No. 859,728. PATENTED JULY 9, 1907.

R. E. BERTHOLD.

SELF IGNITER.

APPLICATION FILED AUG. 12, 1905.

Fig. 1.

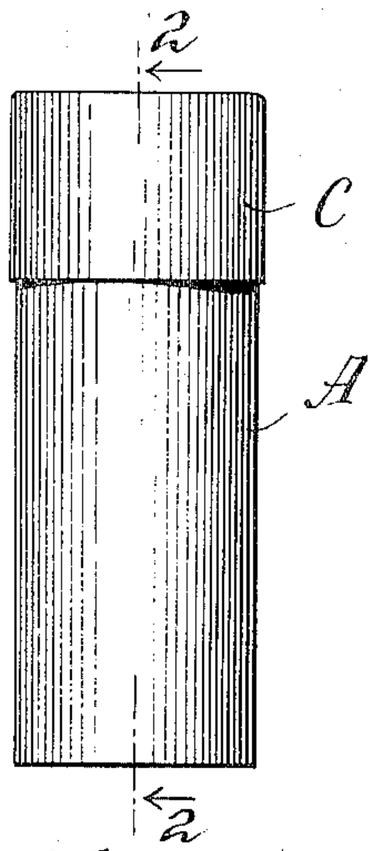



Fig. 3.

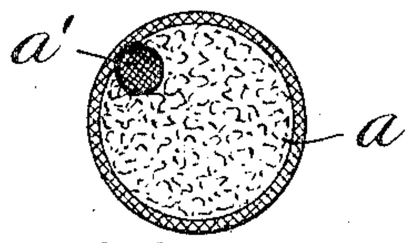



Fig. 5.

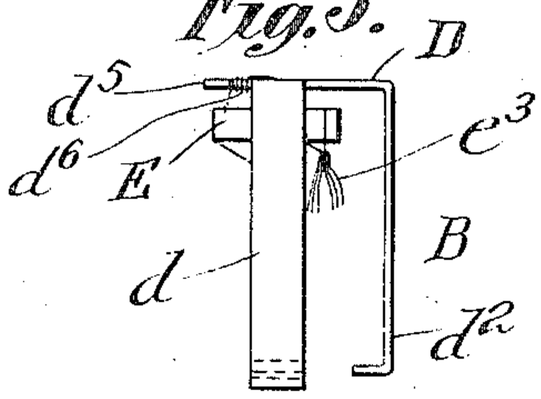



Fig. 6.

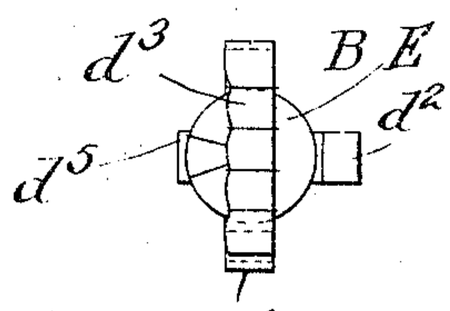



Fig. 2.

