

(No Model.)

3 Sheets—Sheet 1.

F. TOBIAS.
SHIP'S BRAKE.

No. 507,856.

Patented Oct. 31, 1893.

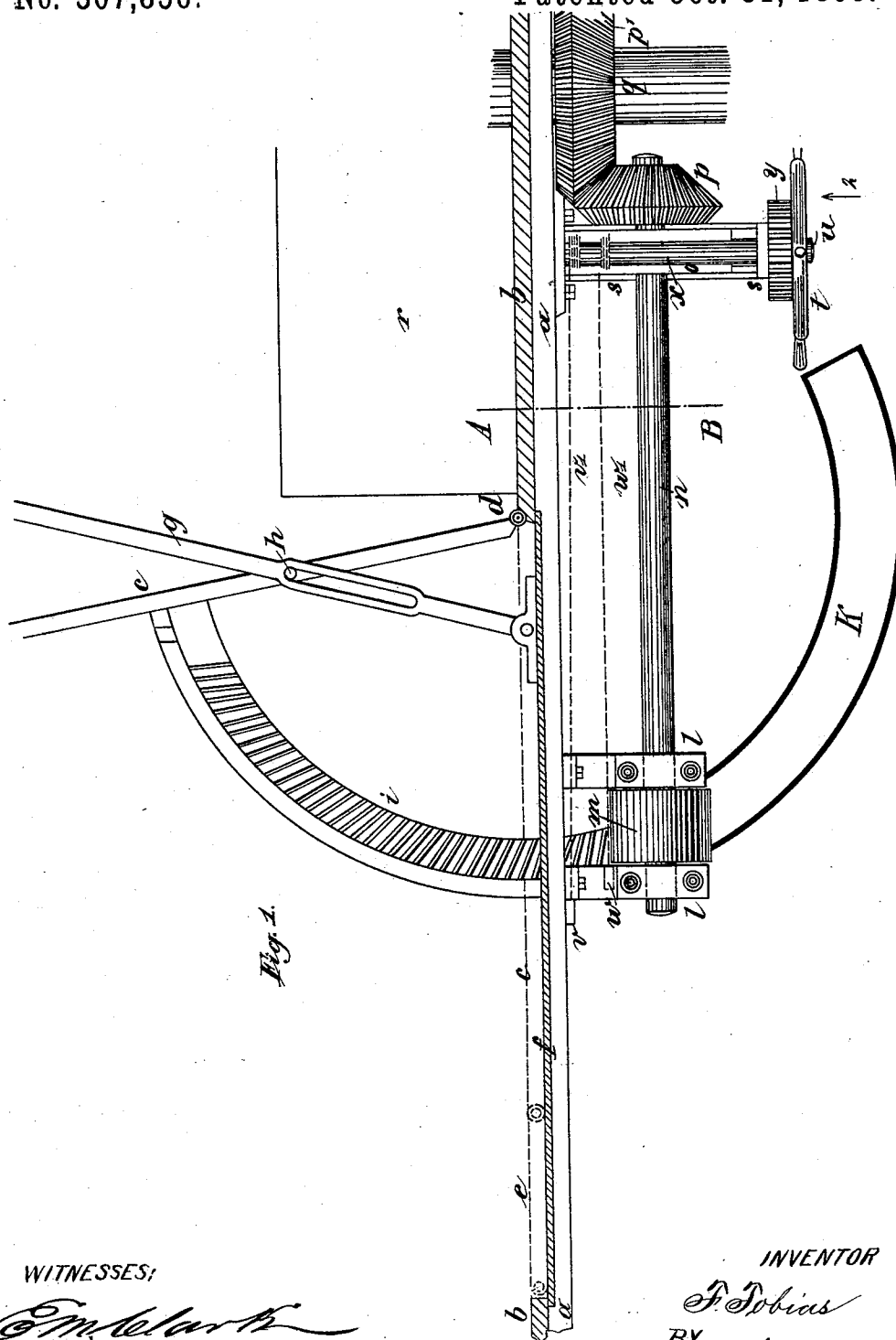


Fig. 1.

