

E. B. MALLORY.
REFILLABLE CARTRIDGE FUSE.
APPLICATION FILED APR. 3, 1911.

994,413.

Patented June 6, 1911.

FIG. 1

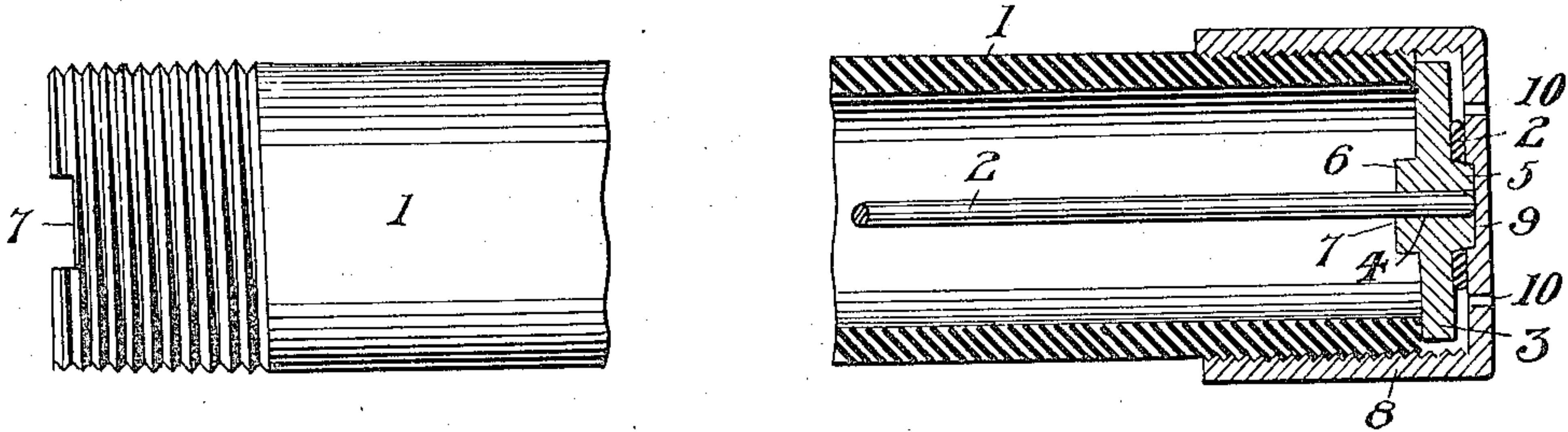


FIG. 2

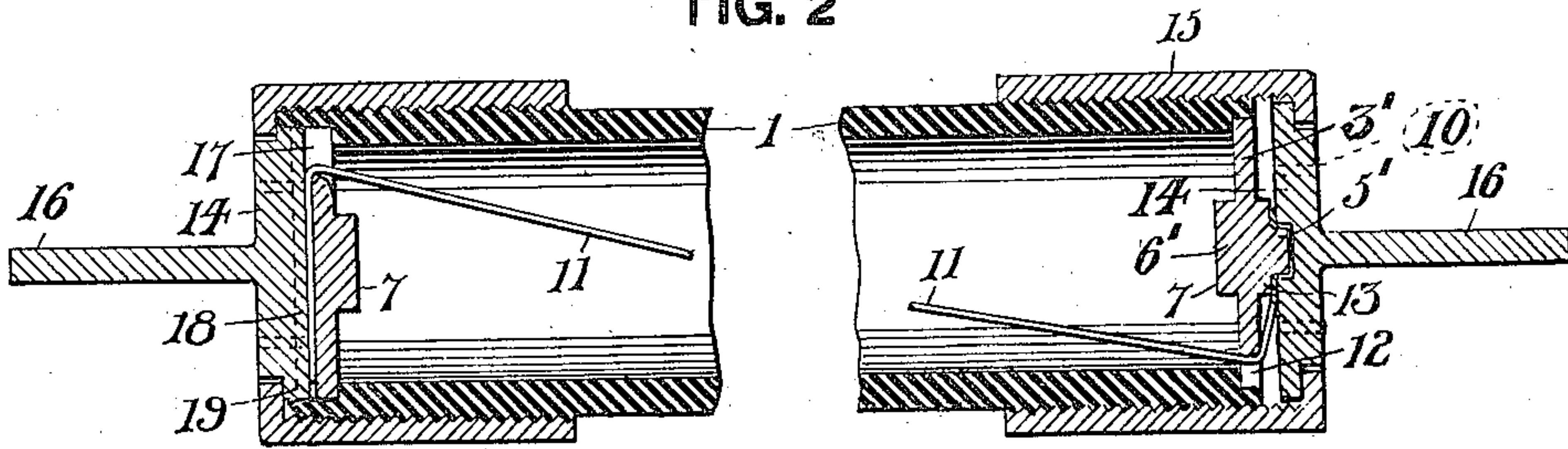


FIG. 3

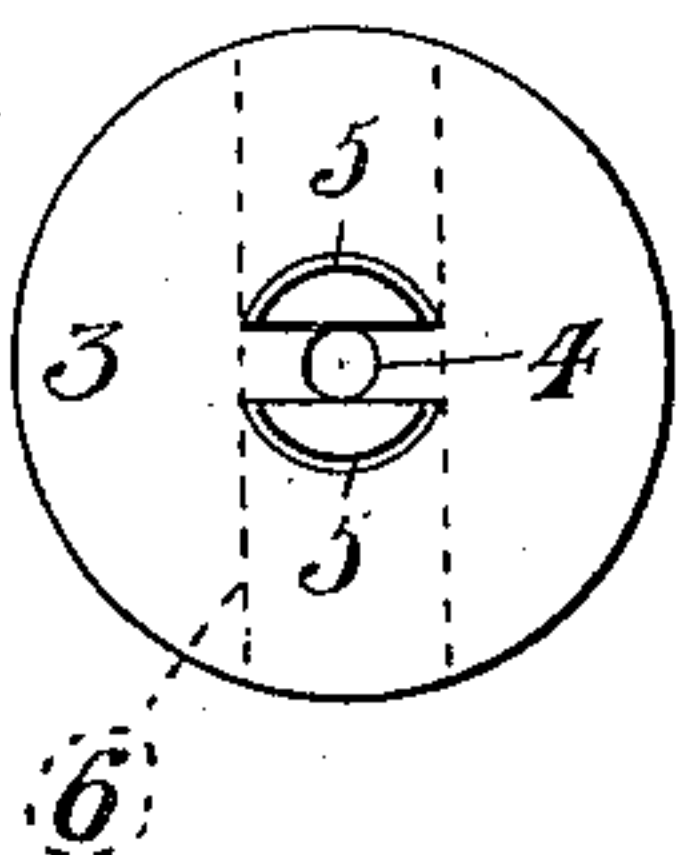


FIG. 4

