

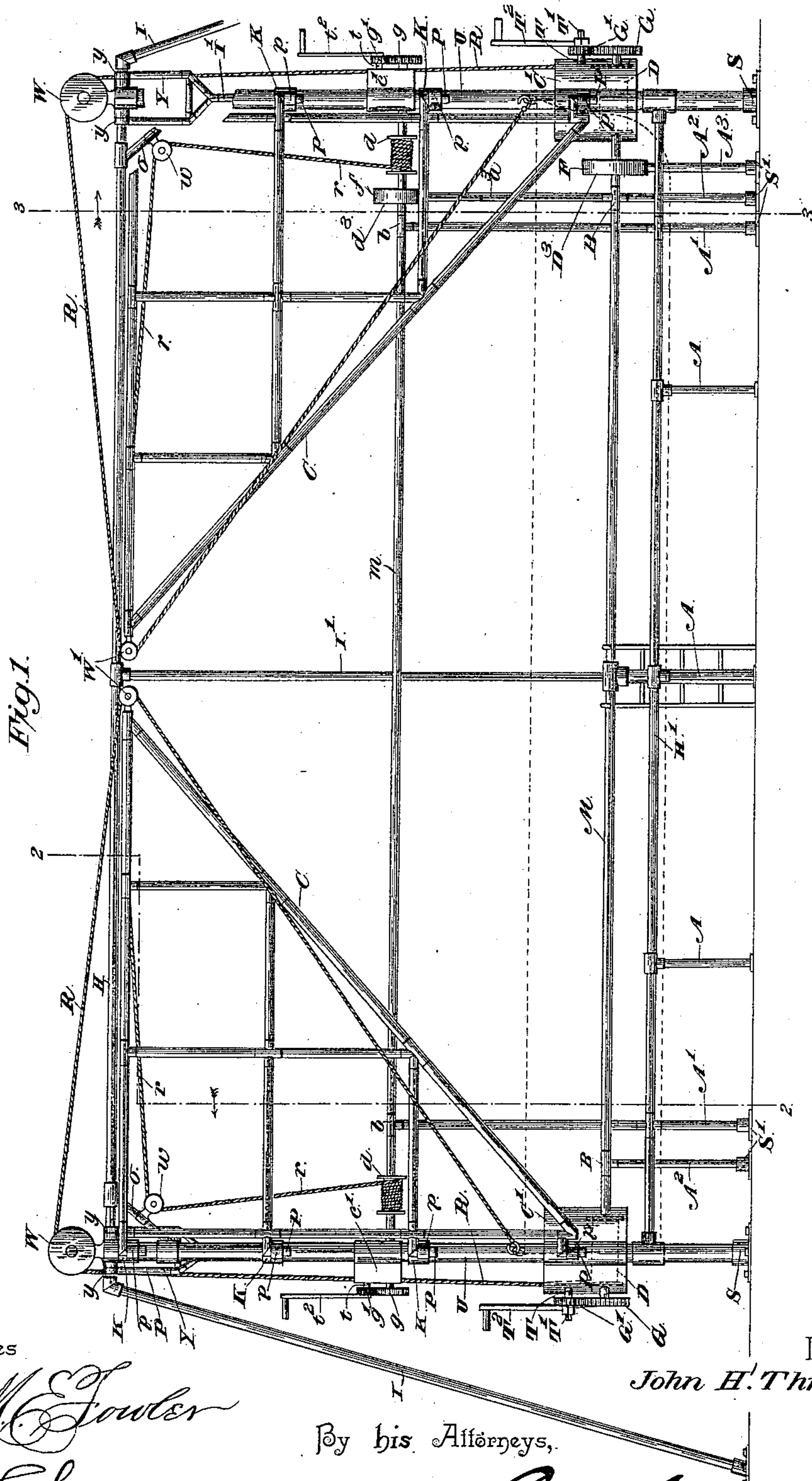
(No Model.)

