C. L. ARCHER.

BOMB.

APPLICATION FILED FEB. 13, 1919.

1,321,699.

Patented Nov. 11, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

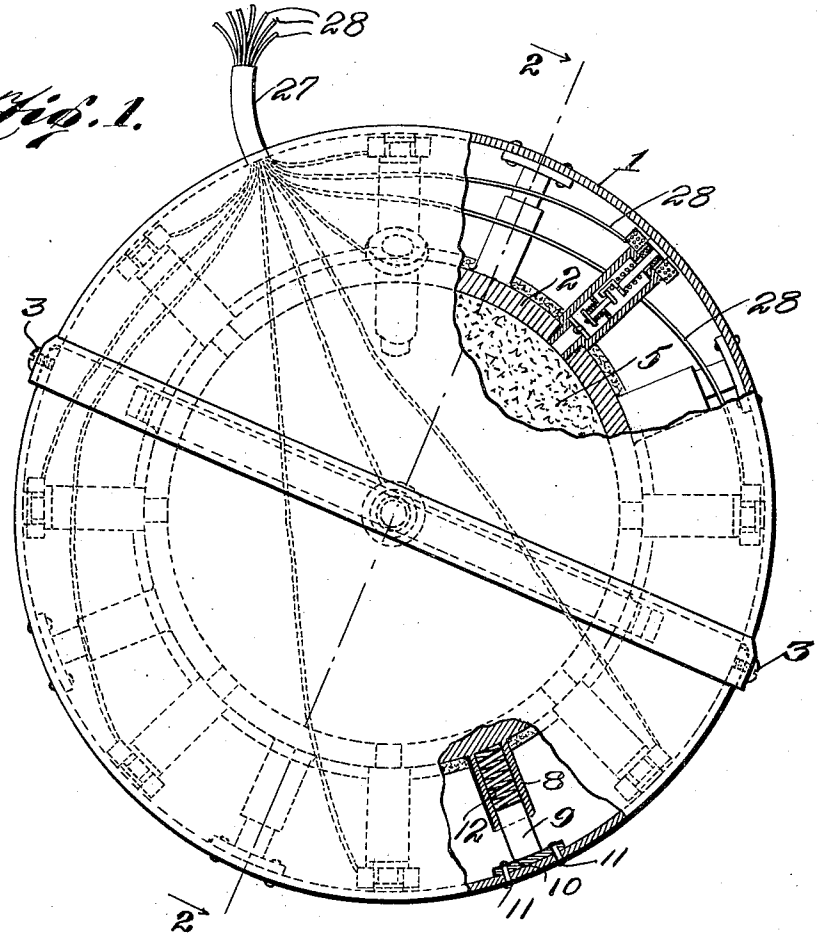


Fig. 3.

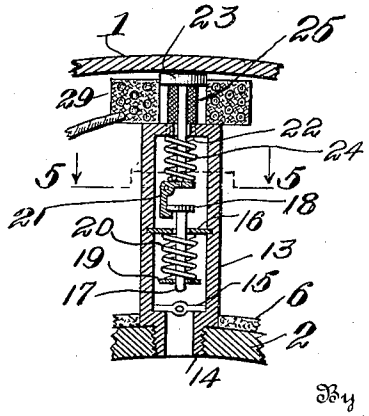
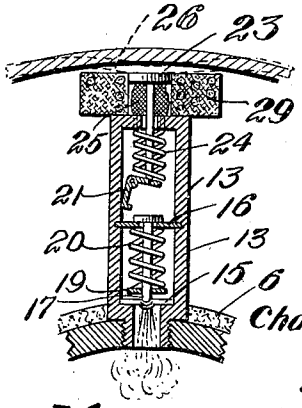


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 2.

