H. W. SHONNARD.

AUTOMOBILE TORPEDO.

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1,296,333.

Patented Mar. 4, 1919.

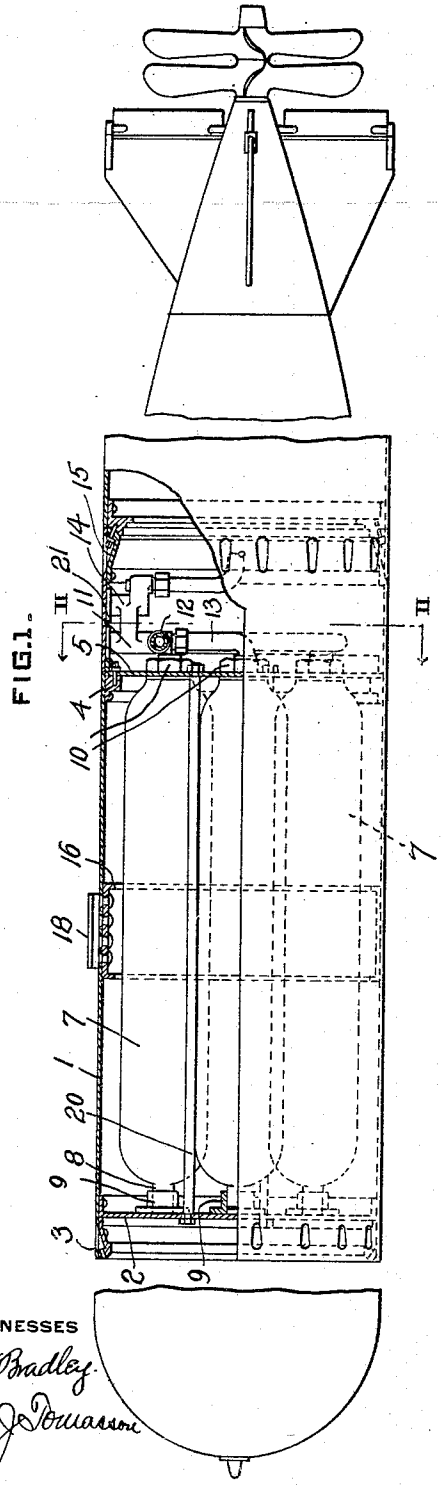


FIG. 1.

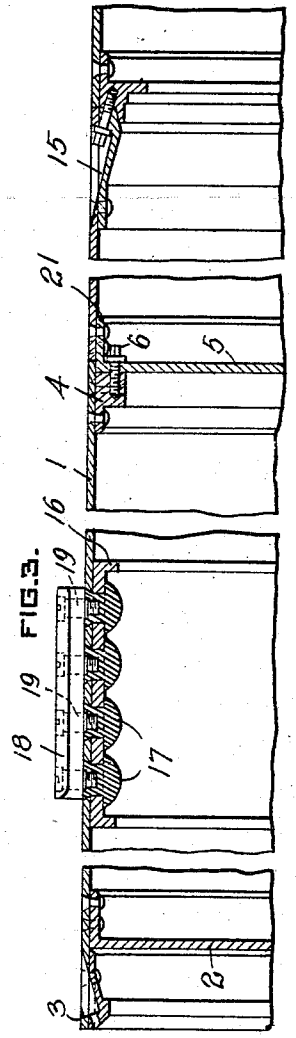


FIG. 3.

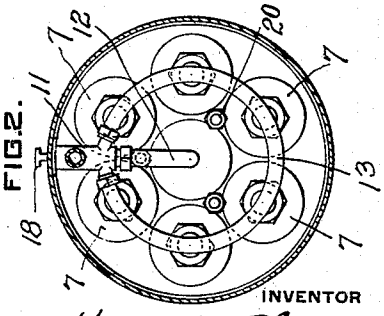


FIG. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

HAROLD W. SHONNARD, OF UPPER MONTCLAIR, NEW JERSEY, ASSIGNOR TO CRUCIBLE STEEL COMPANY OF AMERICA, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF NEW JERSEY.

