

No. 653,121.

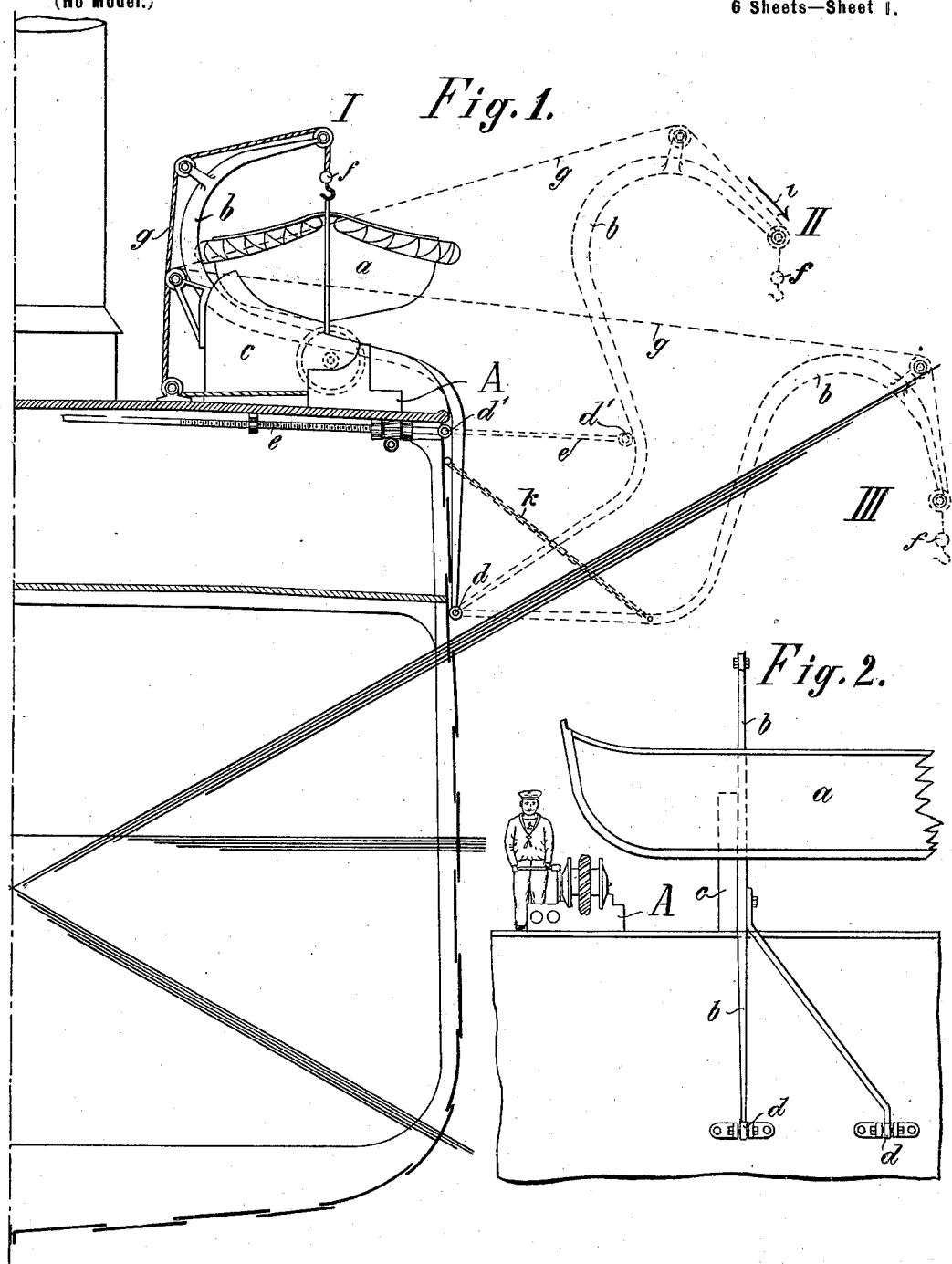
Patented July 3, 1900.

C. SCHNEEMANN.
BOAT LOWERING MECHANISM.

(Application filed May 7, 1898.)

(No Model.)

6 Sheets—Sheet I.



Witnesses:
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No. 653,121.

