J. J. DUFFIE.

SYSTEM OF TRENCH WARFARE.

APPLICATION FILED MAY 22, 1917.

1,302,904. Patented May 6, 1919.

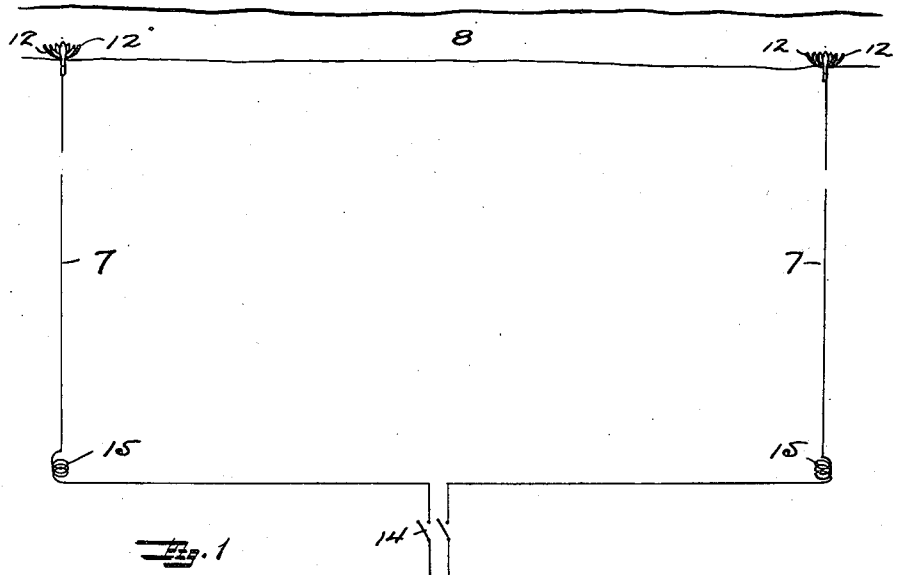


Fig. 1

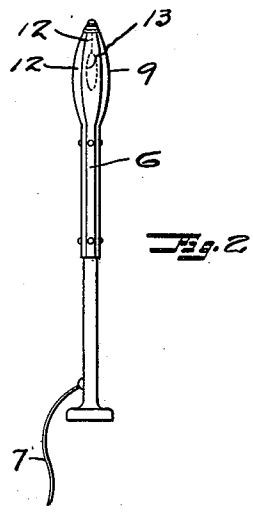


Fig. 2

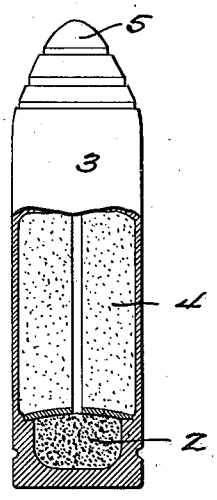


Fig. 3

Witness

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SYSTEM OF TRENCH WARFARE.

1,302,904. Specification of Letters Patent. Patented May 6, 1919.

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To all whom it may concern:

Be it known that I, JOHN J. DUFFIE, a citizen of the United States, and a resident of Berkeley, county of Alameda, and State of California, have invented a certain new and useful System of Trench Warfare, of which the following is a specification.

The invention relates to a system of warfare and is particularly adapted to trench lighting.

An object of the invention is to destroy or incapacitate that portion of the enemy occupying a trench.

Another object of the invention is to provide a system for waging warfare by electricity.

The invention possesses other features, some of which, with the foregoing, will be set forth at length in the following description, where I shall outline in full that form of the invention which I have selected for illustration in the drawings accompanying and forming part of the present specification. It is to be understood that the invention as expressed in the claims may be embodied in a plurality of forms.

