

No. 894,420.

PATENTED JULY 28, 1908.

R. E. BERTHOLD.

SELF IGNITER.

APPLICATION FILED MAR. 12, 1908.

FIG. 1.

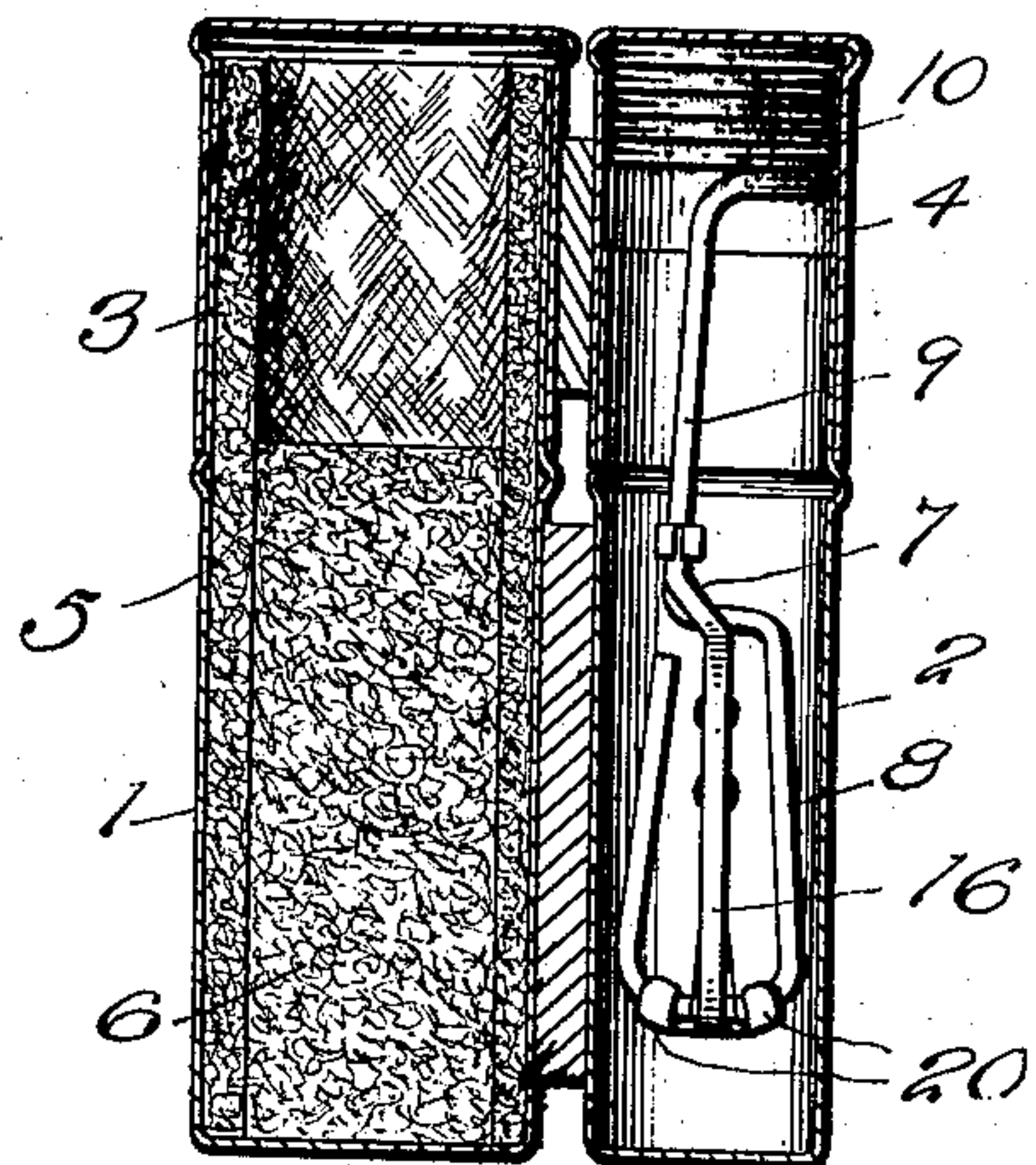


FIG. 2.