2 Sheets—Sheet 1.

J. H. THROOP.  
BOAT LOWERING APPARATUS.

No. 459,822.

Patented Sept. 22, 1891.



Witnesses

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*N. J. Collamer*

By his Attorneys,

*C. A. Snow & Co.*

Inventor

*John H. Throop*

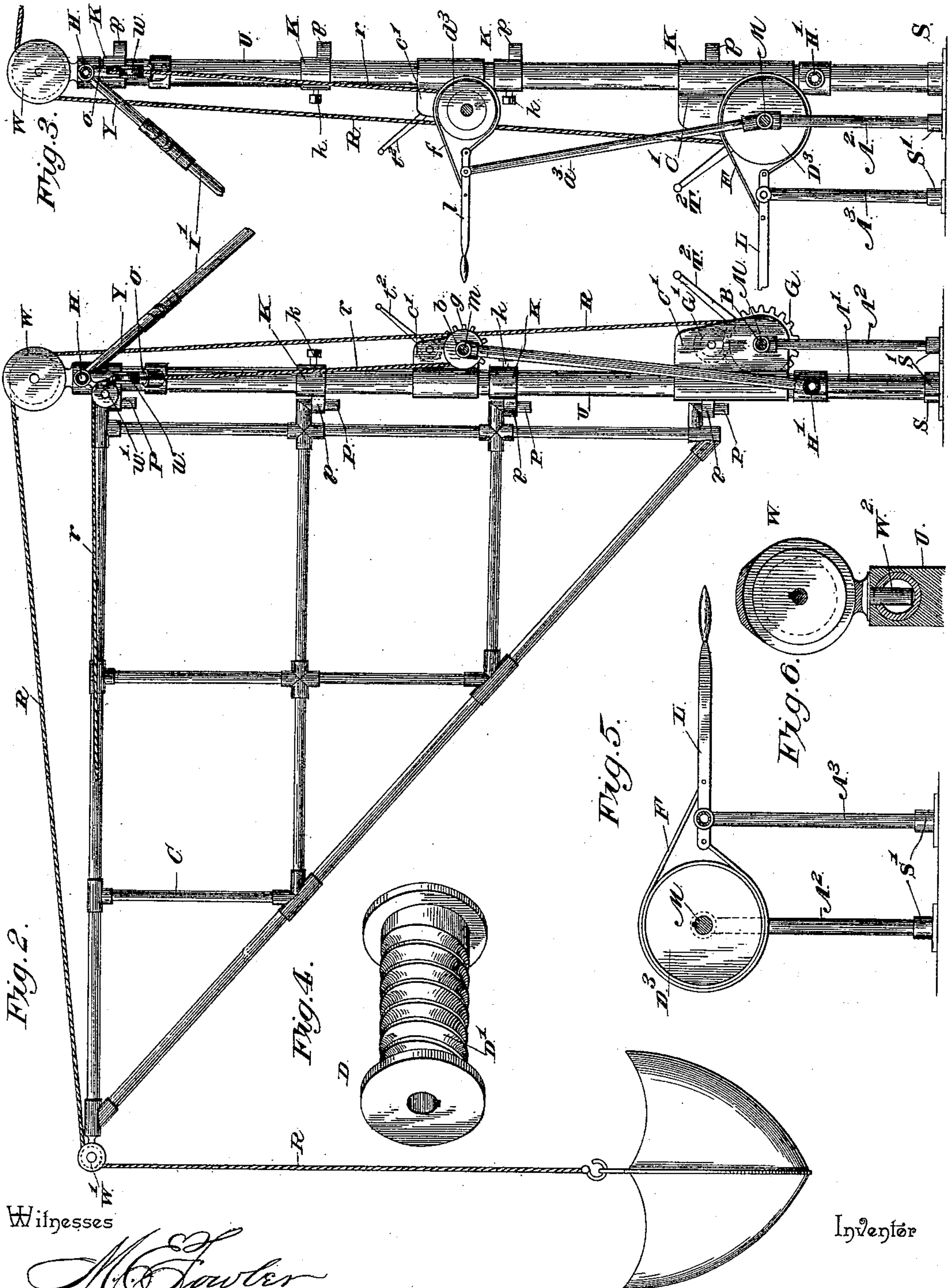
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# UNITED STATES PATENT OFFICE.

