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APPARATUS FOR RAISING SUNKEN VESSELS.

APPLICATION FILED OCT. 16, 1913.

1,097,335.

Patented May 19, 1914.

3 SHEETS—SHEET 1.

Fig. 1.

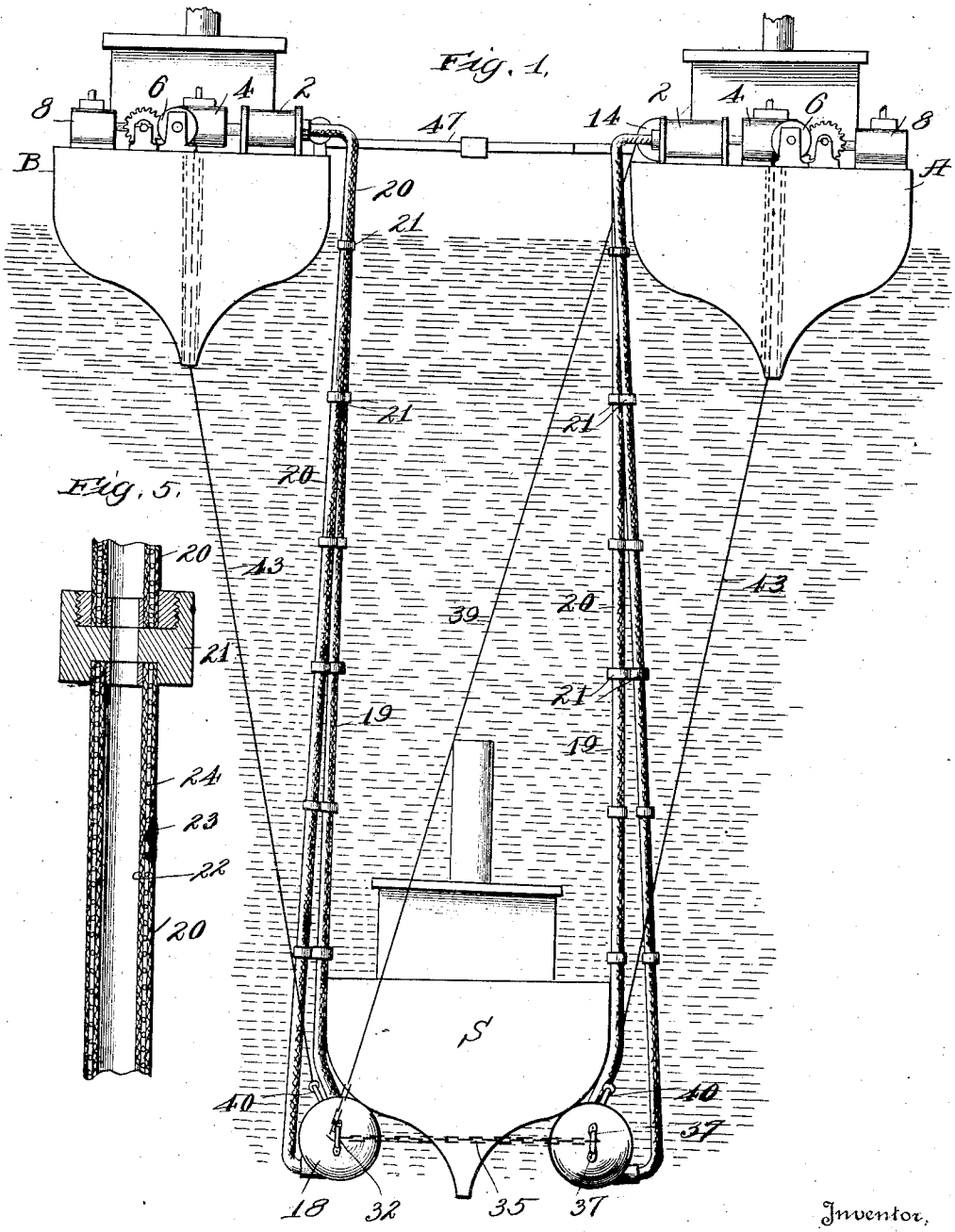


Fig. 5.