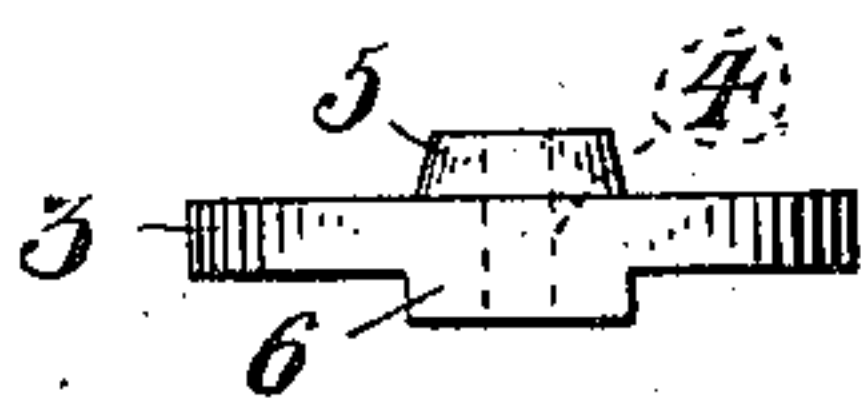


FIG. 7



FIG. 5

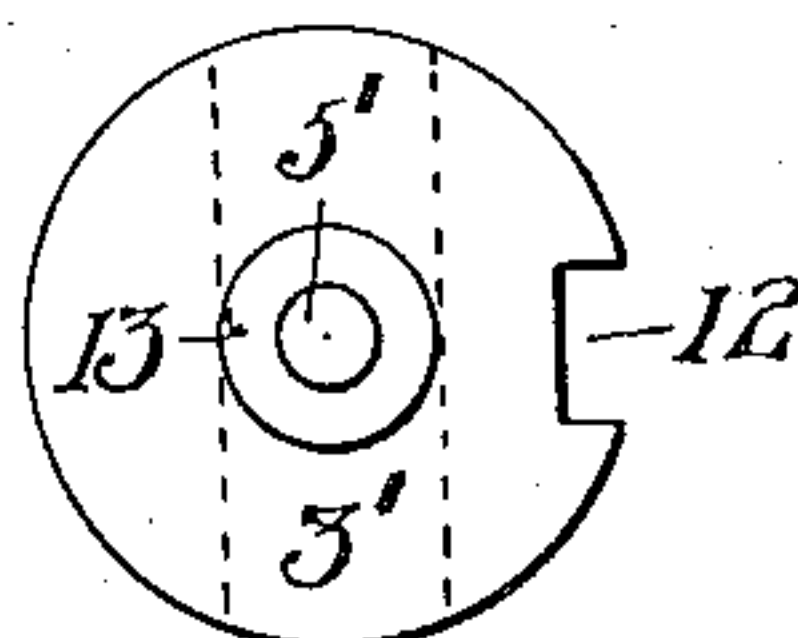


FIG. 6