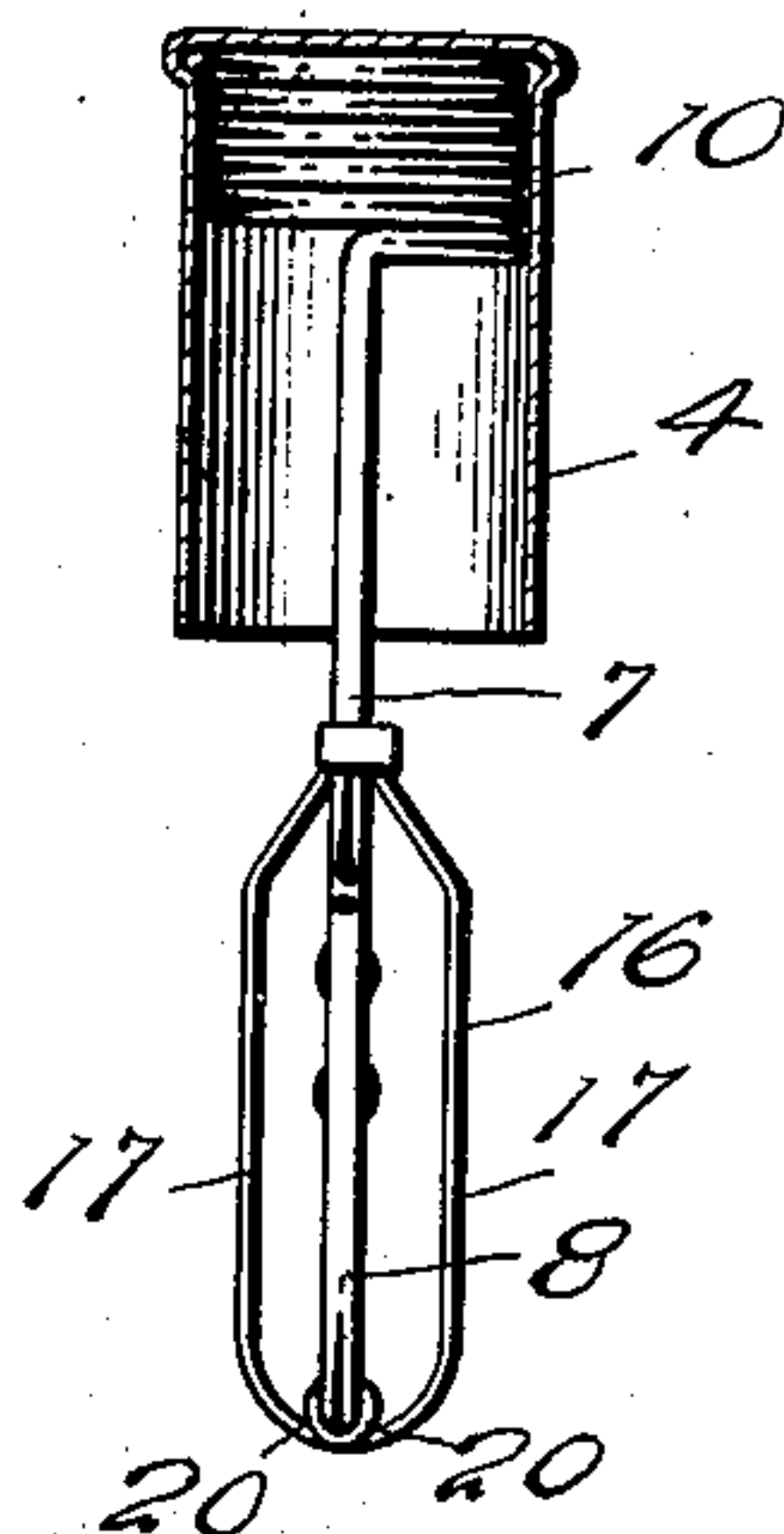


FIG. 3.

