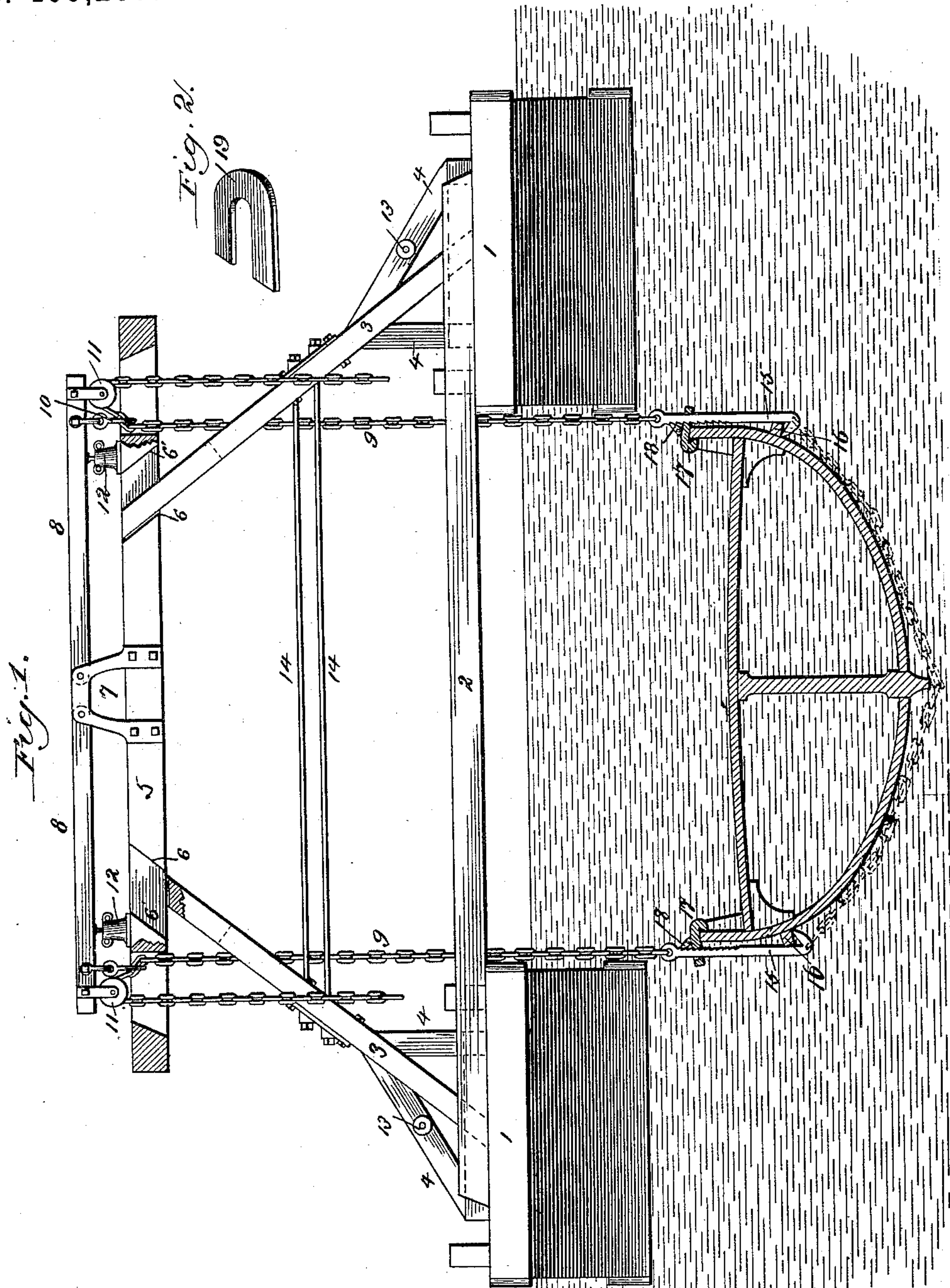


(No Model.)

