

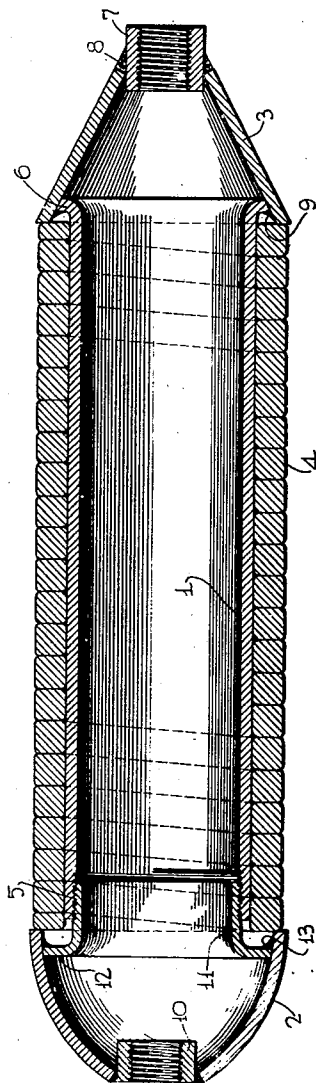
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MUNITIONS

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This invention relates to munitions, more particularly to that class of munitions known as fragmentation bombs.

One well known form of fragmentation bomb embodies a main cylindrical casing having threaded ends surrounded by a fragmentation element in the form of rectangularly shaped spirally wound wire, and cup-shaped castings threaded to the ends of the casing and closely abutting the ends of the spirally wound fragmentation element. The cup-shaped casings are internally threaded, the one to carry a stabilizing fin element and the other to carry a detonating device.

The present invention is directed to improvements in this character of bomb and has for its objects the provision of a bomb casing which can not only be produced at a lower unit cost than has been heretofore possible but in which increased fragmentation is provided.

Under present day conditions, the obtaining of suitable castings in quantity is a serious problem, mainly due to the fact that the steel and malleable iron foundries have not increased their equipment in proportion to the increase in machining equipment. The objects of the present invention are attained through the elimination of the end castings and the provision in their place, of end members formed to desired shape from hot rolled steel stock and by the arrangement of these end members in such manner that for a given length casing approximately sixteen percent more fragmentation is obtained over a casing of the same length utilizing the conventional cup-shaped castings. The cost of the hot rolled steel stock is two-thirds less than that of a malleable casting and the resultant saving in weight and the differential in cost very materially reduces the unit cost of the bomb casing.

Referring to the accompanying drawing, the bomb casing of the present invention comprises a main tubular casing 1, end members 2 and 3 and a fragmentation element 4.

The casing 1 is internally threaded at one end, as indicated at 5, and is outwardly flared at its opposite end to provide a flange 6, the edge of which is machined to a desired taper. The end 3 is formed from solid hot rolled steel stock by any suitable forming operation to its shell like frusto-conical shape. An internally threaded sleeve 7 is arranged within the end of smaller diameter of the conical end 3 and is circumferentially arc-welded thereto, as indicated at 8, to provide a gas tight connection.

The flanged end 6 of the casing 1 is nested

within the conical end 3, the taper thereof corresponding to the taper of the end to provide a snug fit, and is continuously secured thereto by circumferential arc welding, as indicated at 9. It is to be noted that the larger end of the end member 3 projects somewhat beyond the flange 6 to provide an extended surface, thus facilitating the arc-welding operation.

The fragmentation element 4, as is well known practice, is formed from Keystone wire of appropriate dimension on a suitable coiling machine to spiral form having an internal diameter substantially that of the casing and is slipped over the casing 1 with its one end abutting the projecting end of the conical end member 3. The sleeve 7 is for the reception of a suitable stabilizing element (not shown).

The end member 2 is more or less in the form of a semi-spherical shell and is formed to shape like the end member 3, from solid hot rolled steel stock by any suitable forming operation, during which operation it is provided with an end opening for the reception of an internally threaded adaptor 10. The adaptor 10 is for receiving the detonator device (not shown). The end member 2 further embodies an externally threaded sleeve 11 which is provided with an outwardly extending marginal flange 12. This flange 12 is nested within the cup-shaped end member 2 and is continuously arc-welded thereto, as indicated at 13, to provide a gas tight connection. Here again, as in the case of the connection of the end member 3 with flange 6, the end member 2 projects beyond the flange 12, thus providing a substantial extended surface for the arc welding of the two parts together.

Final assembly of the casing is accomplished by threading of the sleeve 11 of the end member 2 with the internal threads 5 of the casing 1. In this condition, the fragmentation element 4 is held firmly between the extending ends of the end members 2 and 3, the individual turns thereof being firmly abutted against each other.

In the prior practice of using castings for the end members, the ends of the casing were externally threaded and the castings threaded thereon. Such practice necessitated a relatively long overlapping of the casing and end castings, the length of the fragmentation element thus being less than the length of the casing and limited to the distance between the end castings.

The fragmentation element 4, in accordance with the present invention, is enabled to be materially increased in length to substantially that

of the casing, thus providing for greater fragmentation capacity.

It is to be noted that the parts of the bomb casing are so arranged and designed as to permit the same to be fabricated by simple shop operations in quantity production.

The weight and cost of the metal used for the end members are both less than in the case of castings, thus enabling fabrication in quantity production at a materially lesser cost.

It is to be understood that detailed changes may be made in the embodiments shown and described for the purpose of illustration without departing from the spirit of the invention, the scope of which is defined by the appended claims.

What is claimed is:

1. A fragmentation bomb casing comprising a tubular member, a spirally-wound fragmentation element closely surrounding said member, said member having an outwardly extending flange at one end, a shell-like end member having one end fitting around and permanently secured to said flange and abutting the adjacent end of said fragmentation element, and a second end member removably attached to the other end of said tubular member and having a portion abutting the other end of said fragmentation element, said second end member being of cup-like formation and having an axial tubular portion threaded internally within said tubular member.

2. A fragmentation bomb casing comprising a tubular member, a spirally-wound fragmentation element surrounding said member, an end member secured to one end of said tubular member and abutting the adjacent end of said fragmentation element, and a second end member of cup-like formation abutting the other end of said fragmentation element, said second end member including a sleeve portion having a threaded connection with the bore of said tubular member and having an outwardly extending flange rigidly and permanently secured within said cup shaped member.

3. A fragmentation bomb casing comprising a tubular member having an integral radial flange at one end, a cup-shaped stamping surrounding and welded to said flange, a spirally wound fragmentation element surrounding said member and having one end abutting said cup-shaped stamping, a second cup-shaped stamping, and a sleeve member having an integral radial flange arranged within and welded to said second cup-shaped stamping, said sleeve member being threadably connected to the bore of said tubular member with said second cup-shaped stamping in abutting engagement with the other end of said fragmentation element.

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