F. OLIVER.

WRECKING APPARATUS.

APPLICATION FILED DEC. 28, 1909.

**984,152.**

Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

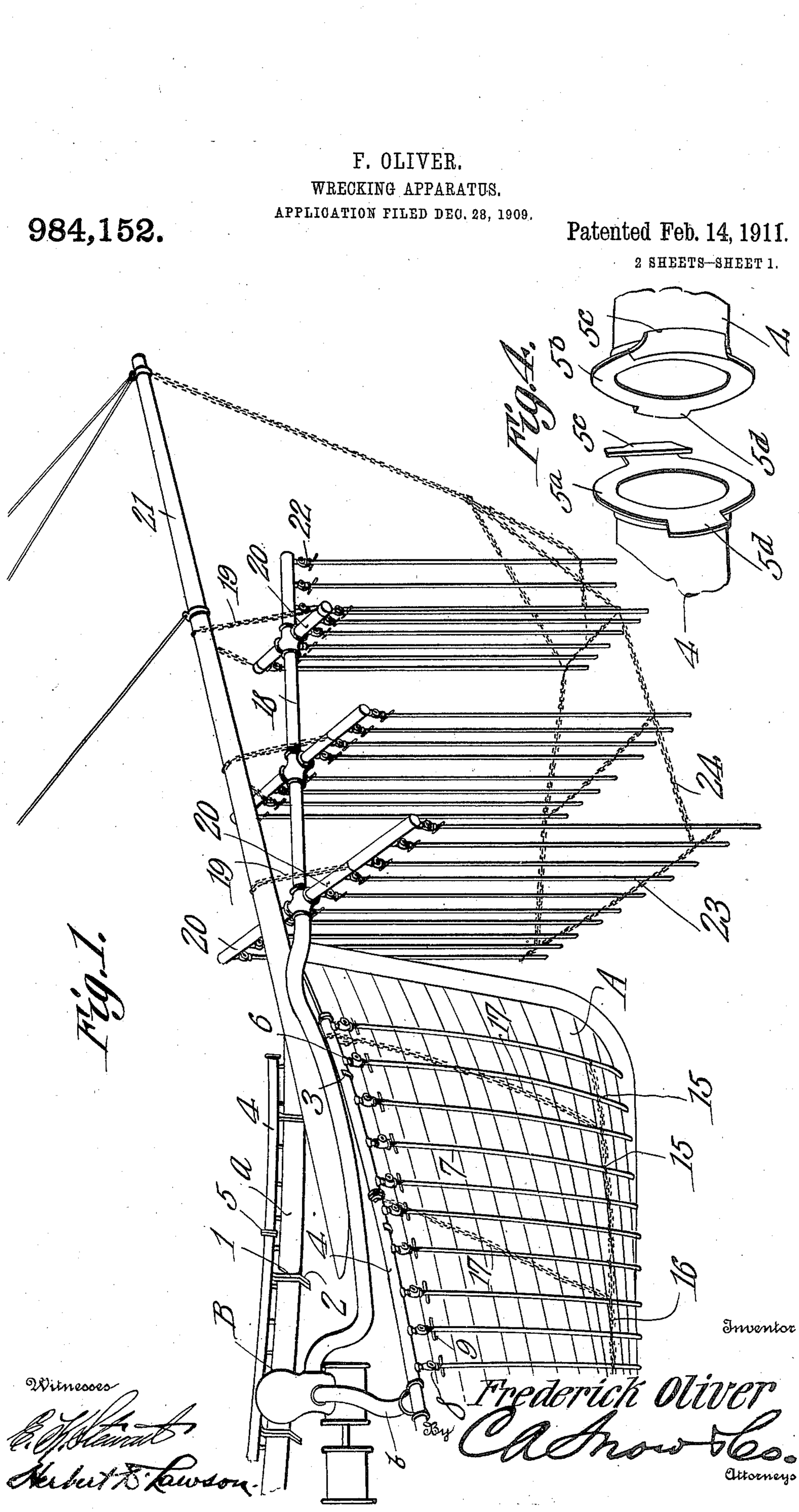


Fig. 4.




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2 SHEETS—SHEET 2.

Fig. 2.

