

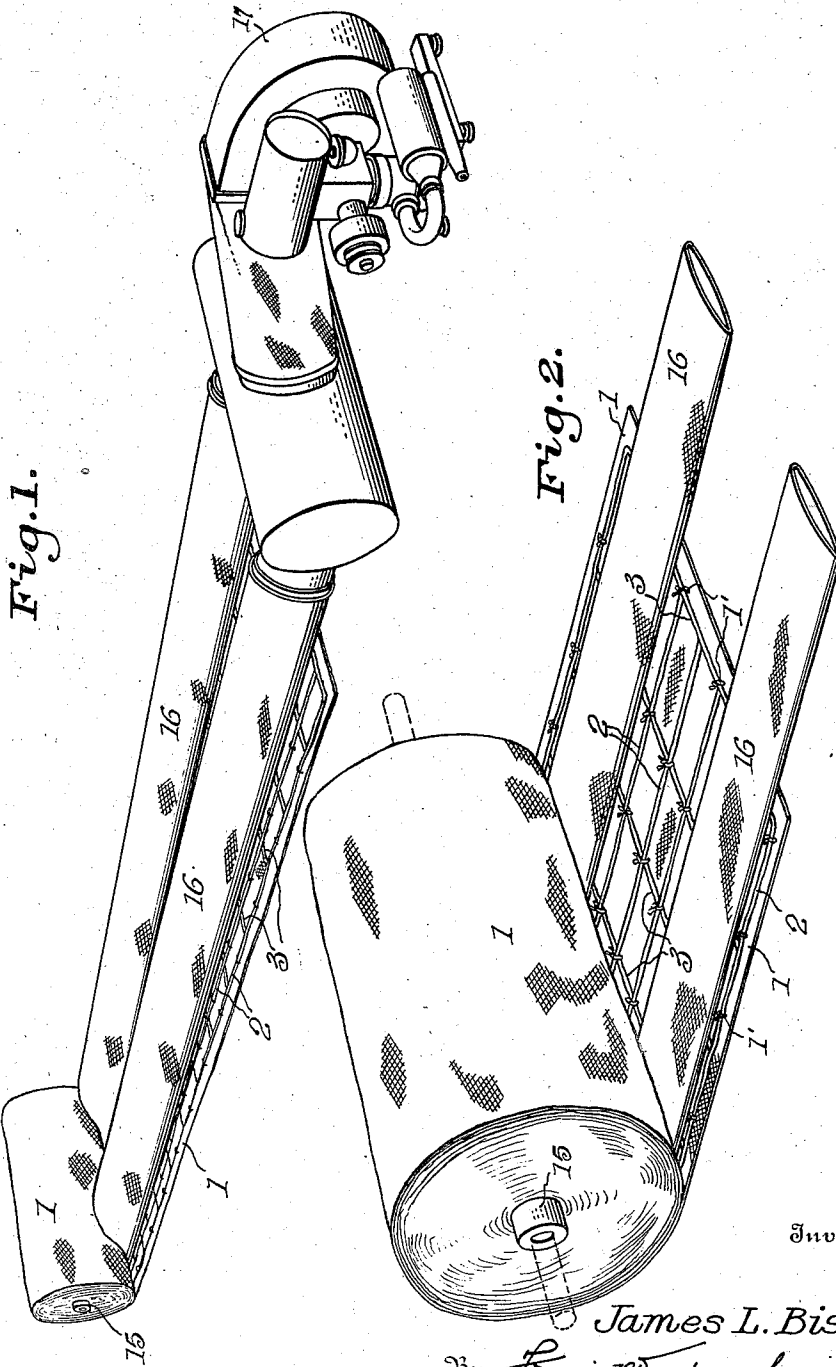
Dec. 7, 1948.