JOHN HAMILTON THROOP, OF EVANSVILLE, INDIANA.

## BOAT-LOWERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 459,822, dated September 22, 1891.

Application filed July 16, 1891. Serial No. 399,718. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN HAMILTON THROOP, a citizen of the United States, residing at Evansville, in the county of Vanderburg and State of Indiana, have invented a new and useful Boat Raising and Lowering Apparatus, of which the following is a specification.

This invention relates to boats, and more especially to mechanism which is used for raising and lowering life-boats and yawls over ships' sides; and the object of the same is to produce certain improvements in devices of this character whereby they may be operated by one person to lower the boat, even when filled with people, or by two persons to raise the boat out of the water.

To this end the invention consists in the specific details of construction hereinafter more fully described and claimed, and as illustrated on the two accompanying sheets of drawings, wherein—

Figure 1 is a side elevation of this improved device as viewed when looking toward the ship, the cranes being swung inwardly and a life-boat being shown in dotted lines as supported thereby. Fig. 2 is a cross-section on the line 2 2 of Fig. 1, with the crane swung outwardly and viewed in the direction of the arrow. Fig. 3 is a section on the line 3 3 of Fig. 1, with the crane omitted. Fig. 4 is a perspective detail of one of the winding-drums. Fig. 5 is a detail of one of the brakes. Fig. 6 is a vertical section of the upper end of one upright, showing the wheel-frame swiveled therein.

Referring to the said drawings, the letters U U designate the main uprights mounted at their lower ends in sockets S on the deck of a vessel, and these uprights are preferably connected by upper and lower horizontal braces H and H', the upper brace extending through or past the uprights and being connected with inclined braces I I, leading outwardly to the deck, as seen in Fig. 1. A rearwardly-inclined brace I' connects the center of the upper brace with the deck, or, if desired, there may be several of such rearwardly-inclined braces. The lower horizontal brace is preferably sustained by additional supports A and A', of which latter there are two, rising

above said lower brace and provided at their upper ends with bearings b for a purpose to appear hereinafter. Still further additional supports A<sup>2</sup> rise from the deck and carry bearings B, and one of these supports is continued above its bearing, as at a<sup>3</sup>. There is also still another additional support A<sup>3</sup>, all such supports rising from sockets S' on the deck and being for a purpose to be presently explained.

The letters C C designate the cranes, each of which is preferably about of the construction shown—that is to say, a light open framework of triangular contour braced by horizontal and vertical rods—and the inner vertical bar of each crane is provided with a number of downwardly-turned pintles P, which engage and turn in eyes p of collars K, the latter being mounted on the uprights and rendered vertically adjustable by means of set-screws k through their rear sides. When there are rearwardly-inclined braces opposite the uprights U, they carry at their upper ends yokes Y, whose feet are connected with the braces I' and whose arms are connected, as at y, with the upper horizontal brace H each side of the upright U, as seen in Fig. 1, and this construction permits the uppermost of the sockets K to be adjusted vertically on the upright.

