

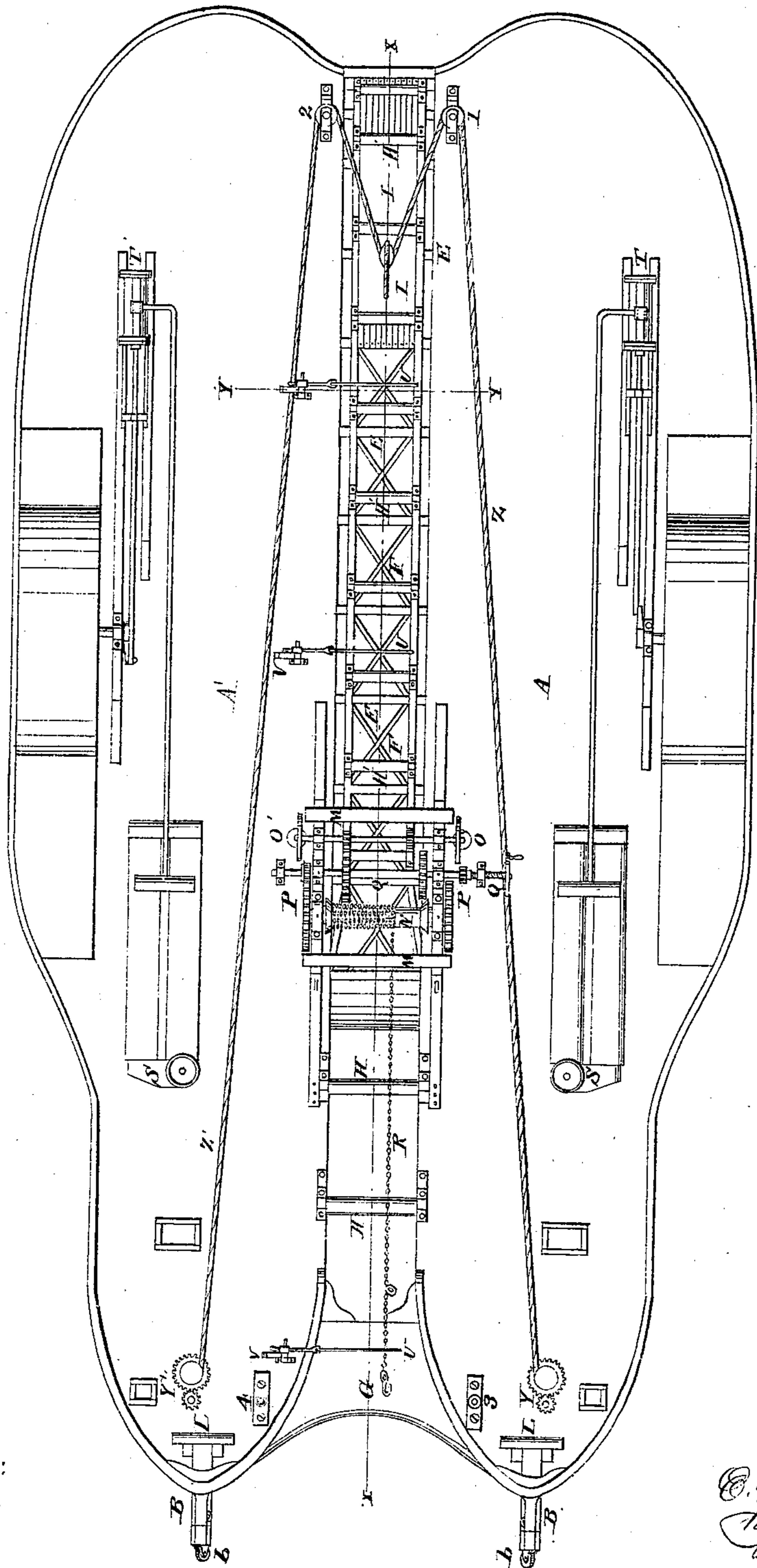
E. M. Shield.

Snug Boat

N<sup>o</sup> 95,609.

Patented Oct. 5, 1869.

Fig. 1.



