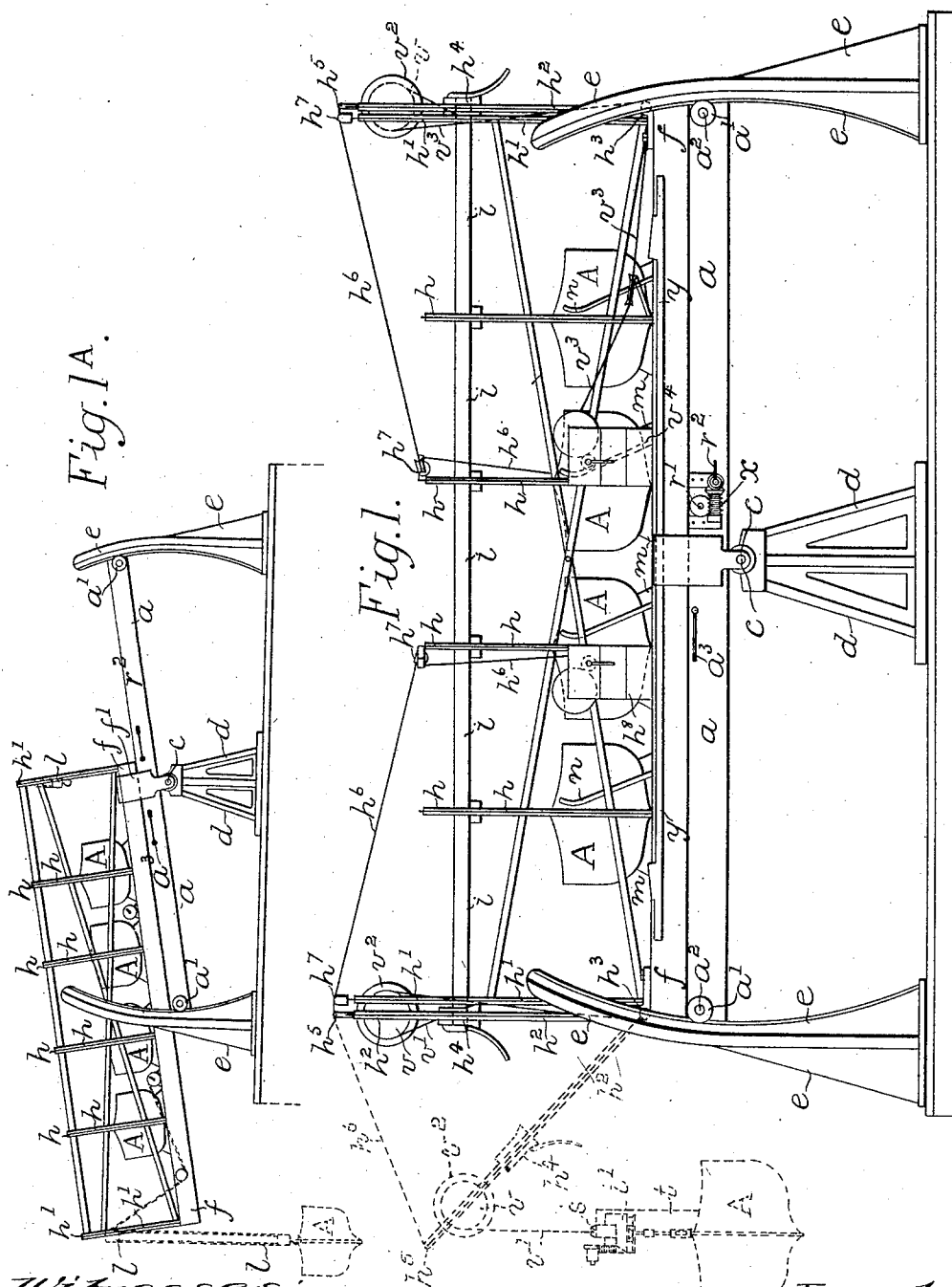


W. J. GREENFIELD.  
STOWING AND LOWERING AND RAISING SHIPS' BOATS.  
APPLICATION FILED JUNE 20, 1912.

1,059,148.