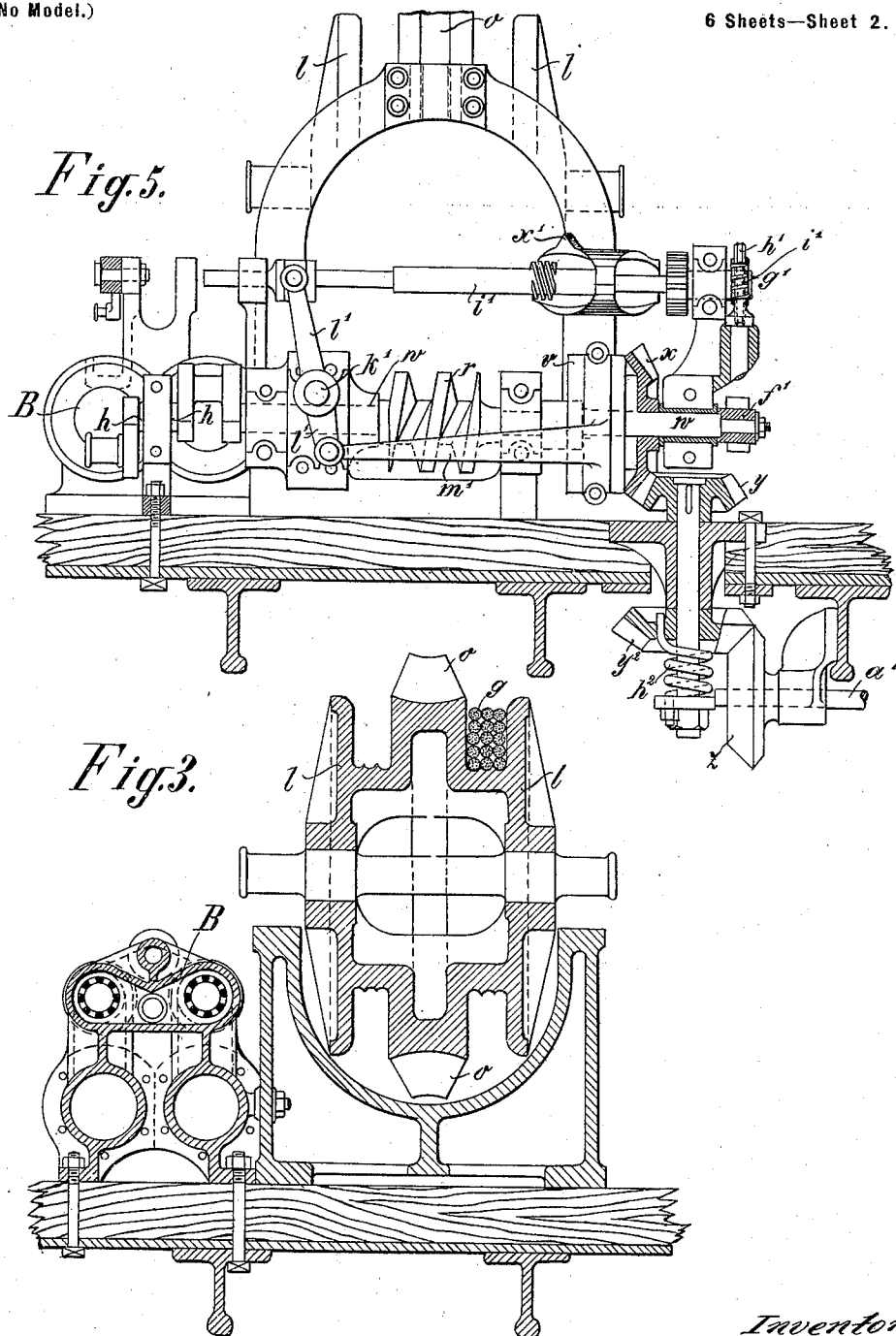
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(No Model.)

6 Sheets—Sheet 2.



Witnesses.
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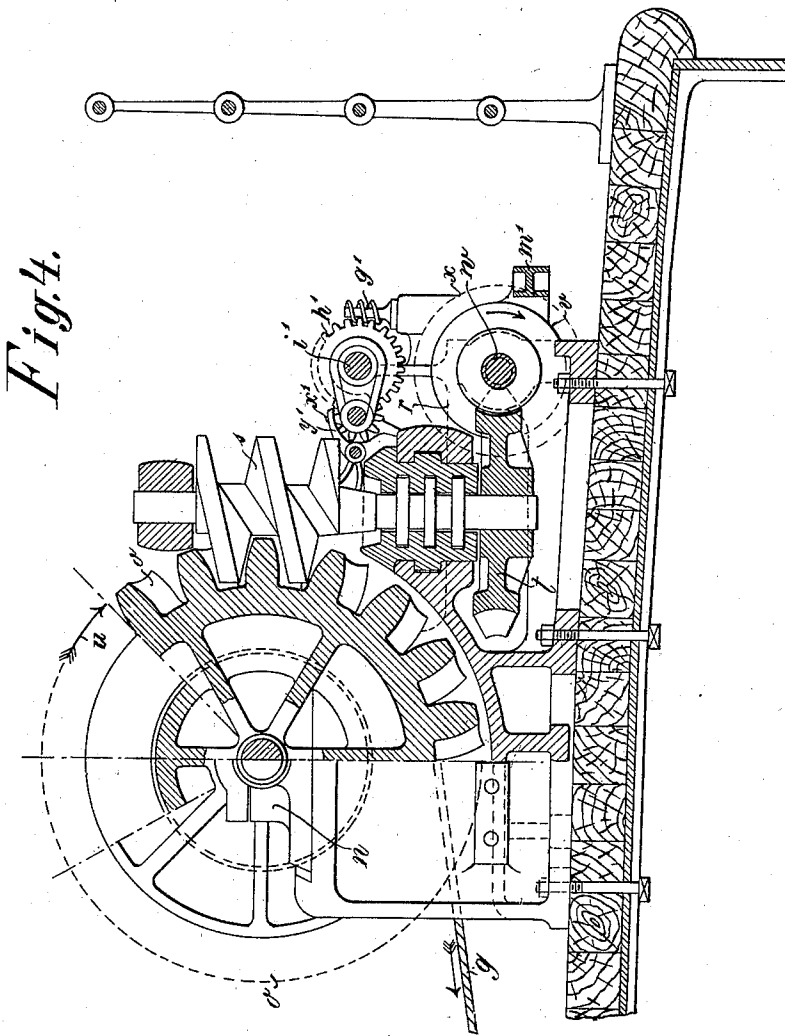
Patented July 3, 1900.