J. L. BISCH  
MINE DESTROYER

2,455,354

Filed Aug. 3, 1945

2 Sheets-Sheet 1



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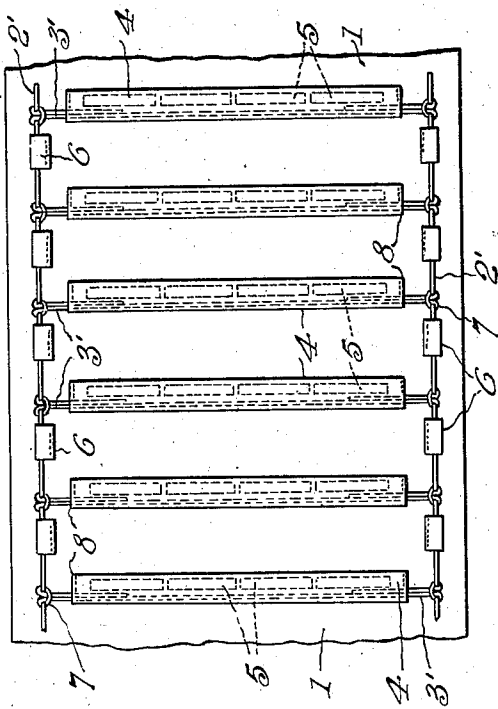


Fig. 3.

Fig. 5.

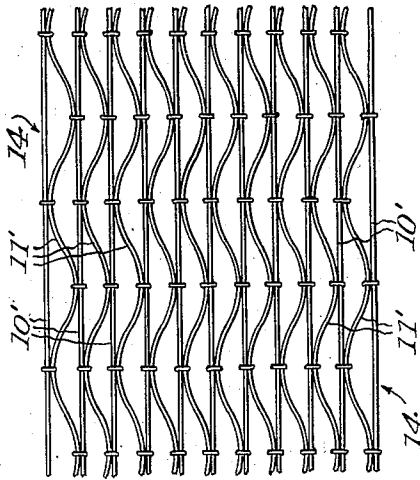
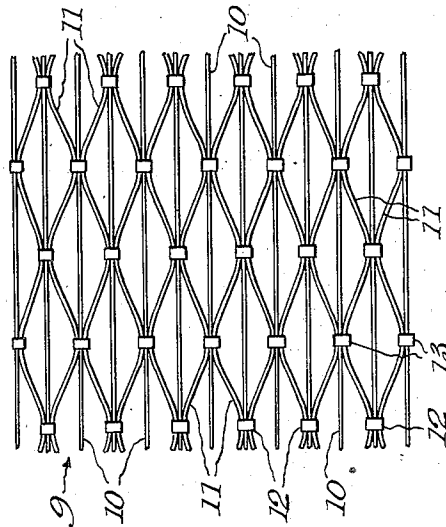


Fig. 4.



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# UNITED STATES PATENT OFFICE

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## MINE DESTROYER

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3 Claims. (Cl. 102-22)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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The invention described herein may be manufactured and used by or for the Government for governmental purposes, without payment to me of any royalty thereon.

This invention relates to mine destroyers; more particularly it is directed to torpedoes for exploding anti-personnel or anti-vehicular mines used by an enemy in retarding the advance of soldiers and military matériel over certain terrain.

One of the objects of the invention is to provide a torpedo in the form of a strip of explosive carrying material adapted to be coiled into a roll and to be unrolled for laying a well distributed layer of high explosives over a surface of ground for destroying enemy mines.

Another object of the invention is to provide a torpedo in the form of a strip of fabric having spaced longitudinally and transversely extending strands of primacord sewn thereto or woven therein and adapted to be launched over a mine field either by hand or pneumatically for destroying the same.

Another object of the invention is to provide a torpedo including a strip of flexible material having longitudinal and transverse strands of explosive elements and pockets thereon and cartridges mounted in said pockets for destroying mines buried in the ground by an enemy.

Another object of the invention is to provide a torpedo including a flexible strip of explosive carrying material having flexible tubes associated therewith, whereby the flexible explosive strip and tubes may be coiled into a roll and means connected to inflate said tubes for unrolling the strip of explosive carrying material over a mine field for detonating the same.

Another object of the invention is to provide a torpedo in the form of a flexible net of explosive material adapted to be coiled into a roll and means adapted to unroll the same for launching the net over a mine field.

