

No. 681,713.

Patented Sept. 3, 1901.

L. LACOSTE.

DEVICE FOR BRAKING THE SPEED OF SHIPS.

(Application filed Jan. 12, 1901.)

(No Model.)

2 Sheets—Sheet 1.

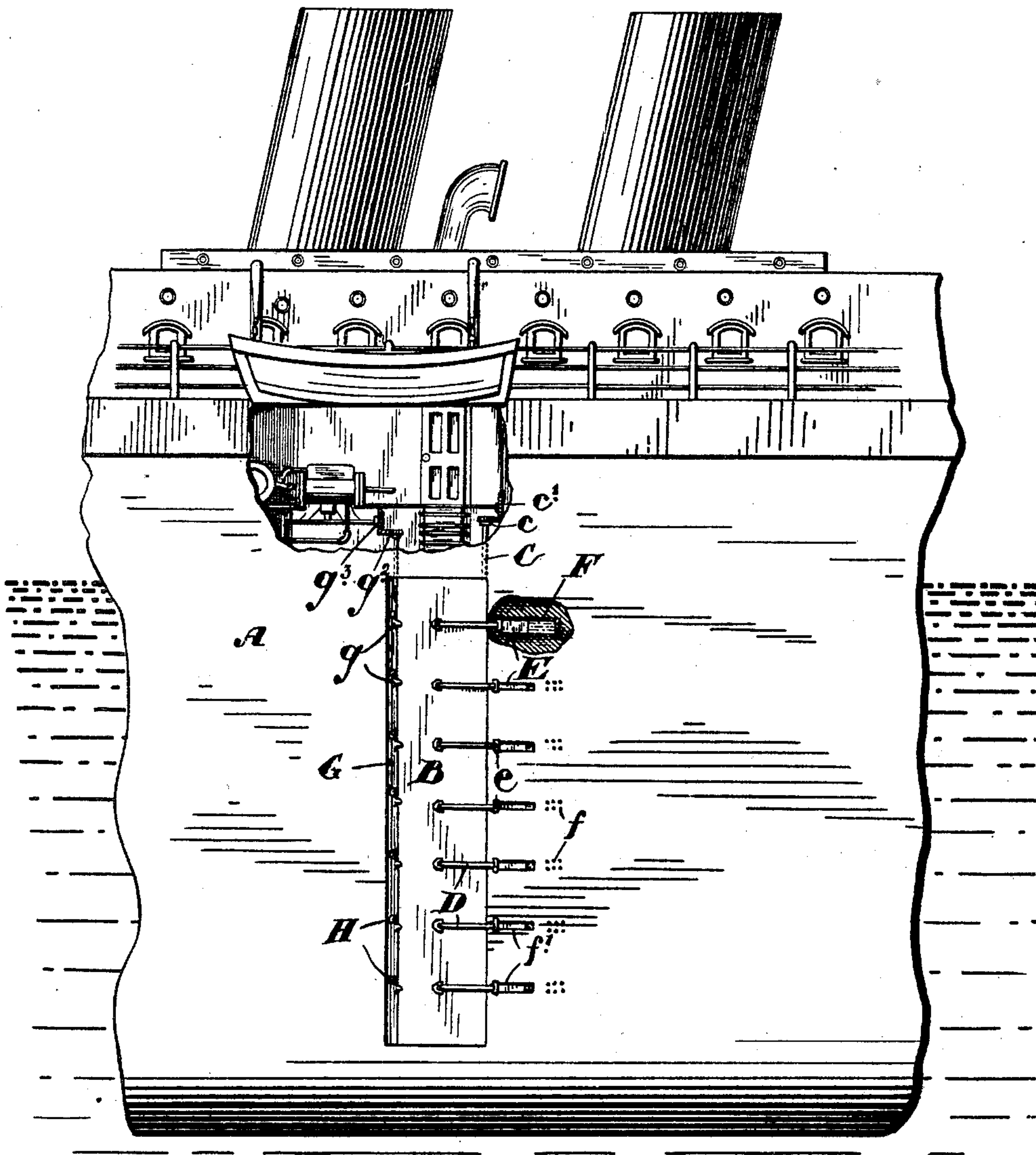


Fig. 1.