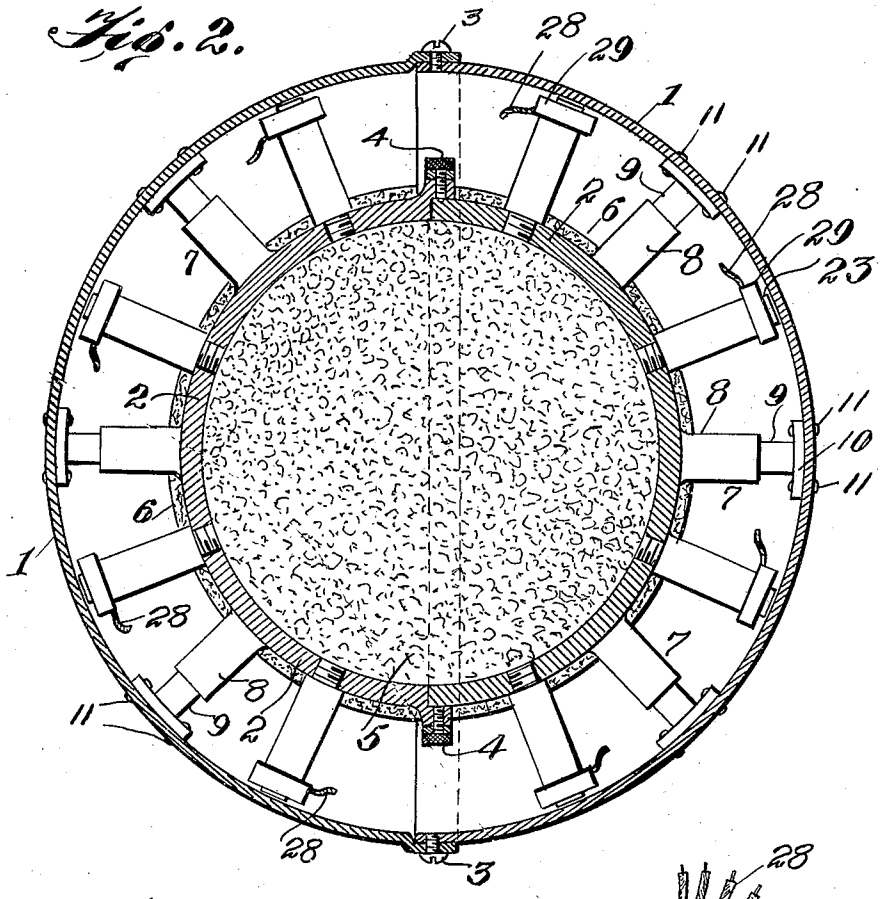


Fig. 5.

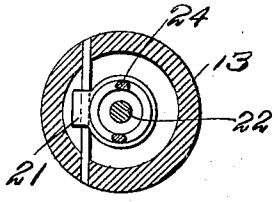
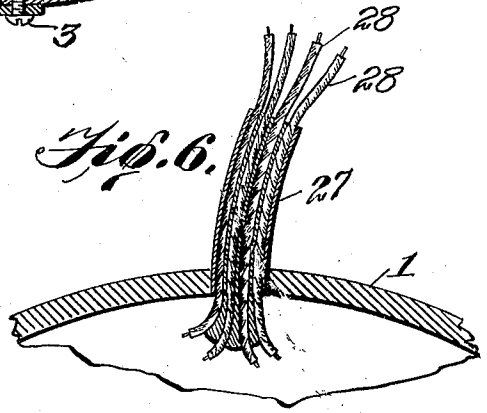


Fig. 6.



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UNITED STATES PATENT OFFICE.

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1,321,699. Specification of Letters Patent. Patented Nov. 11, 1919.

Application filed February 13, 1919. Serial No. 276,753.

To all whom it may concern:

Be it known that I, CHARLES L. ARCHER, a citizen of the United States, residing at Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Bombs, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to bombs, and has for its object the production of an explosive bomb which is so constructed that the time of exploding can be regulated or controlled.

Another object of my invention is the production of an explosive bomb that is safe or secure when being handled or transported.

A still further object of my invention is the production of an explosive bomb that can only be fired after being delivered or cast, and then only upon coming in contact with resistance, which resistance will explode the bomb.