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(Application filed May 7, 1898.)

(No Model.)

6 Sheets—Sheet 3.



Witnesses
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No. 653,121.

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6 Sheets—Sheet 4.

Fig. 6.

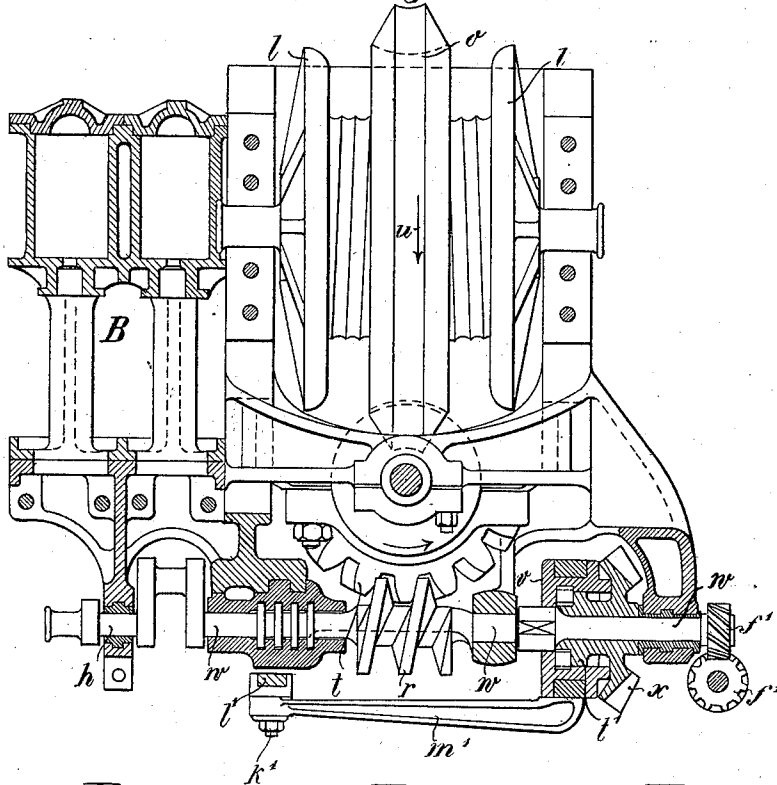


Fig. 8.

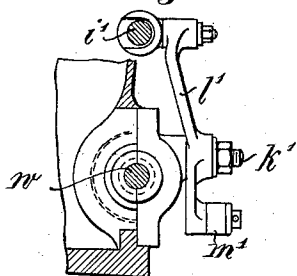


Fig. 9.

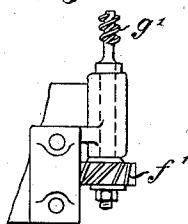
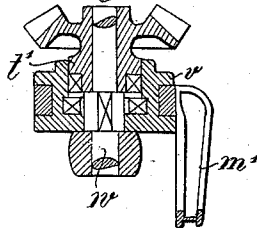


Fig. 10.



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(No Model.)

6 Sheets—Sheet 5.

Fig. 12.

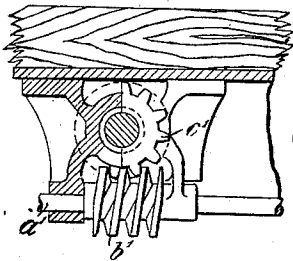


Fig. 14.

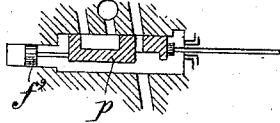


Fig. 11.

