

Feb. 13, 1962

K. BEYER-OLSEN ET AL  
INFLATABLE BUOYANT BODY HAVING CONICAL  
FASTENING MEMBER THEREON

3,020,669

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2 Sheets-Sheet 1

FIG. 1.

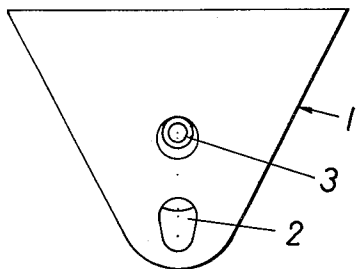


FIG. 2.

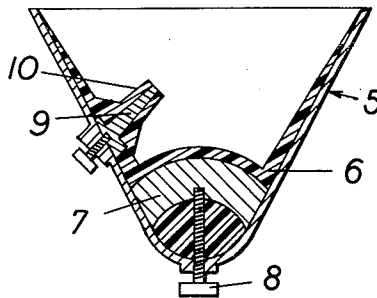
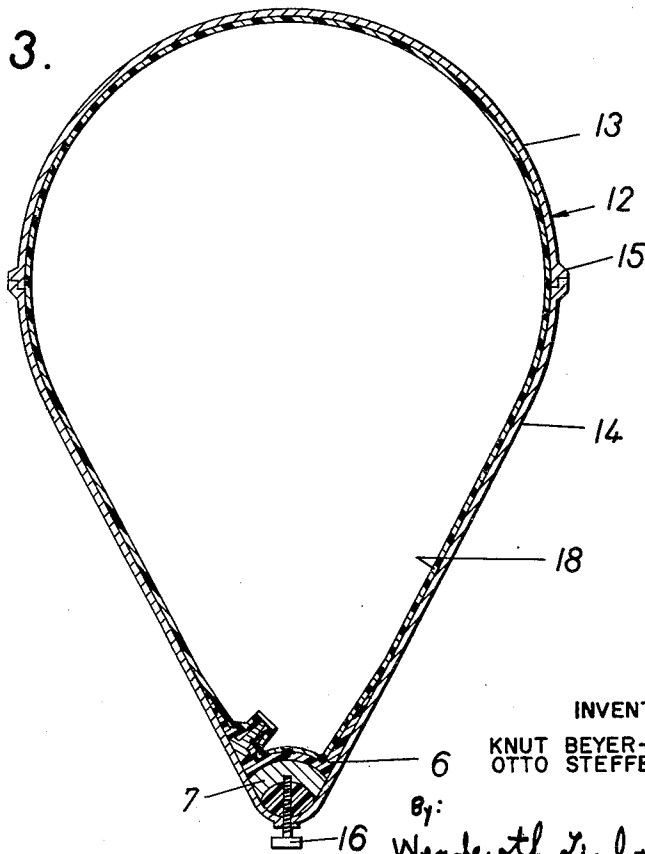


FIG. 3.



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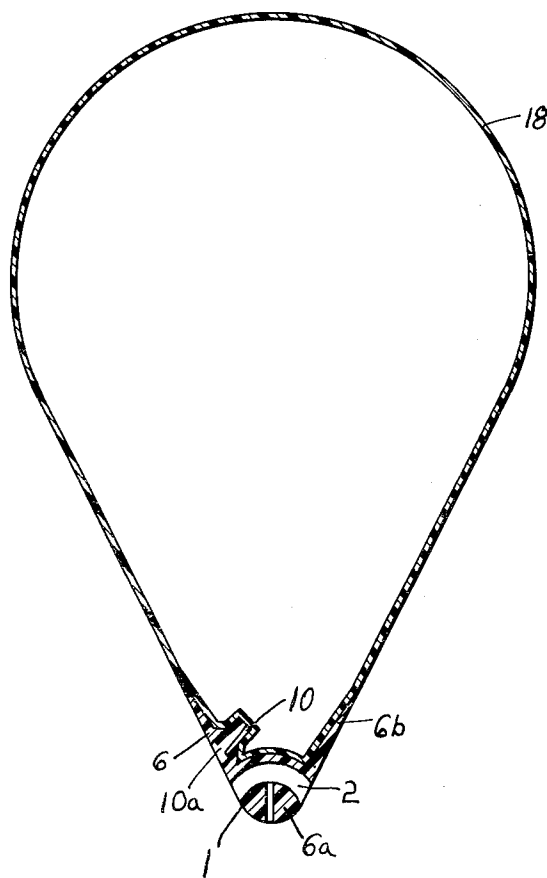
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FIG. 4.



