

960,537.

Patented June 7, 1910.

2 SHEETS—SHEET 1.

Fig. 1

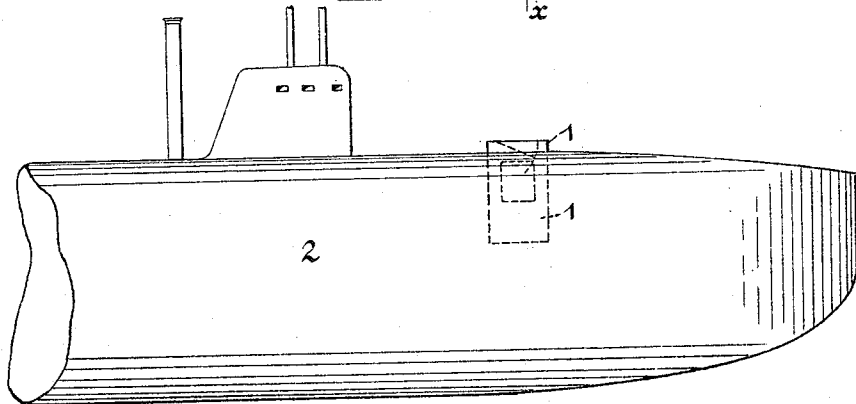
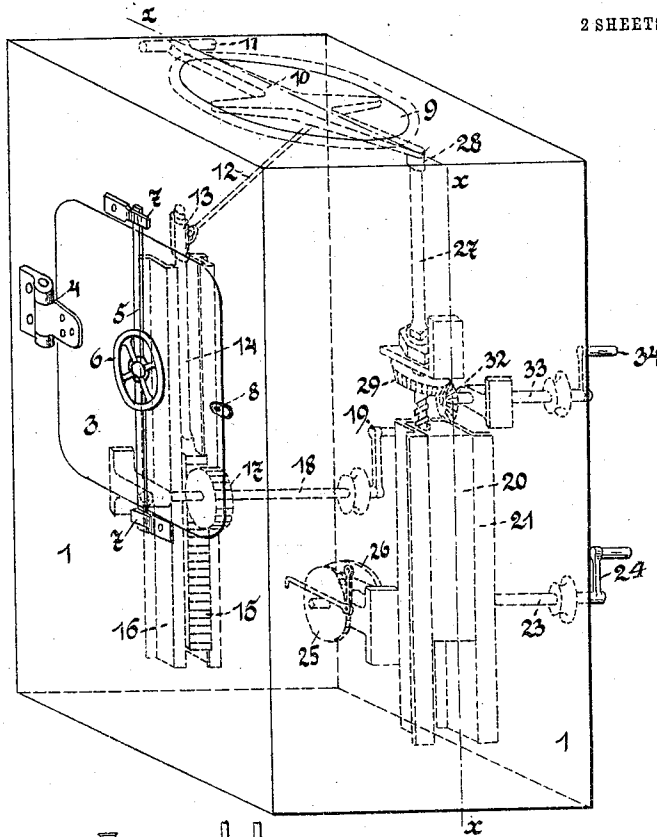


Fig. 2

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2 SHEETS—SHEET 2.