Patented Apr. 15, 1913.

4 SHEETS—SHEET 1.



Witnesses:

Chas. A. Rowe

*[Signature]*

Inventor

William J. Greenfield

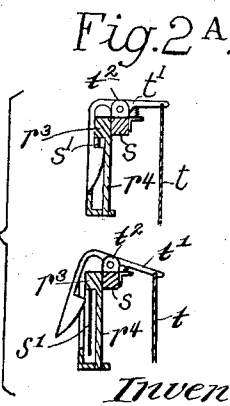
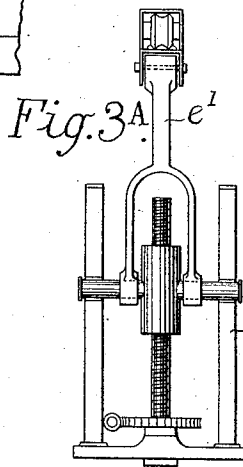
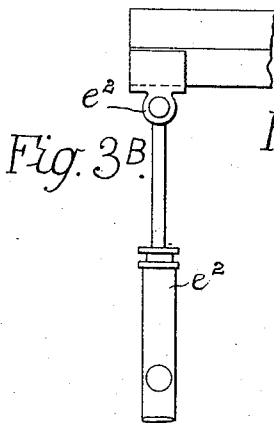
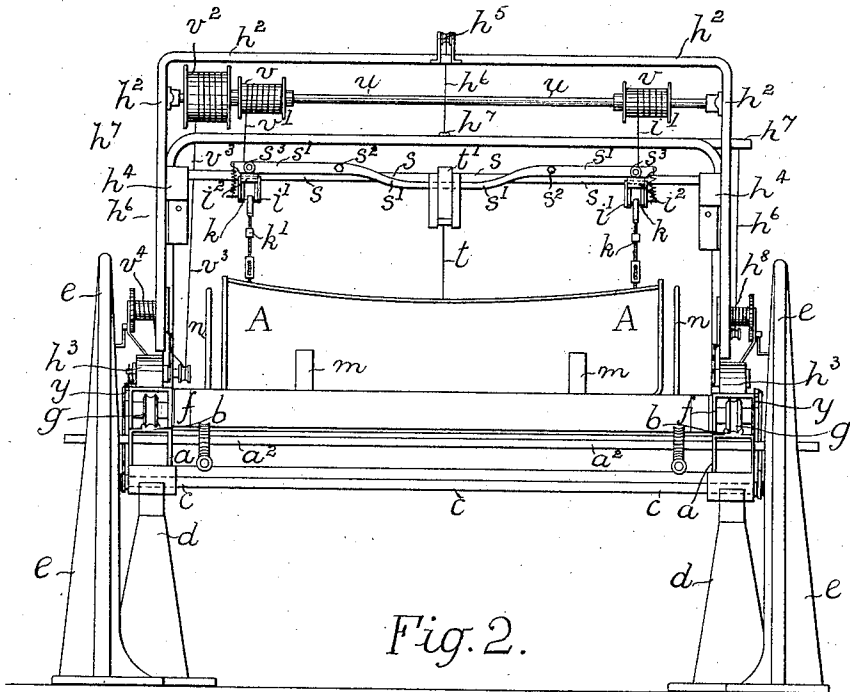
by *[Signature]* Attorney

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4 SHEETS—SHEET 2.



Witnesses:  
Chas. A. Rme

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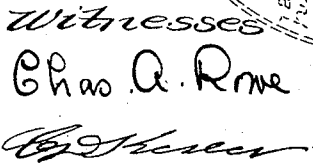
Inventor  
William J. Greenfield

by

*Amos L. Morris*  
Atty

1,059,148.