Witnesses

L. Blackmore
J. L. Hall

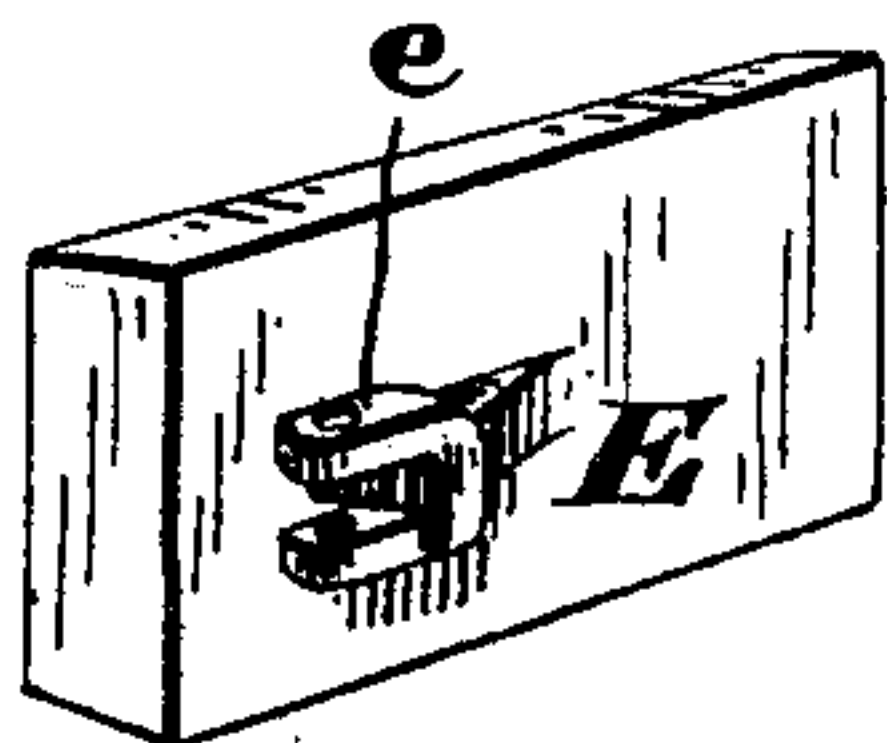
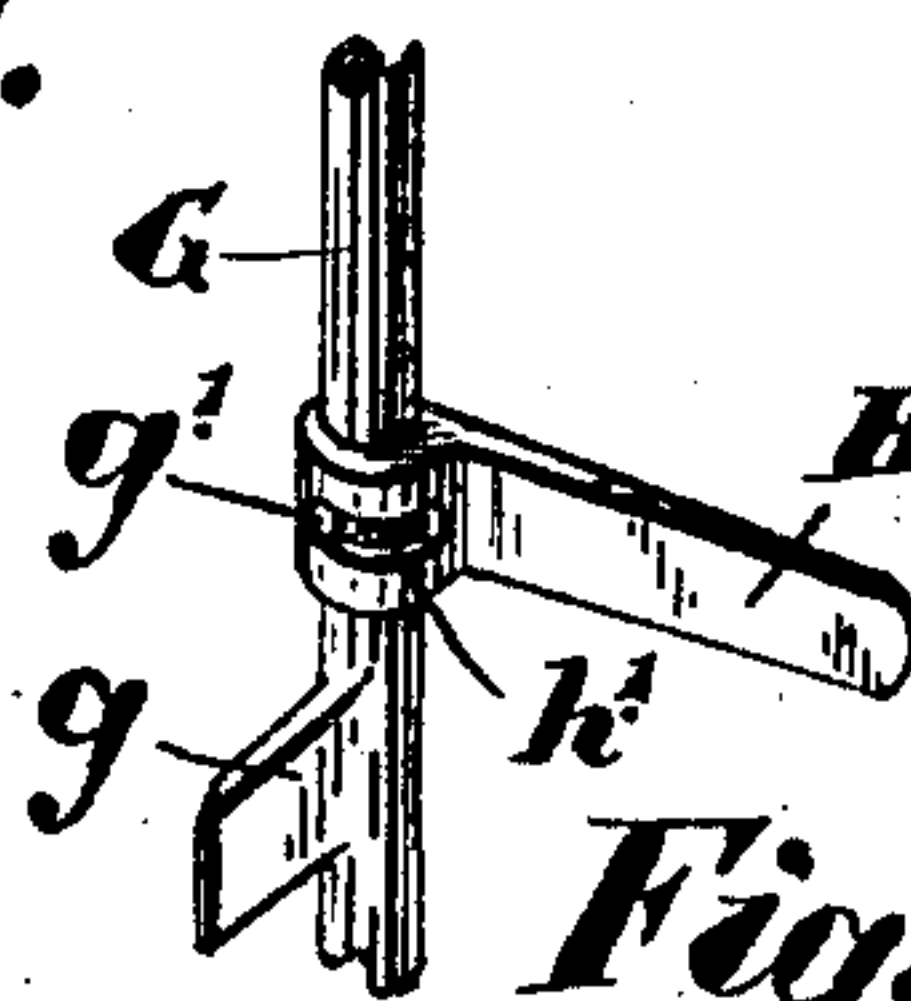