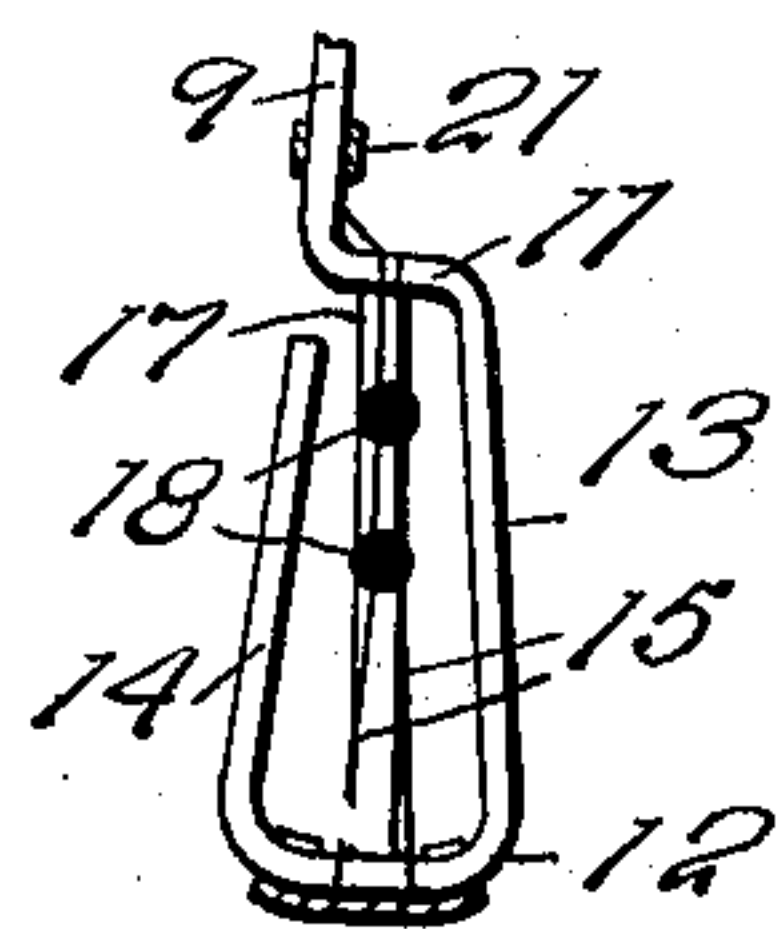