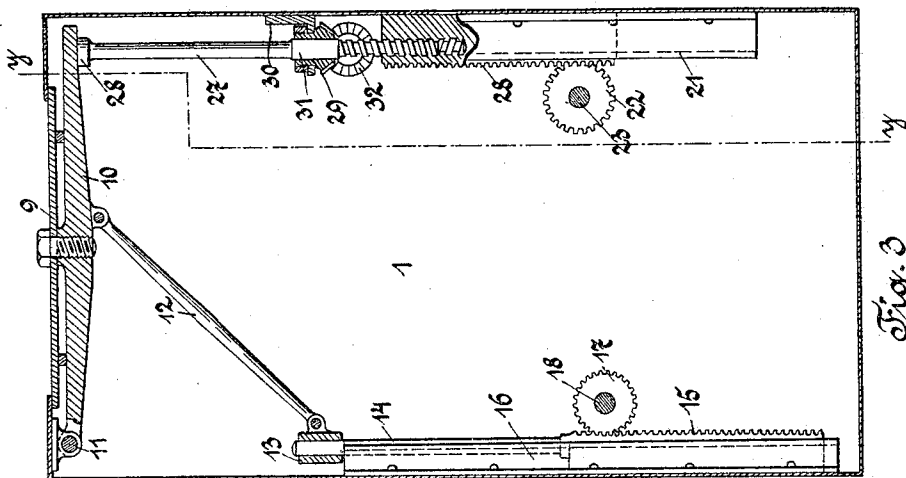


Fig. 3

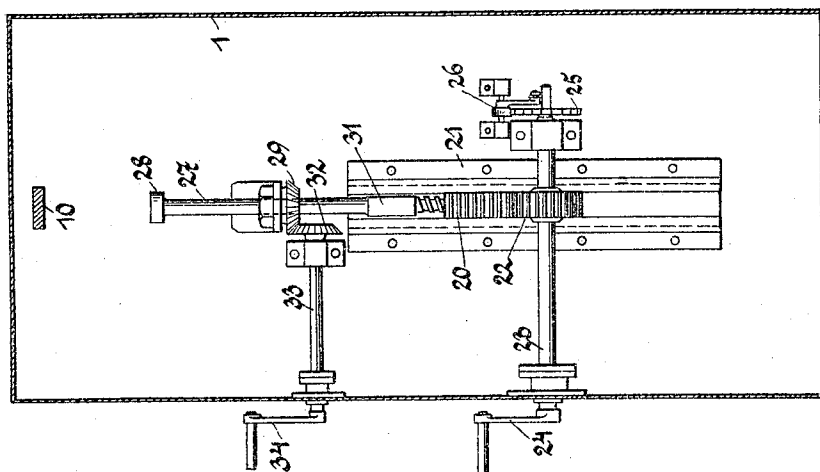


Fig. 4

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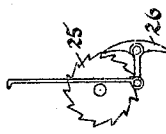


Fig. 5

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LEON E. GOETZ, OF MONROE, WISCONSIN.

SUBMARINE BOAT.

960,537.

Specification of Letters Patent.

Patented June 7, 1910.

Application filed December 1, 1909. Serial No. 530,837.

To all whom it may concern:

Be it known that I, LEON E. GOETZ, a citizen of the United States, residing at Monroe, county of Green, and State of Wisconsin, have invented certain new and useful Improvements in Submarine Boats, of which the following is a specification.

My invention relates to improvements in sub-marine boats and has for its object the provision of improved means on such a boat for permitting the escape of persons therefrom in case of accident.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawings forming a part of this specification, and in which,

Figure 1 is a perspective view of an escape chamber embodying my invention, Fig. 2, a partial side elevation of a sub-marine boat showing the location of the escape chamber therein, Fig. 3, an enlarged section on line $x-x$ of Fig. 1, Fig. 4, a section on line $y-y$ of Fig. 3, and Fig. 5, an enlarged view of the pawl and ratchet employed for holding the escape door of the escape chamber in closed position.

The preferred form of construction as illustrated in the drawings comprises an escape chamber 1 mounted in a sub-marine boat 2 with its top projecting slightly from the top of said boat as illustrated in Fig. 2. At one side and opening into the interior of boat 2 is an entry door 3 hinged at 4 and provided with a locking bar 5, hand wheel 6 and lugs 7 for locking and unlocking said door from the interior of the boat. The hand wheel 6 serves to swing bar 5 and also door 3. On its inside door 3 is provided with a button 8 by means of which it may be opened or closed from the interior of said escape chamber. The top of chamber 1 is provided with an escape door 9 carried by a spider 10 hinged at 11 to permit said door to open inwardly. Spider 10 is connected by means of a link 12 with a sleeve 13 slidable on a guide rod 14 carried by a rack bar 15 slidably mounted in guides 16. A gear 17 meshes with rack bar 15 and is carried by a shaft 18 operated by crank 19 located on the exterior of said chamber and on the interior of said boat. Another rack bar 30 is mounted in guides 21 and meshes with a gear 22 carried by shaft 23 operated by

crank 24 located on the exterior of said chamber and on the interior of said boat. At its inner end shaft 23 carries a rod 25 co-operating with a pawl 26 to hold said rack bar 20 in elevated position. Rack bar 20 carries a threaded locking rod 27 having a bearing 28 at its upper end adapted to contact with the under side of spider 10 opposite to hinge 11. Rod 27 slides through the hollow center of a beveled gear 29 rotatably mounted in a suitable bracket 30 and provided with an opening square in cross section and adapted to receive the squared portion 31 of rod 27 when said rod is in elevated position as shown in Fig. 3. Beveled gear 29 meshes with a beveled gear 32 carried by a shaft 33 which is operated by a crank arm 34 located on the exterior of said escape chamber and on the interior of said boat.