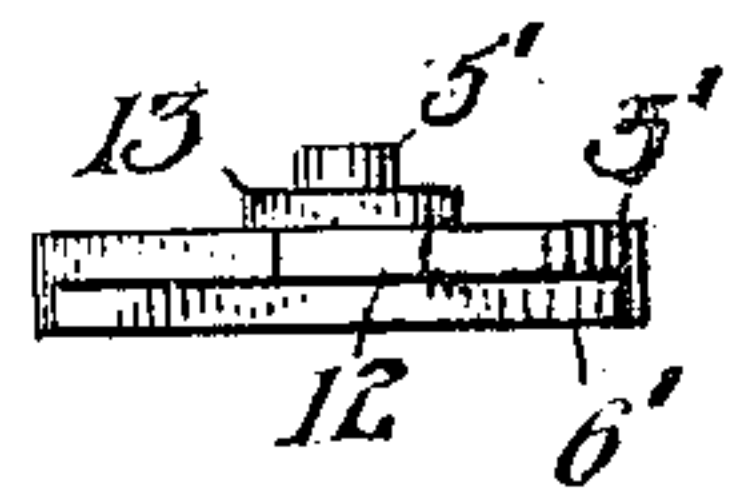


FIG. 11

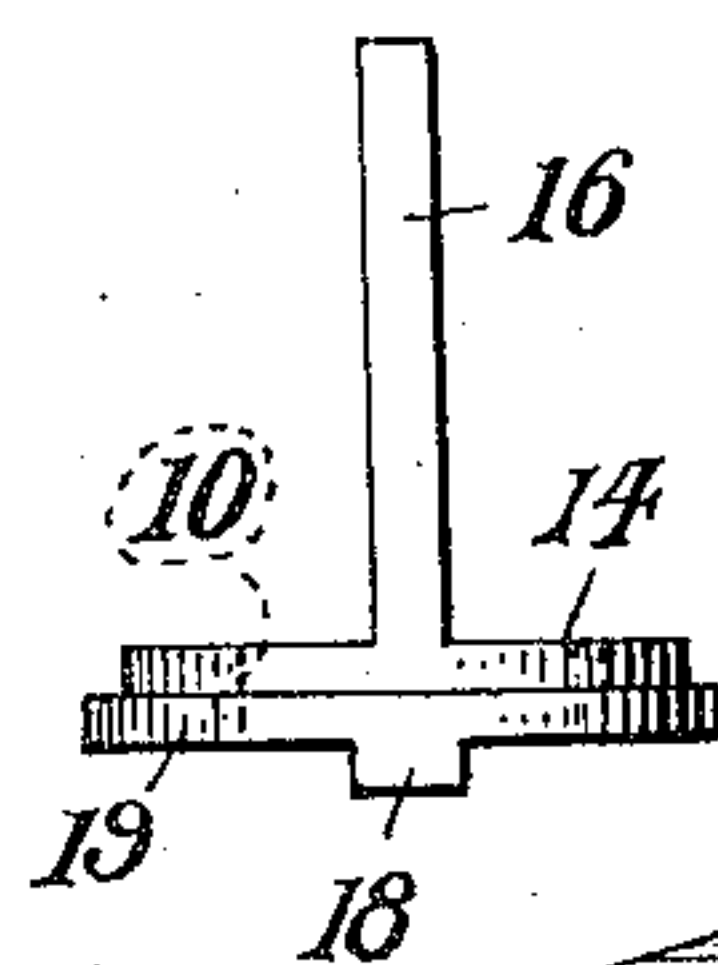


FIG. 8

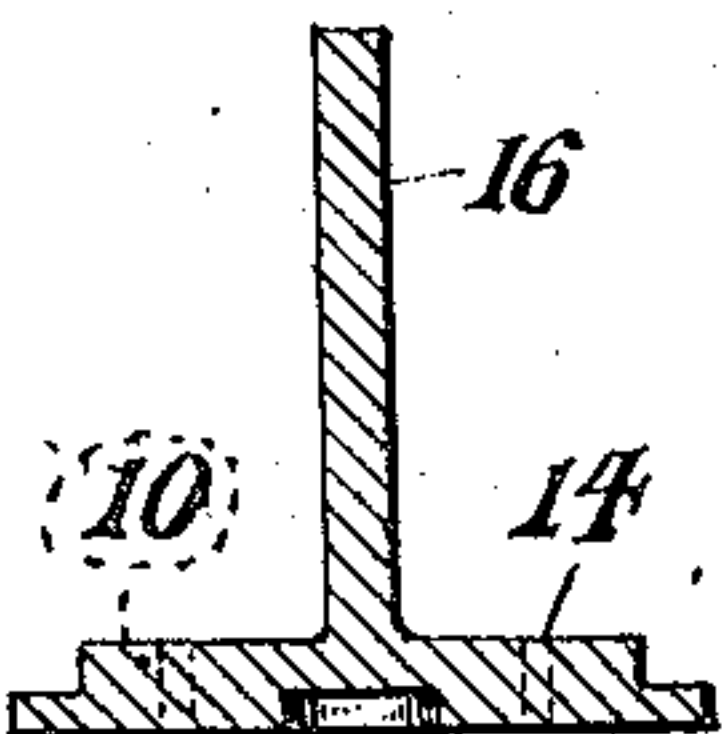


FIG. 9

