(No Model.) 4 Sheets—Sheet 1.

J. McADAMS.

AUTOMATIC DRAG FOR SHIPS.

No. 261,369. Patented July 18, 1882

Fig 1.

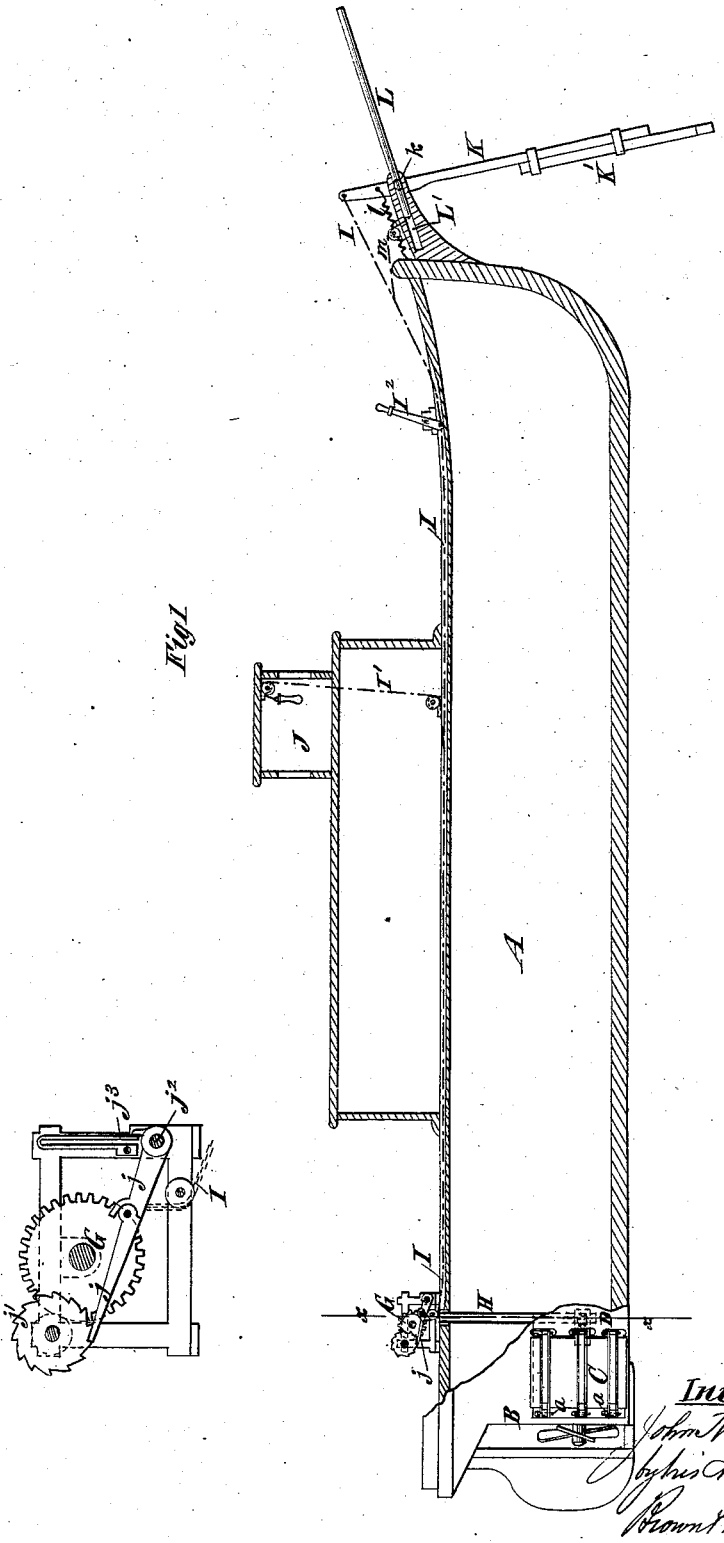

Fig 1*.

