R. V. MORSE.

BENDING BOMB.

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1,325,486. Patented Dec. 16, 1919.

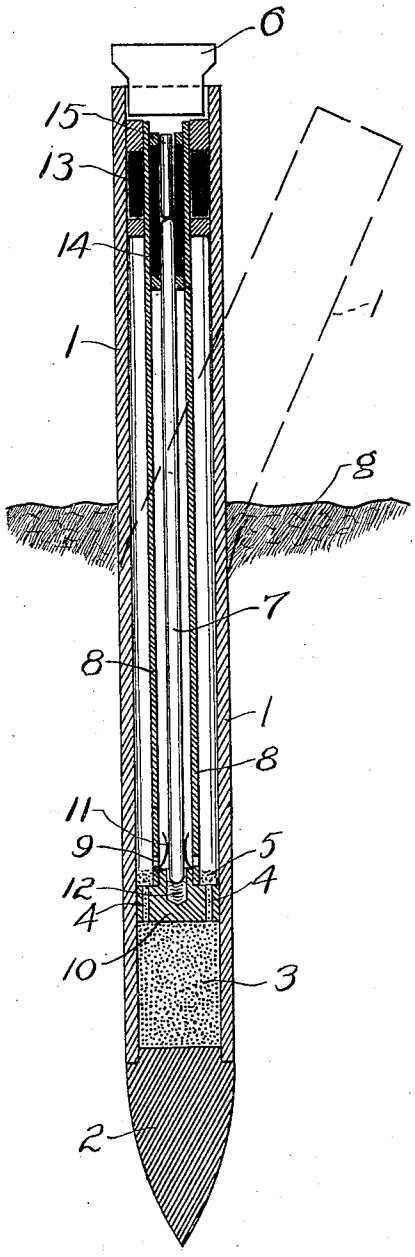


FIG. 1.

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To all whom it may concern:

Be it known that I, ROBERT V. MORSE, a citizen of the United States, residing at Ithaca, in the county of Tompkins and State of New York, have invented a new and useful Bending Bomb, of which the following, taken with the accompanying drawings, is a specification.

This invention relates to the art of warfare, and particularly to a means for meeting attacks from armored automobiles, tanks, and mobile fortresses. These attacks owe their effectiveness to the rapidity with which they can be made. The object of this invention is to impede or prevent the approach of tanks, and hence prevent the enemy from utilizing the element of surprise when employing tanks for attack or counter-attack.

The use of stationary bombs or mines is old in warfare. Where the mines are detonated by the use of controls extending to a distance, they are not suited for use in large numbers, and also may be passed over in sudden attacks; on the other hand, mines detonated by contact are generally unsuited to land warfare, since they can be exploded by machine gun or rifle fire, and the way thus cleared for advancing tanks. This invention, in brief, provides a type of mine readily planted in large numbers, which can not be detonated by ordinary contact nor by rifle or machine gun fire, nor can they be readily cleared by advancing infantry; yet the mine will automatically explode and destroy any tank which attempts to pass over it. In general the invention consists of a bullet proof tube driven firmly into the ground and strong enough to resist impacts, yet which will explode when it is bent by a ponderous mass such as a tank passing over it.

Referring now to the drawing, Figure 1 illustrates in cross-section by way of example one form of mine embodying the principles of this invention. The strong, bullet-proof tube 1 is provided with the pointed nose 2, so that it can be readily driven into the ground. At the bottom of the tube 1 is placed the explosive charge 3, which is connected through the ports 4 with the detonating charge 5. When the mine is to be planted, a wooden block 6 is placed in its head and the mine is then driven in the ground by blows of a mallet, until it is so firmly planted that it can not be pulled up by hand and will bend before it can be uprooted by any transverse pressure. The block 6 is then removed and a brittle tube 7, containing the igniting liquid, is slipped into the mine through a hole in the top. This tube 7 can not be removed without inverting the mine. The mine is now ready for action. When a tank attempts to pass over it, the tube 1 is bent as indicated by the dotted lines in Fig. 1; this breaks the brittle tub 7 and allows the liquid or acid in it to run down to the detonating charge 5, igniting the latter and thus detonating the main explosive charge 3. Further refinements, which may or may not be employed, are shown in Fig. 1. For example, the tube 8 may be placed within the tube 1 and may be of soft metal so as to bend readily, while the tube 1 may be more hard and brittle so as to be more effectively bullet-proof. The inner tube 8 is provided with ports 9 at the bottom, through which the igniting liquid can flow to the detonating charge 5. The plug 10 is provided with guide springs 11 and a cushion 12, to prevent jars from breaking the tube 7. At the top the tube 7 is further cushioned by the packing 13, which cushions the tube 8 from shocks applied to the tube 1; and also by packing 14 inside the tube 8 which directly cushions the tube 7. These packings also make the top of the mine watertight. A plug or finger 15 may be employed in pushing the tube 7 into place. The top of the mine 1 may be left open, or may be filled with earth or cement. This does not impair the effectiveness of the mine, since the vital tube 7 can not be extracted in the field.

In the foregoing there has been described a mine embodying the general principles of my invention. It will be obvious to those skilled in the art that the apparatus is susceptible to many variations and adaptations without departing from the scope of the invention as outlined in the following claims.

1. In a mine, the combination of a tube designed to resist impact, an explosive charge, and an igniting means within the tube protected by the tube from impact, said igniting means adapted to be set off by flexure of the tube, whereby the mine is exploded when the tube is bent.

2. In a mine, the combination of a tube designed to resist impact and adapted to be driven into the ground, an explosive charge, and an igniting means within the tube pro-

tected by the tube from impact, said igniting means being adapted to be set off by flexure of the tube, whereby the mine is exploded when the tube is bent.

3. In a mine, the combination of a tube adapted to be driven into the ground, an explosive charge within the tube, an igniting tube within the first mentioned tube, said igniting tube being arranged to break when the first mentioned tube is bent, whereby the explosive charge is fired.

4. In a mine, the combination of a tube adapted to be driven into the ground, an explosive charge, an igniting means adapted to be inserted into the tube after the tube has been driven into the ground, said igniting means being arranged to operate by flexure, whereby the explosive charge is ignited when the tube is bent.

5. In a mine, the combination of a tube adapted to be driven into the ground, an explosive charge, an igniting means adapted to be operated by flexure, means cushioning the igniting means from impact, whereby the explosive charge may be ignited when the tube is bent.

6. In a mine, the combination of an armored tube adapted to be driven into the ground, an explosive charge within the tube, and an igniting means adapted to be operated by flexure and protected by the tube from being operated by impact, whereby the charge may be fired when the tube is bent.

7. In a mine, the combination of a casing containing an igniting means, said igniting means being protected by the casing from impact but arranged to become operative when bent, an extension for bending the casing, and an explosive charge arranged to be exploded by the operation of the igniting means.

8. A defense against tanks, comprising a pointed mine adapted to be driven into the ground, an explosive charge within the mine, an igniting means protected so as to be insensitive to impact but arranged to become operative when bent, a portion of said mine extending sufficiently above the ground so that the mine will be bent when a tank attempts to pass over it.

9. A defense against tanks, comprising a pointed mine adapted to be driven into the ground, an explosive charge within the mine, an igniting means protected so as to be insensitive to impact but arranged to become operative through fracture following flexure when bent, a portion of said mine extending sufficiently above the ground so that the mine will be bent when a tank attempts to pass over it.

In witness whereof I have hereunto set my hand this 17th day of September, 1918.

ROBERT V. MORSE.

Witnesses:

MARGARET SUMNER FUERTE,

LOUIS A. FUERTE.