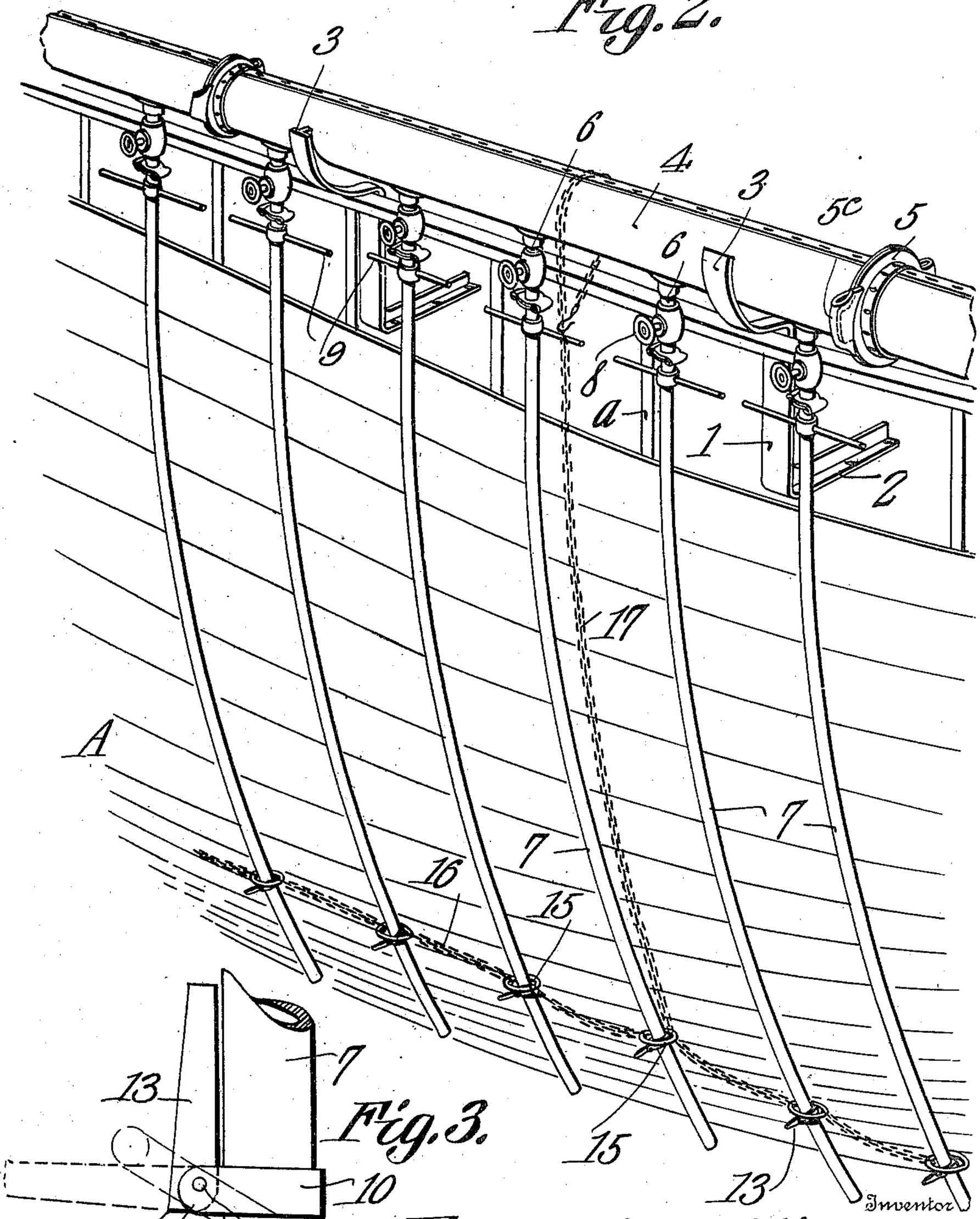
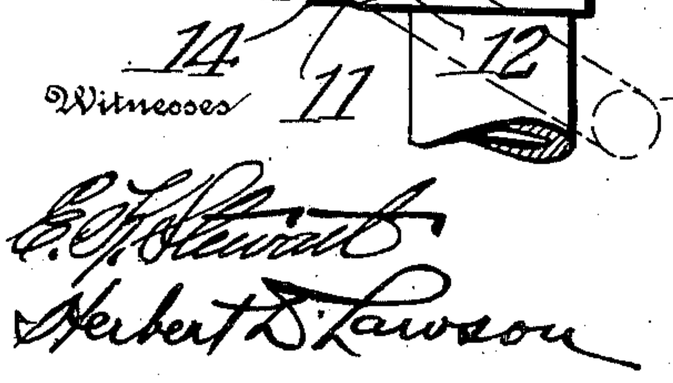



Fig. 3.

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# UNITED STATES PATENT OFFICE.

FREDERICK OLIVER, OF CHARLOTTE, NORTH CAROLINA.

## WRECKING APPARATUS.

984,152. Specification of Letters Patent. Patented Feb. 14, 1911.

Application filed December 28, 1909. Serial No. 535,313.