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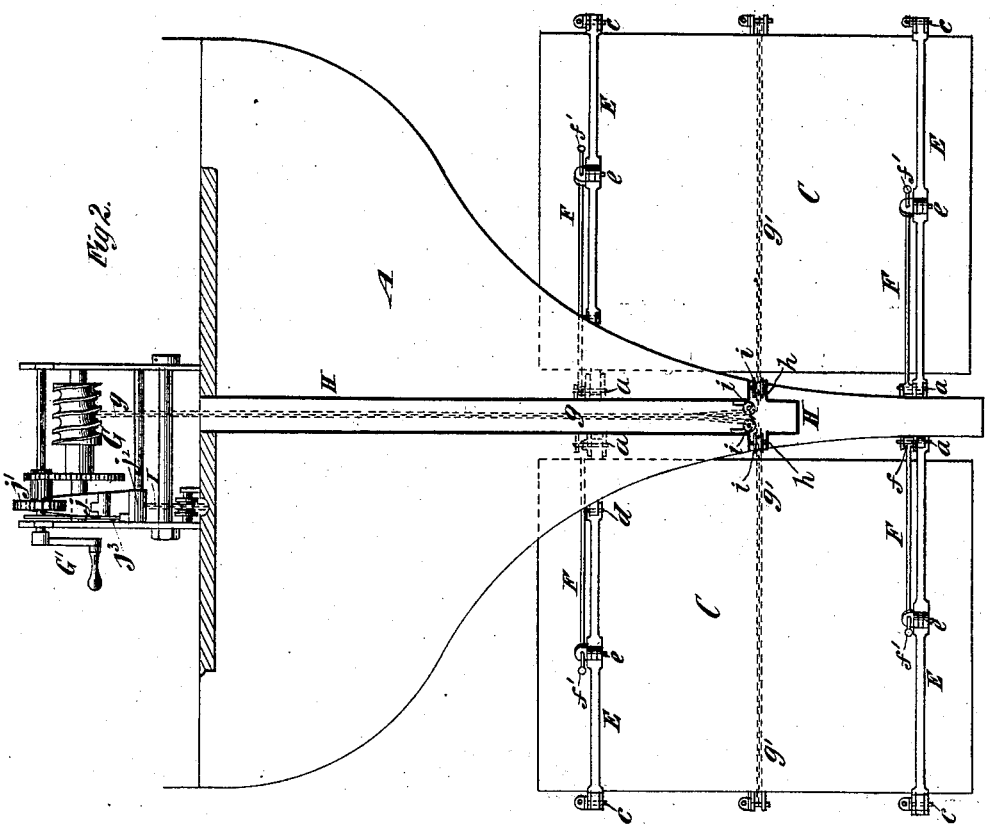
Fig 2.



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AUTOMATIC DRAG FOR SHIPS.

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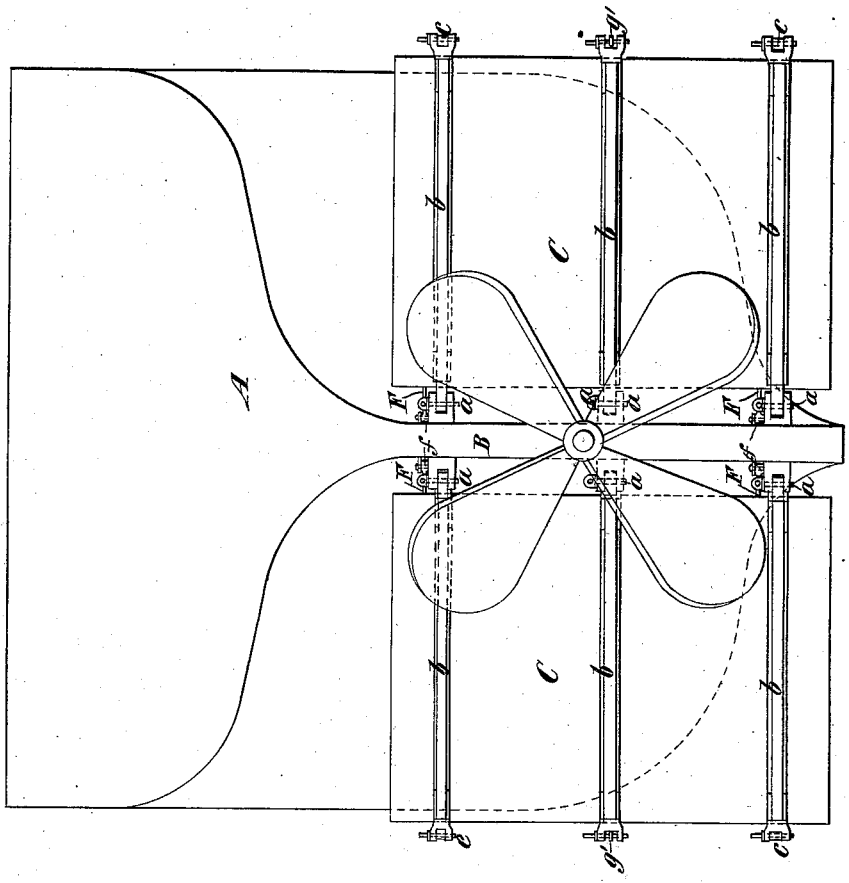
Fig. 3.



