M. Osborn.

Anjs for Raising Sunken Vessels.

No. 20,578. Patented Jun. 15, 1858.

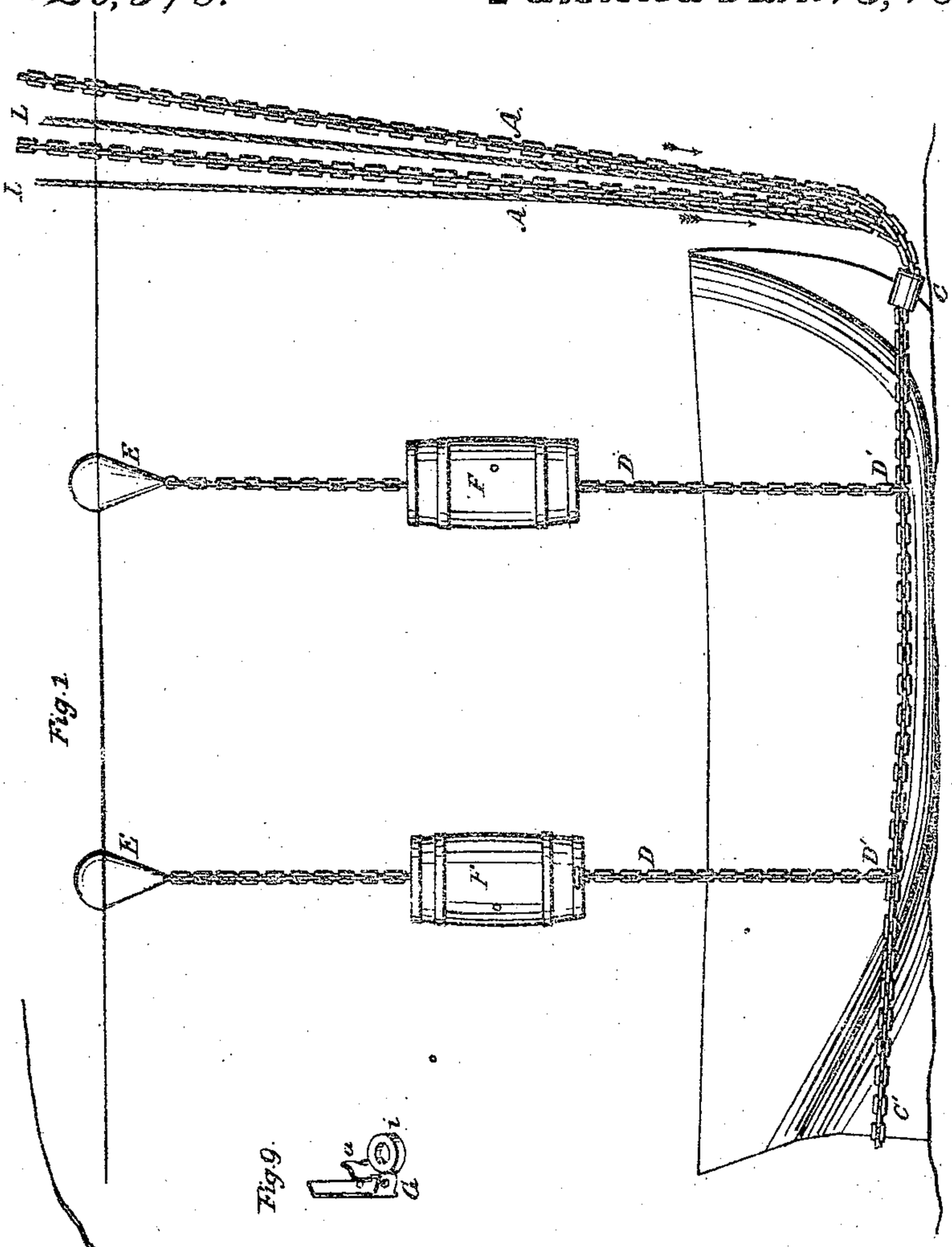

Fig. 1.

