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AMPHIBIAN

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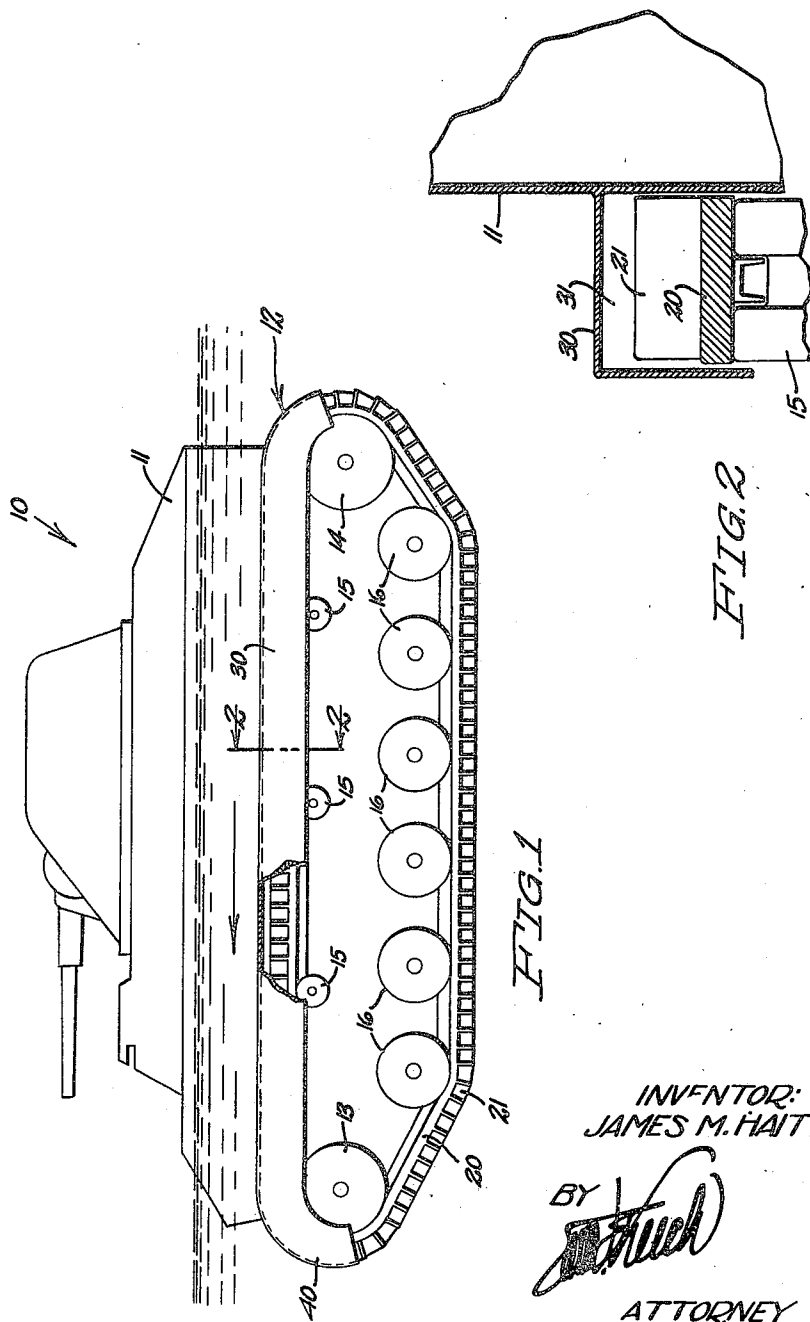


FIG. 1

FIG. 2

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AMPHIBIAN

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This invention relates to amphibian craft, and particularly to such craft as are adapted to be employed in military or naval operations.

It is universal practice in designing fighting tanks to propel these with track laying chains or belts, one on each side, and which for convenience will hereinafter be referred to by the generic term "traction belt." It is also accepted practice to depend upon grousers attached to these belts for propelling the tank through the water when the tank is of the amphibian type. These grousers, however, when operating in the water, produce a splash which greatly increases the visibility of the craft in the day time and at night when in phosphorescent water. As any factor which makes it easier to see a water-borne craft employed in military or naval operations correspondingly increases the hazards to which it is subjected, it is an important object of my invention to provide an amphibian in which grouser splash is eliminated.

The manner of accomplishing the foregoing object, as well as further objects and advantages, will be made manifest in the following description taken in connection with the accompanying drawing, in which:

Fig. 1 is a diagrammatical side elevational view of an amphibian constituting a preferred embodiment of the invention.

