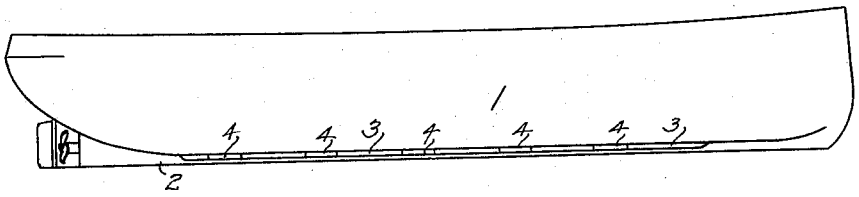
J. H. HYDE.

SHIP BRAKE.

APPLICATION FILED JAN. 28, 1915.

1,164,817. Patented Dec. 21, 1915.

Fig. 1.



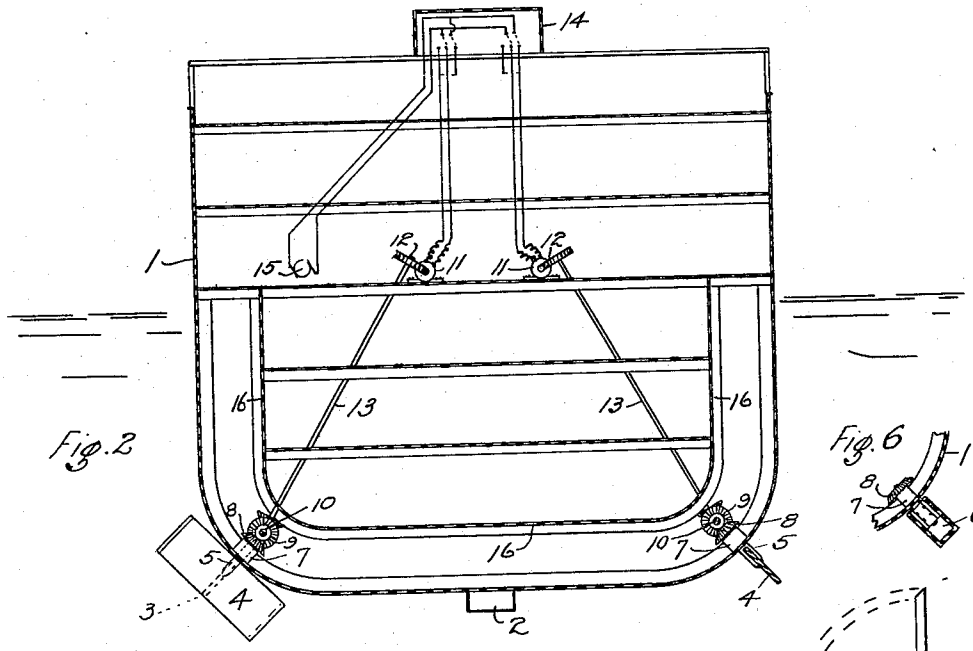


Fig. 2.

Fig. 6



Fig. 3

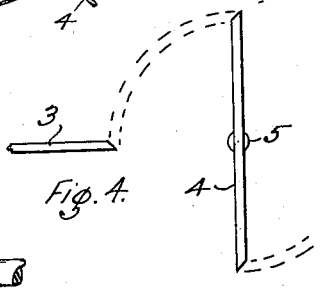


Fig. 4.

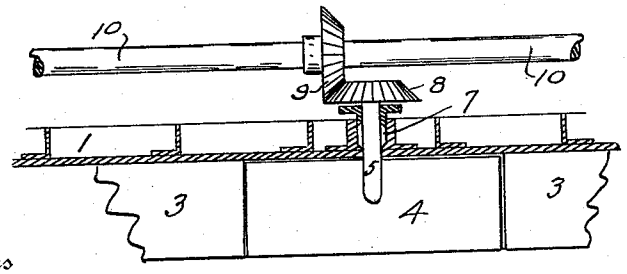


Fig. 5

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SHIP-BRAKE.

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To all whom it may concern:

Be it known that I, JOHN H. HYDE, a citizen of the United States, and a resident of Tacoma, in the county of Pierce, State of Washington, have invented certain new and useful Improvements in Ship-Brakes, of which the following is a specification.

This invention relates to devices adapted to arrest the motion of a ship, especially when an emergency arises, and has for its objects to provide a series of obstructing plates which, under normal conditions add nothing to the resistance of the water to the motion of the ship, but each of which can be turned at an angle in order to present its side to the pressure of the water in which the ship is moving.

