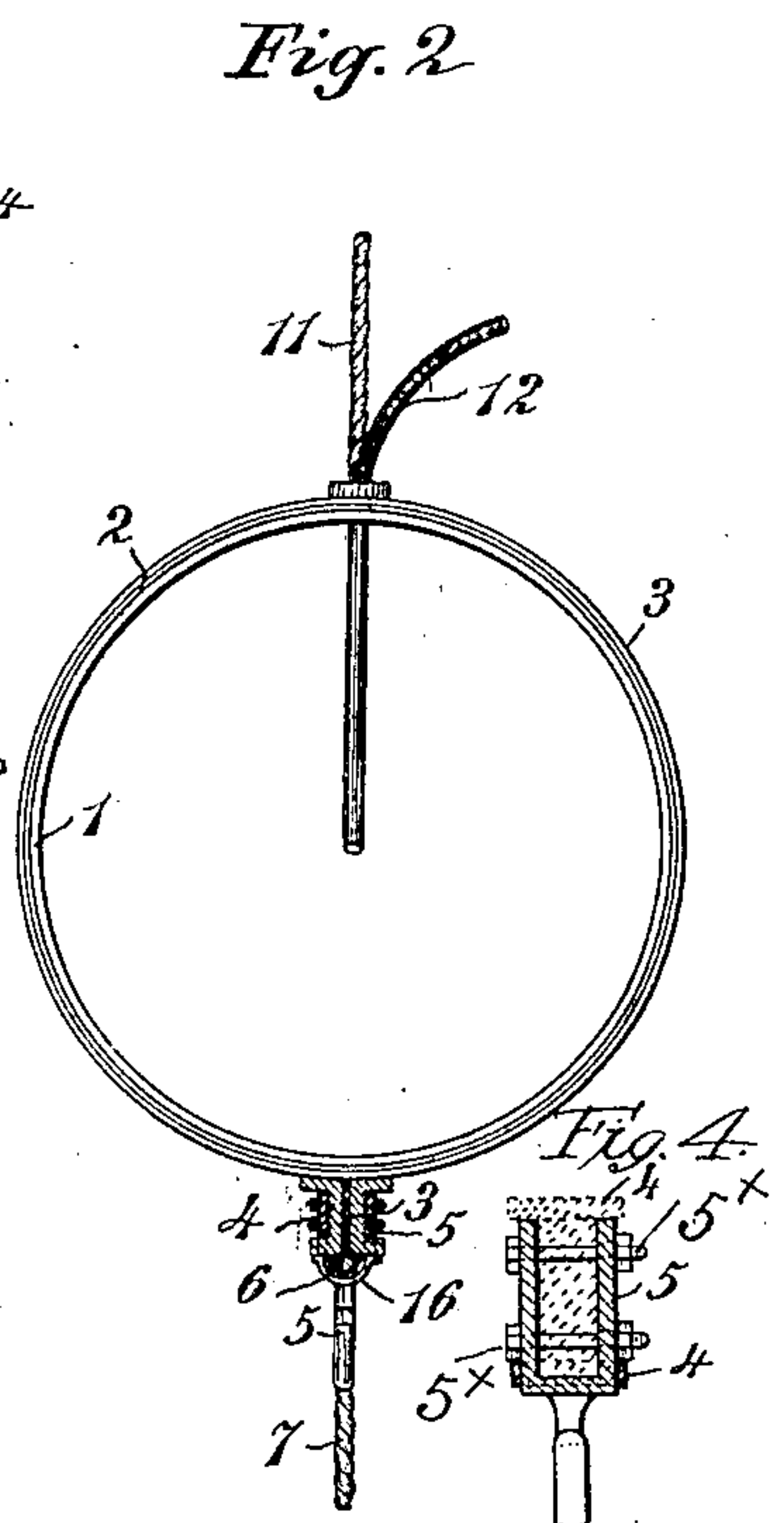
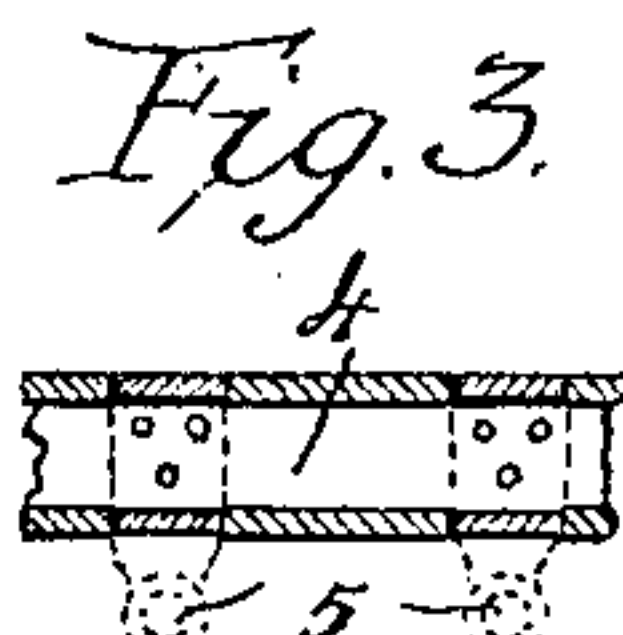