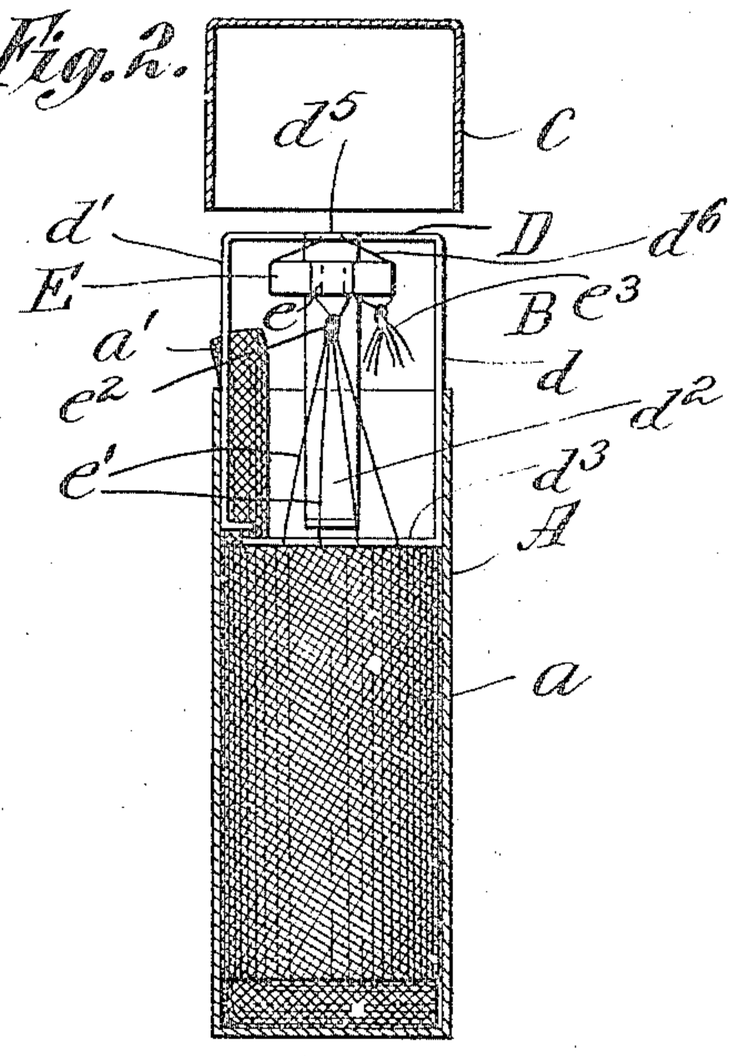
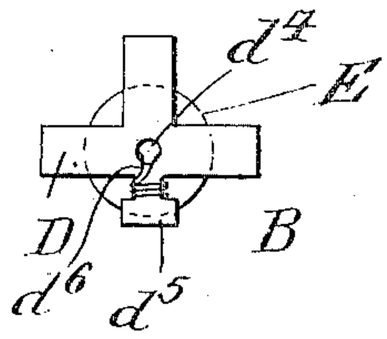



Fig. 4.

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# UNITED STATES PATENT OFFICE.

RICHARD E. BERTHOLD, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO WILLIAM F. HOLCOMBE, OF NEW YORK, N. Y.

## SELF-IGNITER.

No. 859,728. Specification of Letters Patent. Patented July 9, 1907.

Application filed August 12, 1905. Serial No. 273,992.

*To all whom it may concern:*

Be it known that I, RICHARD E. BERTHOLD, a subject of the Emperor of Germany, and a resident of the borough of Manhattan, in 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 portable self-igniters, adapted for lighting cigars or for other purposes, and the object of my improvements is to provide in compact form, so that it may be carried in a vest pocket, an apparatus containing a combustible-vapor producing medium and a substance having catalytic action to ignite the vapor.

In the drawing accompanying this application, Figure 1 is an elevation of my apparatus, as closed. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a plan view of the absorbent material or vapor medium and wick. Fig. 4 is a top plan view of the igniter support. Fig. 5 is a side elevation of the same. Fig. 6 is a bottom plan view thereof.

Broadly considered, my invention comprises a receptacle as A, of metal or other suitable material, which contains a fluid or other substance capable of evolving a combustible vapor, and B indicates a support for a substance of a character capable of assuming incandescence through the friction of a passing vapor. A cap, as C, fits over the receptacle, inclosing the aforesaid elements and excluding atmospheric air to avoid combustion; it being intended that a flame shall be produced in the act of uncovering the receptacle and thus exposing the contained elements to oxygenation.

The vaporizable medium may be of any suitable character, such for example as ethyl alcohol ($C_2H_5.OH$), methyl alcohol ($CH_3.OH$), pure spirit, ether, collodion, gasolene, benzene, &c., and such fluid may be conveniently stored within the receptacle through an absorbent vehicle *a*, as asbestos, which is packed therein and saturated with such fluid. Or other absorbent materials, as cotton-wool and the like, may be employed, means being provided to render the same non-combustible.

Leading outwardly from absorbent vehicle *a* is a wick or torch *a'*, which is saturated with the gaseous fluid, or otherwise rendered inflammable, and is ignited by the frictionally produced blaze, to furnish a fixed flame. The wick *a'* extends upwardly from the absorbent vehicle *a*, against the side of the receptacle, and projects beyond the upper edge thereof, for convenience.

Removably fitting within the receptacle A, above the absorbent vehicle, is a frame B or support for the igniting material, said frame consisting of a top plate as D, which is here shown as of T-formation, having three legs, as *d d' d²*, disposed in triangular form, and adapted to fit tensionally within the receptacle, bearing respectively at three different points within the circumference thereof, but leaving a clearance at one side within the receptacle for the projecting end of the wick *a'*. One of said legs, as *d*, is provided at its lower end with a transversely projecting, fluted or corrugated bar $d^3$, which extends almost to the opposite leg *d'*, but leaving a clearance between its end and said leg *d'*.