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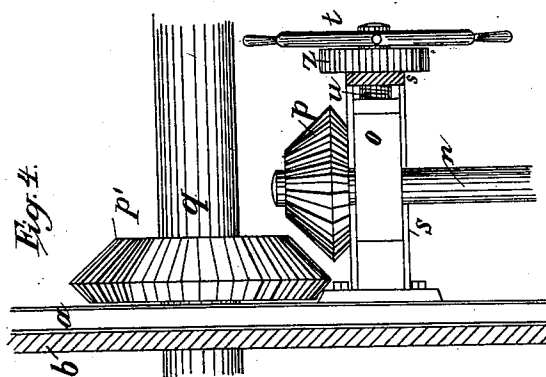
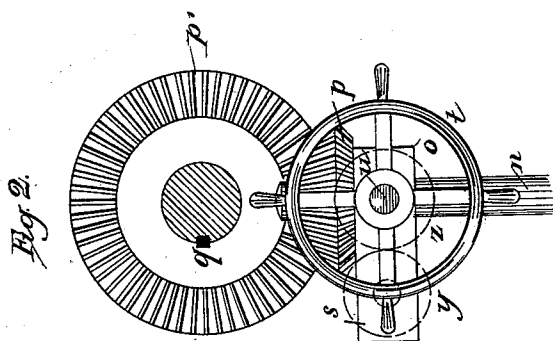
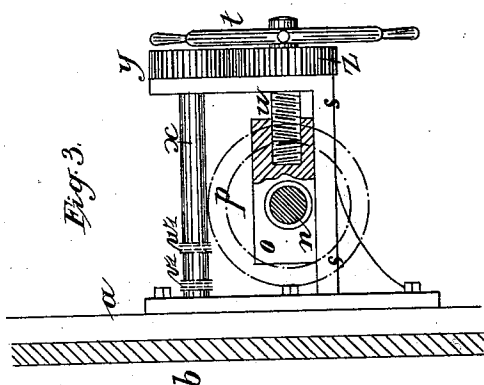
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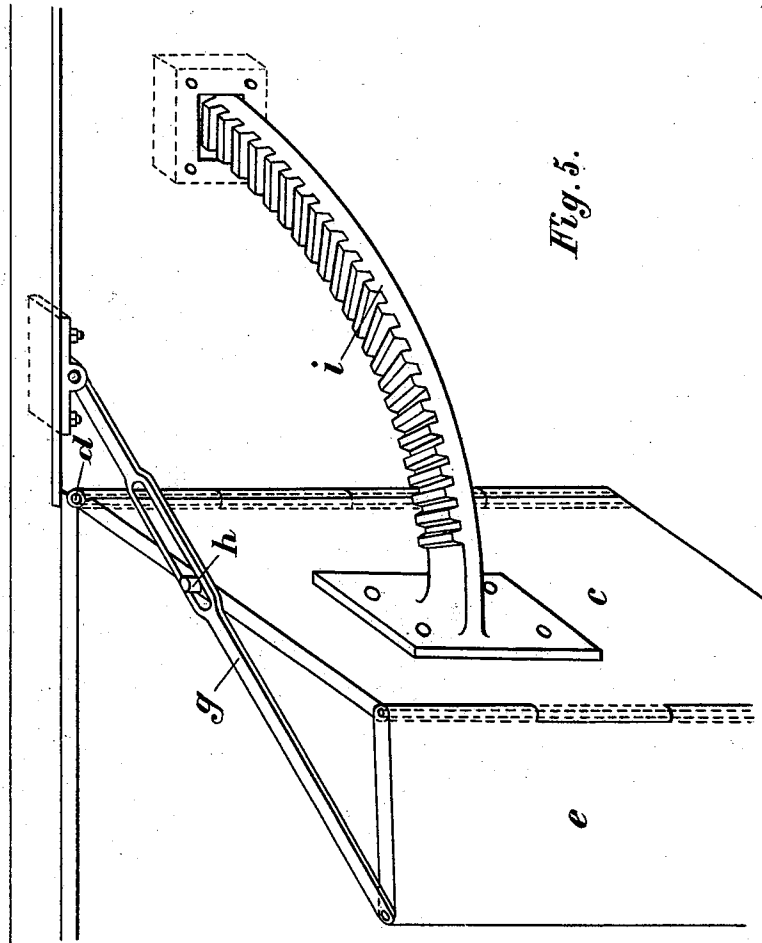
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UNITED STATES PATENT OFFICE.

FERDINAND TOBIAS, OF MUNICH, GERMANY.

SHIP'S BRAKE.

SPECIFICATION forming part of Letters Patent No. 507,856, dated October 31, 1893.

Application filed January 28, 1893. Serial No. 460,066. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND TOBIAS, of Munich, in the Kingdom of Bavaria and German Empire, have invented a new and useful Improvement in Ship-Brakes, of which the following is a full, clear, and exact description.

This invention has for its objects to provide reliable means for the sudden arrest of progressive motion in a vessel, to obviate collision with another craft or object in her course, and if the obstacle is too near to permit an arrest of forward movement to be made in time to avoid an accident, a further object is, to adapt the novel apparatus by proper manipulation to deflect the vessel having the improvement, in a direction which will avoid a direct collision with the vessel approached.

To these ends, my invention in brief, comprises the provision of one or more fins or wings, hinged to each side of the ship below the water line, and connecting said wings, by suitable intermediate mechanism, with the main propelling engine of the vessel, so that the projection of these sets of wings from both sides of the vessel by the force of the engine, will cause a rapid retardation of progressive motion in the ship. If it is deemed best for safety, the set of wings on one side only of the ship may be thrown quickly outward and so maintained, which will cause the rapid lateral deflection or turning movement of the craft away from the dangerous obstacle, and thus avoid a collision therewith, the absorption of propelling power from the engine reducing its effect on the ship's propeller at the same time.