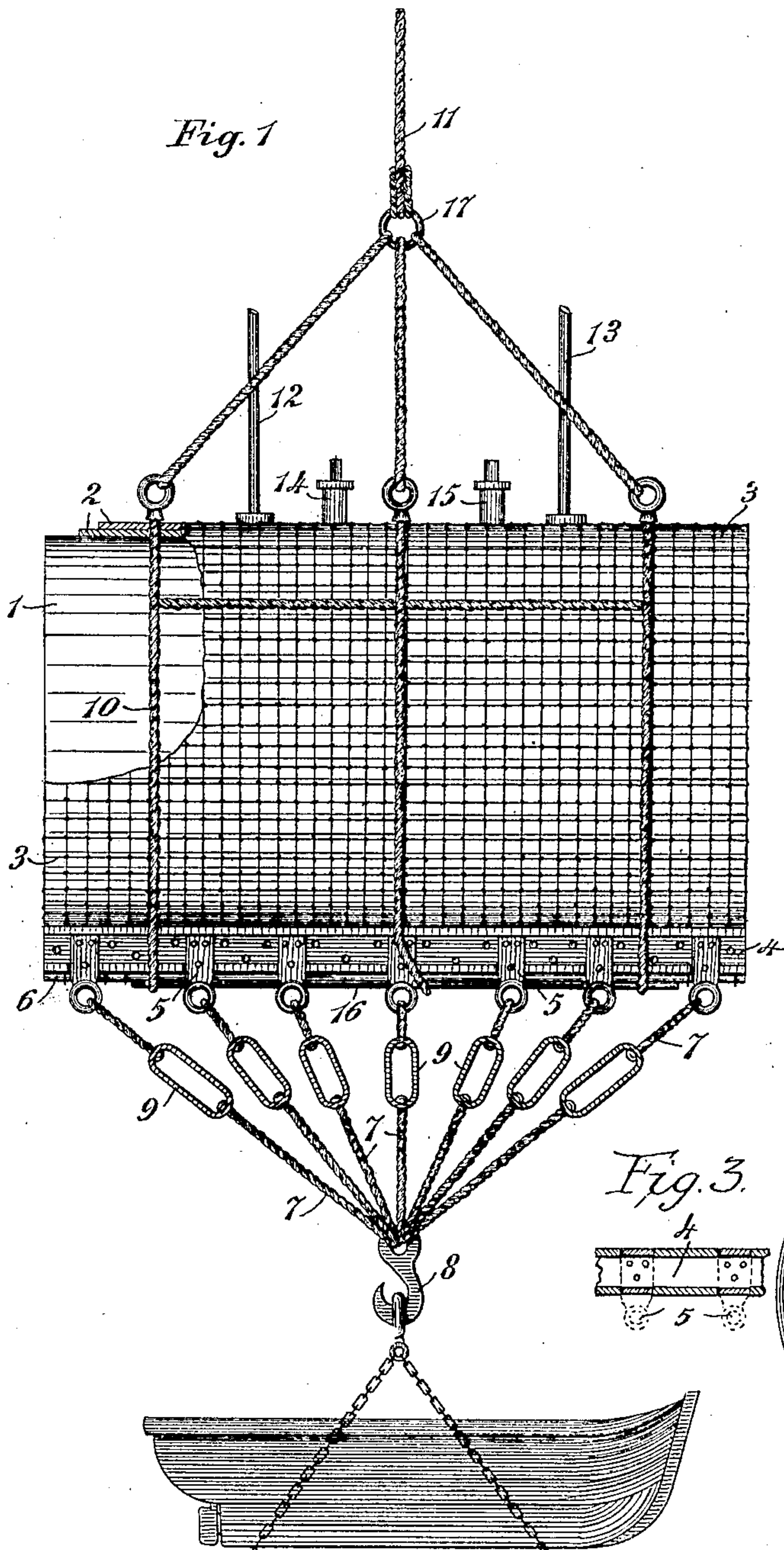


