

G. SALLES.
BOAT SALVAGE DEVICE.
APPLICATION FILED JAN. 15, 1909.

945,141.

Patented Jan. 4, 1910.
2 SHEETS—SHEET 1.

Fig. 1.

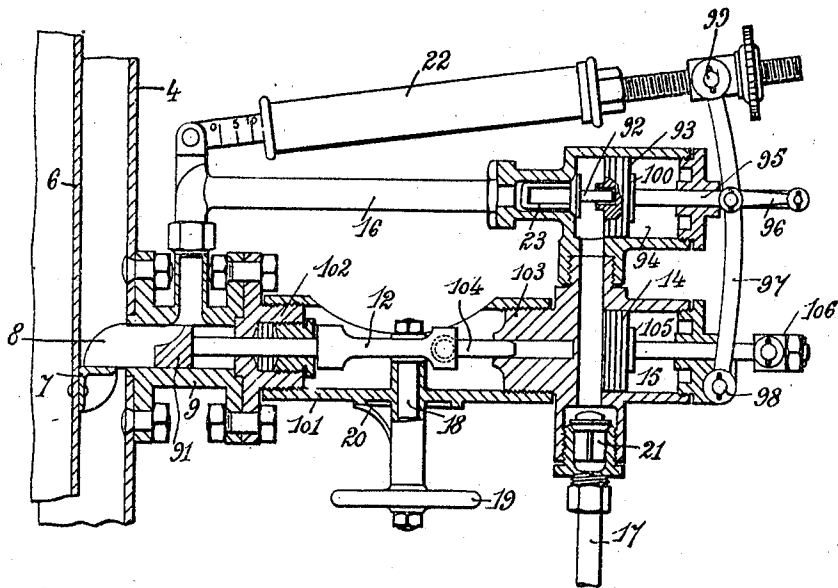
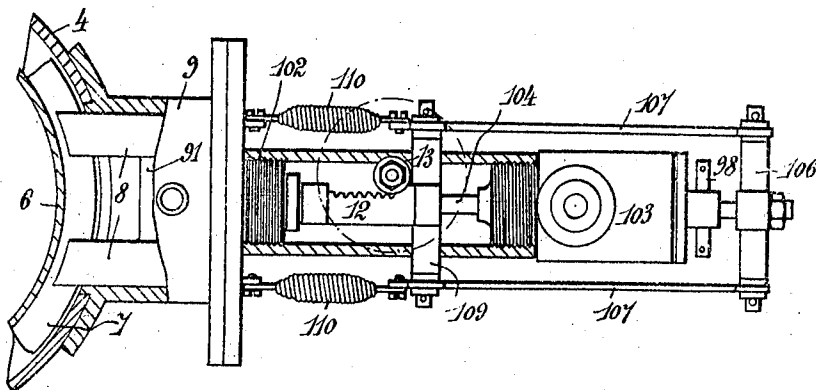


Fig. 2.



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Fig. 3.

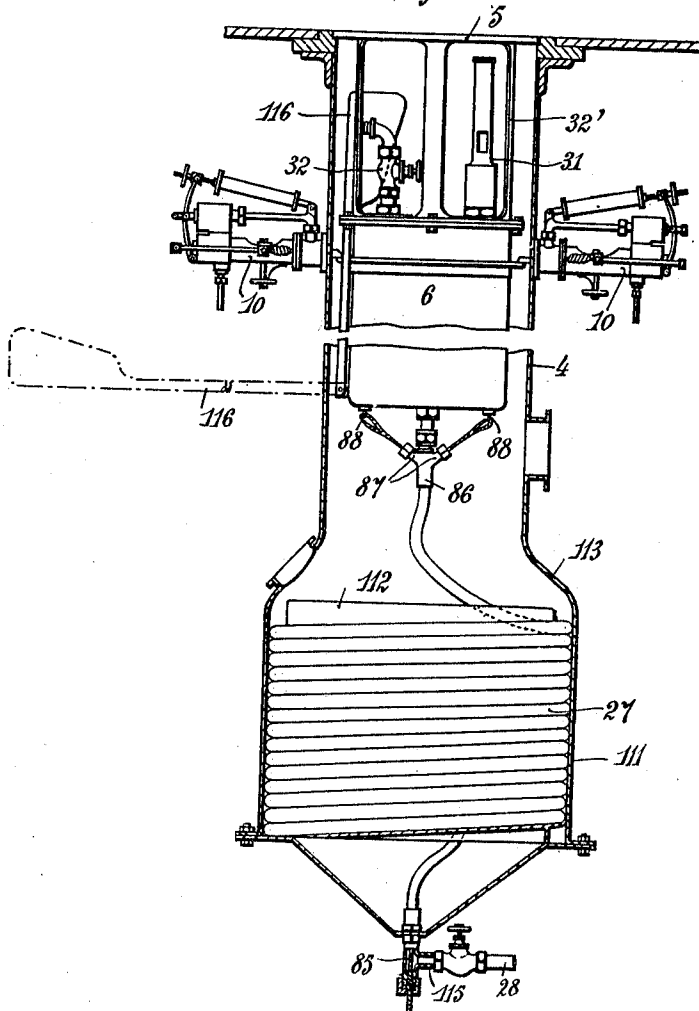
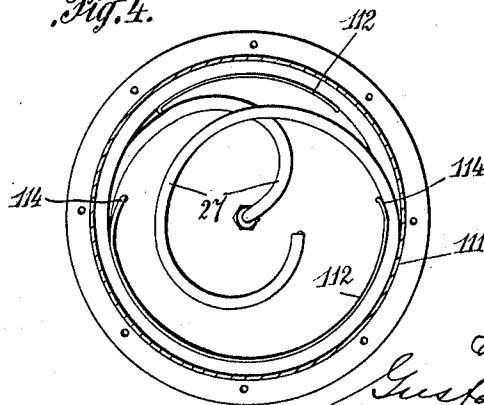