Briefly stated, the invention comprises an explosive carrying strip of fabric, such as carpet, of considerable length in proportion to its width and having longitudinal and transverse strands of explosive material such as primacord fuse sewn thereto or woven therein. The explosive carrying carpet strip may be provided with transversely extending pockets at suitably spaced intervals

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therealong; with cartridges or other military explosives mounted in the pockets.

Preferably, the mine destroying torpedo may consist of a net of explosive material including parallel strands and connected sinuous strands interposed therebetween.

The strip of armed carpet or net of explosive material is rolled up and may be launched by hand for use in clearing mined roads where the enemy has undertaken demolition. In launching the armed carpet or explosive net by hand, long ropes are attached to a shaft on which the armed carpet or explosive net is rolled by men who have detoured the mined surface of the road. Thus by pulling or hauling on the ropes, the torpedo carpet or net may be unrolled over the mined area. The armed carpet or explosive net may then be detonated with small arms fire or other standard detonating means and the detonating wave produced by the explosion, in turn, detonates mines concealed in the earth beneath the carpet or net.

In order to launch the armed carpet roll or explosive net over enemy mine fields by pneumatic means, longitudinally extending flexible inflatable tubes are employed therewith. These tubes are closed at one of their ends and connected at their other ends to any suitable source of air under pressure or other gas supply such as a pneumatic blower or exhaust pipe from an engine. The tubes are wrapped up on a shaft with the armed carpet roll or explosive net thereby forcing air from the tubes and, by forcing air or gas into the tubes by the pneumatic blower or exhaust from an engine, the tubes are caused to unroll thus causing the armed carpet roll or explosive net to assume an extended position over the mine field.

With the above and other objects and advantages in view, the invention consists of certain features of construction and operation of parts which will hereinafter be described and shown in the accompanying drawings in which:

Fig. 1 is a perspective view of one form of the carpet roll torpedo including longitudinally and transversely extending strands of explosive material and showing the tubes inflated by a pneumatic blower;

Fig. 2 is an enlarged view thereof with the pneumatic blower removed from the tubes;

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Fig. 3 is an enlarged fragmentary section of a modified form of the carpet roll torpedo;

Fig. 4 is an enlarged fragmentary section of the explosive torpedo in the form of an explosive primacord net including longitudinally extending strands of primacord and opposed sinuous or serpentine strands of primacord connected therebetween; and

Fig. 5 is a modified form of explosive primacord net torpedo with the sinuous or serpentine strands of primacord arranged parallel to one another.

Referring more specifically to Figs. 1 and 2 of the drawings, 1 designates a strip or sheet of any suitable fabric such as carpet, which is of considerable length in proportion to its width and having thereon suitably spaced longitudinally extending parallel strands 2 and spaced transversely extending parallel strands 3 of any suitable explosive material such as primacord fuse. The strands of primacord 2 and 3 are illustrated as being connected together and sewn at 1' to the strip of fabric, but may be woven therein or welded into the fabric by the thermo-plastic bonding method, if desired. The strands of primacord have cores of any suitable explosive material such as PETN (pentaerythritetetrani- 25 trate). The explosive carrying fabric torpedo may take the form illustrated in Fig. 3 where transversely extending pockets 4 are secured to the fabric strip 1 in suitably spaced relation, said pockets 4 being adapted to contain cartridges 5 containing any suitable explosive material such as amatol, (sixty per cent (60%) ammonium nitrate and forty per cent (40%) T. N. T.). In this form the longitudinal primacord strands 2' are laced through flaps 6 along the longitudinal edges of the fabric and each of the pockets 4 are provided with transversely extending cross strands 3' of primacord. The ends of the strands 3' are knotted to respective strands 2' and the free ends of the strands 3' then passed back into their pockets 4. After the cartridges 5 are inserted into the pockets 4, the ends 3 of the pockets are sewn closed by hand. The cartridges 5 could be taped to the transversely extending primacord strands 3' before being inserted into the pockets, after which the ends of the pockets could be closed by a stapling machine, if desired.