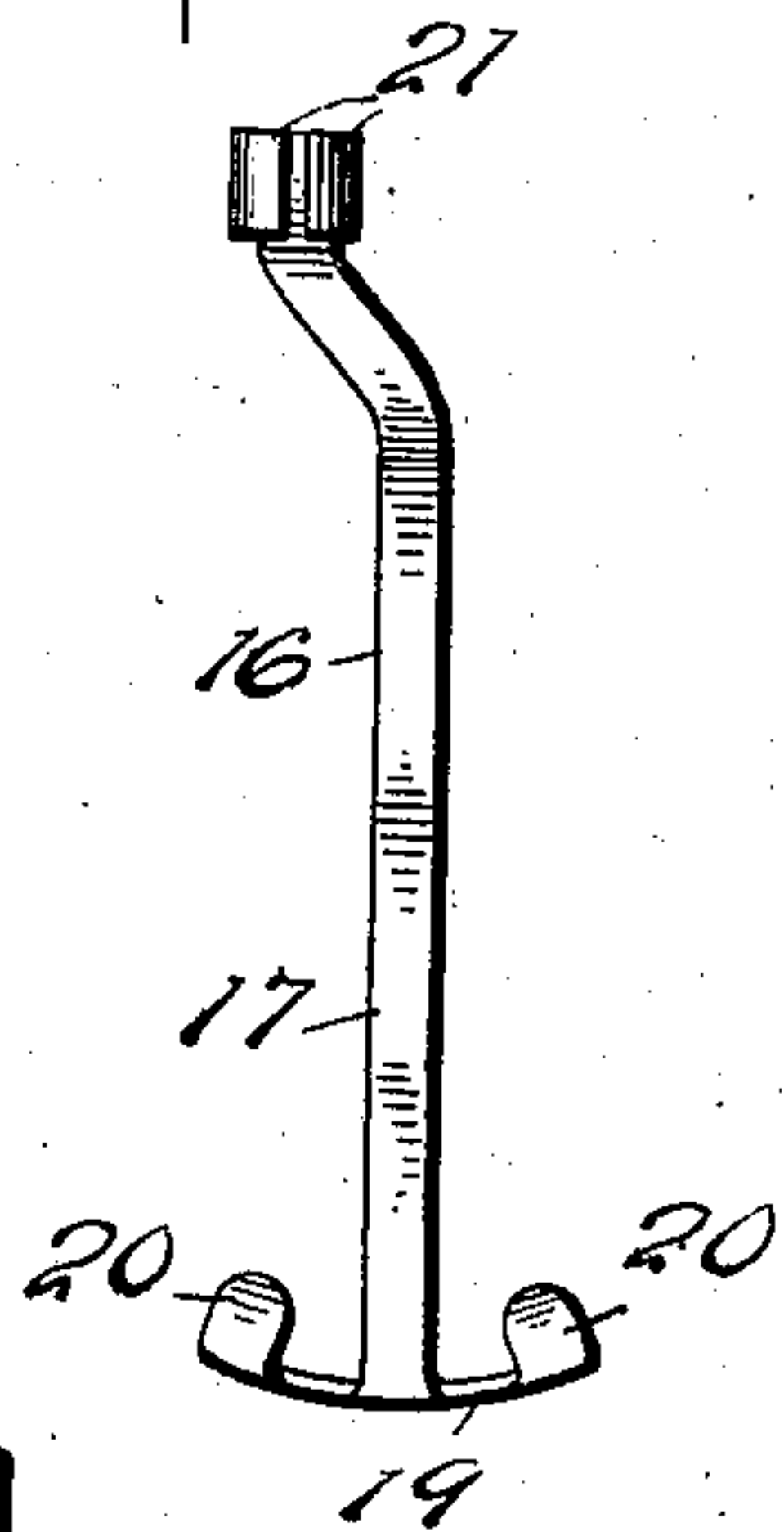
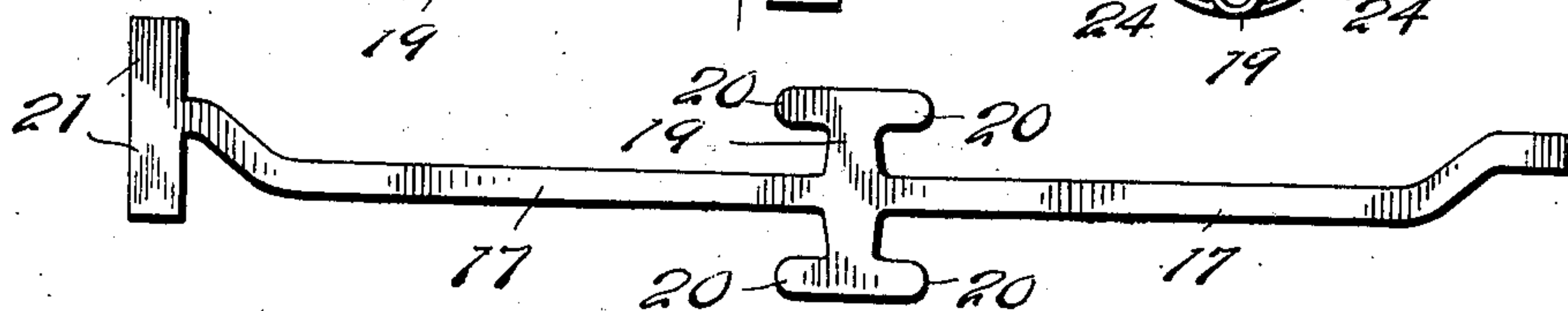
