molten fuse metal is effectually prevented when the fuse is destroyed by an excessive current. If desired, the aperture 7 may be sealed by a deposit of plaster-of-paris, as shown at 18 in Fig. 4.

The partition 6 may be extended as far as desired; and the construction above described makes it possible to either secure by the extension of said partition without increasing the dimensions of the plug a greater distance of separation than has heretofore been possible between the points of connection of the fuse with the contact members or to materially reduce the dimensions of the plug by extending said partition only to a point such that it will afford substantially the same distance of separation between said points of connection as secured by prior devices.

Vent-openings are formed by extending recesses 20 remote from the fuse-connection apertures from the outer end of the base into the wall thereof until they intersect the side recesses 13, thereby forming a passage leading from the cavity of the base exteriorly thereof by a devious route, which affords means for the escape of gases under pressure due to the destruction of the fuse by an excessive current without permitting the escape of sparks or of molten fuse metal.

The outer end of the base, which is preferably of larger diameter than the inner end, is provided with a cam-shaped surface 21 and

adjacent to the higher end of the cam with a depressed seat 22, having on the outer side of the cam and seat an overhanging flange 23, which terminates at a recess 24, formed in the side of the base, extending from the lower portion of said cam through the outer end surface of the base. The cam 21, seat 22, flange 23, and recess 24 are preferably duplicated on opposite sides of the base. To adapt the cap 2 to connect with the base so formed, the side wall of the cap, which is preferably formed of sheet metal, is provided with a slit 26, extending along a circumferential line, and the edge portion of said cap-wall adjacent to said slit is indented to form a spring member or yielding boss 27 of a size and form adapted to freely enter the recess 24 and to occupy under compression the seat 22 on the base, the yielding nature of said member permitting it to ride upon the cam-surface 21 when a rotative movement is imparted to the cap relatively to the base. The same construction is preferably duplicated on opposite sides of the cap, adapting the same to make connection with the base at two diametrically opposite points. The cap is first applied by a telescoping movement to the base, the members 27 being in line with the respective recesses 24. The cap is then rotated upon the base, forcing the members 27 to ride upon the respective cams 21 until they pass the higher portions of said cams and enter the respective seats 22, wherein they are retained by reason of their resiliency, which prevents a reverse accidental rotative movement, without which the parts cannot be disconnected by reason of the overhanging flange 23. This manner of connecting the sheet-metal cap with a base of molded porcelain or similar material may be employed with advantage in constructions adapted for various uses. For convenience in inspecting the fuse from time to time the cap is preferably provided with a central aperture 28, closed by a disk of mica 29, secured within the cap. The disk of mica may be interposed between the end wall of the cap and the indented edge portions 26 thereof, as shown in Fig. 9, whereby escape of the disk from the cap is prevented, or the side wall of the cap may be provided with slits 30 in closer proximity to the end wall, having portions 31 of the wall adjacent to said slits on the outer side thereof introverted and the mica disk secured between the cut edges of said introverted portions and the end wall of the cap, as shown in Figs. 7 and 8. When the latter construction is employed, the outer edge of the base may be chamfered, as shown at 32, Fig. 10, to accommodate said introverted portions 31. In either case the disk is confined between the end wall of the cap and cut edges of introverted portions of the side wall of the cap, which construction may be advantageously



employed in various devices where it is desired to secure within a sheet-metal cap a disk of mica or other insulating material.

The construction of insulating-base herein shown and described is particularly adapted to be molded from porcelain and is so formed that it can be molded by the use of integral die members.

In the preferred form of our invention the base-cavity extends approximately to the inner end of the base, and the partition occupies the inner portion of such cavity within the screw-shell-inclosed portion of the base, whereby the same extent of base which is necessary for the mounting of the screw-shell is utilized for securing the necessary separation of the fuse connections. It is thus possible to secure the maximum distance of separation of such connections by means of the partition without increasing in any way the necessary dimensions of the plug.