My invention further consists, in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional plan view in part, of the side of a vessel, the improvement in position for service, and actuating mechanism adapted to transmit motion from the main engine shaft shown in part, to the novel arresting and steering device. Fig. 2 is a side view of parts opposite the arrow 2, in Fig. 1. Fig. 3 is a transverse sectional view on the line A, B, in Fig. 1; and Fig. 4 is a plan view,

showing parts of the improvement adjusted to disconnect other parts of the same from the engine shaft.

a designates the framing of a vessel or ship, and *b* the plating or skin of the ship, as shown in sectional plan in Fig. 1.

c designates a fin or wing, which is hinged to the side of the ship at *d*, and to the outer end of *c* is hinged the secondary fin or wing *e*. A recess is formed in the ship's side for the reception of the fins *c* and *e*, when in their normal or closed position, by removing a portion of the ship's skin or plating and covering the aperture with an inner plate *f*, as shown in Fig. 1. It will be understood that the fins *e* and *c*, which are shown in plan in said figure, are of considerable depth, their depth varying with the size of the vessel or other circumstance. The fins *c* and *e* are held and guided by the stay *g*, which is hinged at one end to the ship's side and at its outer end to the outer extremity of the fin *e*, and is provided with a longitudinal slot in which is held the pin *h* of the fin *c*. To the fin *c* is also connected the toothed quadrant *i* which passes through an aperture in the ship's side and into the sheath *K*.

The mechanism which operates the quadrant *i* and consequently the fins *c* and *e*, is illustrated in detail in Figs. 2, 3 and 4, and consists of the following parts. The shaft *n* is mounted at one end in fixed bearings *l* and at its other end in sliding bearings *o*. Upon the shaft *n* and between the bearings *l*, *l*, is mounted the spur wheel *m* which gears with the quadrant *i*, and to the opposite end of the shaft is keyed the bevel wheel *p*, adapted to gear with the bevel wheel *p'* of the engine shaft *q*. The bearing *o* and with it the shaft *n* and wheel *p* are caused to advance toward and recede from the wheel *p'*, by the hand operated screw gear *t*, whereby the wheel *p* may be slid into and out of gear with the bevel wheel *p'*, as occasion may require.

Upon reference to Figs. 2, 3 and 4, it will be seen that *s* designates a bracket bolted to the frame *a* of the ship.

o is a bearing block for the shaft *n* and slides in grooves provided in the bracket *s*. The threaded end of the shaft *u* enters a corresponding female screw in the block *o*, so that when the shaft *u* is rotated by the hand wheel

t the block *o* is caused to advance or recede as desired. Above the shaft *u* and also journaled in the bracket *s* is the shaft *x*, the shafts *u* and *x* being geared together by the spur wheels *y* and *z*.

The quadrant *i* is locked in its inward and outward position by the pins *v* and *w*, which enter corresponding apertures in the quadrant. The pins are withdrawn from and dropped into the quadrant alternately by the chains *v'* and *w'* which are secured by their adjacent ends so as to be adapted to wrap in opposite directions upon the shaft *x*.

In operation, when it is desired to extend the wings *c, e*, from the ship's side, as shown in Fig. 1, the hand wheel *t* is revolved and the block *o* is caused to advance toward the bevel wheel *p'* by the threaded shaft *u*. The shaft *x* revolves simultaneously with the shaft *u*, by means of the spur wheels *y, z*, and the chains *v'* and *w'* are respectively wound upon and unwound from the shaft *x*, at the same time, the pin *v* being withdrawn from the quadrant *i* by said movement of parts. The bevel wheel *p* has now become geared with the bevel wheel *p'*, and motion is transmitted to the spur wheel *m* which gears with the toothed quadrant *i* and the latter is thereby caused to project from the ship's side. The fin *c* or wing is thus caused to extend almost at right angles to the ship's side. The travel of the fin *c* is governed by the stay *g*, which causes it to stand at an angle to the fin *c*, whereby a considerable body of water is imprisoned between the fins and the ship's side, which forms an impediment to the further progress of the vessel. While this action is in progress the speed of the propelling

engine is reduced, on account of the power required for the extension of the fins being derived from the main shaft of such engine. The pin *w* is adapted to enter an aperture in the quadrant *i* when extended, and to hold the quadrant in such extended position.

In the above description and in the drawings hereto annexed my invention has been described and shown adapted to be operated by the main shaft of a paddle wheel engine, the shaft being lettered *q* and the paddle box *r*, but it will be evident that the invention is equally adaptable for use on ships which are driven by screw propellers. It will also be understood that the apparatus according to this invention is to be duplicated for each side of the vessel, and may be used to steer or maneuver vessels, as well as to stop or retard their progress, as the fins may be operated on one side of the vessel independently of the fins upon the other side.

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

An apparatus for steering or retarding the motion of navigable vessels, comprising wings or fins, hinged to the vessel, and connected to a toothed quadrant, adapted to be operated by a spur wheel driven from the main shaft of the ship's engine, through intermediate mechanical gearing, combined and adapted to operate substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

FERDINAND TOBIAS.

Witnesses:

HANS HACKER,
MAX TRINDLE.