Fig. 5.



Inventor.

Louis Lacoste

Fig. 4.

by
J. H. Stoughton
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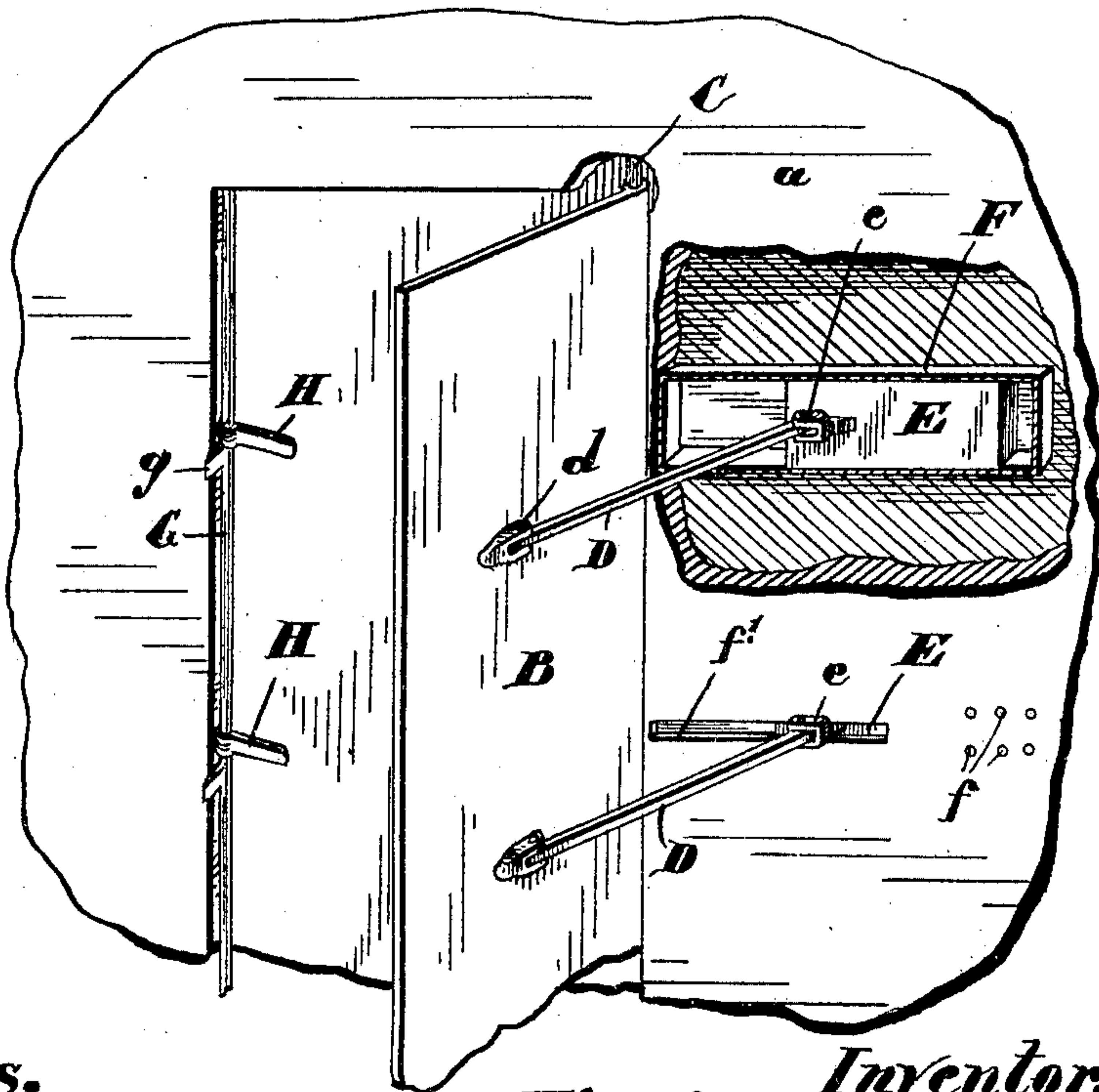
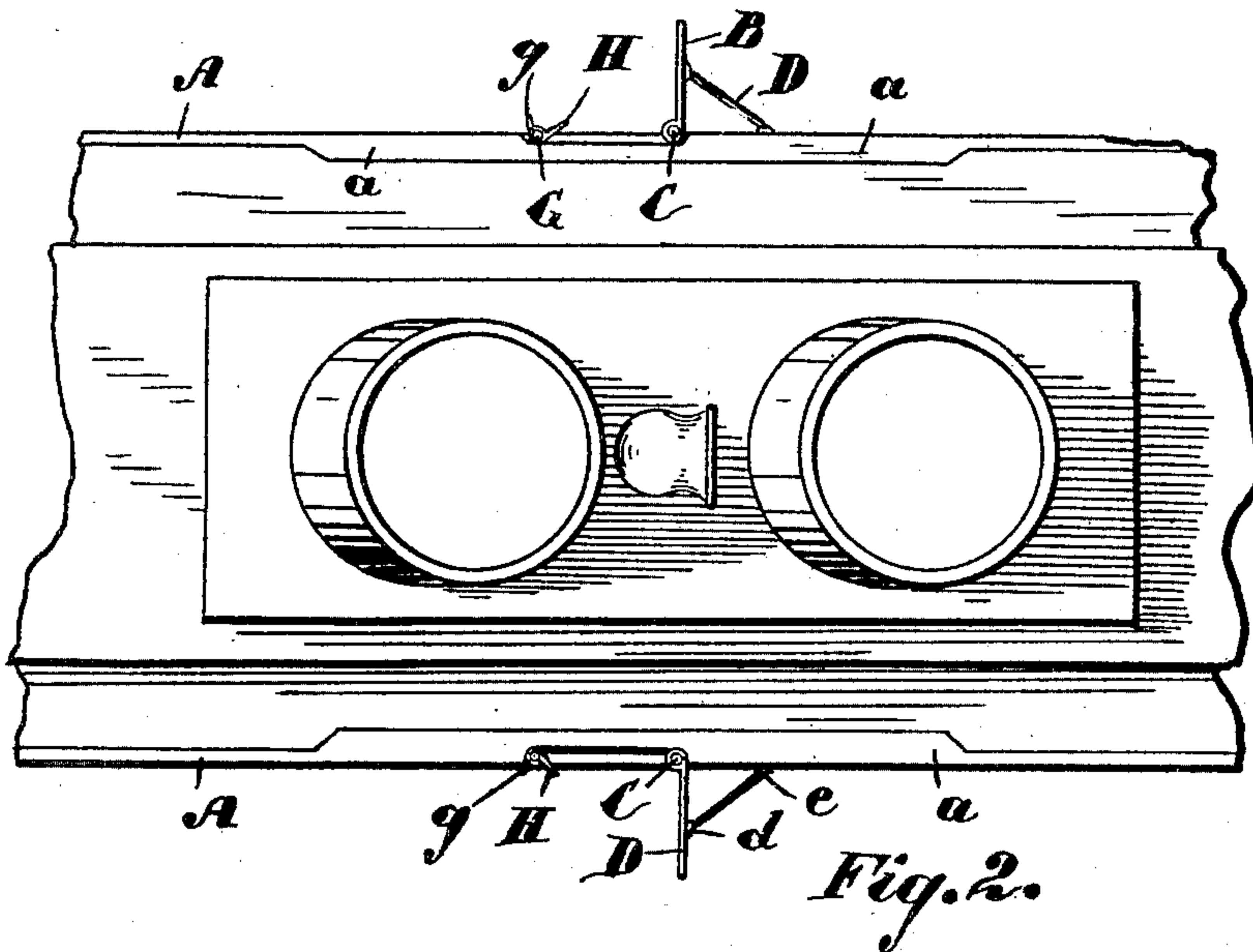
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(No Model.)