Fig. 4.



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UNITED STATES PATENT OFFICE.

GUSTAVE SALLES, OF BORDEAUX, FRANCE.

BOAT SALVAGE DEVICE.

945,141.

Specification of Letters Patent.

Patented Jan. 4, 1910.

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To all whom it may concern:

Be it known that I, GUSTAVE SALLES, a citizen of the French Republic, residing at Bordeaux, France, have invented certain new and useful Improvements in Boat Salvage Devices, of which the following is a specification.

This invention relates to improvements in salvage apparatus for submarines and crews. The improvements are chiefly made in the mechanism for locking buoys in wells in the boat, and to the arrangement of drums supporting flexible hose pipes connected to the said buoys, for the purpose of bringing about a quick release of the buoy by its sudden unlocking, followed by a very quick rising due to the great facility of unwinding the hose pipe constituting the bobbin or coil, owing to its being wound around the vertical axis of a fixed drum, which does away with the rotation of the coil and the consequent disadvantages.

The improvements in question are illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section of the locking mechanism for the buoys. Fig. 2 is a plan with the immersion balance, its levers and upper valve box being removed. Fig. 3 shows the combination of the said modified locking mechanism with the alarm buoy, the coil of which, carrying the hose pipe, is arranged so as to make the coiling or uncoiling very easy. Fig. 4 shows in plan the improved coiling of the said spool or coil.

In accordance with these improvements, to the lining 4 of the wells are bolted, intermediate brackets 9 forming guides for locking bolts 8 of the buoys 6. The said bolts are double and connected by a recessed cross-beam 91 which allows water contained in the well 4 to pass through the pipe 16 branched on the bracket 9, which results in a constant load on the valve 23 provided with a horizontal extension 92 mounted in a corresponding recess made in the center of a piston 93 arranged in the upper cylinder 94. The piston 93 is guided by a rod 95 connected outside to the locking mechanism by means of connecting rods 96 pivoted to two curved levers 97 the ends of which are respectively mounted at 98 and at 99 on the nut of the spring-balance 22. This spring-balance is a known type of apparatus and is commonly employed for safety valves on locomotive and other boilers. The rod 95 of the piston

93 passes through the head of the cylinder 94 with a slight amount of friction and without packing, a tight joint being obtained during the working of the apparatus by means of a rubber washer 100 with which one of the faces of the piston 93 is provided which comes to rest against the joint between the rod and the head of the said cylinder 94.

The box of the locking bolts is constituted by a cylinder 101 recessed at the top so as to give access to the tooth rack 12 and its operating pinion 13, and screw-threaded inside at two of its ends so as to mount it on connections, one of which, 102 serves for securing it to the bracket 9, and the other one 103, carries the recess 15 for the compressed fluid piston 14. The tooth rack 12 is extended by a guide 104 sliding in a suitable recess made in the wall of the connection 103 and the rod of the piston 14 passes through the end of the cylinder 15 with a slight amount of friction and without packing, a tight joint being obtained by means of a rubber washer 105 provided on one of the faces of the said piston 14. The rod of the piston 14 is provided, outside the locking mechanism box, with a horizontal cross-bar 106 to the ends of which are connected two lateral rods 107 arranged at either side of the said mechanism box and connected with their other ends to another cross-bar 109 parallel to the cross-bar 106 and secured to the tooth rack 12. Antagonistic springs 110 are, moreover, arranged between the ends of the cross-bar 109 and the connection flange 102 for maintaining the locking bolts 8 in engagement with the angle parts 7 secured to the bodies 6 of the buoys.