With these and other objects in view, my invention comprises certain combinations and arrangements of parts as will be hereinafter specifically described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the drawings:

Figure 1 is a view in side elevation of a bomb constructed in accordance with the present invention, partly shown in section.

Fig. 2 is a sectional view taken on line 2—2, Fig. 1, and looking in the direction of the arrows.

Fig. 3 is a fragmentary sectional view of the bomb showing particularly the firing plug in a set position, while

Fig. 4 is a similar view of the spark plug with the parts in an unset or "firing" position.

Fig. 5 is a section taken on line 5—5, Fig. 3, and looking in the direction of the arrows.

Fig. 6 is a fragmentary sectional view of the bomb, showing particularly the fuse holder.

Referring to the drawings by numerals, 1 designates the outer or primary shell or casing, and 2, the inner or auxiliary shell or casing. These shells or casings 1 and 2 are preferably made in sections, and are held together by suitable fastening means as screws 3 and 4, Fig. 2.

The inner or auxiliary casing 2 is preferably made of considerable thickness, as compared to the outer or primary casing 1, as the auxiliary casing contains the gas or explosive material 5. Covering the outer surface of the auxiliary casing 2 is a casing or covering of preferably asbestos 6.

The auxiliary casing 2 is "suspended" in the primary casing 1 by placing a plurality of cushioning casings 7 between the two casings 1 and 2. Each cushioning casing comprises an outer section 8 secured in any suitable manner at one end of the auxiliary casing 2 and, an inner or plunger casing 9 provided with a base plate 10 that is fastened, preferably by rivets 11, to the primary casing or shell 1. In the outer section 8, is positioned a coil spring 12. The tension of the springs 12 is such that the inner or auxiliary casings 2 have a slight movement, but not sufficient to explode the bomb, without the bomb being either exployed by igniting a fuse or by coming in forceful contact with an object.

A plurality of the firing plugs are placed around the inner or auxiliary casing 2, being located between the primary and auxiliary casings as shown. Each firing plug comprises a cylinder or casing 13 which is provided with a reduced threaded extension 14 at its inner end; this extension 14 is threaded into an aperture formed in the auxiliary casing 2. Across the inner end of the cylinder 13 is placed a cap 15. A washer or plate 16 is secured within the cylinder 13, and slidably mounted upon the washer is a firing pin 17, for exploding the cap 15. The firing pin 17 is provided with a head 18. Secured to the firing pin near its inner end is a plate 19, and positioned between the plate 19 and the washer 16 is a coil spring 20, which spring forces the firing pin inward or downward, against the cap 15 when the pin is released, for firing or exploding the bomb. A catch or lock 21 is pivotally mounted within the cylinder 19 and normally hooks under the head 18 of the firing pin, holding the firing pin normally in a set or inactive position. The plunger pin 22 is provided at its outer or upper end with a head 23, and engages at its inner end the catch or hook 21.

Surrounding the plunger pin 22 and positioned between the outer or upper end of the cylinder 13 and the catch 21 is a coil spring 24, which spring 24 serves to readily

operate the catch or hook 21 for releasing the firing pin 17 when the plunger pin is caused to operate. A readily-fusible sleeve 25 is placed around the plunger pin 22 between the outer end of the cylinder 13 and the head 23. The head 23 is slightly spaced from the inner face of the primary casing 1 (Figs. 2, 3, and 4) so that there might be a slight movement of the primary casing within the auxiliary casing without exploding the bomb; however, if the primary casing 1 forcefully comes in contact with the foreign object, sufficiently to indent or depress, as shown by dotted lines 26 (Fig. 4), to press the head 23 inwardly, compressing the fusible sleeve 25, then this compressing or indenting of the primary casing 1 will operate the catch or hook, causing the same to move on its pivot and thereby release the firing pin 17, exploding the cap, and consequently exploding the entire bomb.