2 Sheets—Sheet 2.



Witnesses.

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Fig. 3. Inventor.

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UNITED STATES PATENT OFFICE.

LOUIS LACOSTE, OF MONTREAL, CANADA.

DEVICE FOR BRAKING THE SPEED OF SHIPS.

SPECIFICATION forming part of Letters Patent No. 681,713, dated September 3, 1901.

Application filed January 12, 1901. Serial No. 43,054. (No model.)

To all whom it may concern:

Be it known that I, LOUIS LACOSTE, secretary, of the city and district of Montreal, in the Province of Quebec, Canada, have invented a new and useful Device for Braking the Speed of Ships; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to a device for braking the speed of ships; and the object of the invention is to effect a quick means of stopping a large ship going at full speed without jarring the vessel unnecessarily or inconveniencing the passengers or others to any great extent by the sudden check; and it consists, essentially, of a pair or pairs of gates arranged to swing outwardly from the sides of the vessel and to be held at right angles thereto by a plurality of struts pivotally attached to the gates at one end and at the other to plates or other devices sliding in suitable covered ways which have orifices for the gradual egress of the water contained therein and fingers or latches extending from a rod and folding over the edge of the gate to keep it securely to the side of the ship when closed and prongs encircling the same rod at their inner ring ends and with a limited movement designed to open the gates at the same time that the fingers are removed from contact. Suitable cranks and gearing are provided for opening and shutting the gates and also for operating the rod with the prongs and fingers, and the various parts are constructed in detail, as hereinafter more particularly described.

Figure 1 is a view of a portion of a ship's side with the gate closed, showing the necessary gearing. Fig. 2 is a plan view showing the gates open. Fig. 3 is an enlarged detail of a gate. Fig. 4 is a detail of a prong and finger. Fig. 5 is a detail of a slide-plate.

Like letters of reference indicate corresponding parts in each figure.

A is the side of the ship, which is preferably reinforced at *a*.

B is the gate, which is preferably made narrow and deep, as shown in Fig. 1. The gate B swings with the rod C, which has at its upper end a bevel-gear *c* and *c'*. The struts D are pivotally attached to the gate B at *d* and to the plate E at *e*. The plate E slides in the

covered way F, which has orifices *f* for the egress of water. The slides F are covered in with the exception of the slot *f'* for the free movement of the struts D. It will be thus seen that on turning the rod C by means of the bevel-gears *c* and *c'* the plate E begins to slide backwardly in the covered way F; but this way being constantly full of water the backward movement is retarded thereby. A sufficient number of orifices *f*, however, are provided to allow the gradual egress of the water from the slides; but before all the water can escape it has formed a cushion to prevent the plate E from violently knocking against the end of the slide F, or, in other words, the water cushion thus formed prevents a too-rapid movement in the opening of the gate, minimizing the force and completely preventing anything like a jar to the side of the ship or to the gate itself.