The surface of the piston 93 is such that when water acts on it, the pressure obtained is about double the maximum effort of the spring of the balance 22, the result being that when owing to the immersion, the pressure of the water in the pipe 16 and on the valve 23, is sufficient for overcoming the pressure of the spring of the balance 22 and admitting water into the cylinder 94; the strain due to the pressure on the piston 93 being greatly superior to the tension of the spring of the said balance, produces complete and instantaneous opening of the valve 23, and at the same time brings the piston 93 to the end of its stroke. In that movement, the curved levers 97 oscillating about their joint 98, engage and drive the cross-bar

106 which, by means of the lateral rods 107, drives the locking bolts 8 which release the buoys. As an alternative method of working, compressed fluid can be admitted at the will of the crew through the pipe 17 and through the valve 21 to actuate the piston 14, the unlocking being brought about by the movement of the said piston which is rigidly connected with the cross-bar 106. Of course this latter method of working is independent of the pressure of the water on the valve 23 and can be operated at any time. In addition to these means for suddenly withdrawing the locking bolts, due to the instantaneous action of the locking mechanisms in the case of danger, arrangements are used for still further increasing the speed of the rising of the released buoys to the surface of the water. According to these arrangements, the hose pipe of the alarm buoy is wound about a fixed drum with a vertical spindle, which considerably facilitates the coiling and the uncoiling, owing to the reduction of the resistance to the rising of the buoy.

The buoy which is locked in its well by the previously described locking mechanism, has passing throughout the whole of its length a tube to the bottom end of which is secured a union 86 carrying, on the one hand, the end of the hose pipe 27, and on the other hand, a cable 85 arranged in the interior of the latter for the purpose of avoiding excessive tension on it at the moment of its securing to the buoy, or in the case of waves at the bottom. This cable passes through the lateral extensions of the said connection or union 86 and is secured by means of two strands to two eye bolts 88 arranged at the bottom portion of the buoy body 6.

The spindle of the drum on which is wound the hose pipe 27 is arranged vertically. Consequently, the lining of the well of the buoy terminates at the bottom portion in a cylindrical coffer 111 which receives the coiled hose. For facilitating the operation of coiling and uncoiling, the coffer 111 is provided inside with a vertical circular partition 112, the distance of which from the wall of the coffer is a little greater than the diameter of the flexible tube or hose pipe. The said hose pipe is wound in superposed spirals in the annular space thus produced, so that formation of kinks or knots during the various manipulations is avoided. For facilitating the uncoiling, the coffer 111 is, moreover, connected to the lining 4 of the well by a circular conical partition 113 co-operating with the inner partition 112 so as to leave between the said partitions a space equal to the diameter of the hose pipe, thus forming a guide for the same during the un-

coiling. The partition 112 is provided at the sides with openings 114 affording passage to the ends of the tube or hose pipe which ends are secured respectively to the buoy 6 and to the connection or union 115 of the compressed fluid pipe 28, so that the universal joint of the movable coil a tight joint of which it is difficult to obtain, can be done away with.

The cable 85 intended to give strength to the hose pipe and to protect it when carrying out a salvage operation, is secured as described with one of its ends to the buoy 6. The lower end of the coiled cable passes through the connection 115 to which it is secured in any suitable way; the cable 85 could, however, be also carried on beyond the said union, in order to be secured in any desired manner to the hull of the vessel. The buoy 6 could be, moreover, provided with a steadying rudder 116 pivoted to the bottom portion of its body, the said runner being raised vertically against the body when the buoy is locked in its well, but would be turned down horizontally when the released buoy rises to the surface of water carrying with it the hose pipe 27.

What I claim as my invention and desire to secure by Letters Patent is—

In a boat salvage device the combination of a well in the hull of a boat, a buoy located in said well, locking mechanism to retain the buoy in its well, a hose pipe for communication attached to the buoy, a vertical annular partition arranged in the bottom of a well below the buoy, means for coiling the said hose pipe in superposed coils in the annular space formed between the annular partition and the wall of the well, means for attaching the hose pipe to a union in the well, a cable in said hose pipe and means for connecting the cable respectively to the buoy and to the boat, a spring-balance which operates to release the locking mechanism when the boat has reached a predetermined depth, a pivoted lever connected to said balance, a cylinder, a piston therein connected to said pivoted lever and normally held at one end of its stroke by said lever, a valve of smaller area than the piston and held closed by the piston against the pressure of the water which surrounds the boat to certain depths, and a rubber washer on the face of the piston to form a tight joint with the end of the cylinder when the water opens the valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GUSTAVE SALLES.

Witnesses:

ALBERT PHILLIPS,
A. RENAUD.