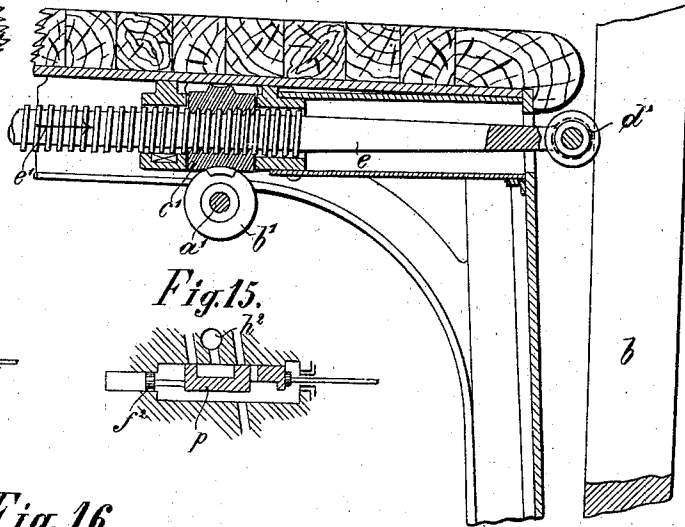


Fig. 15.

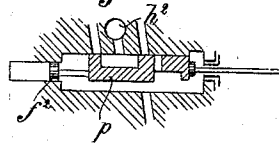


Fig. 16.

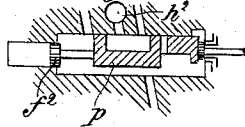


Fig. 7.

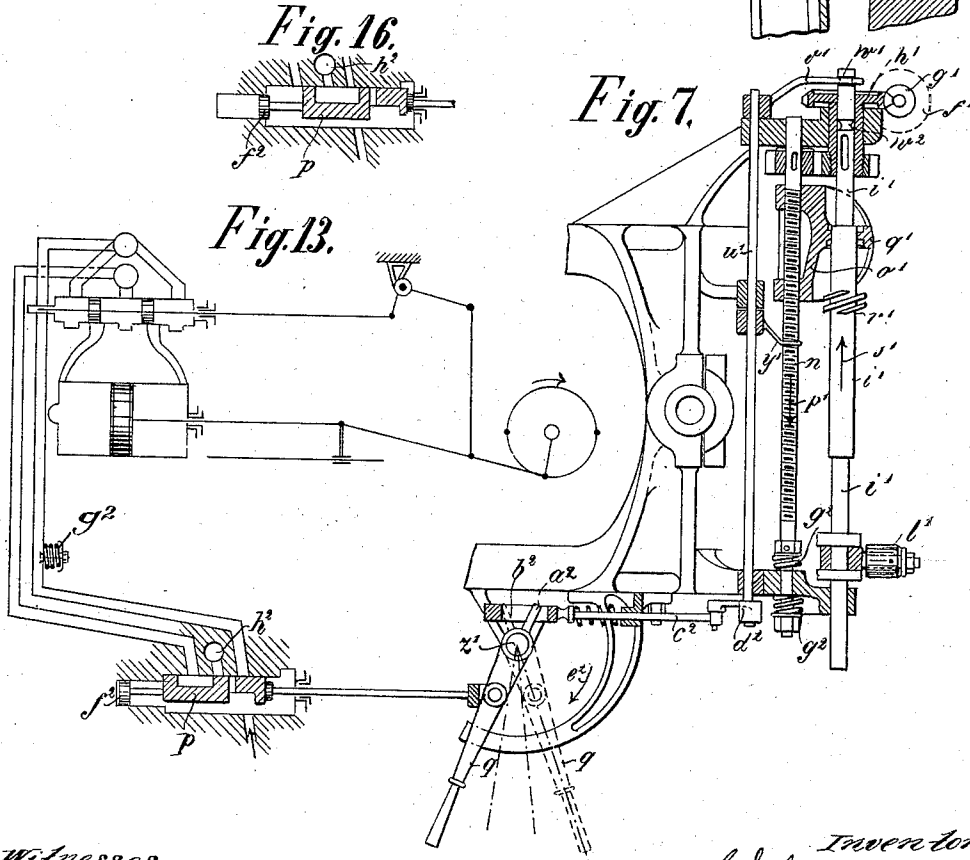
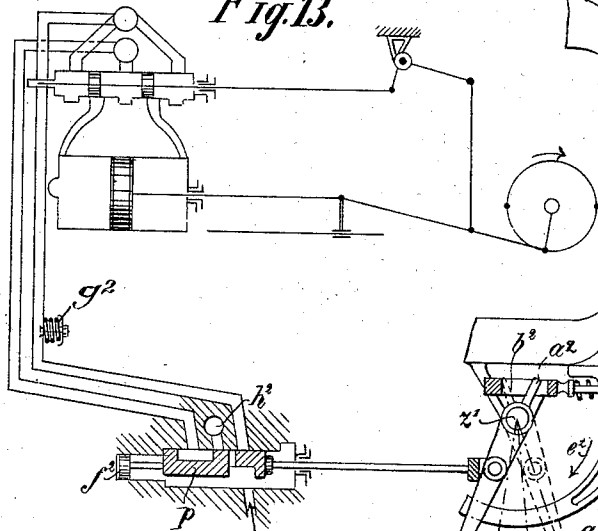


Fig. 13.



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No. 653,121.

Patented July 3, 1900.