4 SHEETS—SHEET 3.



Inventor  
William J. Greenfield

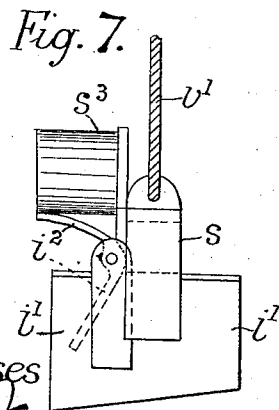
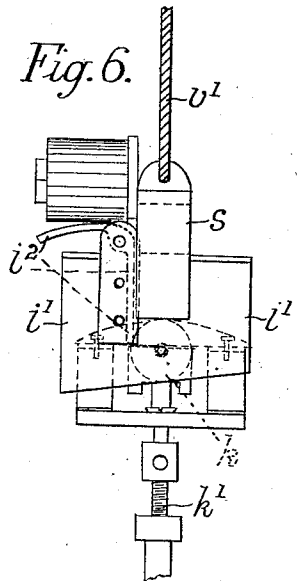
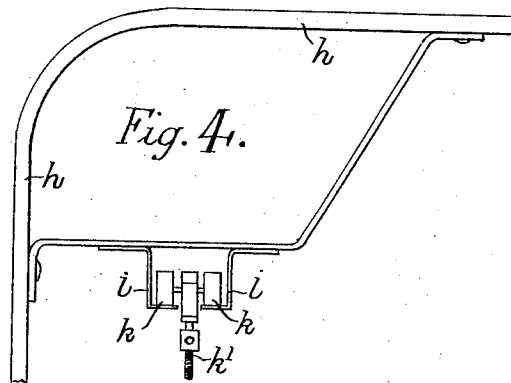
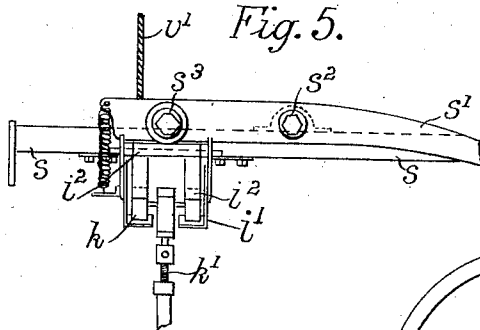
34  
James L. Norris D.  
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4 SHEETS—SHEET 4.



Witnesses  
*J. L. Jones*  
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*William J. Greenfield*  
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Attorney

# UNITED STATES PATENT OFFICE.

WILLIAM JOHN GREENFIELD, OF WATERFORD, IRELAND.

STOWING AND LOWERING AND RAISING SHIPS' BOATS.

1,059,148.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed June 20, 1912. Serial No. 704,793.

*To all whom it may concern:*

Be it known that I, WILLIAM JOHN GREENFIELD, master mariner, a subject of the King of Great Britain, residing at 12 The Quay, Waterford, Ireland, have invented certain new and useful Improvements in or Connected with Stowing and Lowering and Raising Ships' Boats, of which the following is a specification.

My invention relates to that type of structure and apparatus in which ships' boats are stowed in multiple side-by-side fore and aft on athwartship plane so that they can be launched successively one after the other, and on either side of the ship.