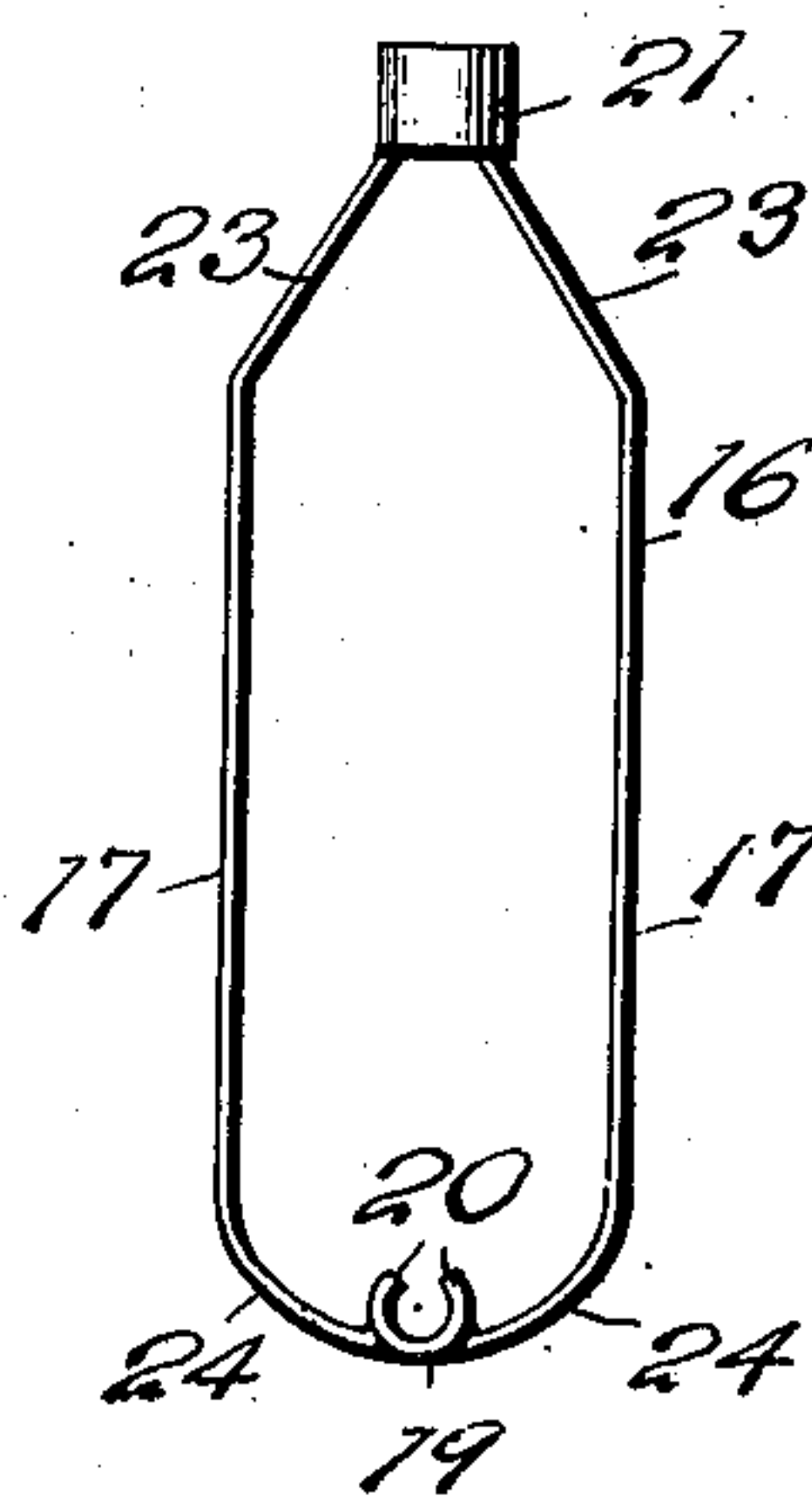