My improved bomb is provided with a system of fuses for exploding the same when it is desired, without the necessity of causing the bomb to be exploded by actually coming in forceful contact with a foreign object. This system of fuses comprises a holder 27. This holder is constructed from non-heat conducting material, and has as many independent channels or passage-ways as there are fuses. The fuses 28 are threaded through the several or independent passage ways of the holder 27, and each fuse can be lettered or otherwise identified so that the operator can light a short fuse or a comparatively long fuse, depending upon the operator's desire for the bomb to quickly explode or prolong the time of explosion a considerable period. Each fuse is connected to a firing plug, by having its inner end wound substantially into a coil, as shown in Figs. 3 and 4, and this coiled inner end is preferably embedded in a material such as sulfur 29, so that when the fuse is burnt to the sulfur 29, it will take fire and result in sufficient heat being generated to instantly melt the sleeve fuse 25, resulting in the releasing of the catch from contact with the head 18 of firing pin 17, allowing the pin to explode the cap 15.

It is to be understood that the fuses 28 are sufficiently separated or "insulated" to prevent all of them being set on fire when a single one is purposely lighted. Furthermore, it is obvious that if the operator desires hastening the explosion of the bomb, he can immediately light all of the fuses at one time.

In the foregoing description, it is to be understood that I have clearly described the preferred embodiment of my invention, and it will be obvious that certain minor changes can be made by one skilled in the art to which this invention relates, which changes or alterations may be found from time to time to be essential or needful without departing from the spirit or scope of my invention as expressed in the following claims.

What I claim is:

1. In a bomb, the combination with a casing, of a firing plug secured to said casing, explosive means in said casing, said firing plug including means for exploding the explosive means in the casing, fusible means associated with said firing plug, and a fuse positioned contiguous to said fusible means, whereby when the fuse has been ignited and has burnt contiguous to the fusible means, said fusible means will fuse and permit the firing means in the firing plug to explode the explosive means in the casing.

2. In a bomb, the combination with a casing, of explosive means in said casing, and a firing plug secured to said casing and communicating with the interior thereof, said firing plug including a firing pin, means including a fusible sleeve for retaining the firing pin in a set position, and a fuse positioned contiguous to said fusible sleeve, whereby when the fuse has burnt the sleeve will be fused or melted and the firing pin will be released for exploding the bomb.

3. In a bomb, the combination with a casing, explosive means in said casing, of a detachable firing plug secured to said casing, said plug comprising a cylinder provided with an inner screw-threaded end, a cap in the cylinder contiguous to the screw-threaded end, a washer in said cylinder, a firing pin provided with a head slidably mounted upon said washer, a plate secured to said firing pin, a spring between said washer and plate, a catch pivotally mounted in said cylinder, said catch engaging the head of the firing pin for holding the pin in a set position, a plunger pin provided with a head engaging said catch, a spring between the catch and the outer end of the cylinder, fusible material between the head of the plunger pin and the cylinder for normally holding the firing pin in a set position, sulfur or like material contiguous to said fusible material, and a fuse embedded in said sulfur adapted to light or "fire" the sulfur for melting the fusible material and thereby causing the firing pin to be unseated or unset.

4. In a bomb, the combination of a primary casing, an auxiliary casing in said primary casing, a firing plug between said primary and auxiliary casings, and a fuse connected to said firing plug for operating the same at the will of the operator.

5. In a bomb, the combination of a primary casing, an auxiliary casing within said primary casing, a plurality of firing plugs between said primary and auxiliary casings, and a plurality of fuses of different lengths connected close together on the outside of

said primary casing and said fuses separately connected, each to a firing plug.

6. In a bomb, the combination of a primary casing, an auxiliary casing within said primary casing, firing plugs interposed between said casing, a fuse holder secured upon the primary casing, said fuse holder provided with a plurality of separate channels, and fuses in said channels and extending beyond the outer end of the fuse holder and connected to the firing plugs.

In testimony whereof I hereunto affix my signature.

CHARLES L. ARCHER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."