The letter M designates the main operating-shaft, which is journaled in the bearings B, above mentioned, extends throughout the length of the device, has drums D near its ends preferably located in casings C', mounted on the uprights, and has large gears G on its extremities. In said casings are also journaled transverse shafts T, carrying small gears G', intermeshing with said large gears and having their extremities T' squared, so as to receive operating-handles T<sup>2</sup>, as shown. The drums D are preferably provided on their faces with spiral grooves D', as seen in Fig. 4. Secured to each drum is the main operating-rope R, which extends upwardly over a wheel W at the upper end of the upright, thence outwardly over a wheel W' at the outer end of the crane, and thence downwardly to the boat, to which it is detachably connected, as seen. The wheel W is mounted in a frame-work having a depending pin or



stud  $W^2$ , which is journaled in a socket in the upper end of the upright, as seen in Fig. 6. By this construction when the handles  $T^2$  are applied to the squared ends  $T'$  of the transverse shafts  $T$  and turned the intermeshing of the gears  $G'$  and  $G$  will cause a rotation of the main shaft  $M$  and of both the drums  $D$ , and by reason of the spiral grooves  $D'$  in said drums the two ropes  $R$  will be drawn upwardly at precisely the same speed to elevate the boat's ends evenly.

On the main shaft  $M$ , opposite the additional support  $A^3$ , is keyed a drum  $D^3$ , around which passes a flexible metallic strap  $F$ , whose ends are connected with a lever  $L$ , and the latter is pivoted between the points of connection of the strap in the upper end of the additional support  $A^3$ . The boat having been raised, when it becomes desirable to lower it the crank-handles  $T^2$  are removed from the shafts  $T$ , the cranes swung out from the ship, and the boat allowed to descend. During such descent the ropes  $R$  unwind from the drums  $D$  and the main shaft  $M$  is of course revolved, and by the construction of brake mechanism above described pressure upon the free end of the lever  $L$  will cause the flexible strap  $F$  to tightly embrace the drum  $D^3$ , whereby a single operator may control the speed of descent of the boat, even though it be filled with people.

For the purpose of swinging the cranes inwardly I provide a smaller shaft  $m$ , journaled in the bearings  $b$  and having drums  $d$ , provided with spiral grooves, the ends of this shaft passing through casings  $c'$  and their extremities having gears  $g$ , meshing with others  $g'$  on transverse shafts  $t$ , the latter having crank-handles  $t^2$ , all the same as the boat raising and lowering mechanisms, with perhaps the exception that the crank-handles need not in this case be removable. From the drums  $d$  extend the ropes  $r$ , passing upwardly over snatch-blocks  $w$ , which are connected to oblique braces  $o$  between the uprights and the upper horizontal brace, whence the ropes  $r$  lead inwardly to near the center of said brace over other snatch-blocks  $w'$  and are connected with the swinging ends of the cranes. By this construction, when one or both of the cranks  $t^2$  are operated the swinging ends of the cranes  $C$  are brought inwardly, so as to move the boat over the gunwale of the ship, as shown in Fig. 1. Obviously the weight of the boat and the inclined position of the ropes  $R$  between it and the pulleys  $W'$  will produce a tendency to swing the cranes automatically outward, and such swinging would produce an unwinding of the ropes  $r$  from the drums  $d$  and a backward revolution of the shaft  $m$ ; so I have provided a drum  $d^3$ , encircled by a flexible strap  $f$ , connected to a lever  $l$  and operating in the same manner as the larger brake, above described. I say "larger" because all of this mechanism for swinging the cranes is preferably on a smaller scale than that for raising and lowering the

boat, so much strength not being required. The spiral grooves in the drums  $d$  will cause the two ropes  $r$  to wind simultaneously on the drums, so that the two cranes will be brought in at equal speed.

All the bars, uprights, and braces of this structure are preferably of metal tubing, as shown, joined at their points of intersection by elbows, as is well known in the art, and the structure is therefore light and ornamental, but at the same time sufficiently strong for the uses to which it is put.

The parts may be painted or galvanized, so as to prevent rusting, and the upright members are preferably all mounted removably in the sockets on the deck, so that the entire device can be taken down, if desired, and so that it constitutes an attachment capable of being applied to the deck of any vessel. The ropes may be of wire, if desired, and the swiveling of the wheel  $W$  in the upper end of each upright permits such wheel to turn with the crane, although it is not mounted thereon.