G is a vertical rod, which is provided with the holdfast-fingers *g*, secured thereto and designed to turn with the rod. Besides the fingers *g* the prongs H are provided, which are preferably much longer than the fingers *g* and encircle the rod G at their inner ends *h*. The prongs H have a limited turning movement on the rod, which is regulated by the pin *g'*, extending from the rod G into the circumferential slot *h'*. The outer edge of the gate B is intended to close in between the prongs H and the fingers *g*, the prongs H remaining under or inside the gate and the fingers *g* folding over the outside edge of the gate. The bevel-gears *g*² and *g*³ are designed to turn the rod G in its bearings. The turning of the rod G by means of the gearing *g*² and *g*³ opens or closes the fingers *g* and at the same time imparts an outward movement to the prongs H. When the gate B is closed over the prongs H and the fingers *g* folded over the outer edge of the gate, it will be seen that on operating the rod G, so as to turn the point of the fingers outwardly past the edge of the gate, each prong H when the pin *g'* reaches the limit of the slot *h'* will come in contact with the inside of the gate and begin to open the same, and as soon as the edge of the gate is clear of the side of the ship the resistance of the water when the vessel is in motion will carry the gates outwardly and rearwardly. The gates thus opened do not

fly out quickly to their position at right angles to the sides of the ship on account of the water-cushions in the slides F, which, as explained above, gradually cause the gates to
 5 assume the extended position. When the way on the ship has been stopped; the gates can be readily closed through operating the gearing c and c' . The gate then folds into the side of the ship, the outer edge folding over
 10 the prongs H, and through operating the gearing g^2 and g^3 the rod G is turned, and thus the fingers g are swung over the edge of the gate. As the outer face of the gate is now flush with the side of the ship and the fingers suitably
 15 locked, when closed it will be seen that the gates will be rigidly secured in the closed position.

In the construction of this device I think it is preferable that all the parts thereof
 20 should be flush with the side of the ship with the possible exception of the struts and the fingers g . This can easily be accomplished by reinforcing the side of the ship where the gates are placed and providing suitable recesses and flush bearings and hinges to hold
 25 the rods C and G and the slides F, as well as the gates B. The gearing will of course be inside, as also the motive power for operating it. The motive power is of course an
 30 unimportant part of my invention, as it is possible to operate the gears in many ways; but I desire to point out that this device will be the quickest possible way of stopping a large ship's movement forward, as it is quite
 35 possible to operate the gates either from the bridge or from the engine-room.

It will be noticed from the foregoing description that a quarter-turn of the bevel-gear will probably be sufficient to open the
 40 gates, and as soon as the turn is made and the gates open the ship will likely stop within her length. In fact, the utility of my invention has been demonstrated by actual experiment with moderate-sized models, and I have
 45 found that a model with a single pair of gates, each gate having about the surface area of the rudder, will when under full speed always stop in about three-quarters of her length. The surface area of each gate cannot be definitely settled by the experiments carried on
 50 thus far; but I do not hesitate in saying that the size of the gates will not interfere with the general arrangement or appearance of a ship. In fact, they will preferably extend
 55 from the water-line downward, and the shape of the modern vessels will give a good depth to the gate, thereby much reducing the width. One other remarkable result of the experiments has been the freedom from shock or
 60 jar after so suddenly checking the speed, which in itself much enhances the usefulness of my invention.

The application of this device to a man-of-war is also very important and should be
 65 mentioned, as by the opening of a single gate on one side the turning of the vessel will be

greatly accelerated. In fact, it is possible to elaborate a great deal on the utility of my invention; but this is scarcely necessary in this specification. It may be mentioned, however, that one of its greatest uses will be in
 70 minimizing the danger of collisions at sea.

The form of device which I have here described greatly differs from any before invented or known, as far as I am aware.
 75 Heretofore the greatest trouble experienced has been the application of a suitable means for bracing or staying any obstacle thrown out from the side or the stern of the ship to check her speed and a quick means of putting
 80 such a device into operation from its normal and secure position. In the application of my device to existing ships the gates will in all probability be superimposed on the sides, thus making it necessary to so construct all
 85 the parts as to lessen the resistance of the water to the ship's forward movement. It must also be understood that I do not confine myself to having a plurality of orifices at the end of the covered ways F, as in the construction of my device on large ships it may be
 90 preferable to continue the slot f' to the end of the way, so that the opening for the egress of water on opening the gates may be greater, thereby lessening the chance of such opening or openings being blocked by seaweed or
 95 other impediment.