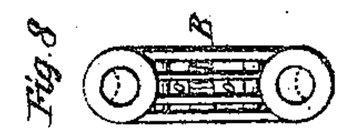

Fig. 8

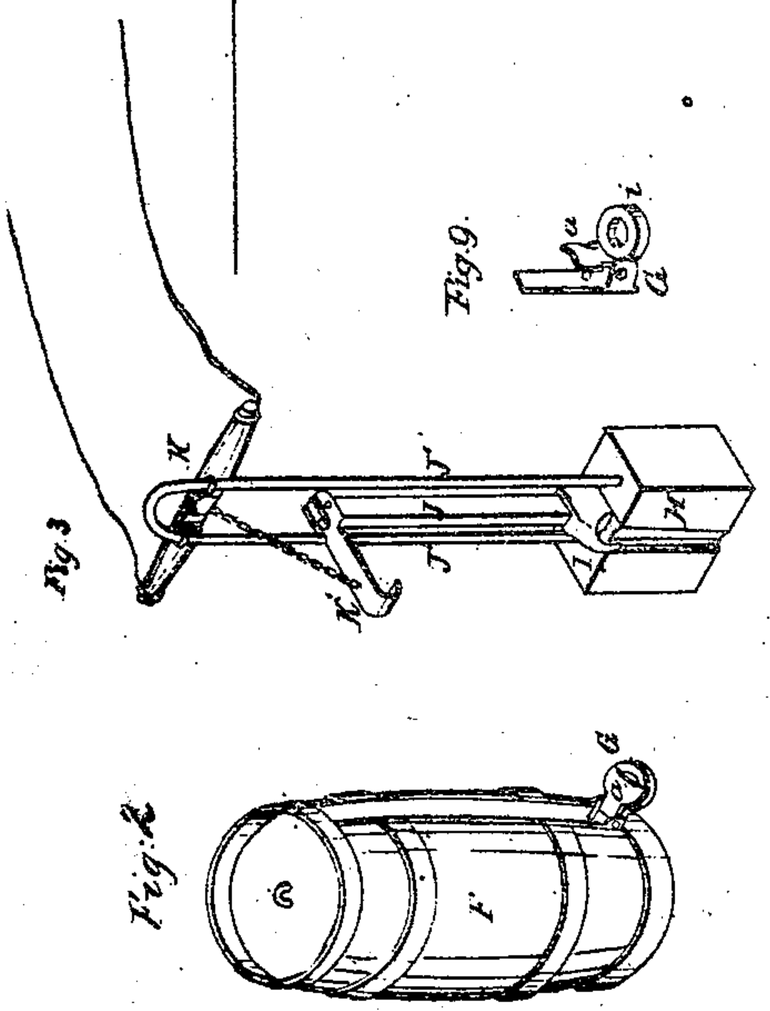

Fig. 3

Fig. 2

Fig. 9.

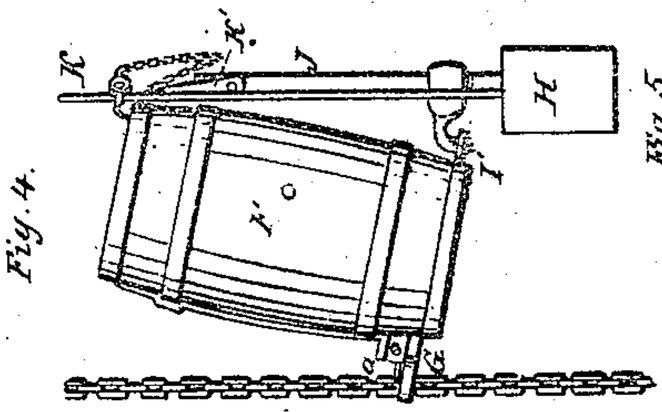

Fig. 4.

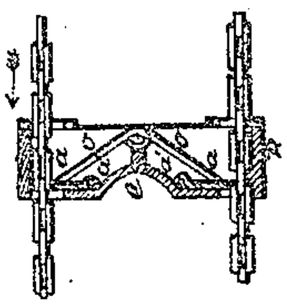

Fig. 6.