FIG. 5.

FIG. 6.

FIG. 4.



Witnesses:  
G. Robert Thomas  
W. P. Preble Jr

Inventor:  
Richard E. Berthold  
By Attorney:  
J. A. Vandenberg



# UNITED STATES PATENT OFFICE.

RICHARD E. BERTHOLD, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO AUTO IGNITER COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## SELF-IGNITER.

No. 894,420.

Specification of Letters Patent.

Patented July 28, 1908.

Application filed March 12, 1908. Serial No. 420,692.

*To all whom it may concern:*

Be it known that I, RICHARD E. BERTHOLD, a citizen of the United States of America, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Self-Igniters, of which the following is a specification.

This invention relates to improvements in self-igniters comprising a receptacle adapted to be carried in the pocket and to contain an inflammable vapor producing substance, a closure for the receptacle, a material capable of catalytic action when brought in contact with such vapor and sufficient quantities of air, and a dipping frame supporting said material and by means of which it may be introduced into and removed from the receptacle.

The object of this invention is to provide an adequate guard or protector for the catalytic igniting element or elements carried by this dipping frame, which will not materially retard the rapidity of ignition. The igniting elements consist of fine wires, preferably platinum, which act as secondary igniters or heat conductors, and a primary igniter, secured to these wires, in the nature of a button or buttons of a material capable of an igniting action upon the inflammable vapors that is termed catalytic. These buttons may be, and preferably are, of platinum black, platinum sponge, or other spongy or porous form or compound of platinum, but may be of any other desired material that is capable of the desired catalytic action. These wires, or a single wire, are wound or stretched between opposite members of a supporting frame, and carry the button or buttons alluded to within this frame. The igniting elements mounted upon the frame in this manner are obviously very much exposed; and, the wires necessarily being delicate, breakage frequently occurs in the absence of a proper guard. Moreover, the buttons are liable to deterioration through contact with the fingers of the user of the device. In devising an operative form of guard I have experienced considerable difficulty in producing one that would sufficiently supplement the supporting frame in protecting the igniting elements, and, at the same time, not be of such bulk as unduly to restrict the air space within the receptacle, (the efficiency of the device depending very largely upon the size of this air space), or of such character as to absorb much of the heat

generated within the igniting elements, thereby greatly retarding or preventing the ignition. The result of my investigations has demonstrated that the essentials of a proper guard are comparatively narrow guard arms disposed at front and rear of the open space inclosed by the dipping frame, in general parallelism with and directly opposite the wires; and broadly this phase of the invention consists in such a guard for attachment to the dipping frame.

From another point of view, the invention may be said to consist in a cage containing the wires and buttons and comprising two frames occupying planes substantially at right angles to each other; one being the supporting frame and the other the guard frame.

Another object of the invention is to provide improved means for securing the dipping frame for the igniting elements to a closure such as illustrated in my Patent Number 865,755, dated Sept. 10, 1907. This part of the invention consists in a spiral provided at the top of the stem from which depends the dipping frame; this spiral or helix being adapted to fit snugly and removably within the slip closure.

The several phases of the invention will be more readily comprehended as the specification proceeds, reference being had to the accompanying drawings, in which

Figure 1 is a longitudinal section through an igniter embodying the invention, Fig. 2 is an elevation of the dipping frame and guard taken at right angles to Fig. 1, the portion of the closure to which the dipping frame is attached being shown in section; Figs. 3 and 4 are side elevations, taken at right angles to each other, of the guard, Fig. 5 is a plan view of the blank from which the guard may be made, and Fig. 6 is a view of the dipping frame showing more particularly the wires and buttons.

The present improvements are shown in connection with the form of igniter shown in my aforementioned Patent Number 865,755 of Sept. 10, 1907, but are not limited in their applicability to this particular style. As in that patent there are shown two chambers or tubes 1 and 2, united side by side. For closing these chambers are slip closures 3 and 4, also united side by side, so as to be removable simultaneously. Chamber 1 is adapted to contain the com-



bustible vapor producing substance, being fitted for this purpose by reason of a tubular wick 5 that fits the interior of the chamber, and a solid cylindrical wick 6 that fills the lower part of wick 5. These wicks are of any suitable porous material, such as asbestos or cotton, capable of absorbing and retaining a volatile inflammable liquid, as methyl alcohol.

Chamber 2 is intended normally to retain the igniting elements, forming part of the igniting member 7, which depends from the closure 4. This member 7 comprises the dipping frame 8, the shank or stem 9, and the spiral or helix 10. The whole member is advantageously bent out of a single length of stout wire; the upper portion of the wire being coiled to form the helix 10, the intermediate portion of the wire being left substantially straight and constituting the stem 9, and the lower portion being bent to form the frame 8.

As will be seen, the helix 10 is of such size as to fit snugly but removably within the closure 4; thus permitting the member 7 to be replaced and at the same time insuring that it will be firmly secured to the closure 4.