It has not been mentioned in describing the operation of my device that it will be advisable to insure the successful working to have
 100 the gates tried one or more times on every voyage of a ship, and in order that the officers or owners may be satisfied that the gates have been opened out at regular intervals a suitable register or indicator may be applied to
 105 record the fact. The perforation of the gates, in order to lessen the resistance, may be necessary; but as it is clearly a matter of construction I have not before mentioned it.

What I claim as my invention is—

1. In a ship or other vessel, a ship-brake comprising a gate suitably hinged at the sternmost edge to the side of the vessel, and means for normally holding the gate closed, and struts pivotally attached to the outer face of
 115 the gate at one end, and recedably attached to the side of the ship at the opposite end, as and for the purpose specified.

2. In a ship or other vessel, a ship-brake comprising a gate suitably hinged at the sternmost edge to the side of the vessel, and fitting into a recess in the side, so that the outer face of the gate is flush therewith, means for normally holding the gate closed, and struts pivotally attached to the outer face of the gate
 125 at one end, and recedably attached to the side of the ship at the opposite end, as and for the purpose specified.

3. In a ship-brake, the combination with a gate suitably hinged at the sternmost edge to
 130 the side of the vessel, and means for normally holding the gate closed, of struts pivotally at-

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tached to the outer face of the gate at one end, the covered slideways located in the side of the ship at the sternmost side of the gate, and provided with slots, slides fitting snugly within the slideways and pivotally connected to the struts, the slides having suitable openings opposite the sternmost end of each slideway, as and for the purpose specified.

4. In a ship-brake, the combination with a gate suitably hinged at the sternmost edge to the side of the vessel, of struts pivotally attached to the outer face of the gate at one end, and recedably connected to the side of the vessel sternward of the gate, and means for starting the gate in its outward movement, as and for the purpose specified.

5. In a ship-brake, the combination with a gate suitably hinged at the sternmost edge to the side of the vessel, and means for normally holding the gate closed, struts pivotally connected to the outer face of the gate, and recedably connected to the side of the ship sternward of the gate, of a rod suitably journaled forward of the free edge of the gate and provided with fingers designed to be brought over such edge when the gate is closed, as and for the purpose specified.

6. In a ship-brake, the combination with a gate suitably hinged at the sternmost edge to the side of the vessel, and means for normally holding the gate closed, struts pivotally connected to the outer face of the gate, and recedably connected to the side of the ship sternward of the gate, of a rod suitably journaled forward of the free edge of the gate, and provided with fingers designed to be brought over such edge when the gate is closed, and prongs secured on the aforesaid rod designed to fit within the forward edge of the gate, and provided with slots, designed

to coact with the pins projecting from the rod, as and for the purpose specified.

7. The combination with the gate suitably hinged at the sternmost edge to the side of the ship, and having the rod of the hinge extending upwardly into the interior of the ship, and the struts pivotally connected to the outer face of the gate, and recedably connected to the side of the ship sternward of the gate, of suitable gearing, and means for turning the rod located at the top thereof, as and for the purpose specified.

8. The combination with the gate suitably hinged at the sternmost edge to the side of the ship, and means for holding out the gate substantially at right angles to the side of the ship when open, of a rod suitably journaled in the side of the ship, and provided with projecting fingers suitably secured thereto, and designed to coact with the forward edge of the gate, and means for manipulating such rod, as and for the purpose specified.

9. The combination with a gate folding on or flush with the outside of the vessel, of a prong with its inner and ring end encircling a rod journaled where the outer edge of the gate folds to the side, and having a limited movement around the rod, a fixed projection from the said rod, and struts pivotally connected to the outer face of the gate at one end, and at the other recedably attached to the side of the ship sternward of the gate, as and for the purpose specified.

Signed at Montreal this 9th day of January, 1901.

LOUIS LACOSTE.

Witnesses:

FRANK. C. HALL,
L. BLACKMORE.