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AUTOMATIC DRAG FOR SHIPS.

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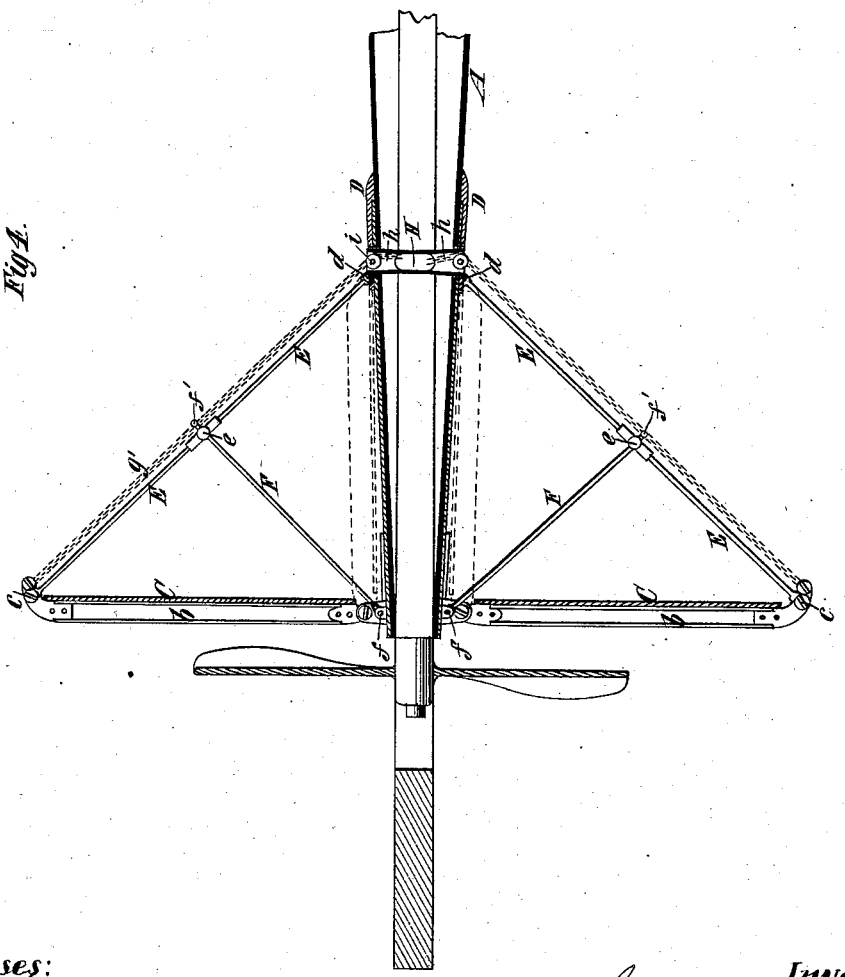
Fig 4.



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UNITED STATES PATENT OFFICE.

JOHN McADAMS, OF BOSTON, MASSACHUSETTS.

AUTOMATIC DRAG FOR SHIPS.

SPECIFICATION forming part of Letters Patent No. 261,369, dated July 18, 1882.

Application filed April 3, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN McADAMS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Means for Stopping Ships and other Vessels when under Headway, of which the following is a specification.

The object of my invention is to provide means whereby ships and other vessels, even when under full headway, may be quickly stopped to avoid collision or other disaster, but which will not retard the speed of the ship or vessel until it is desired to do so.

The invention consists essentially in the combination, with a ship or vessel, of fins or blades connected by hinges or pivots to the sides of the stern-post or other part of the side of the vessel, so that they will fold or close snugly against the sides of the ship or vessel when not required to be used, or swing outward so as to project transversely therefrom when required to operate, and means whereby the fins or blades may be held folded or closed against the sides of the ship or vessel until it is desired to stop or retard the progress of the latter, when the fins or blades are released and will be swung out by the action of the water, so as to offer a great resistance to the further progress of the ship or vessel. The means for holding the fins or blades in their inoperative position may consist of a windlass and tackle for drawing them inward and a locking device, consisting of a pawl, for holding the windlass, and this pawl may be connected by cords or chains with the pilot-house, the lookout-station, or any other part of the vessel on or above the deck.

The invention also consists in the combination, with the fins or blades and their windlass and locking device, of a lever or feeler depending from the bow of the vessel and connected with the said locking device, so that when the lever or feeler strikes a snag or any obstruction at or below the surface of the water or on the bottom the locking device will be withdrawn and the fins or blades permitted to swing outward.