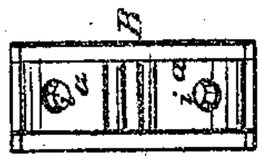

Fig. 7.

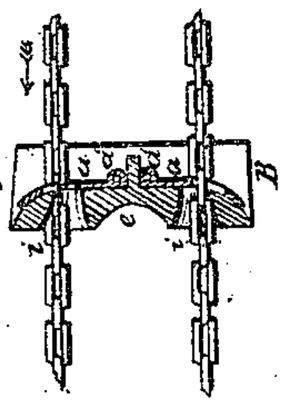

Fig. 5.

UNITED STATES PATENT OFFICE.

M. OSBORN, OF OSBORNVILLE, OHIO.

APPARATUS FOR RAISING SUNKEN VESSELS.

Specification of Letters Patent No. 20,578, dated June 15, 1858.

To all whom it may concern:

Be it known that I, MILO OSBORN, of Osbornville, in the county of Ashtabula and State of Ohio, have invented new and useful Improvements in the Construction of Buoys and other Apparatus for Raising Sunken Vessels; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making part of this specification.

Figure 1, is a view of a sunken vessel, with the main cable, lifting cables and buoys attached. Fig. 2, is a buoy constructed upon my improved plan. Fig. 3, is a sinker or weight, by which the buoy is forced into the water. Fig. 4, shows the lifting cable with the buoy and sinking weight attached. Figs. 5 and 6, show the clutch yoke, that secures the main cable to the hull of the sunken vessel. Figs. 7, and 8, are different views of the same parts. Fig. 9, is a view of the buoy clutch, detached from the buoy.

I construct a yoke clutch, shown in the various forms and positions in Figs. 5, 6, 7 and 8. In either of the forms shown, the yoke consists of a heavy and strong piece of metal B, which may be either cast or wrought. This yoke is hollowed out at *e*, *e*, Figs. 5 and 6, to fit the stem or stern part of the vessel. At each end of the yoke, is a thimble seen at *i*, *i*, through which the main cable passes, as seen in Figs. 5 and 6. The pawl *a*, is attached by a hinge joint as seen at *a'*. This pawl or clutch is pierced at its outer end, having a hole sufficiently large for the cable to pass through. When the pawl lies flat, or is in contact with the yoke, it partly covers the thimble as seen in Fig. 8, consequently the aperture for the passage of the cables is so much contracted, that the cable cannot pass through in a direction reverse to that indicated by the arrows. The pawls *a*, may be kept in place by their own gravity, when the yoke is in the proper position, but to guard against all accidents I introduce a spring *o*, Figs. 6 and 8, which always keeps the pawl in contact with the cable. In either form of construction, this clutch yoke can descend upon the chain cables placed around the wreck, in the direction indicated by the arrows in Figs. 1, 5 and 6, but the yoke cannot be drawn in the opposite direction, in consequence of the action of the pawls *a*, which are kept in contact with the cables, either by their own gravity, or by the action of the springs *o*, the pawl *a*, partly covering the thimble, and thus reducing the size of the opening through which the cable passes. The clutch represented in Fig. 9, is constructed in a manner very similar to the one just described, having however, but one thimble seen at *i*, Fig. 9. The pawl *a*, may be shorter, and instead of a hole, the end may present the form of the arc of a circle, the pawl being of such length, that when it is down, it will nearly cover the thimble, and prevent the cable from being drawn through in a reverse direction. This pawl, as in the other case, may be held by a spring, or by its own gravity, in contact with the cable. The combination of the pawl and thimble form what I call the clutch. The clutch can be released from its hold upon the cable at any time by pulling upon a line attached to the free end of the pawl.