AUTOMOBILE TORPEDO.

1,296,333. Specification of Letters Patent. Patented Mar. 4, 1919.

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To all whom it may concern:

Be it known that I, HAROLD W. SHONNARD, residing at Upper Montclair, in the county of Essex and State of New Jersey, a citizen of the United States, have invented or discovered certain new and useful Improvements in Automobile Torpedoes, of which improvements the following is a specification.

Automobile torpedoes, as usually constructed, comprise three main sections, a head containing the explosive material, a compressed air or gas section and an afterbody in which is placed the machinery and apparatus necessary to propel and guide the torpedoes. My present invention concerns, primarily, the construction of the second of these main sections, namely, that in which the compressed air is stored. Usually this section is in the form of a thick walled flask constructed of special steel, and its complete manufacture requires a great amount of labor and skill, so that its cost is a very substantial part of the cost of the entire torpedo. The necessity of such an expensive air flask arises from the requirement of long range torpedo fire.

It is the object of my present invention to provide, for relatively short range torpedoes, a compressed gas storage section, which will be simple and effective in construction and which may be manufactured at a very small cost as compared to the usual air flask. A further object is to improve the general construction of torpedoes.

In the accompanying sheet of drawings, forming part of my specification, I have illustrated the preferred embodiment of my invention. Figure 1 is a combined vertical section and side elevation of a torpedo; Fig. 2 a transverse sectional view taken on the line II—II, Fig. 1; and Fig. 3 a partial sectional view to enlarged scale showing details of construction of the outer casing.

In the practice of my invention the compressed gas section of the torpedo comprises a cylindrical casing constructed of an outer hull or body portion and transverse fore and aft bulkheads, and a plurality of elongate flasks arranged within such casing and supported at their opposite ends by the bulkheads.

In the illustrative embodiment of my invention the outer hull 1 is made of relatively thin metal as compared to the thickness of the walls of the usual air flask, and the fore bulkhead 2, consisting of a flanged plate, is riveted thereto. A small portion of the body 1 projects beyond the bulkhead 2 for the purpose of securing thereto a warhead attaching-ring 3. The aft bulkhead, also, is preferably formed of flanged plate 5 adapted to be attached to a ring 4 by means of joint screws 6, such ring being secured to the aft end of the hull. Between these bulkheads, and in the water-tight compartment formed by them and the hull 1, the compressed gas or air flasks 7 are arranged. These flasks may be the same as, or similar to, the well known pressure flasks now used for various purposes, as for example, the storage of compressed cutting and welding gases. The filling and discharging ends of the flasks are secured to the aft bulkhead 5 and the closed ends to the fore bulkhead 2. That the flasks may, when under the pressure of a charge of gas, expand laterally and longitudinally without damaging each other or their inclosing members, they are held at slight lateral intervals from each other, and the connections for supporting one of their ends (preferably their closed ends) are in the form of expansion joints. As shown in the drawings, the closed ends of flasks are provided with projections or bosses 8 adapted to be received by, and to slide longitudinally within, flanged sockets 9 secured to the bulkhead 2. The filling and discharging ends of the flasks are preferably rigidly secured to the aft bulkhead 5, as by means of clamping or lock nuts 10. It will be observed that the flasks themselves will act as struts to prevent any substantial buckling of the bulkheads toward each other. That they may not buckle outwardly, suitable stay rods 20 may extend from one bulkhead to the other.

Various numbers of flasks may be used, and they may be arranged in various ways within the hull 1. Preferably, however, the number and arrangement is as indicated in Fig. 2, there being one flask in the center and six grouped around it.

A charging valve 11, of any well known or desired construction, is used for filling the flasks, and, for connecting such valve to the several flasks, a single conduit 12 may lead from the bottom of the valve to the central flask and a circular conduit 13 from the sides of the valve to the outer flasks.