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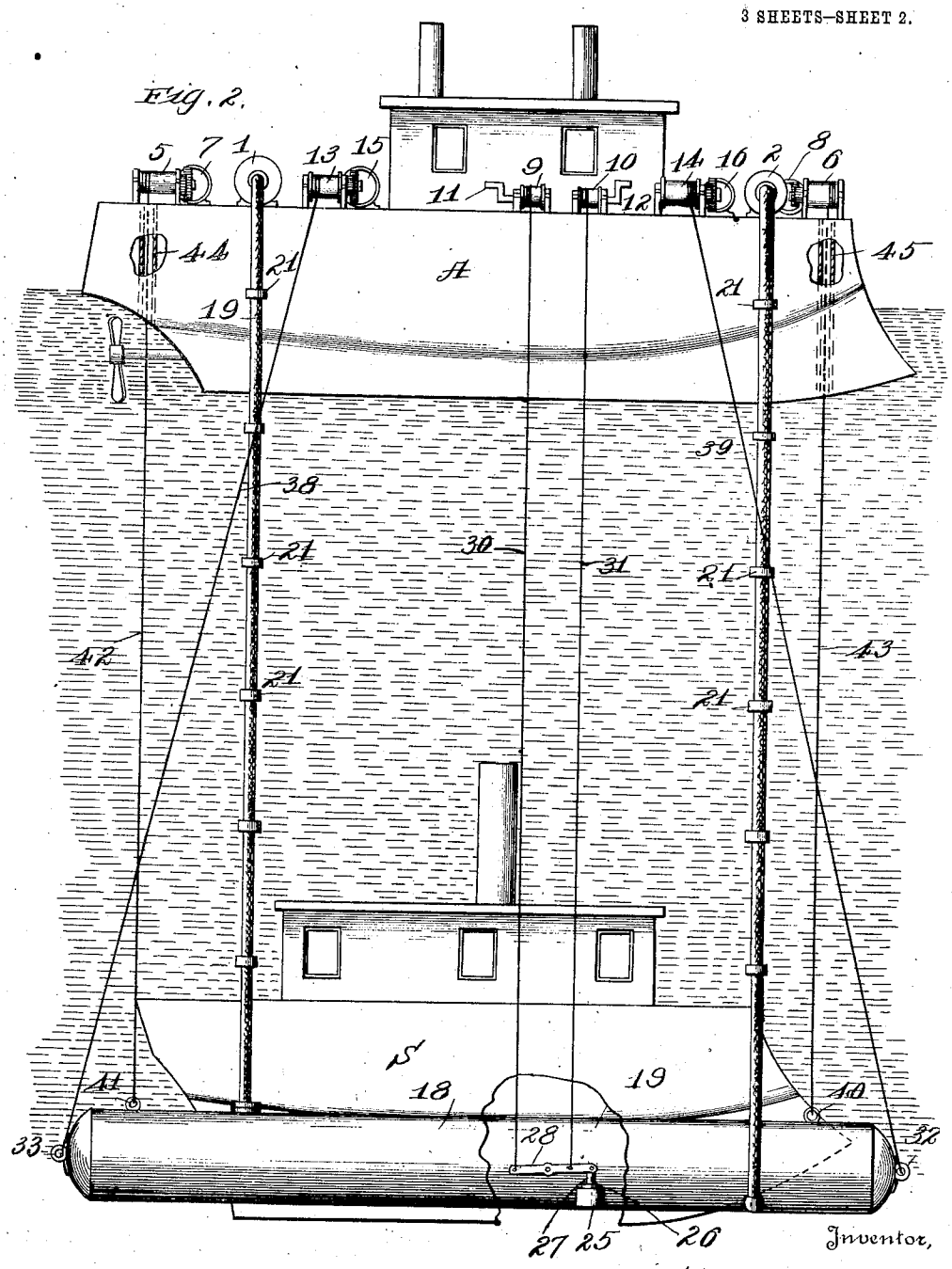
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

Fig. 3.