N. JELPO.
 MEANS FOR RAISING SUNKEN VESSELS.
 APPLICATION FILED NOV. 20, 1906.

906,716.

Patented Dec. 15, 1908.



WITNESSES

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UNITED STATES PATENT OFFICE.

NICOLA JELPO, OF NAPLES, ITALY.

MEANS FOR RAISING SUNKEN VESSELS.

No. 906,716.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed November 20, 1906. Serial No. 344,231.

To all whom it may concern:

Be it known that I, NICOLA JELPO, subject of the King of Italy, residing at Naples, Italy, have invented certain new and useful
5 Improvements in Means for Raising Sunken Vessels, of which the following is a specification.

This invention has for its object to provide means for raising sunken vessels said
10 means being operated by air or other compressed gas, or gas generated in the moment of its application for the purpose of elevating sunken vessels or other submerged objects from the bottom of the sea in order
15 to recover them.

In the annexed drawings, Figure 1 is a view of the complete apparatus shown in the act of elevating a sunken vessel from the bottom of the sea, and Fig. 2 is a transverse
20 section of same. Fig. 3 is a detail view relating to the clamping bars and the yoke combined therewith. Fig. 4 is a cross sectional view of the yoke with a part of the clamping bars also shown, partly in dotted
25 and partly in full lines.

My new apparatus comprises a preferably cylindrical bag 1 of waterproof cloth, rubber, leather, or other suitable waterproof material. To give this bag the necessary
30 resistance it will be coated or lined with a number of canvas layers 2 or other resistant material so that it cannot be injured by the knots of the wire netting 3 in which the said bag is wrapped. The said wire network is
35 sufficiently large to completely surround the bag with its various wrappers. To give it the desired resistance it is bent at its bottom in a loop-like manner and grasped there by two U-shaped iron bars 4 connected together
40 by bolts 5* Fig. 4. To prevent the said loop from leaving bars 4 a metal rod 6 is introduced therein to produce an enlargement. On the said bars which are to stand the effort of traction and elevation yokes 5 are
45 applied, carrying rings to which ropes, chains or rods 7 are attached, all of them converging to a single central hook 8. In order to give all of the ropes or chains the same degree of tension they are provided at
50 central points with regulating screws 9. The bag is then surrounded by suspension girdles 10 consisting of such a number of very strong ropes as to successfully resist the elevating efforts exerted on the sunken
55 object. The said girdles are provided both

at top and bottom with rings to which the elevating ropes or chains connected to hook 8 and ring 17 are attached, to which latter the main traction rope 11, wound to drums on board of vessel, is connected. The
60 bag is sewed or connected together longitudinally or at its two headings so as to produce a tight or waterproof closure. The remaining laps are cemented or sealed
65 tightly together.

The wire net surrounding the bag has preferably square meshes, as shown in Fig. 1, advantageously reinforced at top and bottom of net. The bag is also provided with
70 four openings, of which 12 is the flexible admission tube connected to compressors or accumulators on board of vessel, 13 is the discharge tube, and 14 and 15 are safety valves.

In order that the meshes of the net forming the loop surrounding rod 6 may not injure the hands of the divers they are protected by a metal guard 16 secured to the
75 jaws.

The operation of my new apparatus is as follows:—The empty apparatus is submerged by gravity; then the hook 8 is attached to the sunken object by divers, and then the bag is inflated through tube 12 by opening the valves of the compressors or
80 accumulators.

Applicant is aware that other submarine apparatus comprising protected inflatable bags capable of resisting great efforts have been proposed, and therefore does not make a claim for them generally, but none of them
85 has given satisfactory results as to resistance of bag under great pressures, and he has found by practical experiments that the best protecting means is his new metal network.

Having now fully described my said invention and the manner in which the same is to be performed, what I claim and desire to secure by Letters Patent of the United States is:—

1. An apparatus for raising sunken vessels comprising a cylindrical inflatable bag, a wire netting inclosing said bag, the bottom of said netting being formed into a loop, an iron bar placed on each side of said loop, means for clamping said bars together,
100 ropes attached to said clamping means and means for inflating said bag after the same is sunk.

2. A submarine elevator comprising a cylindrical inflatable bag, a wire netting sur-
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rounding the same and having its ends formed into a loop, a bar on each side of said loop, means for clamping said bars together, a rod inserted in the loop below said bars, ropes attached to said clamping means, a hook carried by the lower ends of said ropes, a tube 12 for putting the interior of said bag into communication with an air compressor after the bag is sunk, an exhaust

tube for the bag, and safety valves carried 10 by the bag.

In testimony whereof I have affixed my signature in presence of two witnesses.

NICOLA JELPO.

Witnesses:

PAOLO DE LISTA,
PASQUALE C. PASCOLE.