What we claim as new, and desire to secure by Letters Patent, is—

1. In a fuse-plug and in combination, a screw-shell adapted to form one of the exterior contact members; a base of insulating material having its inner end inclosed and secured within said screw-shell and provided with a cavity extending from its outer end approximately to its inner end and having a partition erected from its inner end extending across the interior of its screw-shell-inclosed portion; a contact member mounted upon the exterior of the inner end of the base; and a fuse extending over said partition and connected with said contact members through apertures in said base, portions of said fuse occupying on opposite sides of said partition chambers respectively inclosed between said partition and outer screw-shell-inclosed portions of the wall of the base.

2. In a fuse-plug and in combination, a base of insulating material, and a screw-shell inclosing and secured upon the inner end of said base adapted to form one of the exterior contact members, said base being provided with a cavity extending approximately to its inner end and with a pair of apertures in its inner end and having a partition erected from its inner end extending between said apertures across the interior of its screw-shell-inclosed portion, and said screw-shell having a connecting member extending through one of said end apertures into said cavity on one side of said partition; an exterior contact member mounted upon the exterior of the inner end of the base having a connecting member extending through the other of said end apertures into said cavity on the other side of said partition; and a fuse extending over said partition connected at its opposite ends to said connecting members respectively.

3. In a fuse-plug and in combination, a hollow base of insulating material provided

with a pair of fuse-connection apertures and with an enlargement of its cavity at the outer end thereof and a ventilating-aperture remote from said fuse-connection apertures extending from said cavity enlargement longitudinally through and inclosed on all sides by the wall of the base and opening exteriorly at the side thereof; exterior contact members; a fuse within the base-cavity connected with said contact members through the fuse-connection apertures respectively; and a closure for the open end of the base.

4. In a fuse-plug and in combination, a hollow base of insulating material provided with a pair of fuse-connection apertures in its inner end wall and with an enlargement of its cavity at the outer end thereof, and a ventilating-aperture remote from said fuse-connection apertures extending from said cavity enlargement longitudinally through the wall of the base and opening exteriorly at the side thereof; a screw-shell inclosing said base adapted to form an exterior contact member and having an integral tongue formed by a displaced portion of its end wall projecting through one of said fuse-connection apertures in the end wall of the base; an exterior contact member mounted upon the inner end of the base having a connection member projecting through the other of said fuse-connection apertures; a fuse within the base-cavity connecting said tongue and connection member; and a closure for the outer end of the base.

5. In a fuse-plug and in combination, a hollow base of insulating material provided with a pair of fuse-connection apertures in its inner end wall and with an enlargement of its cavity at the outer end thereof, and a ventilating-aperture remote from said fuse-connection apertures extending from said cavity enlargement longitudinally through the wall of the base and opening exteriorly at the side thereof, and having a partition erected from its inner end wall extending transversely of the base-cavity between said fuse-connection apertures; a screw-shell inclosing said base adapted to form an exterior contact member and having an integral tongue formed by a displaced portion of its end wall projecting through one of said fuse-connection apertures in the end wall of the base; an exterior contact member mounted upon the inner end of the base having a connection member projecting through the other of said fuse-connection apertures; a fuse within the base-cavity connecting said tongue and connection member; and a closure for the outer end of the base.

6. In a fuse-plug and in combination, a hollow base of insulating material provided on its outer side with oppositely-located depressions and having a partition erected from its inner end wall extending transversely of the base-cavity approximately in



line with said depression; a screw-shell inclosing the base having side portions introverted into said side depressions therein; and a fuse extending over said partition and  
5 connected with exterior contact members.

7. In a fuse-plug and in combination a hollow base of insulating material having a plain cylindrical portion and an aperture in its inner end; of a screw-shell inclosing the plain  
10 cylindrical portion of the base and having an integral displaced portion of its end wall projecting through said aperture in the inner end of the base whereby rotative movement of the screw-shell on the base is prevented;  
15 and means for securing said screw-shell against longitudinal movement on the base.

8. In a fuse-plug and in combination a base of insulating material, and a screw-shell adapted to form one of the exterior contacts  
20 secured upon and inclosing the inner end of the base, said base being provided with a cavity extending approximately to its inner end and with a pair of apertures in its inner end and having a partition erected from its  
25 inner end extending between said apertures across the interior of its screw-shell-inclosed portion, and said screw-shell having an integral displaced portion of its end wall projecting through one of the end apertures in  
30 the base; an exterior contact insulated from said screw-shell having a connection member projecting through the other end aperture in the base; and a fuse extending over said partition connecting said connection  
35 member and displaced portion of the screw-shell.