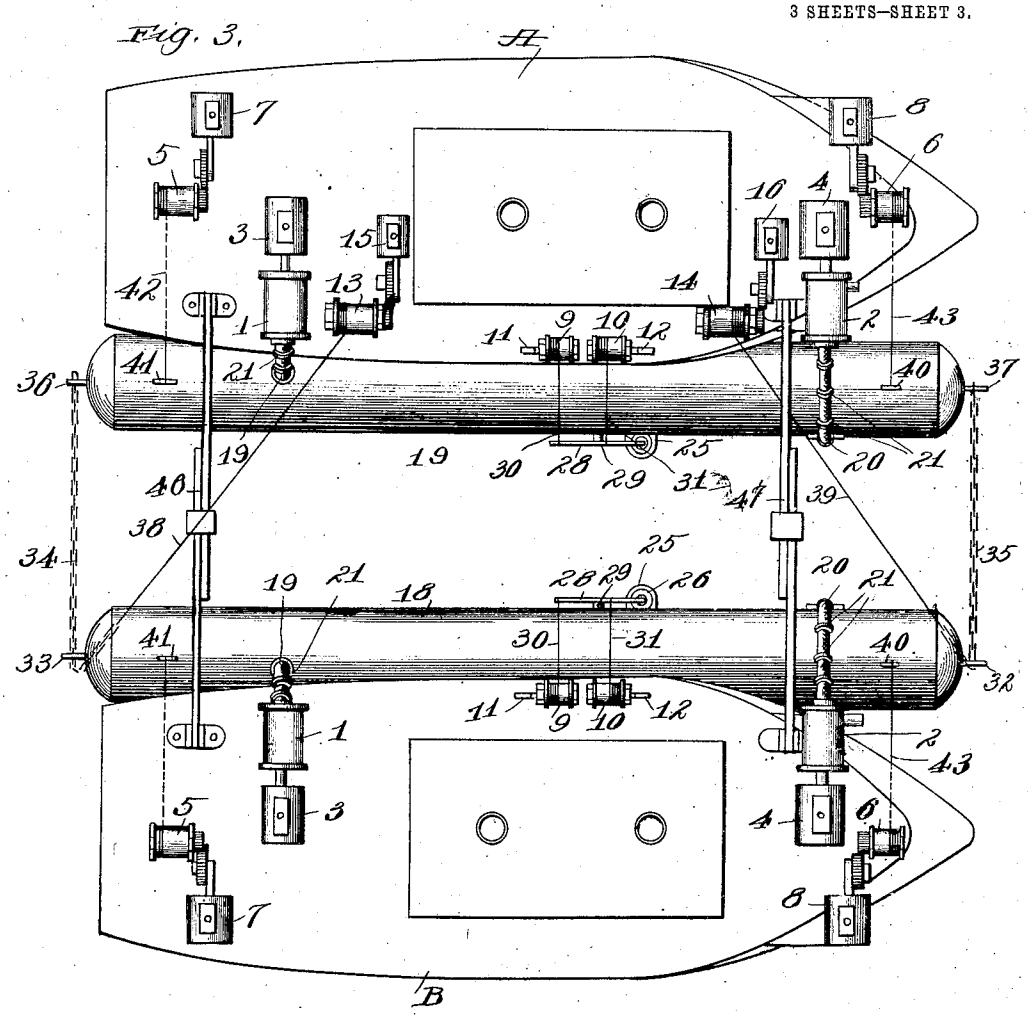
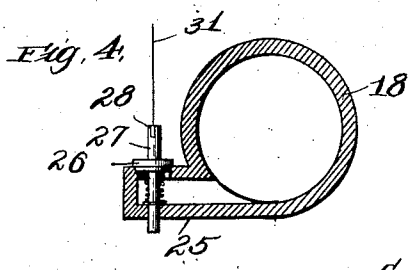


Fig. 4.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR RAISING SUNKEN VESSELS.