The system of warfare of my invention consists in filling or charging the air over and in a trench or a section of trench with finely divided particles of an electricity-conducting substance and then causing a high potential electric current to flash through the conducting atmosphere in the trench. The conductive material may be mercury vapor or flake graphite or other substance which will remain in suspension in the air for a time. This material is dispersed in and over the trench from explosive shells provided either with time or impact fuses and by directing a barrage fire of such shells at the trench, the air will become very heavily charged with the conducting material. Shells or rockets carrying metallic plates attached to opposite sides of a source of high potential are then fired at the ends of the trench and by closing the circuit, the high potential current will arc through the conducting material in the air, producing an arc extending for the length of the trench section. The arc will have the effect of incapacitating the men in the trench.

In the accompanying drawings,

Figure 1 is a plan view of a trench, with the electrodes forming part of my system disposed at the ends thereof.

Fig. 2 is an elevation partly in section of one form of conducting material shell which may be used.

Fig. 3 is an elevation of one form of electrode.

In accordance with my invention, I employ an explosive shell 3 having a filling 4 of conductive material such as flake graphite or mercury, which is disseminated through the air by the explosion of the bursting charge 2. This charge may be exploded by a fuse or detonator controlled by the cap 5, so that the explosion of the charge may be timed or may be caused by impact. A sufficient number of shells are fired to completely fill the air in the trench with the conductive material, and then an electrode projectile 6 is fired at the trench at each end of the prepared zone or at suitable distances apart, depending upon the potential employed. The electrode projectile may be fired from a Lyle gun, such as is used in marine life-saving work. Attached to the projectile is an electric conductor, preferably in the form of an insulated wire or cable 7, which is carried forward to the trench 8 by the projectile. The head 9 of the projectile is preferably formed of a plurality of overlapping sheet metal leaves 12 covered on the outside with some insulating material and the cable 7 is connected to these leaves. A small charge 13 of explosive within the head is exploded preferably by the impact of the projectile, causing the leaves to spread out, to present their clean surfaces to the charged air. A switch 14 in the circuit is then closed, or is previously closed, causing the high potential current to bridge the highly-conductive gap in a flash. The cables and the outer surfaces of the electrode leaves are insulated to prevent grounding and the cables are arranged in coils 15, so that they may be readily carried forward by the projectiles.

I claim:

1. A system of trench warfare, comprising means for disseminating electric conducting material in finely divided form in the air in a trench and means for passing an electric current through said air.

2. A system of trench warfare, comprising means for disseminating electric conducting material in finely divided form in the air in a trench, spaced electrodes in said trench and means for oppositely charging said electrodes.

3. A system of trench warfare, comprising means for disseminating electric conducting

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material in finely divided form in the air in a trench, means for placing spaced electrodes in said trench and means for oppositely charging said electrodes.

4. A system of trench warfare, comprising means for disseminating electric conducting material in finely divided form in the air in a trench, projectile electrodes adapted to be fired into said trench at spaced intervals and a source of high potential current connected to said electrodes.

5. A system of trench warfare, comprising means for disseminating electric conducting material in finely divided form in the air in a trench, projectile electrodes adapted to be fired into said trench at spaced intervals, a source of high potential current and insulated conductors connecting the electrodes with said source.

6. An explosive shell containing a charge of electric conducting material adapted to be disseminated in light finely divided particles by the explosion of the shell.

7. An explosive shell containing a charge of material which on the explosion of the shell forms an electricity-conducting zone in the surrounding air.

8. The method of trench warfare, which consists in making the atmosphere in a trench electrically conductive and passing a high potential current through said conductive atmosphere.

9. The method of trench warfare, which consists in exploding a plurality of shells containing electricity-conductive material in finely divided form over the trench and passing an electric current through said material after the shells have exploded.

10. A system of trench warfare, comprising a plurality of explosive shells containing electricity-conductive material adapted to be exploded over the trench to charge the atmosphere therein with said material, electrodes adapted to be fired to spaced points in said trench and a source of high potential current connected to said electrodes.

In testimony whereof, I have hereunto set my hand at Washington, D. C., this 22d day of May 1917.

JOHN J. DUFFIE.