A tracked vehicle for use in mine detonation comprising two endless tracks and two final drives on each side of the vehicle. The final drives are mounted mid-vehicle and a crew area is mounted aft of the final drives.
The invention described herein may be manufactured, used, and licensed by or for the Government for Governmental purposes without the payment to me of any royalties thereon.

BACKGROUND OF THE INVENTION

The present invention relates generally to a combat vehicle for mine detonation, and in particular to such a vehicle which is capable of clearing a path through minefields for tanks or the like. Combat assault vehicles have a single drive point, usually not in contact with the ground surface. These vehicles, and particularly tanks, have been most vulnerable to anti-tank mines in the area of the track and suspension components. A detonation on the track usually breaks the track and damages the suspension system rendering the vehicle immobile and a target for enemy fire. In the past, there have been several mine countermeasures that were effective against some mines, but not all. One such countermeasure is the mine clearing roller, but these are limited as they impose a serious mobility limitation on their prime mover and are not able to keep pace with assault forces. Another countermeasure used is the live explosive charge, but these are useful only in a dense minefield and have an inherent lack of mobility.

SUMMARY OF THE INVENTION

The general purpose of the invention is to provide a mine countermeasure device which does not have the limitations of previous devices. In particular, a countermeasure is contemplated which presents the mine with similar signatures, as does the combat assault vehicle, but which is less vulnerable than such an assault vehicle. The countermeasure is capable of traveling in the same environments and under the same operating conditions as the assault vehicle. An advantage of the invention is that it can function against a wide variety of mines rather than a contact or pressure mine only. An additional advantage is that the countermeasure device can sustain operation even after several detonations of mines.

BRIEF DESCRIPTION OF THE DRAWING

The exact nature of the invention will be readily apparent from consideration of the following specification relating to the annexed drawings in which:

FIG. 1 shows a side elevation of the main elements of the countermeasure device; and

FIG. 2 shows a top plan view of the same device.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings wherein like reference characters designate like or corresponding parts throughout the two figures, there is shown a vehicle with a leading endless track 11 and a trailing endless track 12. Both these tracks have track pads of conventional design and weight and are approximately 30 inches in width. The tracks surround road wheels 15 of high strength steel, which are approximately 24 inches in diameter. The leading track 11 also surrounds a leading final drive 13 and tension wheel 19. Tension wheel 19 is attached to the vehicle structure 31 by arm 20.

The trailing track 12 also surrounds the trailing final drive 14. The road wheel arms 16 of high strength steel are attached to both sides of the road wheels 15 and torsion springs 17. The torsion springs are attached to vehicle structure 21 and are fabricated from rubber having good energy absorption and suspension properties and encased in heavy gauge steel. Energy absorbing stops 18 are also attached to vehicle structure 21 and fabricated from rubber. The vehicle structure 21 supports a hull incorporating sloping armor for protection of small arms and cannon fire. The hull is of a low profile less than 90 inches in height and stands off the ground a minimum of 30 inches. The forward portion 26 of the hull in the area between the structures to which the suspension components are attached is left open. The mid portion of the hull 25 contains the engine and power train elements. The rear portion of the hull has room for crew quarters 22.

A string of permanent or electromagnets 23 are attached to the front of the vehicle hull at the leading edge of the open space at approximately 1 foot above the ground. A shaft extends through the magnets and is rotatable by motors at one end of the shaft. These magnets are used to increase the magnetic signature of the vehicle and detonate magnetic influence mines. A heavy metal chain 24 is attached to the vehicle just behind the magnets. In operating, the chain 24 drags along the ground and physically knocks over tilt rod type mines. While driving through a minefield, a vehicle such as described above can sustain two 20 pound mine detonations on either the leading or trailing track of each vehicle side without losing all ability to move and maneuver. The leading and trailing track sections of each side can together sustain three 20 pound mine detonations before losing all maneuverability. The vehicle can clear and mark a path free of mines of various types. It should be understood that the foregoing disclosure relates to only a preferred embodiment of the invention and that modifications may be made therein without departing from the scope of the invention as set forth in the appended claims.

What is claimed is:

1. A mine detonation vehicle comprising an armor plated main body having a front and a rear portion with the rear portion being the personnel area.

a support structure for said body;

a suspension system consisting of a plurality of endless track assemblies with a like number thereof on either side of said main body such that said suspension system is adapted to carry said support structure, said plurality of endless track assemblies including at least a pair of leading track assemblies and a pair of trailing track assemblies;

drive means for independent driving of each endless track assembly in said plurality thereof;

said support structure having a forward edge disposed forward of said pair of leading track assemblies and extending therebetween;

and said mine detonation means disposed in the vicinity of said forward edge of said support structure, said mine detonation means consisting of magnet means for increasing the magnetic signature of said mine detonation vehicle and adapted to detonate mines of the magnetic influence variety and drag means adapted to contact the ground in the vicinity of said
forward edge and to detonate mines of the tilt rod variety.

2. A mine detonation vehicle as defined in claim 1 wherein said means for increasing the magnetic signature of the vehicle is a plurality of rotatable magnet means aligned in a row between track assemblies of said pair of leading track assemblies and said drag means consists of at least one heavy metal chain disposed in substantially parallel relation with respect said row of rotatable magnet means.

3. A mine detonation vehicle as defined in claim 2 wherein said rotatable magnet means are electromagnetic means.

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