The frame 8 is preferably vertically elongated, and comprises top and bottom members 11 and 12 and side members 13 and 14. The fine platinum wires 15 are stretched between the members 11 and 12, and carry one or more balls or buttons 18 of platinum black or the like. The guard 16 comprises a pair of arms 17, which are narrow in comparison with the width of the space inclosed by the frame 8, and are disposed longitudinally and substantially centrally of this space in front and rear thereof. The arms 17 are, thus, in general parallelism with the wires 15 and directly opposite the same and the buttons 18. These arms are preferably secured at their lower ends to the bottom member 12 of the frame, and at their upper ends to the shank or stem 9; but other modes of attachment may be resorted to. In the construction illustrated, the arms 17 are integral at their lower ends with a short transverse bar 19, which is provided at each end with a pair of lugs 20. These two pairs of lugs are bent partly around the member 12 of the frame at opposite sides of the wires 15. The upper end of one arm 17 lies against the stem 9; while the upper end of the other arm 17 is provided with a pair of lugs 21, which are bent around the stem 9 and the upper end of the first arm 17. As indicated in Fig. 5, the guard is most simply and cheaply made from an integral flat blank of flexible metal. As clearly shown in Figs. 2 and 4, the arms 17 are spaced at some distance from the wires 15 and buttons 18 by being bent outward at top and bottom, as at 23 and 24.

It will be seen that the whole guard is comparatively small, and that the arms 17, while narrow, constitute efficient protectors for the exposed sides of the wires 15 and buttons 18. Constructed in this way, the arms 17 do not materially restrict the air space within the combustion chamber 1, when the igniter member 7 is dipped therein; nor do they absorb sufficient heat materially to retard the ignition. It will further be recognized that the guard 16 constitutes, in effect, a frame disposed at right angles to the dipping frame 8, and that the two together constitute a cage for containing and supporting the igniting elements.

In conclusion, while I have particularly described the preferred embodiment of the present improvements, I wish it to be understood that the particular form of igniter to which these improvements are applied is immaterial and that the improvements themselves may take different structural embodiments without exceeding the limits of the invention, as defined at the outset of the specification and set forth in the appended claims.

What I claim as new is:

1. In a self-igniter, the combination with a receptacle adapted to contain an inflammable vapor producing substance, a closure for said receptacle, and an igniting member adapted to be dipped within said receptacle to produce a flame, said member comprising a frame, fine wires stretched between the members of said frame, and a button carried by the wires of a material capable of catalytic igniting action on inflammable vapor, of a guard connected with said frame and comprising narrow arms disposed at front and rear of the open space inclosed by the frame, in general parallelism with and directly opposite said wires.

2. In a self-igniter, the combination with a receptacle adapted to contain an inflammable vapor producing substance, a closure for said receptacle, and an igniting member adapted to be dipped within said receptacle to produce a flame, said member comprising an elongated frame and catalytic igniting elements carried by said frame, of a guard connected with said frame and comprising narrow arms disposed longitudinally and substantially centrally in front and rear of the open space inclosed by the frame.

3. In a self-igniter, the combination with a receptacle adapted to contain an inflammable vapor producing substance, a closure for said receptacle, and an igniting member adapted to be dipped within said receptacle to produce a flame, said member comprising a shank, a frame carried at the end of said shank and comprising side members and a bottom member, fine wires stretched longitudinally of said frame, and a button carried by said wires of a material capable of catalytic action on inflammable vapor, of a



guard comprising narrow arms disposed longitudinally at opposite sides of said wires and button, and fastening means connecting said arms at one end to the shank and at the other  
5 end to the bottom frame member.

4. In a self-igniter, the combination with a receptacle adapted to contain an inflammable vapor producing substance, a closure for the receptacle, and an igniting member  
10 adapted to be dipped within said receptacle to produce a flame, said member comprising an elongated frame having side members and a bottom member, and catalytic igniting elements carried by said frame, of a guard for  
15 said elements comprising arms disposed longitudinally at front and rear of the space enclosed by said frame, a cross bar integral with the lower ends of said arms and having lugs clasping the bottom member of said frame,

and means for securing the upper ends of the 20 arms.

5. In a self-igniter, the combination of a receptacle adapted to contain an inflammable vapor producing substance, and an igniting member adapted to be inserted in 25 said receptacle and comprising a frame carrying elements adapted to have a catalytic igniting action on inflammable vapor, and a helix or coil connected with said frame, together with a cap or slip closure within which 30 said helix fits frictionally.

Signed at New York, N. Y. this 11 day of March 1908.

RICHARD E. BERTHOLD.

Witnesses:

J. F. BRANDENBURG,  
W. P. PREBLE, Jr.