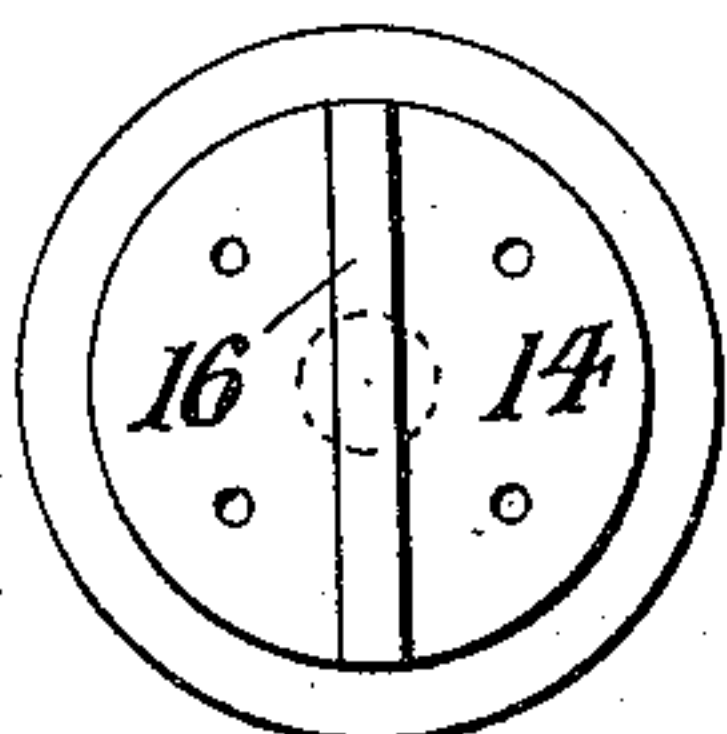


FIG. 10

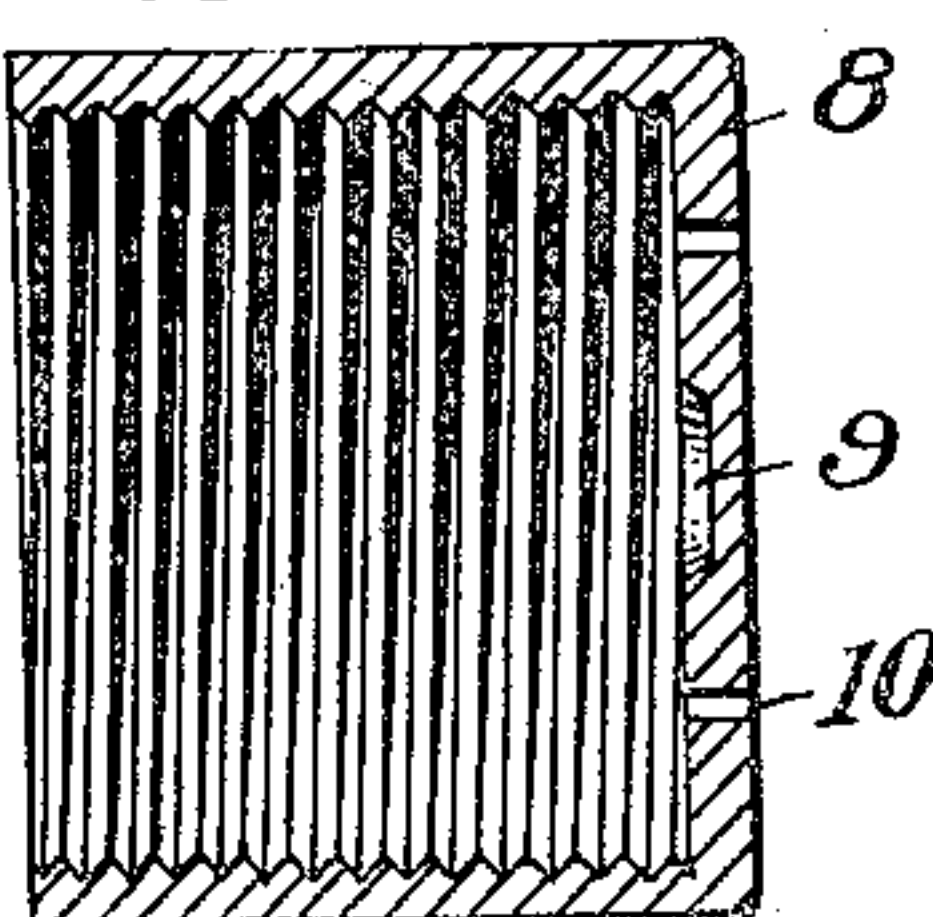
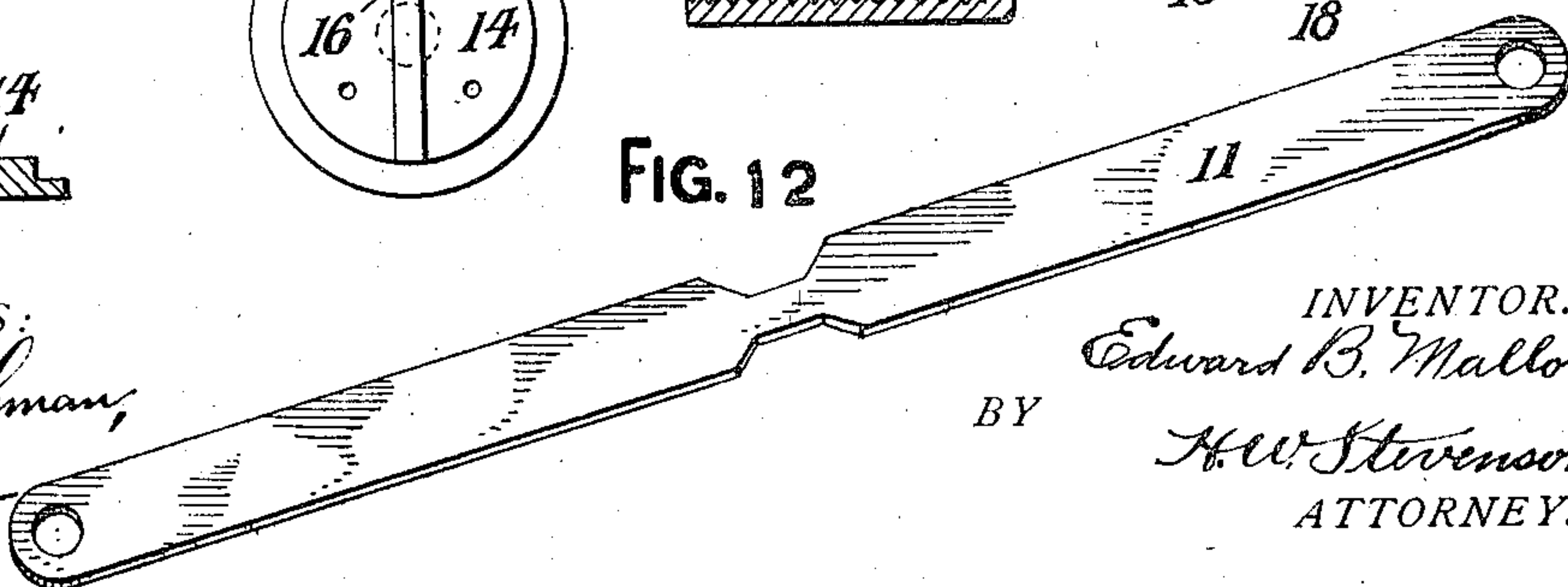