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**INFLATABLE BUOYANT BODY HAVING CONICAL FASTENING MEMBER THEREON**

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The present invention relates to buoyant bodies, preferably floats for fishing nets and lines, and more particularly the invention relates to a process for making hollow, seamless buoyant bodies of the type where fastening members, valve openings etc. are arranged inside the outer boundary of the buoyant body.

Buoyant bodies as above indicated are known and are today made by centrifugal casting or moulding where the moulds are furnished with cores corresponding to the required fastening members with passage for a rope etc.

It shall be understood that the term "fastening member" as used in the following specification shall include also other devices in the buoyant body such as valve bodies etc.

Floats made according to conventional processes are burdened with the drawbacks that the different devices constituting fastening members, valve housings etc. do not possess the required strength. One of the reasons for this is that it has proved very difficult to direct the desired quantities of plastic substance for deposition around the cores in order to give said members greatest possible strength. Further experience has proved that even when relatively large quantities of substance are enclosing the cores said member in many cases still lack the strength and stiffness desirable. This latter condition appears most often when centrifugal casting is employed to make the float as those substances or plastics which are applicable with such moulding are too flexible to possess the desired strength.

The main object of the present invention is to provide a process to make floats as above described whereby said drawbacks are eliminated, and according to the inventors this is accomplished by the steps comprising of forming the fastening member in a separate operation of a plastic with relatively high tensile strength, placing said member in a mould for casting the float proper (bladder), moulding said bladder in a second plastic material with greater pliability than the plastic in the said fastening member, said moulding effecting such a sealing and binding relationship across adjacent interfaces of the member and bladder, that said member is constituting an integral part of the finished float.

It is a further object of the present invention to provide a process to make floats as above described, utilizing the advantages which centrifugal casting offers in the making of such floats.

Other objects and advantages of the invention will be apparent from the following description in conjunction with the drawing which illustrates a preferred embodiment of a float made according to the process of the invention, and where:

FIGURE 1 is an elevation showing a fastening member according to the invention,

FIGURE 2 is a sectional elevation of the member in FIGURE 1, said member located in a casting mould,

FIGURE 3 is a sectional view in a smaller scale of the mould for casting the bladder, the mould containing the bladder together with the fastening member; and

FIG. 4 is a sectional view of the buoyant body according to the present invention.

As seen in FIGS. 3 and 4, the inflatable buoyant body according to the present invention is of plastic, and comprises a hollow conical fastening member 1 having a wall

6 which decreases in thickness from the apex portion 6a toward the edge 6b. The apex portion 6a is solid and has a passage therethrough from one point on the outside surface thereof to another point on the outside surface thereof for the passage of a rope therethrough. A hollow inflatable plastic bladder 18 is integrally joined to the conical fastening member 1 over the entire inside surface of said fastening member. The wall 6 overlaps a relatively large surface of the bladder 18 and is smoothly joined to the bladder at the edge 6b of the wall.

The fastening member 1 is of a plastic which has a high tensile strength relative to the plastic in said bladder 18, and the bladder 18 is of a plastic which has a greater pliability than the plastic of the fastening member 1.

A valve means is provided in the fastening member 1 in the form of a valve housing 10 and a valve member 10a in said valve housing. The valve housing 10 extends through the portion of the bladder 18 which lies against the inside surface of the conical fastening member 1.

The characteristic features of the fastening member appear more clearly from the section shown in FIGURE 2, where 5 is a casting mould for the fastening member 1. In the mould 5 an arched moulding core 7 of a suitable material is removably supported in the passage 2 by means of a screw or bolt 8 which fits into corresponding threads in the core 7. The casting mould 5 is further finished with a moulding core 9 for a valve housing 10. In FIGURE 3 the reference number 12 generally designates a partly spherical casting mould comprising two halves 13 and 14 which fit together along circumferential flanges 15. The bottom end portion of the mould 14 has a configuration similar to the bottom of mould 5, shown in FIGURE 2, so that the conical fastening member formed in mould 5 will thus fit accurately into the conical end portion of the mould 14.

The process according to the invention may be carried out in several different fashions. In the following shall be described the procedure according to a preferred embodiment of the invention.