A central aperture $d^4$ is formed in the plate D, and a lug, as $d^5$, extends laterally from said plate. Wire $d^6$ secured to said lug is passed through aperture $d^4$ from the top, and at the under side thereof is secured to a pellet or disk, as E, which has a central aperture *e*, and which is by said wire suspended from the plate D centrally above the absorbent vehicle. The pellet or disk E consists of platinum sponge, or other suitable substance capable of becoming incandescent through frictional action. Several strands of finely attenuated platinum wire, as *e'*, passed through the aperture *e*, and secured about the outer edge of the pellet or disk E, depend beneath said aperture, meeting from opposite sides of the aperture a short distance therebelow, there being united by a blob $e^2$ of platinum black or the like; said strands separating below said blob $e^2$, and continuing to the bar $d^3$, where they are secured, each one being fastened about a separate corrugation in said bar.

The space between the bar $d^3$ and leg *d'* is provided to facilitate the delicate task of fastening the strands as aforesaid in the manufacture of the device.

One or more additional brushes, as $e^3$, of attenuated platinum wire, may depend from the pellet or disk E, to increase the efficiency of the igniter.

As soon as the cover C is removed from the receptacle, admitting atmospheric air, the rising vapor from the volatile fluid or substance in the receptacle, impinging against the pellet or disk E, causes the latter to glow, and the heat generated, being rapidly communicated through the blob $e^2$ of platinum black or the like, to the sensitive platinum strands *e'*, renders said strands incandescent to such an extent as to almost instantaneously ignite the gaseous vapor, the flame whereof ignites the wick *a'*. The fire thus produced is of a very serviceable character, as it will not be extinguished by the wind, and is always certain in operation. To produce the flame it is only necessary to remove the cover from the apparatus,—restoring the cover to put out the flame.

The catalytic action of platinum sponge, platinum black, and equivalent materials or compounds, when exposed to the friction of passing vapors in the presence of oxygen, is well known, these materials having been successfully used by myself in producing self-igniters for burners of fixed gases. But I believe it to be new at

this time to provide in a portable case an inflammable-vapor producing medium, in conjunction with a catalytic substance and a flame supporting wick.

Having now described my invention, I declare that what I claim is:

1. A self-igniter comprising a receptacle containing an inflammable-vapor producing medium, and material capable of catalytic action in the path of vapor issuing therefrom, together with a removable cover for said receptacle.

2. A self-igniter comprising a receptacle containing an inflammable-vapor producing medium and having a wick or torch, together with material capable of catalytic action disposed in the path of vapor issuing from said medium, and a removable cover for said receptacle.

3. A self-igniter comprising a receptacle containing an inflammable-vapor producing medium, a pellet or disk of frictionally incandescing material in the path of the vapor therefrom, attenuated platinum strands extending from said pellet or disk, a blob of platinum black to intensify the heat communicated to said strands, a torch to be ignited by the flaming vapor, and a removable cover for said receptacle.

4. An igniting device comprising a receptacle, a vaporizable liquid therein, removable means for closing the receptacle to exclude air, and an igniting-body.

5. An igniting device comprising a receptacle for receiving a vaporizable liquid, means for closing the receptacle to exclude air, and an igniting-body; said body being located in the path by which vapor from the liquid will issue from the receptacle when the latter is opened.

6. An igniting device comprising a receptacle for receiving a vaporizable liquid, means for closing the receptacle to exclude air, and an igniting-body; said body comprising a pill and a series of filaments.

7. An igniting device comprising a receptacle, a wick with the receptacle saturated in a vaporizable liquid at atmospheric pressure, and an igniting-body located in the path of the vapors from said liquid.

8. An igniting device comprising a receptacle, a wick in the receptacle saturated with methyl alcohol, and an igniting-body located in the path of the vapors from said methyl alcohol.

9. An igniting device comprising an igniting-body, a liquid the vapor of which is capable of heating the igniting-body to incandescence in the pressure of air, and means for retaining the liquid near said body.

10. An igniting device comprising an igniting-body, a liquid the vapor of which is capable of heating the igniting-body to incandescence in the presence of air, means for retaining the liquid near said body out of contact with air, and means for admitting air to the presence of the vapor of the liquid.

Signed at New York, this 10th day of August, 1905.

RICHARD E. BERTHOLD.

Witnesses:

NAT B. CHADSEY,

F. W. BARKER.