J. WANNER.  
RAISING SUNKEN VESSELS.

No. 409,257.

Patented Aug. 20, 1889.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JULIUS WANNER, OF CHICAGO, ILLINOIS.

## RAISING SUNKEN VESSELS.

SPECIFICATION forming part of Letters Patent No. 409,257, dated August 20, 1889.

Application filed May 6, 1889. Serial No. 309,702. (No model.)

*To all whom it may concern:*

Be it known that I, JULIUS WANNER, of Chicago, Illinois, have invented certain new and useful Improvements in Raising Sunken Vessels, of which the following is a specification.

My invention may be best understood by reference to the accompanying drawings and the subjoined description thereof.

In the drawings, Figure 1 is an end view of the raising apparatus in the act of raising a hull. Fig. 2 is a perspective view of the clamp for locking the chain.

1 are scows placed side by side, but at a sufficient distance apart to allow the vessel which is to be raised to rise between them.

2 are timbers bolted to the scows to hold them apart.

3 are uprights on the scows forked at the top.

4 are braces supporting the uprights.

5 is a cap-timber resting on the forked tops of uprights 3, and provided with shoulders 6 to prevent their displacement. The shoulders 6 are sufficiently far apart to permit of some play of the uprights due to the rolling of the scows in rough water.

7 is a bracket at the middle of cap 5.

8 are levers fulcrumed in the bracket 7.

9 are lifting-chains, the lower ends of which are attached to the vessel to be raised, as hereinafter explained.

10 are hooks on the levers 8 to engage the chains 9.

11 are pulleys, also on the levers 8.

12 are hydraulic jacks applied under levers 8.

13 are windlasses.

14 are tie-rods connecting the uprights 3.

15 are hooks on the lower ends of chains 9 to engage the fender-strips 16 on the vessel. Each hook has a long shank with a latch 17 sliding thereon to engage the rail of the vessel, and a dog 18 to engage notches in the shank and prevent the latch moving back. The latches prevent the hooks getting out of place by any slackening of the chains. In cases where a chain can be passed under the vessel it may be attached to the hooks 15. This arrangement is indicated by dotted lines.

In operation, the scows being anchored in position, the hooks 15 are applied to the vessel by divers. The jacks 12 are then operated and the vessel raised a few inches.

When the jacks have reached their limit, the chains 9 are made fast to cap 5 by slipping the clamps 19 over them, or in any other suitable manner. The jacks are then retracted to allow the levers 8 to drop back to their lowest position. The hooks 10 are disengaged from the chains and re-engaged lower down. The jacks are then again operated and the vessel raised another few inches, and so on.

In case of rough weather arising during the operation, which would make it unsafe to continue, the free ends of the chains are engaged with the windlasses 13, the hooks 10 are removed, and the chains payed out from the windlasses over the pulleys 11, thus lowering the vessel to the bottom again, when the scows may be towed to a place of safety, to return at a more favorable time.

What I claim is—

1. The combination, substantially as set forth, of the scows in parallel proximity to each other, the uprights 3, supported upon said scows, a cap 5, supported upon said uprights and bridging the space between the scows, levers 8, fulcrumed on the cap and provided with hooks 10, chains 9, for connecting the vessel to be raised with the hooks upon the levers, and jacks 12, bearing upon the cap and the levers, for working the levers and raising the vessel.

2. The combination, substantially as set forth, of the two scows in parallel proximity to each other, the uprights 3, supported thereon, the cap 5, supported upon said uprights and bridging the space between the scows, the levers 8, fulcrumed on said cap and provided with pulleys 11, the lifting-chains and the windlasses 13 upon the scows in position to receive said chains as they pay through the pulleys.

3. The combination, with the lifting-chains 9 and the mechanism for raising said chains, of hooks 15 upon the lower ends of the chains to engage the fender-strips of the vessel, and latches 17 upon the shanks of said hooks to engage the vessel's rails, and provided with dogs to lock them to said shanks, substantially as set forth.

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