The fastening member is made in the mould 5 which after insertion of the cores 7 and 9 is furnished with a measured quantity of a liquified plastic, for instance polyvinyl chloride, whereupon the mould is rotated and tilted if required with additional heat added, having the result that the plastic deposits around the cores 7 and 9 and along the inner facing of the mould. (See FIGURE 2.) After solidification the fastening member is being cured in about 40 minutes at a temperature of 170° C.—180° C. and is ready for further processing.

It should be understood that the fastening member can be made by other methods than the one above described, for instance by means of injection moulding.

The fastening member together with the cores, thereafter, are placed into the bottom portion 14 of the casting mould 12, in which mould the fastening member is rigidly fixed by means of a threaded bolt 16 tightly screwed into the threads in the core 7 imbedded in the member 6. A predetermined quantity of a plastic with greater pliability than the plastic in the fastening member is placed in the mould 14, whereupon the mould 12 is assembled by mounting the other half 13. In a centrifugal casting machine the mould is heated and rotated as a result of which the plastic gradually deposits in a more or less uniform layer to form bladder 18 on the inside face of the mould and along the face of the fastening member. Subsequently the mould is placed in a tempering oven where the now assembled floats are given the final curing treatment. After the required cooling the float is detached from the mould, the cores are removed and after a minor finishing the float is ready to be inflated and put to use.

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In the process as above described a separate mould for making the fastening member is employed, it shall be understood, however, that this being preferable it is still fully possible to employ the bottom half 14 of the mould 12 for this purpose.

It is thought that the invention and its advantages will be understood from the foregoing description and it is apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing its material advantages, the form hereinbefore described and illustrated in the drawings being merely a preferred embodiment thereof.

We claim:

1. An inflatable buoyant body of plastic, comprising a hollow conical fastening member having a wall which decreases in thickness from the apex portion towards the edge, said apex portion being solid and having a passage therethrough from one point on the outside surface thereof to another point on the outside surface thereof for the passage of a rope therethrough, a hollow inflatable plastic bladder integrally joined to the conical fastening member over the entire inside surface of said hollow fastening member, the wall overlapping a relatively large surface area of the plastic bladder and being smoothly joined to the bladder at the edge of the wall, said fastening member being of a plastic which has a high tensile strength relative to the plastic in said bladder, said bladder being of a plastic having greater pliability than the plastic of said fastening member.

2. An inflatable buoyant body of plastic, comprising a hollow conical fastening member having a wall which decreases in thickness from the apex portion towards the edge, said apex portion being solid and having a passage therethrough from one point on the outside surface thereof to another point on the outside surface thereof for the passage of a rope therethrough, a hollow inflatable plastic bladder integrally joined to the conical fastening member over the entire inside surface of said hollow fastening member, the wall overlapping a relatively large surface area of the plastic bladder and being smoothly joined to the bladder at the edge of the wall, said fasten-

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ing member being of a plastic which has a high tensile strength relative to the plastic in said bladder, said bladder being of a plastic having greater pliability than the plastic of said fastening member, and a valve means extending from outside of said buoyant body at least through said bladder.

3. An inflatable buoyant body of plastic, comprising a hollow conical fastening member having a wall which decreases in thickness from the apex portion towards the edge, said apex portion being solid and having a passage therethrough from one point on the outside surface thereof to another point on the outside surface thereof for the passage of a rope therethrough, a hollow inflatable plastic bladder integrally joined to the conical fastening member over the entire inside surface of said hollow fastening member, the wall overlapping a relatively large surface area of the plastic bladder and being smoothly joined to the bladder at the edge of the wall, said fastening member being of a plastic which has a high tensile strength relative to the plastic in said bladder, said bladder being of a plastic having greater pliability than the plastic of said fastening member, and a valve means in said fastening member extending from the outside surface thereof through said bladder.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

2,603,904	Phillips	July 23, 1952
2,731,759	Hornke	Jan. 24, 1956
2,760,775	Tipton	Aug. 28, 1956
2,808,967	Miller	Oct. 8, 1957
2,812,551	Chupa	Nov. 12, 1957
2,839,788	Dembiak	June 24, 1958
2,918,703	Beal	Dec. 29, 1959
2,935,320	Chupa	May 3, 1960
2,936,494	Johnson	May 17, 1960

##### FOREIGN PATENTS

1,019,778	France	Nov. 5, 1952
436,424	Great Britain	Oct. 10, 1935
84,147	Norway	Aug. 23, 1954
163,954	Sweden	July 8, 1958