In use, in case of accident rendering it necessary for the crew to escape from the boat, a man enters escape chamber 1 from said boat and through door 3. Then door 3 is closed and pawl 26 operated to release ratchet 25 and permit opening of door 9 under the influence of the water pressure thereon. This permits the escape of the man from chamber 1 and his rise to the surface of the water. Then crank 19 is employed to elevate rack bar 15 and consequently sleeve 13 to close door 9, which is readily effected since the water pressure is now balanced thereon owing to the fact that chamber 1 is full of water. When door 9 is thus elevated to closing position rack bar 20 is elevated by means of crank arm 24 until the upper bearing 28 of ratchet 27 contacts with the under side of spider 10 to hold said door in closed position, the pawl 26 preventing retrograde movement of rack bar 20. In this position of the parts the square portion 31 on rod 27 engages bevel gear 29 so that by operation of crank arm 34, door 9 may be forced tightly to closing position so as to seal the opening in the top of chamber 1 against leakage. Upon release of crank 19 rack bar 15 falls under the influence of gravity thus leaving door 9 free to open upon release of rack bar 20. Then door 3 is opened permitting a portion of the water in chamber 1 to escape into the interior of the boat and another man to enter said chamber and escape as before. The last man to escape may close door 3 by means of button 8 so as to prevent water from enter-

ing said boat from chamber 1 during his escape. Owing to the fact that door 9 swings inwardly the same will be automatically opened by the pressure of the water thereon and no difficulty will be experienced in closing the same since chamber 1 is always full of water when door 9 is to be closed, thus equalizing the pressure on said door. The mechanism for operating the doors will be seen to be of simple construction and effective in operation.

While I have illustrated and described the preferable form of construction for carrying my invention into effect this is capable of variation and modification without departing from the spirit of my invention. I, therefore, do not wish to be limited to the exact details of construction set forth but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. The combination with a sub-marine boat, of an escape chamber; a door leading from the interior of said boat to said chamber; a door leading from said chamber to the exterior of said boat, the said last mentioned door being arranged to open inwardly; and means for opening and closing the inner door and for closing the outer door, substantially as described.

2. The combination with a sub-marine boat, of an escape chamber; a door leading from the interior of said boat to said chamber; a door leading from the top of said chamber to the exterior of said boat; the said last mentioned door being arranged to open inwardly; and means for opening and closing the inner door and for closing the outer door, substantially as described.

3. The combination with a sub-marine boat, of a vertically disposed escape chamber mounted in said boat with its top exposed; a door leading from the interior of said boat into said chamber; a door leading from the top of said chamber into the water, the said last mentioned door being arranged to open inwardly; and means for opening and closing the inner door and for closing the outer door, substantially as described.

4. The combination with a sub-marine boat, of a vertically disposed escape chamber mounted in said boat with its top exposed; a door leading from the interior of said boat into said chamber; a door leading from the top of said chamber into the water, the said last mentioned door being arranged to open inwardly; means for opening and closing said first mentioned door from the interior of said boat and the interior of said chamber; and means for closing said other door from the interior of said boat and permitting it to open from the interior of said chamber, substantially as described.

5. The combination with a sub-marine boat, of a vertically disposed escape chamber mounted in said boat with its top exposed; an entry door leading from the interior of said boat into said chamber; means for opening and closing said entry door from the interior of the boat and said chamber; an escape door leading from the top of said chamber and hinged to open inwardly; a vertically reciprocating rack bar in said chamber; a sleeve slidable on said rack bar through a limited distance; a link connection between said sleeve and said escape door for closing the latter; a gear, shaft and crank arm connection for operating said rack bar from the interior of the boat; a reciprocating rack bar; a locking member threaded in said last mentioned rack bar and adapted to bear against the under side of said escape door opposite to its hinge; a gear, shaft and crank arm for operating said last mentioned rack bar from the interior of the boat; a pawl and ratchet located within said chamber and adapted to hold said door in closed position; a beveled gear slidable on said locking member but arranged to turn the same when the latter is in locking position; and a beveled gear, shaft and crank for operating said first mentioned beveled gear, substantially as described.

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

LEON E. GOETZ.

Witnesses:

WM. DUNWIDDIE,
MATIE MATZKE.