The invention also consists in the combination, with the aforesaid locking device, of a bowsprit or spar which projects from the bow of the vessel, and which is longitudinally movable, and is connected with the locking device, so that when the said bowsprit or spar strikes a vessel or other obstruction the fins or blades will be released and permitted to swing outward.

The invention also consists in the combination, with the fins or blades, of a novel construction and arrangement of braces and stays which connect the outer edges or portions of the fins or blades with the sides of the vessel in advance of them, and which fold up inside the fins or blades, and between them and the sides of the vessel when the fins or blades are swung inward, as fully hereinafter described.

The invention also consists in details of construction and combinations of parts to be hereinafter described.

In the accompanying drawings, Figure 1 represents a side elevation and partial longitudinal section of a vessel provided with my improved attachments. Fig. 1* is a vertical section of the windlass and appurtenances on a larger scale. Fig. 2 represents a transverse vertical section thereof on the dotted line *x x*, Fig. 1, and upon a much larger scale. Fig. 3 represents an elevation of the stern of the vessel, and Fig. 4 represents a horizontal section of the stern portion of the vessel upon the same scale as Fig. 3.

Similar letters of reference designate corresponding parts in all the figures.

A designates the hull of a steam-vessel which I have chosen for illustration; but my invention is equally applicable to sailing vessels of any kind.

B designates the stern-post of the vessel; and C designates the fins or blades, which are connected by upright hinge-pins or pivots *a* with the stern-post, as clearly shown in Figs. 2, 3, and 4. In lieu of being hinged to the stern-post, the fins or blades C may be connected to the frame of the vessel at any part of the sides, and one, two, or more fins or blades may be applied to each side, as may be found most desirable. As here shown, the fins or blades extend to the bottom of the keel, and they may extend upward nearly to or slightly above the water-line. They are each shown as composed of a single plate, to which are secured ribs *b*, in the ends of which are formed the eyes or bearers for the hinge-pins or pivots

a, and when hinged as shown they may be swung inward so as to fold or close tightly against the sides of the vessel, as shown in Fig. 1 and in dotted outline in Fig. 4, or they may swing outward so as to project transversely from the vessel, as shown in full lines in Figs. 3 and 4, and when thus swung out it is obvious that they will offer a great resistance to the progress of the vessel, and will enable the vessel to be stopped within a very short distance, if desired.

Upon the sides of the vessel, immediately in advance of the front edges of the fins or blades when swung inward, are secured plates D, which are tapered or thinned in a forward direction, as shown in Fig. 4, and when the fins or blades are swung inward they do not project beyond the outer surfaces of the plates D, and do not therefore offer any appreciable resistance to the progress of the vessel. It will be readily seen that as soon as the fins or blades are swung outward ever so little from the sides of the vessel they will be caught by the water and swung open, and as they are shaped to the side of the vessel their upper portions overhang their lower portions and will give them a natural tendency to swing outward into a position where the water will catch them. In order to still further insure the fins or blades moving outward when released, I shape them so that their lower portions will strike the sides of the vessel before their upper portions, and they will therefore be so sprung against the sides of the vessel that when released their elasticity will carry their upper portions outward sufficiently to catch the water.

E designates braces, which are hinged at *e* to the outer edges of the fins or blades C, and at *d* to the sides of the vessel, as best shown in Fig. 3, and which are also hinged at about the middle of their length by pins or pintles *e*. When the fins or blades are swung outward the braces E assume the positions shown in Fig. 4 and prevent the fins or blades from moving past a position at right angles to the sides of the vessel; but when the fins or blades are swung inward these braces fold inward between the fins or blades C and the sides of the vessel.

In order to prevent the braces E from moving into or past a straight position, which would prevent their folding inward between the fins or blades and the sides of the vessel, I employ stays F, which consist of rods hinged at one end, *f*, and having their other end working through the pins or pintles *e*, and provided with knobs or heads *f'*, as clearly shown in Fig. 4, and when the fins or blades are swung inward the pins or pintles *e* slide inward upon the rods or stays F, while the latter swing inward with them. The braces E might, however, swing outward instead of inward.

The mechanism for drawing the fins or blades C inward is best represented in Figs. 1* and 2, but also on a small scale in Fig. 1.