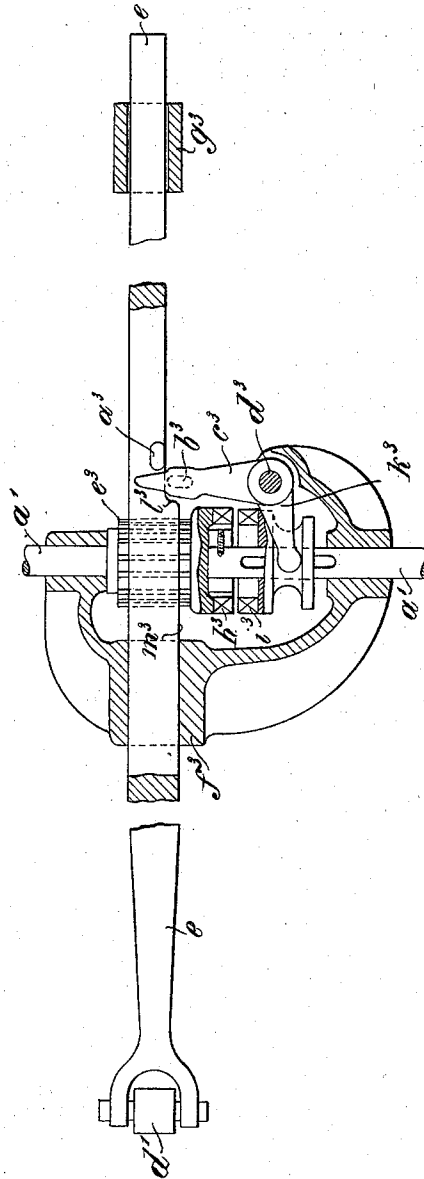
C. SCHNEEMANN.
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(Application filed May 7, 1898.)

(No Model.)

6 Sheets—Sheet 6.

Fig. 17.



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UNITED STATES PATENT OFFICE.

CARL SCHNEEMANN, OF BREMEN, GERMANY.

BOAT-LOWERING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 653,121, dated July 3, 1900.

Application filed May 7, 1898. Serial No. 620,057. (No model.)

To all whom it may concern:

Be it known that I, CARL SCHNEEMANN, a citizen of the free city of Bremen, residing at Bremen, in the German Empire, have invented certain new and useful Improvements in Boat-Lowering Mechanism, (for which I have applied for a patent in England, No. 7,934, dated April 2, 1898; in Austria, dated April 5, 1898, and in Italy, dated April 1, 1898,) of which the following is a specification.

The present invention relates to boat-lowering mechanism, comprising a windlass and specially-arranged davits, which are thrust out by special levers to such a distance that they are able to move outboard and downward by their own weight and that of the boat.

In Figure 1 of the accompanying drawings is shown a half-section of a modern passenger-steamer of about one hundred meters in length fitted with boat-lowering devices according to this invention. The particular windlass shown in this drawing is supposed to be mounted on the deck at the end of the boat or rather between two adjacent boats. Fig. 2 shows the way in which the windlass (which is the chief object of the present invention) is mounted on the upper deck at the end of a boat. Fig. 3 is a central vertical section through the windlass. Fig. 4 is a partly-longitudinal section through the windlass and partly a side view, the driving-engine being removed. Fig. 5 is a rear view of the windlass; and Fig. 6, a plan view of the same, showing the whole driving-gear in horizontal section. Fig. 7 shows in top view the part cut away in Fig. 6. Figs. 8, 9, and 10 are views of various parts of the windlass which are not shown with sufficient clearness in the main figures. Fig. 11 shows in section the arrangement of the rods which thrust out each boat-davit separately. Fig. 12 is a cross-section of Fig. 11, and Fig. 13 is a diagrammatic representation of the steam-engine by which the windlass may be suitably driven. This engine may, however, be replaced by any other reversible motor, provided it be simple, reliable, and light. Figs. 14 to 16 show the slide-valve illustrated in Fig. 13 in various positions. Fig. 17 shows a further device for connecting the windlass with the projecting levers.

In Figs. 1 and 2, *a* is the boat, which hangs in two davits *b*. In Fig. 2 only one of these two davits is shown. Both, however, are equidistant from the ends of the boat. The boat itself rests upon chocks *c*, upon which it is held by a device which permits the instant release of the boat from both the chocks, but at the same time makes accidental movement of the boat impossible.

A indicates in Figs. 1 and 2 the windlass. The davits are pivoted at *d* and rest, when the boat is on the chocks *c*, on the bearings provided on the latter. When the boat is to be lowered and is loosed from the chocks *c*, the rods *e*, which are suitably secured to the hull of the steamer and one of which lies against each davit, are thrust outboard, and thereby the davits, together with the boat, are brought into the dotted position II of Fig. 1. When this position has been attained, the rods cease to move any farther, and the upper ends of the davits will then fall on the ropes *g*, which have the usual weights *f* attached. As the rods *e* are thrust out the windlass has to give out the necessary length of rope. The davits fall from the position II, Fig. 1, farther down in the direction of the arrow *i* until they arrive in the position III, (shown in dotted lines,) in which they are held by chains *k*. The boat is now let down to the water by paying out the rope *g* from the windlass *A* and can be detached at the proper moment. The windlass *A* is represented in Figs. 3 to 8 in a position corresponding to the position of the boat shown in Fig. 1, in which position it rests upon the chocks *c* ready to be lowered. The windlass is driven by an engine *B*, which is in close proximity to *A*. As will be seen from Figs. 7 and 13 to 17, the engine *B* is provided with reversing mechanism.