FIG. 12



WITNESSES:

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UNITED STATES PATENT OFFICE

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REFILLABLE CARTRIDGE-FUSE.

994,413.

Specification of Letters Patent.

Patented June 6, 1911.

Application filed April 3, 1911. Serial No. 618,687.

To all whom it may concern:

Be it known that I, EDWARD B. MALLORY, a citizen of the United States, residing at Wilksburg, in the county of Allegheny and State of Pennsylvania, have invented a certain new and useful Improvement in Refillable Cartridge-Fuses, of which the following is a specification.

My invention pertains to refillable cartridge-fuses of the electrical class which are capable of being recharged when the fuse burns out, and which can be repeatedly used by simply inserting a new fuse.

The primary object of my invention involves the construction of a rechargeable cartridge-fuse in which the vital and necessary function of good electrical and mechanical contact is obtained between the removable fuse and end pieces which serve to securely retain the fuse in position without cutting or distorting the same.

Still another object entering into the construction of my invention is its ready adaptation for the use of either round or strap fuses to accommodate either high or low current.

In the accompanying drawing I have illustrated the detail construction of my invention wherein I show its adaptation to both the round and strap fuses, Figure 1 being a longitudinal and part sectional view of a cartridge equipped with a round fuse; Fig. 2 shows a similar view of a cartridge adapted for a strap fuse, illustrating two methods of contacting the removable end pieces with the fuse; Fig. 3 is a top plan view of the round fuse retaining plug member shown in Fig. 1, and Fig. 4 shows a side view of the same member; Fig. 5 is a top plan view of the strap fuse retaining plug member shown on the right of Fig. 2, and Fig. 6 shows a side view of the same; Fig. 7 is a side view of the modified form of strap fuse retaining plug shown at the left side of Fig. 2; Fig. 8 is a vertical section of the blade carrying and contacting member shown at the right in Fig. 2, and Fig. 9 is a top plan view of the same; Fig. 10 is a longitudinal section of the screw cap member shown in Fig. 1; Fig. 11 shows a modified form of blade carrying and contacting member used at the left side of the cartridge, Fig. 2, and Fig. 12 shows one of the recognized forms of strap fuses.