The valve, as well as the usual pressure regulating and stop valves used in torpedo construction, are preferably secured to a midship section 21 of the hull, which section is secured to and projects aft of the bulkhead 5. A ring 15 may be attached to the aft end of the hull section 21 for the attachment of the torpedo afterbody.

That the torpedo may be properly handled without liability of crushing or otherwise injuring the hull section 1, a reinforcing ring 16 is secured, as by rivets 17, to the interior of the hull, preferably in the general plane of the center of gravity of the entire torpedo. To the outside of the hull opposite to the reinforcing ring a guide 18 is attached. For making this attachment, the countersunk outer ends of the rivets 17 are cupped and threaded to receive bolts 19 extending through the guide 18. This guide may also serve as a member whereby the torpedo may be engaged for the purpose of lifting or otherwise moving it.

In assembling my improved compressed gas section, the hull or shell section 1, with the fore bulkhead 2 attached to it, may be set on end and the flasks 7 entered through the ring 4 at the open end of the hull, the boss 8 of each flask being entered into its respective socket 9. The stay rods 20 may then be attached to the fore bulkhead. The flasks having been thus set in position, the aft bulkhead 5, with the midship hull 21 riveted thereto, may be placed over the ends of the flasks and stay rods and secured to the ring 4 by means of the joint screws 6. The lock nuts 10 may then be attached to each flask, after which the valves 11 and 14 are attached to the midship hull section 21 and connected, by the conduits 12 and 13, to the several flasks 7.

According to the provisions of the patent statutes, I have described the principle of my invention together with the construction which I now consider to represent the best embodiment thereof. However, I desire to have it understood that my invention may, within the scope of the appended claims, be practised by other forms of construction than that specifically shown and described.

I claim as my invention:

1. A compressed gas section of an automobile torpedo comprising an outer hull or body portion closed at its opposite ends by bulkheads, and a plurality of elongate flasks arranged longitudinally of said hull and supported at their opposite ends by and between said bulkheads.

2. A compressed gas section of an automobile torpedo comprising an outer hull or body portion closed at its opposite ends by bulkheads, and a plurality of elongate flasks arranged longitudinally of said hull and supported at their opposite ends by and between said bulkheads, the support for one end of each of the flasks being an expansion joint.

3. A compressed gas section of an automobile torpedo comprising an outer hull or body portion closed at its opposite ends by fore and aft bulkheads, a plurality of elongate flasks arranged longitudinally of said hull, and secured at their open end to one bulkhead, and sliding expansion-joint connections between the other bulkhead and the closed ends of said flasks.

4. In an automobile torpedo the combination of an outer hull or body portion closed at its opposite ends by bulkheads, a plurality of elongate flasks arranged longitudinally of said hull, one flask being at the center of the hull and the others being grouped around the centrally disposed flask, said flasks being supported by said bulkheads, a starting valve, and filling and discharging conduits extending from said valve to each of said flasks.

5. In an automobile torpedo the combination of an outer hull or body portion provided at each end with rings for the attachment of a torpedo head and afterbody, fore and aft bulkheads within said hull and forming therewith a flask compartment, a plurality of elongate flasks supported at their opposite ends by said bulkheads, the support for one end of each flask being an expansion joint, a charging valve secured to said hull aft of the aft bulkhead, and conduits extending from said valve to each of said flasks.

6. A compressed gas section of an automobile torpedo comprising an outer hull or body portion, fore and aft bulkheads within said hull and forming therewith a flask compartment, a plurality of elongate flasks supported at their opposite ends by said bulkheads, and a reinforcing ring secured to the interior of said hull at a point intermediate of said bulkheads.

7. In an automobile torpedo, the combination of a hull or body portion, a reinforcing ring on the interior face of said hull, rivets extending through said ring and hull and cupped at the outer face of the hull, a guide, and screws engaging said guide and cupped rivets.

In testimony whereof I have hereunto set my hand.

HAROLD W. SHONNARD.

Witnesses:

HERMAN C. ENGLEMAN,

GEO. V. JAMES.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."