In order to eliminate the sewing of the strands of explosive material to the strip of fabric and also eliminate the use of the fabric entirely, the improved mine destroying torpedo may be made in the form of a net 9 of explosive material as illustrated in Fig. 4, wherein flexible strands of primacord are provided including spaced parallel longitudinally extending strands 10 and sinuous or serpentine strands 11 interposed between the strands 10. In this form of explosive net 9, the sinuous strands 11 are connected first at points 12 to the strands 10 and then pass over to adjacent strands 10 where they are connected thereto at common points 13. A mesh is thus provided by the sinuous strands 11 arranged in opposed relation to one another and the strands 10 positioned between each opposed pair of strands 11.

The mine destroying torpedo is preferably made in the modified form of net 14 illustrated in Fig. 5, wherein the sinuous or serpentine strands 11' of primacord are interposed between the longitudinally extending primacord strands 10' and are also parallel to each other. This design is preferable to the charged net 9 shown in Fig. 4 as it gives better explosive distribution, due to the

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primacord being more evenly distributed over a given area.

The strip 1 of armed fabric illustrated in Figs. 1, 2 and 3 or the nets 9 and 14 of explosive material illustrated in Figs. 4 and 5 are rolled up on a shaft 15 and may either be launched by hand or pneumatically for unrolling the torpedo over a mined area. In launching the armed carpet 1 or explosive nets 9 and 14 by hand, long ropes (not shown) are attached to the ends of the shaft 15 on which the torpedo is rolled and, by pulling on the ropes and detouring the mined area, the rolled torpedo may be placed over a mined surface of roads and the like, without danger. Upon firing the armed carpet 1 or explosive nets 9 and 14 the torpedo is exploded, with the resulting detonating waves discharging the mines contained in the area.

In launching the explosive nets over a mine field inflatable tubes connected to any suitable source of air or gas pressure are provided thereon. Thus to launch the armed carpet roll or explosive net torpedo pneumatically over a mine field, longitudinally extending flexible airtight vent tubes 16 are positioned on top thereof and the carpet or net is rolled up along with the vent tubes on the shaft 15 as illustrated in Figs. 1 and 2. The tubes 16 are permanently closed at one of their ends and connected at their other ends to any suitable source of air supply such as the pneumatic blower 17, although the tubes 16 may be connected with an exhaust pipe of an engine or bottle containing gas under pressure (not shown) for inflation purposes. The tubes 16 upon being wrapped up on the shaft 15 with the armed carpet roll 1 or explosive nets 9 and 14, are deflated and, by forcing air or other gas into the tubes, the armed carpet or explosive nets are caused to unroll, thus causing the rolled torpedo to assume an extended position over a mined field for detonating the same. The extended armed carpet or explosive net may then be detonated as described by any suitable means.

It will thus be seen that there is herein provided a novel and efficient form of torpedo which is well adapted for the purpose intended. Even though there has herein been shown and described the invention as comprising certain features of construction and operation of parts, it is nevertheless to be understood that various changes may be made therein, if the changes do not depart from the spirit or scope of the claims.

Having thus described my invention, what I claim as new and wish to secure by Letters Patent is:

1. A mine destroying torpedo comprising a flexible strip of explosive carrying material, pneumatic tubes provided on the strip of material, said strip of material with said tubes adapted to be coiled into a roll, and blowing mechanism connected to inflate said tubes for unrolling said strip of explosive carrying material over a mine field.

2. A mine destroying torpedo comprising a flexible strip of material including pockets, explosive elements secured to said material, cartridges mounted in said pockets, pneumatic tubes positioned on said strip of material, said strip with said explosive elements, cartridges and tubes adapted to be coiled into a roll, and means connected to inflate said tubes for unrolling said strip including said explosive elements and cartridges over a mine field.

3. A mine destroying torpedo comprising a flexible net of explosive material, flexible tubes mounted on said net, said net including said tubes

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adapted to be coiled into a roll, and means connected to inflate said tubes for unrolling said net of explosive material over a mine field.

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