Fig. 2 is an enlarged fragmentary cross-sectional view taken on the line 2—2 of Fig. 1.

Referring specifically to the drawing, the amphibian 10 shown in Fig. 1 comprises a hull 11, each side of which is equipped with an amphibian propulsion mechanism 12.

This mechanism includes an idle sprocket 13, a drive sprocket 14, a series of idle guide rollers 15 and a series of bogie wheels 16. Trained about these sprockets, rollers and wheels is an endless traction belt 20. Provided on the exterior face of the belt 20 is an endless series of grousers 21 which engage the ground and support the amphibian 10 when the latter is traveling on the land and engage the water when the amphibian is afloat so as to propel it through the water.

The amphibian 10 is illustrated in Fig. 1 as it appears in its normal position in the water when afloat. Here it will be seen that the propulsion mechanisms 12 are completely submerged so that at no time while the craft is afloat do these mechanisms break the surface of the water. Thus, the splash and foam ordinarily produced by these propulsion mechanisms is entirely eliminated. Providing the propulsive mechanisms 12 on the amphibian 10 so that the upper flights of these

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are thus submerged, makes it necessary to counteract the reverse propulsive force which would be produced by the upper flights of grousers if these were allowed free and open contact with the water. The developing of any such counter thrust is prevented in my amphibian 10 by enclosing each of the submerged upper flights of grousers 21 with a housing 30.

This housing substantially prevents any propulsive action by the grousers on the upper flight of the belt. It does this by virtue of the fact that the water surrounding the grousers on the upper flight of the belt is confined in the housing. Thus the same water remains in the housing 30 and merely circulates around the grousers 21 and through the space 31 as the grousers travel through this housing. The developing of any reverse thrust by the grousers in the upper flight (in view of the pumping or water circulation which normally takes place when the grousers are in an open body of water) is thus practically eliminated so that the thrust developed by the grousers in the lower flight 20 is fully effective in propelling the amphibian 10 through the water.

The extreme forward portion 40 of the housing 30 is turned downward so as to deflect downwardly any water carried from the housing by the grousers 21. Impact of the pumped water against the housing portion 40 also produces a forward propulsive force which assists in propelling the amphibian.

From the foregoing description it is clear that I have provided an amphibian suitable for use in military or naval operations in which the traction belt propelling mechanisms are provided thereon at such a depth as to be completely submerged in the water when the amphibian is in its normal floating position. This provision permits the normal operation of the amphibian on land, while completely eliminating the splash hitherto produced by traction belt amphibians by the grousers breaking the surface of the water when the craft is afloat.

What I claim is:

1. In an amphibian, the combination of: a hull adapted when afloat to sustain the weight of said amphibian; traction belt means including a series of grousers provided thereon; means for mounting this belt means on said hull for annular travel so that both the upper and lower flights of said belt means are submerged in water when the hull is afloat as aforesaid, the grousers on the lower flight of said belt means being adapted to support said amphibian on land and to propel said amphibian through the water; and housing means

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for enclosing the upper flight of said belt means and the grousers carried thereon to prevent an interaction between said grousers and the water such as would produce a counter propulsive thrust.

2. In an amphibian, the combination of: a hull adapted when afloat to sustain the weight of said amphibian; traction belt means including a series of grousers provided thereon; means for mounting this belt means on said hull for annular travel so that both the upper and lower flights of said belt means are submerged in water when the hull is afloat as aforesaid, the grousers on the lower flight of said belt means being adapted to support said amphibian on land and to propel said amphibian through the water; and housing means for enclosing the upper flight of the said belt means and the grousers carried thereon to provide an enclosed free space between the extremities of the grousers on said upper flight and said housing and thus prevent such interaction between said grousers and the water as would produce a counter propulsive thrust.

3. In an amphibian the combination of: a hull

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adapted to provide sufficient buoyancy to support the weight of said amphibian when immersed in water to a given water line, thereby permitting said amphibian to float in and navigate on the surface of the water; a pair of traction belt mechanisms provided on opposite sides of said hull, and including traction belts carrying grousers and disposed in oppositely traveling upper and lower flights, said mechanisms being located at such a depth on said hull as to be entirely submerged when said amphibian is operating on the surface of the water, as aforesaid, the grousers on the lower flights of said belts being adapted to support and propel said amphibian when operating on land, and to propel said amphibian when it is operating on the water; and housing means for enclosing the upper flights of said traction belts and the grousers mounted thereon to prevent an interaction between said upper flight grousers and the water, such as would produce a counter propulsive thrust when said amphibian is operating on the water.

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