A structure and apparatus according to my invention comprises a frame or platform provided with a railway, and placed athwartship on the deck or super-deck of a ship, and carried centrally by trunnions or a shaft having bearings on entablature brackets or the like. This frame is supported at each end by screw-jacks, hydraulic-rams or the like, which hold the frame in a horizontal position when in its normal condition, and by which the frame can be canted or caused to rock over to the port or starboard side as required. A cage-like super-structure of arch form, open at each end, and of length to correspond with the beam of the ship, is mounted, in turn, upon the aforesaid frame, and this cage is provided with wheels or the like adapted to run on the railway, and with rack and pinion or like gear by which it can be caused to move on said carrying frame or platform so as to extend sufficiently over the ship's side, to port or starboard, as the case may be, to enable the boats which are suspended in the cage (as hereafter described) to be lowered in succession clear of the ship's side. The cage is composed of two side members, constituting runners, on which the carrying wheels are mounted, and a series of vertical arch frames of angle-iron or the like connected by horizontal bars of angle-iron or the like. The frames at each end of the structure are adapted to serve for attaching boat-lowering tackle. At the top or roof of the arch the cage is provided at each side with internal rails of channel form adapted to receive pendant, cone or like shaped runners having screw shackles or the like, by which the boats are suspended, from the rails, within the cage. The cage is constructed of width to correspond with the length of

the boats to be stowed, for example, about twenty feet, the boats being placed side-by-side throughout the cage, leaving a suitable space between each boat for handling. Boat chocks are provided between the side runners of the cage, and these chocks are so hinged to, or mounted on the runner members that they will turn down as each boat is moved so as to be out of the way of the next boat in turn.

Having thus generally described the nature of my invention, I will now proceed to describe it with reference to the accompanying drawings. The example of apparatus which I have illustrated is an arrangement and construction of parts according to this invention as applied to stowing, and lowering and raising ships' boats.

In the various figures of the drawings the same parts are designated by the same letters, and they correspond with those used in the following explanation of the example.

Figure 1 is a side elevation of an apparatus according to my invention whereby ships' boats are so carried that they can be launched from either or both sides of a ship, and so that they can be lowered in succession into the water by the same tackle, such tackle also serving for raising the boats, and Fig. 1<sup>A</sup> is a similar view on a reduced scale, showing the position of the apparatus when lowering the boats from one side only. Fig. 2 is an end view of the frame of the apparatus and Fig. 3 is a plan view of the apparatus. Fig. 2<sup>A</sup> is a detail sectional view of the boat-releasing device; and Figs. 2<sup>B</sup> and 2<sup>C</sup> are detail views in side elevation and transverse section, respectively, showing an arrangement of anti-friction rollers for the boat chocks. Figs. 3<sup>A</sup> and 3<sup>B</sup> are detail views, respectively, of a screw-jack device and a hydraulic-ram device, either of which may be employed to support the frame of the apparatus in place of the toothed quadrant standards shown in Figs. 1, 2 and 3. Fig. 4 is an end elevation of one side of the arched frame with the internal channel rail. Fig. 5 is an end elevation of the boat-releasing device; and Figs. 6 and 7 are enlarged side elevations of the same.

With reference to the drawings, *a* designates the frame or platform which is placed athwartship on the deck or super-deck of a ship, and *b* denotes the railway provided on such frame. The frame *a* is carried cen-

trally by trunnions or a shaft  $c$  having bearings on entablature brackets  $d$  mounted on the deck of the ship. The frame  $a$  is supported at each end by toothed quadrant standards  $e$  as shown in Figs. 1, 1<sup>A</sup>, 2 and 3, or the frame  $a$  may be supported at each end by screw-jacks  $e^1$  such as shown in Fig. 3<sup>A</sup>, or by hydraulic-rams  $e^2$  such as shown in Fig. 3<sup>B</sup>. These quadrant standards  $e$ , or the screw-jacks  $e^1$ , or the hydraulic-rams  $e^2$  as the case may be, are placed on the deck of the ship so as to support the frame  $a$  at each corner, and are so connected by wheel gearing or by hydraulic pipes (in the case of rams being employed) that they hold the frame  $a$  in a horizontal position when in its normal condition, or are employed to cant or rock the frame over to the port or starboard side of the ship, as may be required. In the present example I will describe the action of the frame  $a$  as fitted with and operated by the toothed quadrant standards  $e$  and gear shown in Figs. 1, 1<sup>A</sup>, 2 and 3.