1,097,335. Specification of Letters Patent. Patented May 19, 1914.

Application filed October 16, 1913. Serial No. 795,493.

To all whom it may concern:

Be it known that I, GYULA KOESIS, a subject of the King of Hungary, residing at St. Clairsville, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Apparatus for Raising Sunken Vessels, of which the following is a specification.

This invention relates to apparatus for raising sunken vessels.

The object of the invention is, in a ready and practical manner, to lift sunken vessels irrespective of the depth to which they are submerged; to dispense with the employment of divers or of diving bells in positioning the lifting apparatus relative to the submerged vessel, and to accomplish the end without damage to the sunken vessel.

With the above and other objects in view as will appear as the nature of the invention is better understood, the same consists in the novel construction and arrangement of parts of an apparatus for raising sunken vessels as will be hereinafter fully described and claimed.

In the accompanying drawings forming a part of this specification, and in which like characters of reference indicate corresponding parts:—Figure 1 is a view in end elevation of the apparatus displaying the manner in which the lifting means is positioned relative to the submerged vessel. Fig. 2 is a view in side elevation. Fig. 3 is a top plan view displaying the apparatus as it appears before being positioned relative to the submerged vessel. Fig. 4 is a sectional detail view of a valve employed in connection with the lifting tanks. Fig. 5 is a sectional detail view of a form of conducting pipe used in connection with the apparatus.

In carrying out the invention, two boats A and B of any preferred type are employed, and which are preferably counterparts of each other. Mounted upon the deck of each boat is an air compressing pump 1 and a water suction pump 2, these pumps being driven by engines designated diagrammatically 3 and 4. Adjacent to the bow and stern of the boat and preferably to one side of the longitudinal median line of the boat are drums 5 and 6 respectively that are driven from engines designated diagrammatically 7 and 8. At a point mid-way of each of the boats and adjacent to the gunwales thereof are arranged two drums or windlasses 9 and 10 which are herein shown as operated by means of cranks 11 and 12, although if preferred they may be mechanically driven, and as this will be readily understood, illustration thereof is omitted.

On one of the boats, in this instance the boat A, are arranged adjacent to each other, two drums 13 and 14, which are driven by engines designated diagrammatically 15 and 16.

The main lifting means comprises two cylinders 17 and 18 which may be of the same length or of greater length than the boats A and B, and connected with each cylinder, one adjacent to each end thereof, are two flexible pipes 19 and 20, the pipe 19 as clearly shown in Fig. 2, entering the top of the cylinder, and the pipe 20 the bottom thereof. These pipes are preferably constructed in sections that are connected by couplings 21, as clearly shown in Fig. 5, thus to admit of the pipes being lengthened or shortened according to the requirements of the case. To prevent collapsing of the pipes due to pressure from the water where the vessel is submerged to any considerable depth, the pipes will be constructed of an inner tubular member 22 and an outer tubular member 23, the two members being separated by a coiled spring 24, such as is usually employed in connection with pipes of this character. As shown in Fig. 3, the upper end of the pipe 19 connects with the air pressure pump 1, while the pipe 20 connects with the suction pump 2, and it will be seen by this means that when a cylinder is to be emptied of water, that the action of the suction pump will be materially assisted by the action of the air pressure pump so as to reduce the power necessary to effect the emptying of the tank.

Connected with the sides of each of the cylinders adjacent to its end, is a valve casing 25, which as shown in Fig. 4, communicates with the interior of the cylinder, and arranged in this casing is a spring-pressed valve 26 with the stem 27 of which is connected a lever 28 which is fulcrumed at 29 to the side of the cylinder. Connected with this lever are two cables or chains 30 and 31, the upper ends of which are wound about the drums 9 and 10 as clearly shown in Fig. 3.