Having this clutch yoke formed, constructed, and arranged in the above described manner, the two ends of the main chain cable A, are passed through the thimbles of the clutch yoke B, as seen in Figs. 5 and 6, the pawls being necessarily raised so as to bring the holes upon a line with the thimbles. The cable is paid out in such a manner, as to encircle the hull of the sunken vessel. The cable is then drawn forward, until it is brought into the position seen at C, C', Fig. 1.

When the wreck lies in deep water—say twenty feet or more, the main cable A, may only be of sufficient length, to handsomely encircle the wreck, and a sufficient length given it, to connect with the deck of the attending vessel, by using a strong rope attached to each end of the main cable. This rope will serve every purpose for "fleeting" the clutch yoke upon the ends of the chain cable A, and is represented in Fig. 1, at L, L'. The clutch yoke B, is then passed down upon the main cable A, A, or over the ropes L, L', if there is one used, until it comes in contact with the sunken hull as seen at C, Fig. 1. The pawls *a*, *a*, being upon the upper side of the yoke as it descends, in the direction of the arrows, is prevented from returning in the opposite direction, the pawls and thimbles forming a clutch which firmly holds the main cable.

The lifting cables D, D, Fig. 1, are attached at intervals, to the main cable before paying it out, or they may be hooked to the main cable after it is secured to the wreck as seen in Fig. 1, at D′, D′; their weight being supported by small buoys E, E. These buoys can be removed at pleasure for the purpose of passing the cable D, through the clutch G, Figs. 2, 4, and 9. The buoys E, E, serve to keep the cables D, D, in a proper position for the free and easy descent of the buoys F. If the water is very deep, say three hundred feet, I use chain lifting cables of one hundred and fifty feet in length, and connect with the surface of the water with ropes, as described in reference to the main cable, as these will answer every purpose for "fleeting" down the buoys, until they pass the upper end of the lifting chain cables.

The lifting buoys F, are made of strong staves and iron bound; or they may be made of any other suitable material. The clutch seen in Fig. 9, is attached to the lower end of the buoy, as seen at G, G, Figs. 2 and 4, in a strong and substantial manner. The cable D, passes through the thimble of this clutch, the pawl *a*, being upon the upper side of the clutch, allows the buoy to pass along down the cable D, but the pawl *a*, prevents the buoy from rising, without carrying the cable D, and its attachments with it.

The sinker H, Figs. 3 and 4, consists of a heavy mass of metal, and of sufficient weight to sink the buoy. From the upper side of this weight, projects a rod J, to the upper end of which, is attached by a pin joint, the hook K′, which takes hold of the chime of the upper end of the buoy F. At the lower end of the rod J, is a sliding hook I, which takes hold of the staple I′, in the lower end of the buoy; the sliding hook I, adjusting itself upon the rod J. There is also secured to the upper side of the sinker H, two other rods J′, J′, which are connected at the top, where is fastened the rope by which sinker H, and buoy F, are suspended from the deck of the attending vessel, and to which rods, is attached the cross heads K. To the ends of this cross head, are attached guy lines, which serve to steady the descending and ascending weight, or sinker H. This sinker H, being attached to the buoys, by means of the hooks I and K′, the buoys are forced down into the water, to the depth required, at which point they are firmly held by the clutch G. The sinker H, is released from its hold upon the buoy, at any desired moment, by pulling upward, the sinker, which is suspended by a line or rope attached to arms or rods extending from the deck of the attending vessel. Where the wreck is very heavy, two or three buoys may be placed upon the same cable, but under ordinary circumstances, this will not be found necessary, as any desired number of lifting cables may be used. Where the wreck lies in very deep water, I would use sufficient length of chain for the lifting cables, to admit of "fleeting" the buoys, that is, if the wreck was at the depth of 300 feet, I would use lifting chains 150 feet long, and ropes or poles coupled together, to reach the surface of the water, for these would do as well as chains to guide the buoys to their place of destination.

If the buoys were not strong enough to resist the pressure of water at the depth at which the wreck lay, I would send down the buoys as low as would be safe, and lift the vessel or wreck, until the buoys came to the surface of the water, and then without detaching the lifting cables, "fleet" down the buoys, to the main cable, and by this means, the vessel could be raised so that the deck would be above the surface of the water.