*To all whom it may concern:*

Be it known that I, FREDERICK OLIVER, a citizen of the United States, residing at Charlotte, in the county of Mecklenburg and State of North Carolina, have invented a new and useful Wrecking Apparatus, of which the following is a specification.

This invention relates to wrecking apparatus and is more particularly designed as an improvement upon the apparatus disclosed in Patent No. 854,596, issued to me on May 21st, 1907.

The object of the invention is to provide apparatus of the type mentioned and which utilizes manifolds mounted in a peculiar manner above and beyond the deck of the vessel to be floated, each manifold being made up of separable sections.

Another object is to utilize apparatus utilizing series of detachable jet pipes each having a valve whereby the passage of fluid under pressure therethrough may be controlled.

Another object is to provide novel means for holding the lower ends of the jet pipes against displacement, means being utilized whereby said holding means can be prevented from dropping off of the jet pipes while the apparatus is in operation.

A still further object is to provide indicating means whereby it may be readily determined whether or not the jet pipes are in position to direct jets of fluid in proper directions against the hull of the boat to be floated.

With these and other objects in view the invention consists in certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a perspective view of the bow of a boat having the present apparatus applied thereto. Fig. 2 is a detailed view of the said apparatus applied to a hull. Fig. 3 is a detailed view of a portion of one of the jet pipes and showing the retaining device thereon, the normal position of said device being indicated by dotted lines and a ring being shown by dotted lines and positioned upon the pipe. Fig. 4 is a detail view of the two meeting ends of manifold sections and showing the coupling members thereon.

Referring to the figures by characters of reference A designates the hull of a vessel, to the railing *a* of which are lashed brackets 1, each of which is provided with a base portion 2 designed to be fastened to the deck in any preferred manner. The upper end of each bracket extends over the railing and is provided with a hooked terminal 3 constituting a seat for a manifold section 4. A number of these manifold sections are utilized, the same being detachably connected together by means of couplings 5 of the usual or any preferred construction and extending downwardly from each manifold section is a series of nipples 6 to each of which is coupled a jet pipe 7 preferably curved at lower end to suit curvature of vessel. The jet pipe is designed to be detachably fastened to the nipple by means of any preferred form of coupling, and each nipple is preferably provided with a valve 8 whereby the passage of fluid into the jet pipe may be conveniently controlled. Oppositely extending alining arms 9 are arranged upon the upper end of each jet pipe, these arms being preferably disposed at right angles to the plane in which the jet pipe is curved.

Secured to the lower portion of each of the jet pipes is a collar 10 having radial ears 11 designed to receive a clamping bolt 12, this bolt also serving as the pivot of a retaining dog 13. One end of the dog is angular as shown at 14 so as to constitute a shoulder for abutting against the jet pipe and preventing the dog 13 from swinging downward past a line extending at right angles to the jet pipes. Each of the jet pipes is designed to project through a link or ring 15, the diameter of which is sufficient to permit said ring to also slip upwardly over the collar 10 and the dog 13 thereon. When the dog is in its lower or laterally extended position however it acts as a support for the ring and thus prevents it from slipping off the lower end of the jet pipe. The various rings 15 are designed to be connected by the links 16 and thus combine therewith to form a chain which extends throughout the length of the apparatus and serves to prevent the various jet pipes from bending back while the vessel is being moved in a forward direction. A suitable number of cables 17 may be connected to the links 16 and can be utilized for the purpose of pulling the links and rings upwardly when it is

desired to remove the apparatus from the hull.

While apparatus consisting solely of the manifold sections and of the jet pipes connected thereto and hugging close to the hull of the boat, has been found very efficient for loosening the hulls from sand and mud bottoms when they have been lodged it has been found especially desirable to utilize in connection therewith a supplemental apparatus disposed in front of the bow of the boat and designed to form a path in advance of the hull so as to further facilitate the movement thereof. This supplemental apparatus preferably consists of a section of pipe 18 extending forward from the bow and supported in any preferred manner, as by means of chains 19 attached to manifolds 20 extending laterally from the pipe 18, said chains extending over the bowsprit 21 of the boat or over any other suitable supporting structure extending beyond the hull. The manifolds 20 are of different lengths, the longest one being located close to the hull while the shortest ones are placed adjacent the outer end of the pipe 18. These manifolds are provided with depending nipples 22 to which are coupled valved jet pipes 23 preferably extended along parallel lines and the lower ends of which are designed to be embedded in the mud or sand bottom in advance of the hull. All of these jet pipes are provided with retaining devices such as heretofore described and shown in Fig. 3, said devices serving to support a chain 24 which connects all the jet pipes to the manifold and also connects the various jet pipes, the said chain or chains 24 being extended forward, and attached to the front end of the bowsprit or other support 21. As shown in Fig. 1 the front end of the pipe 18 may also be provided with projecting jet pipes similar to those extending from the manifold 20.