Throughout the respective views the numeral 1 designates the cartridge shell or

body portion, which is constructed of any suitable non-conducting material, and having exteriorly threaded end portions.

For retaining the round fuse 2, shown in Fig. 1, I prefer utilizing the form of securing plug shown in Fig. 3, and designated by the numeral 3. This said member is provided with a central aperture 4, for the reception of the end section of said fuse, said aperture being of a diameter corresponding with the size of the fuse, also with one or more projecting lug portions 5 surrounding said aperture, around which the fuse is wrapped, and of a height corresponding to the diameter of the fuse. On the opposite face of said plug 3 is a flanged portion 6, which, when the said member 3 is in its holding position, seats in notches 7 formed in the extreme end sections of the cartridge. This construction serves as one means for locking said member 3 in holding position, and prevents it from turning in order that the fuse will not twist or become distorted when the final securing medium is brought into service.

An interiorly threaded cap member 8, provided with an interiorly positioned counter-sunk portion 9 for receiving the lugs 5 when said cap is screwed into holding position, also with one or more vents 10, serves as a positive contact piece with the fuse 2. The counter-sink 9, acting in conjunction with the raised portions 5 formed on the plug 3, serves to limit the amount of pressure which can be applied to the fuse 2, preventing cutting or mashing the fuse more than a pre-determined amount.

In the adaptation of my device for a strap fuse and blade contact incidental to its utility where a high current is used, a slightly modified construction from that just described is provided for in the form shown in Fig. 2, wherein the same form of cartridge shell is used, but involving certain alterations in the fuse retaining members as follows: In this form I dispense with the central aperture 4 in the securing plug 3, and bring the end of the strap fuse 11 through a suitable sized notch 12 cut in or adjacent to the edge of the said member 3, after which I bend said fuse and loop the apertured end thereof over the central post 5', seating same on the bearing 13. This form of securing plug also carries the integrally formed flange 6' to engage in the notched portion 7 of the shell. The blade

carrying member 14, which may be of the preferred form shown in Fig. 7, or else the modified construction shown in Fig. 11, engages against the said member 3 and serves, when held by the screw cap 15, to securely retain the end of said strap fuse and blades 16 in central alinement with each other.

At the left side of the shell, shown in Fig. 7, is illustrated a modified form of strap fuse securing means, which involves a groove 17 in the outer face of the member 3, to receive the end of said strap fuse, on top of which will contact the flange portion 18 formed on the blade carrying member 14, said flange 18 being of such depth that when pressed into the groove 17 by the action of the screw sleeve 15, will only compress the fuse a predetermined amount when the surfaces 19 and 20 of the respective members engage with one another. The plug 3 having flange 6 and lugs 5, suitably arranged, acting in conjunction with notches 7 in the tube 1, provides a means for holding a fuse in fixed position, and enables the screw cap 8, when brought into engagement with the fuse, to brighten the contacting portions of the said fuse and cap, making it unnecessary to clean either the fuse or cap, other than by the means described, in order to insure good electrical contact.

It will thus readily be apparent from the foregoing description that either form of round or strap fuse can be securely held at both ends by the means shown, and when burned out can quickly be replaced by a new fuse and the cartridge be as good as new, also providing a means for holding the fuse in positive contact with the end members, and preventing any cutting or mashing of said fuse regardless of the amount of pressure applied to the binding members.

What I claim as new is:

1. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end portions, of plug members seated at the ends of said body; means formed on said plugs, cooperating with a recess in said body, for holding said plugs in fixed position; an aperture in said plugs for the reception of the fuse; lugs centrally carried by the plugs; and screw cap members seated over and contacting with the said lugs and fuse.

2. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end portions, of plug members seated at the ends of said body; flanged means formed on said plugs for engagement in recesses in the ends of said body to act as a retaining means for said plugs; an aperture in said plugs for the reception of the fuse; lugs on said plugs to position said fuse for contact; and counter-sunk screw cap members seated over and contacting with said lugs and fuse.

3. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end portions, of plug members seated at the ends of said body; flanged means formed on said plugs for engagement in suitable recesses in the ends of said body; an aperture in said plugs for the reception of the fuse; lugs on said plugs of a height corresponding with the diameter of the fuse; and screw cap members having a countersunk portion to receive said lugs and limit the pressure applied to the fuse.

4. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end portions, of plug members seated at the ends of said body; flanged means formed on said plugs for engagement in suitable recesses in the ends of said body; an aperture in said plugs for the reception of the fuse; lugs on said plugs located near the aperture of a height sufficient to prevent distortion of the fuse at the aperture; and counter-sunk screw cap members engaging over said lugs and contacting with the fuse.

5. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end portions, of plug members seated at the ends of said body; flanged means formed on said plugs for engagement in suitable recesses in the ends of said body; an aperture in said plugs for the reception of the fuse; lugs on said plugs for positioning the fuse, of a height sufficient to prevent distortion of said fuse where it emerges from the aperture; and counter-sunk screw cap members engaging over said lugs and contacting with the fuse adapted, when being screwed into position, to cause a brightening of the fuse and cap at points of electrical contact.

6. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end portions, of plug members seated at the ends of said body; flanged means formed on said plugs for engagement in suitable recesses in the ends of said body; an aperture in said plugs for the reception of the fuse; a centralized lug on the plugs for positioning the fuse; blade carrying elements for contact over the said lugs and against the fuse; and screw cap members for engagement over the said elements and with the body portion to press the said blade carrying elements against the fuse and obtain positive electrical contact.

7. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end portions, of plug members seated at the ends of said body; flanged means formed on said plugs for engagement in suitable recesses in the ends of said body; a circumferentially

disposed aperture in each plug for the reception of the fuse; a lug central of the plugs involving a bearing surface for positioning the fuse; blade carrying elements, 5 involving an inner counter-sunk portion, for contact over said lugs and against the fuse; and screw cap members for engagement over the said elements and with the body portion to press the said blade carrying elements against the fuse and obtain positive 10 electrical contact.

8. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end 15 portions, of plug members seated at the ends of said body; flanged means formed on said plugs for engagement in suitable recesses in the ends of said body; a circumferentially disposed aperture in each plug for the reception of the fuse; a groove in the outer 20 face of each plug to receive the fuse; blade carrying elements involving an inner flange for contact in the groove portion of said plugs and against the fuse; and screw cap members for engagement over the said elements and with the body portion to press 25 the blade carrying elements against the fuse and obtain positive electrical contact.

9. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end 30 portions, of plug members seated at the ends of said body; flanged means formed on said plugs for engagement in suitable recesses in the ends of said body; a circumferentially disposed aperture in each plug for the recep-

tion of the fuse; a groove in the outer face of each plug to receive the fuse; blade carrying elements involving an inner flange for contact in the groove portion of said plugs 40 and against the fuse, said flange and groove cooperating to limit the pressure against said fuse; and screw cap members for engagement over the blade carrying elements and with the body portion to press said elements against the fuse and obtain good electrical contact. 45

10. In a cartridge-fuse of the class described the combination with a hollow insulating body having exteriorly threaded end 50 portions, of plug members seated at the ends of said body; flanged means formed on said plugs for engagement in suitable recesses in the ends of said body; a circumferentially disposed aperture in each plug for the reception of the fuse; a groove in the outer 55 face of each plug to receive the fuse; blade carrying elements involving an inner flange adapted to engage in the recesses at the ends of said body; also in the grooved portion of said plugs and against the fuse; and screw cap members for engagement over the blade carrying elements and with the body portion to press said elements against the fuse and obtain positive electrical contact. 60

In testimony whereof, I hereunto affix my signature in the presence of two witnesses. 65

EDWARD B. MALLORY.

Witnesses:

A. E. FORTLAGE,
W. G. NEYLEY.