Another object is to provide means whereby said plates may be operated and controlled.

I attain these and other objects by the devices, mechanisms, and arrangements illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation of the hull of a ship equipped with my improved brake; Fig. 2 is a cross-section thereof, showing the brake-plate in action on the left-hand side and in its normal position on the right-hand side; Fig. 3 is a bottom view of the bilge-keel and one brake-plate in its normal position; Fig. 4 is a similar view showing the brake-plate in operative position; Fig. 5 is a detail showing the brake-plate and its operating mechanism; and Fig. 6 shows another form of the brake-plate.

Similar numerals of reference refer to similar parts throughout the several views.

The problem of the prevention of accident to a ship calls for, in many cases, the quick stoppage of its progress. In order to accomplish this it is necessary to stop or reverse the propelling engines and also to apply a great increase in the resistance of the water to the forward motion of the ship. This latter is usually attained by the projection into the water of suitable plates attached to the sides of the ship. This plan, however, usually calls for an increase in the frictional resistance of the water on the sides of the ship when the plates are not in use and therefore requires an increase in the energy expended to attain a certain speed with a certain load. In order to overcome this objection I have devised the following braking means which forms part of the usual keels of the ship and which therefore does not add to the normal friction.

The hull 1 of most ships is provided with three keels; the center keel 2 forming a part of the back-bone of the vessel, and two side or bilge-keels 3 which project from the angles between the bottom and the sides and are intended to reduce the rolling motion of the ship in encountering transversely moving waves. In the drawings I have shown my invention as applied to the said bilge-keels 3, but it is to be understood that it can also be used in connection with the central or main keel 2.

The bilge-keel 3 extends substantially from end to end of the vessel 1. At various places in its length, however, are short gaps which are filled by similarly shaped brake-plates 4, each of which is secured to the ship 1 only by means of a pivot shaft 5 secured to its center, said pivot shaft 5 being mounted in such a manner that the brake-plate 4 can be turned out of line with the keel 3 and when so turned it will extend on each side of the keel and substantially at right-angles thereto. If the keel 3 is formed of a single plate (Figs. 2–5) the shaft 5 will bulge slightly beyond the sides of the plate, but if it is formed of box construction as at 6 in Fig. 6, the shaft 5 would be secured thereto entirely inside the part 6. The adjacent edges of the keel 3 and plate 4 are beveled off to allow them to part freely when the plate 4 is turned into braking position.

The shaft 5 passes through a suitable stuffing box 7 in the side of the vessel 1 and is provided at its inner end with suitable actuating means. This means is illustrated as consisting of a bevel gear 8 meshing with a corresponding wheel 9 which is mounted on a shaft 10, which extends along the inside of the ship 1 and is suitably mounted therein. The shaft 10 may be operated in any desired manner as, for instance, by the motors 11 which operate the worm gearing 12 and shaft 13, which in turn operates the shaft 10 by suitable gearing. One such motor 11 is provided to operate the brakes on each side of the vessel 1. The motors 11 can be controlled from the pilot house 14 in any approved manner, and may be actuated by a suitably placed and driven dynamo 15. The ship 1 may preferably be provided with an inner skin 16, suitably secured thereto, and with suitable cross bulkheads whereby a

series of watertight compartments are formed between the outer and inner skins below the water line. The operating shafts 10 are preferably mounted in these compartments.

My invention is operated as follows: When an emergency arises, the pilot throws the switches controlling both motors 11 whereby they are actuated to turn all the plates 4 at right-angles to the keels 3, thus greatly increasing the resistance of the water to the forward motion of the ship. Then, when the emergency is past, he reverses the current through the motors thus reversing them and causing all the parts 4 to be swung back into line with the keels 3, and thus removing the said emergency resistance. It is evident that, as soon as the edge of each plate 4 is turned so as to catch the current of water flowing past, the force of the water thus applied to the front half of the plate will act to turn the plate about its pivotal axis against the corresponding backward acting pressure on the rear half of the plate, and that therefore the forces are substantially balanced so that it takes but little power to turn all the plates in either direction.

Having described my invention, what I claim is:

The combination in a ship of a series of longitudinally extending bilge keels of box construction fixedly secured to the ship in coaxial arrangement and having free spaces therebetween, correspondingly shaped brake plates mounted in said free spaces, said brake plates being of the full thickness of said keels, pivots secured to said brake plates at their longitudinal centers and passing through the skin of the ship, and positive means for turning said brake plates arranged to move the same at right angles to said keels when so desired.

JOHN H. HYDE.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."