Upon the frame  $a$  there is mounted a super-structure or cage of arch form and of length to correspond with or about the beam of the ship; this super-structure consists of side bars or members  $f$ , which act as runners and are provided with wheels  $g$  adapted to run on the railway  $b$  of the frame  $a$ , and to carry a cage which is formed of arched angle or like frames  $h$  fixed vertically on the side members  $f$ . At its top, and under and carried by the frames  $h$ , the cage is provided at each side with internal rails  $i$  of channel form adapted to receive pendant cone or like runners or trolleys  $k$  provided with screw shackles or the like  $k^1$ , by which the boats  $A$  are suspended from the rails  $i$  within the cage. The frame  $a$  and the super-structure cage is constructed of width to correspond with the length of the boats  $A$ .

The frames  $h^1$  at each end of the cage are adapted to serve for attaching boat-lowering tackle  $l$  as hereafter described.

With reference to Figs. 1, 1<sup>A</sup>, and 3,  $m$  designates the boat chocks which are located between the side members  $f$  of the cage. These chocks  $m$  are mounted in pairs at opposite sides of the boat in such a manner that by actuating the levers  $n$  they will be moved away from the boat and turned down as each boat is moved, so that the chocks of the first boat to be moved will be out of the way of the next boat in turn to be moved. They may be of any well known suitable type, and since they form no specific part of the invention, they are not described nor illustrated in detail. The frame  $a$  is held in its normal position and caused to rock over to the port or starboard side by means of the toothed pinions  $a^1$  which gear into the teeth of the toothed quadrant standards  $e$ , the pinions being worked by means of the gear shafting  $a^2$  and the hand gear  $a^3$ .

The side members  $f$  are each provided with a toothed rack  $p$  into which gears a toothed pinion  $r$  worked by the shafting  $r^1$  and the hand gear  $r^2$ . This gear is employed to move the members  $f$  together with the cage and the boats out to the port side or the starboard side of the ship as may be required to launch the boats, see, for example, the position shown in Fig. 1<sup>A</sup>.

To act as a guide and to hold the members  $f$  on to the rails  $b$ , I provide stirrup links  $f^1$  which are mounted on the trunnions or shaft  $c$  and straddle the aforesaid members; these links may be also fitted to act as friction brakes to hold the members  $f$  in any required position.

The boat-lowering tackle  $l$  may be of any known type of block and tackle gear, and may be attached to the frames  $h^1$  or to the ends of the rails  $i$  with the fall leading to a winch on the members  $f$  or to a winch on the ship's deck, or the height of the outside frames  $h^1$  may be increased so that they project above the inside frames  $h$ . Outside the frame  $h^1$  I provide a canting frame  $h^2$  which is pivoted or hinged to the extreme ends of the side bars or members  $f$  at  $h^3$ , and is provided with guide sockets  $h^4$  into which slide the ends of a cross-bar  $s$ . On this cross-bar  $s$  I provide short channel rail sections  $i^1$  which, when the canting frame  $h^2$  is in a vertical position, coincide with the main channel rails  $i$ . These channel rail sections  $i^1$  are inclined outwardly at the base and provided with releasing tumblers  $i^2$  hinged to and working within the channel rail sections  $i^1$ , as shown in detail in Figs. 5, 6 and 7. These tumblers  $i^2$  hold the trolleys  $k$  with the screw shackles  $k^1$ , by which the boats  $A$  are suspended, within each channel rail section  $i^1$  when the boat has been moved from the main rail into such section.