With this machine a single operator can lower a boat full of people and in a very short space of time, and two operators could raise a heavy yawl onto the ship.

What is claimed as new is—

1. In a boat-lowering apparatus, the combination, with two uprights connected and supported by horizontal and inclined braces, wheels mounted in frames having depending studs swiveled in the upper ends of the uprights, winches mounted in casings carried by the uprights, and a shaft connecting the drums of said winches, of swinging cranes pivotally connected to said uprights and carrying wheels at their outer ends, and ropes leading from said drums over the swiveled wheels and over the wheels in the frames, as and for the purpose set forth.

2. In a boat-lowering apparatus, the combination, with two uprights, connections and supports therefor, wheels mounted in frames having depending studs swiveled in the upper ends of said uprights, swinging cranes pivotally connected to the uprights, and wheels at the outer ends of the cranes, of winches mounted in casings carried by the uprights, the drums of said winches having spiral grooves in their faces, a shaft connecting said drums, a brake mechanism on said shaft, and a rope leading from each drum over the wheel in the upright and thence over that in the crane, as and for the purpose set forth.

3. In a boat-lowering apparatus, the combination, with two uprights, horizontal braces connecting them, inclined braces supporting these members, adjustable collars on the uprights, and swinging cranes pivotally connected to said collars, of two winches supported by each upright, horizontal shafts connecting the winches in pairs, brake mechanisms on the shafts, an oblique brace connecting each upright with the upper cross-brace, a snatch-block connected to said oblique brace, another snatch-block carried by said cross-



brace near its center, a rope leading from each of the uppermost winches over said two snatch-blocks and connected with the crane, and another rope leading from each of the lowermost winches over suitable wheels carried by the upright and by the crane, as and for the purpose set forth.

4. In a boat-lowering apparatus, the combination, with two uprights U, upper and lower horizontal braces H H', connecting them, additional supports A and A', rising from the base and connected to the lower cross-brace, the latter supports rising above said brace and carrying bearings b, additional supports A<sup>2</sup>, carrying bearings B and one of them having an extension a<sup>3</sup>, and a final additional support A<sup>3</sup>, of a main shaft M, journaled in said bearings B and having winches at its ends, a brake mechanism for said shaft mounted on the final additional support A<sup>3</sup>, a supplemental shaft a, mounted in the bearings b and having winches at its ends, a brake mechanism for this shaft mounted on the extension a<sup>3</sup>, swinging cranes pivoted to the uprights, boat raising and lowering ropes leading from the main winches over pulleys in the outer ends of the cranes, and crane-swinging ropes leading from the supplemental winches over pulleys on the upper cross-brace to said cranes, the whole adapted for operation substantially as described.

5. In a boat-lowering apparatus, the combination, with two uprights, an upper horizontal brace connecting their upper ends and

continuing across the same, and inclined braces leading from the ends of this cross-brace to the base, of collars adjustably mounted on said uprights, cranes pivoted to said collars, operating-ropes passing over and connected to said cranes, and a rearwardly-inclined brace for each upright having a yoke at its upper end connected to the cross-brace each side of the upright, substantially as described.

6. In a boat-lowering apparatus, the combination, with the uprights, casings carried thereby, a shaft journaled in said casings, a brake-drum keyed on said shaft, an additional support, a brake-lever pivoted therein, and a flexible strap passing around said drum with its ends connected to the lever on opposite sides of its pivot, of winding-drums on said shaft, gears also thereon, transverse shafts in the casings, having squared outer ends and having small gears engaging said others, crank-handles detachably engaging said squared ends, cranes connected to the uprights, and ropes passing from said drums to the cranes, substantially as hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOHN HAMILTON THROOP.

Witnesses:

ROBERT ROWLAND,  
JAMES HOWARD, Jr.