9. In a fuse-plug, the combination with a hollow base of insulating material having a partition and apertures on opposite sides of  
40 said partition; of a contact member exteriorly mounted upon the inner end of the base having a post projecting through one of said apertures within the base; a screw-shell inclosing the base adapted to form the other  
45 contact member, and having an integral tongue formed by an introverted portion of its end wall extending through the other of said apertures within the base, and a fuse extending over said partition connected at its  
50 opposite ends to said tongue and post respectively.

10. In a fuse-plug, the combination with a hollow base of insulating material having an angular exterior inner end and side depressions; of a screw-shell inclosing said base provided in its end with an angular opening adapted to fit the angular portion of the base and having side portions introverted to occupy said side depressions.

60 11. In a device of the class described, the combination with a base of insulating material of general cylindrical form having an exterior cam-shaped surface; a depressed seat adjacent to the higher point of said cam;  
65 and a flange overhanging said seat on the

outer side thereof; of a cap adapted to receive the flanged end of said base, and having a spring member adapted to ride upon said cam by a rotative movement of the cap upon the base, and adapted to occupy said de- 70 pressed seat.

12. In a device of the class described, the combination with a base of insulating material of general cylindrical form having near one end an exterior cam-surface, a depressed  
75 seat adjacent to the higher portion of said cam; and a flange overhanging said depressed seat and cam-surface on the outer side thereof, and provided with a lateral recess extending from the lower portion of said  
80 cam-surface through the adjacent end surface of said base; of a cap adapted to receive said end of the base; said cap having a spring member adapted to be inserted through said recess by a telescoping movement and to ride  
85 upon said cam and occupy said depressed seat by a rotative movement of the cap.

13. In a device of the class described, the combination with a base of insulating material of general cylindrical form having near  
90 one end an exterior cam-surface, a depressed seat adjacent to the higher portion of said cam, and a flange overhanging said depressed seat and cam-surface on the outer side thereof, and provided with a lateral re- 95 cess extending from the lower portion of said cam-surface through the adjacent end surface of said base; of a sheet-metal cap adapted to receive said end of the base, said cap being provided with a slit in its side wall, and  
100 having an edge portion of said side wall adjacent to said slit indented to form a spring member adapted to be inserted through said recess by a telescoping movement, and to ride upon said cam and occupy said depressed  
105 seat by a rotative movement.

14. In a device of the class described, the combination with a sheet-metal cap having its side walls slitted and portions thereof adjacent to said slits introverted on the side op- 110 posite the end wall of the cap; of a disk of insulating material secured within said cap between the end wall thereof and the cut edges of said introverted portions.

15. In a device of the class described, the  
115 combination with a base of insulating material of general cylindrical form having on diametrically opposite sides thereof near one end an exterior cam-surface, a depressed seat adjacent to the higher portion of said cam, and a  
120 flange overhanging said depressed seat and cam-surface on the outer side thereof, and provided with lateral recesses extending from the lower portions of the respective cams through the adjacent end surface of said base; of a  
125 sheet-metal cap adapted to receive said end of the base, said cap being provided with an aperture in its end wall, and on diametrically opposite sides with a pair of slits in its side wall, and having edge portions of said wall adja- 130



cent to said slits indented to form spring members adapted to be inserted through said respective recesses by a telescoping movement, and to ride upon said respective  
5 cams and occupy said respective depressed seats by a rotative movement; and a transparent disk interposed between the end wall of the cap and the cut edges of said intro-  
verted side portions thereof.

10 16. In a fuse-plug and in combination, a hollow base of insulating material provided on its outer side with a depression and having

a partition erected from its inner end extending transversely of the base-cavity in line with said depression; and a screw-shell inclosing 15 the base having a side portion introverted into said side depression therein.

In testimony whereof we have hereunto set our hands this 2d day of March, 1904.

AUGUST WEBER, SR.

AUGUST WEBER, JR.

Witnesses:

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WALTER BRIGGS.