When it is desired to use the apparatus for the purpose of freeing the hull of a vessel which has become lodged on a soft bottom, a number of brackets 1 are fastened above the sides of said hull and said brackets are extended over and lashed to the railings. Manifold sections are then mounted on the ends of said brackets and fastened together by means of the couplings 5. These couplings are preferably in the form shown in Fig. 4, the same consisting of rings $5^a$ and $5^b$ connected to opposed manifold sections, each of said rings having an arcuate hooked portion $5^c$ extending radially therefrom and diametrically opposed to a wing $5^d$. As the two couplings $5^a$ and $5^b$ are oppositely disposed it will be apparent that a short turn of one or the other of the couplings will be sufficient to bring the wings $5^d$ into the hooked members $5^c$, thus firmly joining the said couplings. After the manifold sections have thus been connected a continuous distributing device is produced. One of the manifold sections may be placed in communication with a pump B through a pipe *b*, this pump serving to pump water into the manifolds. The various jet pipes 7 are inserted into rings 15 and lowered into the water so that the lower ends of said pipes lie close to the hull and within the soft bottom. The outlet end of said pipes will be so located as to direct jets of water under pressure against the soft bottom and close to the keel and the result of this action is to reduce the contacted portion of the bottom to a liquid state. The pipe 18 is extended beyond the end of the hull and the same is supported as indicated in Fig. 1, or in any other suitable manner after which the jet pipes 23 are forced into the bottom and at points beyond the hull and then attached to the nipples 22. The chains are then secured to the lower portions of the jet pipes in the manner heretofore described with rings 15 of the chains 16 of the apparatus resting on the dogs of the pipes 23 and the apparatus is then ready for use. It is to be understood that when water is forced under pressure through the various pipes it will liquefy the sand or mud constituting the bottom under the end in front of the hull and the hull can therefore be readily pulled away from the position in which it is lodged.

By providing the oppositely extending alining arms 9 it can be readily determined by the operator whether or not the jets are properly positioned at their lower ends. Otherwise considerable difficulty will be experienced in so placing the pipes as to cause the jets to be projected in a proper direction against the hull. These arms are also preferably provided upon the jet pipes 23 although they are not essential upon pipes which are not located close to the hull.

It is of course to be understood that various changes may be made in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. Apparatus for releasing grounded vessels, including manifolds, jet pipes suspended therefrom, means for supporting the manifolds in advance of the hull of a vessel, means for establishing communication between the manifolds, said manifolds and jet pipes being arranged to form a substantially triangular depression in the water-bed by the discharge of jets of fluid therefrom, flexible connections between the lower end of the jet pipes on each manifold, flexible connections between the jet pipes of the several manifolds, and forwardly and upwardly extending means for connecting the lower ends of the jet pipes to a supporting structure.

2. Apparatus for releasing grounded ves-

sels including manifolds, means for supporting the same in advance of the hull of a vessel, means for establishing communication between the manifolds, a series of jet pipes suspended from each manifold, said jet pipes being arranged to cover a substantially triangular area to direct fluid into the water bed and form a substantially triangular depression therein, flexible connections between the jet pipes of each series, flexible connections between the series of said pipes, and means extending upwardly from said connections for attachment to a supporting structure in advance of the manifolds.

3. In wrecking apparatus a manifold, jet pipes detachably connected thereto, a retaining dog pivotally connected to each jet pipe adjacent the discharge end thereof, and a flexible connection engaging the various jet pipes and held detachably thereupon by the dogs.

4. In wrecking apparatus, a manifold, curved jet pipes detachably connected to the manifold, a dog pivotally connected to each jet pipe and normally projected laterally from the pipe, said dog being foldable upwardly against said pipe, a flexible connection between the jet pipes and normally retained thereon by the dogs, and means connected to said flexible connections for elevating the same upon the jet pipes.

5. Apparatus for releasing grounded vessels, including a series of manifolds arranged one in front of the other, the legs of the manifold increasing from the front to the back of the apparatus, and means depending from and detachably supported by the manifolds for directing fluid under pressure into the water bed adjacent thereto, said means coöperating to form a substantially triangular depression within the bed, and means for directing fluid into the manifolds.

6. Apparatus for releasing grounded vessels, including manifolds of different lengths and supported in advance of the hull of a vessel, each manifold being shorter than the ones in rear thereof, means for directing fluid simultaneously into the manifolds and jet pipes detachably connected to the manifolds and depending therefrom.

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

FREDERICK OLIVER.

Witnesses:

E. R. Preston,

H. V. P. Vreeland.