In bringing the hand-valve *p*, Fig. 13, of the reversing mechanism to the position shown in Fig. 14 by means of the lever *q*, Figs. 7 and 13, the engine and windlass *A*, the latter being coupled to the former, start working, and the rope-drum is rotated in the direction of the arrow *u*, Figs. 4 and 6, thus paying out the ropes *g*.

The rope-drum on which the ropes *g* that pass over the davits are wound is indicated

by l . This drum is supported in the bearings n and is rotated by the worm-wheel o , secured to or made in one piece with the same. The crank-axle h of the motor B is coupled with the driving-spindle w of the windlass A or made in one piece therewith, and on rotating the former by means of the worm-wheel gear $r t s$, the part s of which engages with the gear o of the drum l , the latter is likewise rotated. Simultaneously the friction-clutch v on the spindle w (which clutch does not turn, but slides upon the engine-shaft w) causes the miter-wheel x , Figs. 5 and 8, which is loose upon the shaft w , but incapable of sliding endwise thereon, to turn. The wheel x turns, through the medium of a suitable train of wheels $y y^2 z$, a horizontal shaft a' , Figs. 5, 11, and 12, which in its turn turns, by means of the worms b' , the worm-wheel c' . The wheel y may be connected with the wheel y^2 through the medium of a powerful spring h^2 in order that the shaft a' may not be set in motion with a sudden shock when coupled up by the clutch $v t$ while the engine is working. By the rotation of the worm-wheels c' , the bore of which is threaded internally, both rods e are simultaneously thrust outboard in the direction of the arrow e' . The free outer end of each rod e is provided with a roller d' , which bears against a davit b . During the same time a spindle, with worm g' , and a worm-wheel h' and shaft i' , Figs. 5 and 7, are set in motion by worm-wheels f' , arranged on the free end of the axle w for the purpose of bringing the clutch v and wheel x in and out of contact with each other by means of the rod m' and the lever l' , pivoted at k' . For this purpose the worm-wheel h' rotates simultaneously with the shaft i' a screw-spindle n . Upon this screw-spindle n there is a sleeve o' , which, as soon as the engine B is started, travels slowly in the direction of the arrow p' , Fig. 7. This sleeve o' is connected with a second very short threaded sleeve q' of larger pitch or is made in one piece with the same, and the latter, as soon as the rods e are on the point of taking up the dotted position II in Fig. 2, picks up a thread r' on the shaft i' . As r' rotates continuously with the shaft i' this screw immediately takes into q' and moves, by means of this sleeve, the shaft suddenly in the direction of the arrow s' . Simultaneously the lever l' is rocked on its pivot k' , and thereby the friction-clutch $v t$ is thrown out of engagement with the wheel x . To secure the clutch $v t$ in the said position, there is provided a lever v' , fixed to a rotating shaft u' , Fig. 7, which takes into one or other of the grooves $w' w^2$, according to the position of the shaft i' . Shortly before the screw q' engages with the screw r' a small nose x' on the sleeve o' , Fig. 5, lifts, by means of a lever y' on the spindle u' , the lever v' out of the groove w' or w^2 to let it fall again when the screw r' has completely passed through q' . By properly disposing the pitch of the screws r

and s the boat may be prevented from unwinding the drum by its own weight without the use of a brake.

When the boat is to be hoisted up out of the water, the valve p is brought from the position in Fig. 15, in which the engine is at "stop," to the position shown in Fig. 16, so that the engine runs backward. The hand-lever q now takes the position shown dotted in Fig. 7, and an arm a^2 , projecting from its fulcrum z' , bears against one end of an eye formed in the end of a longitudinally-sliding rod c^2 . The drum l now winds up the ropes g , and consequently the boat is drawn up. The screw q' travels, by reason of its reversed direction to the arrow p' , along the rod i' . The nose x' lifts the lever v' out of the groove $w' r'$, of course with the assistance of the lever y' , and spindle u' screws itself (both threads meeting in exactly the same manner as they separated from each other) immediately and rapidly through q' , and thereby moves quickly the rod i' in the reverse direction of the arrow s' , so that with the help of the rods $l' m'$ the clutch $v t$ comes into operation.

The rod n can by reason of the arrangement of the springs g^2 move so far in an axial direction as the nut q' travels along the screw r' during the friction against each other of the clutch members.