At each end of each cylinder is an eye 32 and 33 respectively, through each of which passes a chain 34 and 35, the chains being secured to the eyes 36 and 37 of the other

cylinder. To the end of the chains passing through the eyes 32 and 33 are connected the lower ends of cables or chains 38 and 39, the upper ends of which are wound about the drums 13 and 14, also shown in Fig. 3.

Secured to the cylinder, one adjacent to each end, are two eyes 40 and 41 with which connect the lower ends of cables or chains 42 and 43, the upper ends of which are wound around the drums 5 and 6.

Having thus described the apparatus, the manner of its operation will be explained.

The sunken boat having been located and its depth below the surface ascertained, the pipes or conductors 19 and 20 are brought to the desired length, after which the cylinders are filled with water and allowed to sink one on each side of the submerged vessel, but removed some distance therefrom. To fill the cylinders, the drum 10 is first operated to rock the lever and thus open the valve 26 to allow water to fill the cylinder, after which the drum 9 is operated to seat the valve, thus to prevent the escape of the water. After the cylinders have been positioned as above described, the drums 13 and 14 are operated, which will cause a draft to be exerted upon the cables 38 and 39, thus drawing the chains 34 and 35 through the eyes 32 and 33, and bringing the cylinders into contact with the sides of the submerged boat as shown in Fig. 1. The engines 1 and 2 are now started, the former forcing air under pressure into the cylinders, and the latter pumping the water therefrom, and as soon as all of the water has been withdrawn from the cylinders, drums 5 and 6 are started and exert lifting action through the cables 42 and 43 on the cylinders, which will materially assist their buoyancy in causing the sunken vessel to be raised. In order to exert as straight a draft as possible upon the cables 42 and 43, the latter pass through pipes 44 and 45 extending vertically through the vessel from deck to keel adjacent to the bow and stern. As will be obvious, the draft on the cables 42 and 43 would have a tendency to cause the boats A and B to move toward each other so that the submerged vessel S would not pass between the former, and to prevent which adjustable booms 46 and 47 are provided which are disposed adjacent to the bow and stern, as clearly shown in Fig. 3.

It will be seen from the foregoing description, that by the employment of the cylinders, and the novel way in which they are connected, that they may be caused to be brought into contact with the sides of the vessel, and be held there while the latter is being raised through the conjoint action of the buoyancy of the cylinders and the lifting cables 42 and 43.

What I claim as new is:—

1. An apparatus for raising sunken vessels comprising a pair of boats, a pair of cylinders, means carried by each boat for supplying air under pressure to the cylinders and for removing water therefrom, a valve for controlling the admission of water to each cylinder, means carried by said boats for closing the valves when the cylinders are submerged, means for drawing the cylinders into contact with the sides of the sunken vessel, and lifting means co-acting with the cylinders.

2. An apparatus for raising sunken vessels comprising a pair of boats, a pair of cylinders, means carried by each boat for supplying air under pressure to the cylinders and for removing water therefrom, a valve for controlling the admission of water to each cylinder, winding drums and cables carried by said boats for closing said valves when the cylinders are submerged, means for drawing the cylinders into contact with the sides of the sunken vessel, adjustable booms connecting said boats, and lifting means co-acting with said cylinders.

3. An apparatus for raising sunken vessels, comprising a pair of boats, a pair of cylinders, means carried by each boat for supplying air under pressure to the cylinders and for removing water therefrom, including pipes consisting of coupled sections, a valve for controlling the admission of water to each cylinder, means carried by said boats for closing said valves when the cylinders are submerged, means for drawing the cylinders into contact with the sides of the sunken vessel, means for spacing said boats apart, and lifting means co-acting with the cylinders.

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

GYULA KOESIS.

Witnesses:
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