For the purpose of securing the lifting buoys F, F, against being entangled in a heavy wind or sea, I use sections of poles or timbers, about twenty feet long each, coupled together at the ends by chains, allowing thereby some play, and with the same, encircle a similar space at or near the surface of the water, or as nearly as practicable, directly above that which the main cable occupied below, when fastened around the wreck. To these poles or timbers, I fasten at proper distances apart, just below the buoys E, E, the lifting cables, and so brace them by cross timbers or poles, that no sea will entangle or misplace the lifting cables, in the absence of the attending vessel, and working force.

In sinking the buoys, there is very little if any danger of the weight or sinker H, and buoy F, getting "foul" of those buoys already sunk or of the wreck, as they are guided in their descent by the lifting cables, aided by the guy lines when necessary.

The clutch G, Fig. 9, may be made as hereinbefore described, or it may consist of a bar of iron, bent at one end, to a hook, which is passed over the upper chime of the buoy—thence extending downward, fitted to the outward surface of the buoy, until it reaches the lower part thereof, where the other end of the bar is formed into the thimble of the clutch and from top to bottom firmly hooped to the buoy.

As the hook or clasp over the chime receives the greatest strain, it is not liable to become detached. On the upper side of the thimble, is attached the pawl by a pin joint close to the buoy, which joint is formed by previously inserting a strap of iron between the bar and the buoy, the ends being turned at right angles outward, on either side of the bar, thus forming ears, which are perforated to receive a pin or bolt, upon

which is hinged the pawl. Or the same may be constructed without the iron bar, by fitting two strips of timber, parallel with each other, and snug to the buoy, about four inches apart, and extending nearly from top to bottom of the buoy, and firmly hooped or secured to the buoy. These strips should project outward at the lower end of the buoy about six inches, between which, near their lower ends, is bolted a bar of iron nearly in the form of a half circle, each end bearing to the buoy, leaving the circle part outward, and thus forming the thimble. The pawl is hinged to a bolt extending through each timber and both ends of the half circle bar.

Some of the advantages arising from the use of my improvement, may be enumerated as follows. I can work around a wreck whenever a boat can ride at anchor in safety. It is not necessary to hold the boat precisely at any one point, because the lifting cables D, serve to guide the buoy and sinker in their descent. Guy lines may be dispensed with altogether, or if used, they are above the wreck and buoys previously attached, and are therefore not liable to get "foul." By my plan, I can work in almost any current or depth of water. By this improvement, the buoys are carried down to the lowest part of the wreck, and can be attached closely side by side, with certainty and accuracy. After fastening one tier of buoys around a wreck, another tier may be fastened around just above the first, using therefor, the same lifting cables.

By moving a boat anywhere within a rod or two of a point directly above the wreck, the buoys can be sent down and attached quickly and with accuracy and certainty, even in moderately rough weather. In my improved plan, after a part of the buoys are attached to the wreck, it may be left with safety, and the work resumed at pleasure. By my plan, the main cable being shackled together at intervals, portions may be added or detached, so as to accommodate any sized wreck or substance. All wrecks, or substances to be raised, are more or less embedded in sand or mud, and hence there is no liability for the main cable to slip entirely under, and thus fail to get a firm hold. The main cable when laid on such bottom and clutched together at its ends, encircling the wreck, and having the buoys closely fastened thereto, on rising, a desired point is gained in bringing the wreck up as much out of the water as possible, so that by the use of pumps the hold might be cleared from the contained water. By no other method practiced, can the buoys be fastened low enough down for this purpose.

What I claim as my improvement and desire to secure by Letters Patent, is—

The sinker, Figs. 3 and 4, arranged with the rod J, adjustable hooks I and K, and bail I, and in combination with buoy F, and clasp G, substantially as described, the same operating in connection with the cables A, and D, in the manner and for the purpose set forth.

MILO OSBORN.

Witnesses:
GEORGE F. SIMPSON,
C. F. BEARDSLEY.