G designates a windlass or drum, which is adapted to be turned by a winch-handle, G', and suitable gearing, and from said windlass extends a chain or other connection, *g*, to which are connected two other chains or connections, *g'*, which pass outward through holes in the sides of the vessel. In order to prevent water from entering the hull through these holes, I connect them by pipes or tubes *h* with an upright pipe, tube, or trunk, H, which is closed at the bottom, and the chains or connections *g g'* work through these pipes or tubes, and are carried over suitable guide-rollers, *i*, in the sides of the vessel and in the pipes or tubes, as clearly shown. When the fins or blades are drawn inward they are held in their closed position by a pawl, *j*, engaging with a ratchet-wheel, *j'*, embodied in the gearing of the windlass, or by any other locking device, and when the fins or blades are to be released and allowed to operate all that is necessary is to withdraw the pawl. The pawl *j* is fulcrumed at j^2, and is held in engagement with its wheel *j'* by a spring, j^3, as shown in Fig. 1*.

I designates a cord, chain, or other suitable connection, which is fastened to the pawl *j* and carried forward to the bow of the vessel, and a branch chain or connection, I', leads therefrom to the pilot-house J, where it can be operated to withdraw the pawl and release the fins or blades. The chain or connection I may also be pulled to withdraw the pawl by a lever, I^2, arranged at the bow, where it may be operated by the lookout-man, and said chain or connection is fastened at the end to a lever or feeler, K, which is fulcrumed at *k*, and depends in front of the bow. The lever or feeler K is kept in the position shown in Fig. 1 by a spring, *l*, applied above the fulcrum, and when it strikes any snag or other obstruction its lower end will be moved inward and the chain or connection I pulled to withdraw the pawl. The lever K may have a vertically-adjustable section, K', which may be raised or lowered so as to project as far below the keel as is desired, and this extension may have laterally-projecting arms, so as to "feel" the bottom and prevent the vessel from running into shallow water. For instance, in running into a harbor or in shallow inland waters the section K' may be properly adjusted, and in case of too shallow water it will strike the bottom and pull the chain or connection and withdraw the pawl *j*.

I may also, if desirable, make the bowsprit L movable in a socket, L', in the stem of the vessel and connect it by a branch chain or cord, *m*, with the connection I; and when the bowsprit is moved inward by collision with a vessel or by running against any obstacle the chain or connection I will be pulled and the pawl withdrawn.

All the hinge pins or pintles which connect the fins or blades and the braces E with the vessel may be so constructed that they can

be readily pulled out, and in case of any accident happening to the fins or blades, or to their operating-gear while at sea, which would prevent them from being closed, all the pins or pintles may be pulled out and the fins or blades unshipped.

It will be seen that by my invention I provide a very desirable and effective means for quickly stopping a vessel, even while under full headway, and one which offers no resistance to the progress of the vessel unless desired.

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

1. The combination, with a vessel, of fins or blades pivoted at one edge to the sides thereof and connected with mechanism by which they can be simultaneously turned on their pivoted edges to swing their free edges against the sides of the vessel and in front of their pivotal point, and connected devices for locking the fins in their folded position, but adapted to simultaneously release them, whereby the water, by the progress of the vessel, will be forced between the hull and fins and act to throw them rearward to a position transverse to the vessel, substantially as described.

2. As a means for stopping vessels, the pivoted elastic fins or blades adapted to swing forward to fold against the sides of the vessel, with their free edges in front of their pivotal connection with the vessel, the elasticity of the fins or plates permitting them to conform to the side of the vessel when folded by suitable mechanism, and to spring away from the side of the vessel when released, substantially as described.

3. The combination, with a vessel and fins or blades connected with the sides thereof by pivots, upon which they are adapted to swing outward and inward, of a locking device for holding said fins or blades inward against the sides of the vessel, and a lever or feeler depending in front of the bow and connected with said locking device, substantially as described.

4. The combination, with a vessel, of hinged fins or blades C, the windlass G, and pawl *j* for operating them and holding them inward, and the lever or feeler K and adjustable section K′, connected with said pawl, substantially as described.

5. The combination, with a vessel, of the hinged fins or blades C, the windlass G, and pawl *j*, and the movable bowsprit or spar L, connected with said pawl, substantially as described.

6. The combination, with a vessel, of the fins or blades connected with the sides thereof by pivots, upon which they are adapted to swing outward and inward, and braces hinged to the outer portions of the fins or blades and to the sides of the vessel forward of the fins or blades, and each composed of hinged sections adapted to fold between the fins or blades and the sides of the vessel, substantially as described.

7. The combination, with a vessel, of the hinged fins or blades C, the hinged sectional braces E, and the stays F, on which said braces may slide, substantially as described.

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JAMES H. MCADAMS.