At the moment in which the coupling takes place the shaft a' is again rotated and draws, by means of the construction already described, Figs. 11 and 12, the rods e inboard as the davits are moved in the same direction by the rope. To avoid the coupling taking place while the engine is running at full speed, a lever d^2 is arranged on the shaft u' , which lever in the instant during which the nose x' turns the shaft through the lever y' pulls the rod c^2 , and when the hand-lever q stands at "backward" rotates this latter in the direction of the arrow for such a distance that the hand-valve p is nearly brought to its stop position (shown in Fig. 2) and by strongly throttling the steam thus causing the engine to run slowly. When the coupling of the clutches $v t$ has taken place, which may be known by the ear and by the position of the small lever d^2 , the lever q may be pulled right over to "backward" and the boat rapidly drawn along with its davits. As soon as the boat is over the "chocks," the man at the windlass must of course move the hand-lever q back, so that the machine may go very slowly or come to stand at "stop." If necessary, a simple device may be adapted to the apparatus, which at the required moment will suddenly and completely shut off the admission of steam to the engine without the coöperation of the man attending to the windlass, so that the engine will then be stopped at once. The small piston f^2 , which is connected to the valve p and always subjected to the full boiler-pressure, enters into action as soon as the lever q is released and auto-

5 matically pulls the valve p back into the closed position, Fig. 13. In one of the pipes leading from the hand-valve p to the cylinders a small air-valve g^3 may also be adapted, which in case the machine should develop a vacuum in one of the said channels would allow air to enter. The rod which moves the valve p to "stop" when the clutch v is to be coupled up may also be made to act upon a
10 throttle-valve located in the steam-channel. In this case the rod may be connected with the throttle-valve in place of a slot by means of a closely-adapted joint or arm, so that the valve in either case—that is, either when the
15 clutch is to be coupled or uncoupled—will be closely shut by means of the nose or projection a^2 . The clutch v may also be replaced by a suitable friction-clutch of any other kind.

20 The windlass above described may also be provided with mechanism by which it can be rotated by hand. Again, the push-rods e also may be moved outward and inward by means of toothed gearing instead of by a windlass.
25 In this case the parts r' , n' , q' , &c., can be dispensed with and the construction shown at Fig. 17 in plan and partial horizontal section be used. In this case e^3 represents the toothed wheel, which is pivotally mounted
30 on the shaft a' , located under the deck of the vessel and longitudinally thereof, but is not moved axially. This toothed wheel takes into the teeth provided on the under side of the rod e . This rod e is mounted in the bear-
35 ings f^3 , g^3 crosswise of the vessel. With the toothed wheel e^3 is rigidly connected in the arrangement represented in the drawings a clutch-wheel h^3 , capable of taking onto another clutch-wheel i^3 , located on the shaft a'
40 and capable of axial, but not rotary, movement thereon. i^3 is moved by means of the bell-crank lever c^3 , the fork k^3 of which takes into the groove of the clutch-wheel i^3 . The lever c^3 is capable of rocking on the fulcrum d^3 .

45 When the boat is to be raised, the rods e , as indicated at Fig. 1, are pushed quite out. During the winding up the davits b come into the position represented by II in Fig. 1, and while they approach nearer to the vessel and come into position against the rollers d' of the rods e push these latter (e) into the vessel. At this time the toothed wheel first begins to rotate with the clutch-wheel h^3 loose, corresponding to the position represented at Fig.
50 17. A piece l^3 , attached to the rod e , however, comes against a rigid pin b^3 of the lever e^3 after e has made a slight movement inward by means of the davits, and thus turns this lever (see Fig. 17) around to the right, so that the clutch-wheel i^3 comes into engagement with the clutch-wheel h^3 . As soon as the coupling up has been effected c^3 is swung so far around to the right that the vertical lateral surface m^3 of the toothed rod e slides along on the pin b^3 , and thereby prevents the automatic uncoupling of the clutch-wheels h^3 , i^3 . The clutch remains, therefore, so long

in effective connection until the rods e have been moved entirely inward, and later on for the purpose of putting out the boat have
70 been pushed outward again. While the davits are being raised, the shaft a' turns, as it is permanently connected with the winding-drum l (which takes up the rope g) by means of toothed wheels or the like, and continually
75 turns whenever the winding-drum is rotated, when the rods e are pushed out and come nearly to their outermost position a projection or a pin a^3 of the rods e comes against the lever-arm c^3 and carries it with it until
80 the clutch-wheels h^3 , i^3 are released and the driving of the toothed wheel e^3 through the shaft a' in consequence closes. The windlass itself and with it the shaft a' may now continue to turn for any length of time and in
85 any direction; but the clutch-wheels h^3 , i^3 will not come into effective action until the rods e have been again pushed backward a little by means of the davits, and as a consequence thereof have coupled up the rotating shaft
90 a' with the toothed wheels e^3 by means of the clutch-wheels h^3 , i^3 . The clutch-wheels h^3 , i^3 are merely given by way of example.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a windlass, the combination of a drum, gearing for driving the same, a clutch, a push-rod, gearing connecting the push-rod with the clutch to drive the push-rod in unison with the drum, a screw geared to turn with the drum,
100 a nut on the screw and moved thereby, a threaded shaft mounted adjacent to the screw and having connection with the nut, and means connecting the threaded shaft with the clutch by which to control the clutch.