$s^1$ ,  $s^1$  indicate two levers which are fulcrumed at  $s^2$ ,  $s^2$  on bar  $s$  and have their inner ends working in a guide  $r^4$  and resting against a stop device  $r^3$  fixed on bar  $s$ , the levers being held in this position by a catch  $t^1$  that is pivoted centrally at  $t^2$  on said bar  $s$  and is operated by a line  $t$ , as represented in Fig. 2<sup>A</sup>. The outer ends  $s^3$ ,  $s^3$  of these levers press on and hold the tumblers  $i^2$  until the said levers are released by downward pull upon line  $t$ , which action serves to disengage catch  $t^1$  from the inner ends of the levers, whereupon said ends are free to fall and the outer ends  $s^3$ ,  $s^3$  to rise by the weight of the boat, through the trolleys  $k$  acting on and forcing up the tumblers  $i^2$ , thereby allowing said trolleys to run clear of the rail sections  $i^1$  and the boat, in consequence, to release itself.

$u$  denotes a pulley shaft mounted on the frame  $h^2$  and provided with fixed pulleys  $v$  having ropes or the like  $v^1$  by which the

bar  $s$  is suspended, and thereby the boat  $A$ , by means of the trolleys  $k$  and screw shackles  $k^1$ .

$v^2$  is a pulley fixed on the pulley shaft  $u$  and carrying the rope  $v^3$  which is led to the winch  $v^4$ , by which the gear is worked.

$h^5$  designates an attachment on the canting frame  $h^2$  for an operating rope or the like  $h^6$  which is carried around leads  $h^7$  to an operating winch  $h^8$ .

The boat chocks  $m$  are provided with anti-friction rollers  $m^1$ , as shown in Figs. 2<sup>B</sup> and 2<sup>C</sup>, to facilitate the turn-down movement of the chocks  $m$ . With regard to the gear employed to work the rack and pinion gear, I provide a worm and wheel gear  $w$  to work the shafting  $r^1$ , and thereby the toothed pinion  $r$  and toothed rack  $p$ . With regard to the brake gear, I employ an independent stop device  $y$ .

In operation, assuming, for example, that a ship is on the rocks off a sea-shore, the under frame or platform is canted by means of the toothed quadrant standard gear, the screw-jacks or the hydraulic rams, so as to incline with the cage to the port or starboard side; then, by means of the rack-and-pinion or like gear, the cage with the boats, is run out so as to extend over the side of the ship sufficiently to enable the first boat of the series to be disengaged from the suspending device, and connected to and lowered by the boat tackle, after which the second boat and so on, of the series, is moved into position, connected to the boat tackle, and lowered. When lowering a boat  $A$  from the structure, as shown in Figs. 1, 2 and 3, the trolleys  $k$  and screw shackles  $k^1$  carrying the boat are run into the short channel rail sections  $i^1$  provided on the cross-bar  $s$  of the canting frame  $h^2$ , the canting frame  $h^2$  is then lowered to the re-

quired extent by means of the rope  $h^6$ , and the cross-bar  $s$  with the trolleys  $k$  and sections  $i^1$  carrying the boat, is then released from the canting frame  $h^2$  and lowered to the desired extent by means of the ropes  $v^1$ ; then, by pulling on the line  $t$  which actuates the releasing levers  $s^1$ , the boat with the trolleys  $k$  and screw shackles  $k^1$  falls clear, after which the canting frame  $h^2$  is elevated to its normal position, and the ends of the cross-bar  $s$  with the channel rail sections  $i^1$  take their normal place in their guide sockets  $h^4$  and the canting frame  $h^2$  is then in condition to receive a second or following boat which is lowered and released in like manner.

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

An apparatus of the character specified comprising, in combination, a pivotally-mounted platform disposed athwartship on the deck of a ship and provided with a longitudinal track; means for canting said platform to starboard or port; a traveling cage mounted upon said track for movement thereon to starboard or port when said platform is canted, said cage being adapted to contain a plurality of boats arranged side by side and being provided with rails and trolleys from which said boats are suspended; and tackle for lowering and raising said boats.

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

WILLIAM JOHN GREENFIELD.

Witnesses:

FREDERICK JOHN CHEESBROUGH,  
KATHLEEN MORRIS.