2. The combination of gearing comprising a clutch which controls the gearing, a screw driven by the gearing, a nut movable on the screw, a threaded shaft mounted to turn adjacent to the screw and having connection
110 with the nut, and means connecting the threaded shaft with the clutch to control the clutch.

3. The combination of a winding-drum, a driving-shaft geared therewith, a clutch in
115 connection with the winding-drum, a push-bar driven from the clutch, and means operating in unison with the drum by which to automatically control the clutch.

4. The combination of a winding-drum, a drive-shaft geared therewith, to turn the same, a clutch in connection with the drive-shaft, a push-bar, a swinging davit operated by the push-bar, a connection between the davit and the drum, and means worked in unison with
125 the drum by which to automatically control the clutch.

5. The combination of a hauling mechanism, a push-rod also driven in time therewith, a swinging davit moved outboard by the push-rod, and a connection between the davit and the hauling mechanism, whereby to move in-
130 board the davit.

6. The combination with a motor, of a wind-

ing-drum driven thereby, a push-rod driven thereby, a davit mounted to move and thrown outboard by the push-rod, a connection between the drum and davit to return the davit, and gearing driven in time with the push-rod and drum automatically to control the motor.

7. The combination of a motor, a drum driven thereby, a push-rod also driven thereby, a swinging davit moved outboard by the push-rod, and connections between the drum and davit, whereby to move inboard the davit.

8. The combination with a source of motive power, of a drum driven thereby, a push-rod also driven thereby, a movable davit moved in one direction by the push-rod, and a connection between the davit and drum to move the former in the opposite direction.

9. The combination with a source of motive power, of a drum driven thereby, a pushing member also driven thereby, a swinging davit engaged by the pushing member to be thrown in one direction, and a connection between the drum and davit, for returning the latter.

10. The combination with a source of motive power, of a movable davit, two means operated by the source of motive power respectively for moving the davit inboard and outboard, and controlling devices for the source of motive power, such devices being driven in time with the said two means to automatically control the source of motive power in time with the movement of the davit.

11. The combination with a source of motive power, of a swinging davit, means driven by said source of motive power by which to throw the davit in and out, and controlling devices for the source of motive power, such controlling devices being driven in time with the said means and serving automatically to stop the movement of said means according to the position of the davit.

12. The combination with a motor, of hoisting mechanism driven thereby, a clutch transmitting movement from the motor to said hoisting mechanism, a controlling device for the motor by which to stop the action thereof, and tripping devices driven in time with the said hoisting mechanism and serving to throw the clutch and controlling device in a certain time with the movements of the said hoisting mechanism.

13. The combination with a motor, of a drum geared direct therewith, a member also geared with the motor, the gearing of such member comprising a clutch by which to break the gearing, a controlling device for the motor, and tripping devices driven in time with the said member, such tripping devices serving to operate the clutch and motor-controlling device in a certain time with the movements of the said member.

14. The combination with a motor and with a movable davit, of a drum geared direct to

the motor, a push-rod geared to the motor through the medium of a clutch, the push-rod serving to throw the davit outboard, a connection between the drum and davit to throw the davit inboard, a controlling device for the motor, and tripping devices driven in time with the push-rod and serving automatically to throw the clutch and motor-controlling device in time with the movement of the push-rod.

15. The combination with a source of power, of a drum and a push-rod, both driven from the source of motive power in time with each other, and a movable davit actuated by the drum and push-rod.

16. The combination with a source of motive power, of a swinging davit, and two means driven by the source of motive power respectively for throwing the davit inboard and outboard, such means working simultaneously and in unison, the one actively as the other works passively.

17. The combination with a movable davit, of a motor, two means geared with and driven by the motor respectively for throwing the davit outboard and inboard, such means working simultaneously, the one passively as the other works actively, and controlling devices for the motor driven in time with the said means and serving automatically to reverse the motor to reverse the action of the said means for throwing the davit.

18. The combination with a movable davit, of a motor, two separate means driven simultaneously thereby, the one for throwing the davit outboard and the other for throwing the davit inboard, and the one working actively as the other works passively, a controlling device for the motor to reverse the action thereof, whereby to reverse the action of the said separate means, a screw driven in time with the said means, and a nut working on the screw and periodically engaging the said controlling means of the motor, for the purpose explained.

19. The combination with a movable davit, of a motor, a means for throwing the davit in one direction, such means being geared with the motor, a second means for throwing the davit in the other direction, the second means being geared with the motor through the medium of a clutch, a reversing-gear for the motor, a screw driven with the motor, an actuating-lever for the clutch, and a nut working on the screw and serving to operate the motor-reversing gear and the actuating-lever of the clutch, for the purpose specified.

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

CARL SCHNEEMANN.

Witnesses:

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JOHN H. SCHNABEL.