Witnesses:

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Sam. Knight

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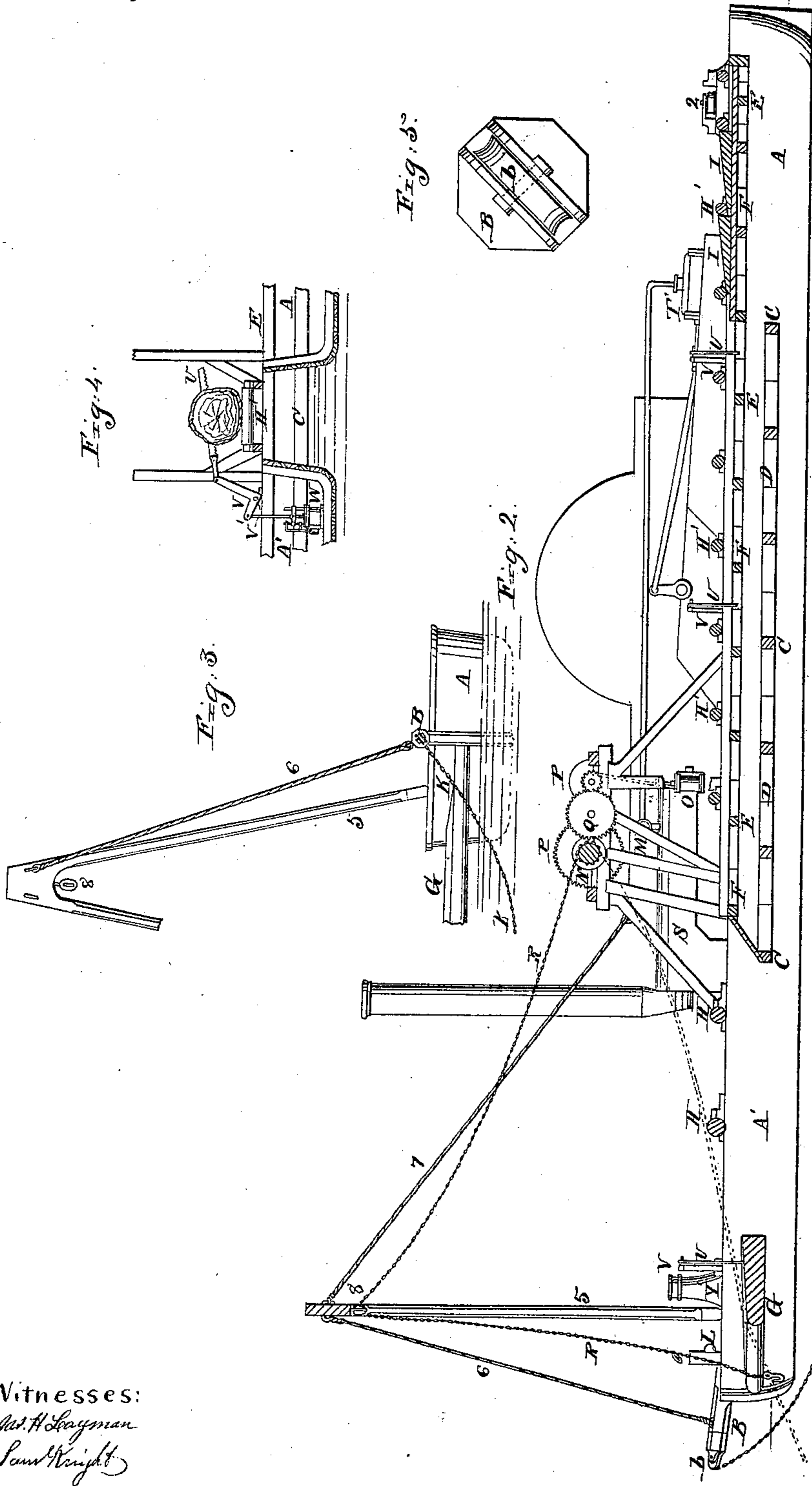
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Sheet 2-2, Sheets.

String Boat.

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# United States Patent Office.

EDWARD M. SHIELD, OF CINCINNATI, OHIO.

Letters Patent No. 95,609, dated October 5, 1869.

## IMPROVED SNAG-BOAT.

The Schedule referred to in these Letters Patent and making part of the same.

I, EDWARD M. SHIELD, of Cincinnati, Hamilton county, and State of Ohio, have invented a new and useful Snag-Boat, of which the following is a description.

### *Nature and Objects of the Invention.*

This is an improvement in the class of snag-boats, consisting of a pair of hulls, framed firmly together, and having a crib or cradle between them, upon which the snag, sawyer, or other timber, is drawn, and upon which it is cut into suitable lengths or fragments; and

The first part of my invention relates to the provision of a hoisting-apparatus, which, being driven by one or more steam-engines, distinct from those by which the boat is propelled, enables the boat to be handled during the engagement and elevation of the snag.

The second part of my invention relates to an arrangement of head-booms or bowsprits, having oblique sheaves, and a drag-chain, for catching and upending of sunken snags, or other obstructions, as hereinafter set forth.

The third part of my invention relates to a device for elevating the top of the snag into the butting-beam, and the but end clear of the guards.

The fourth part of my invention relates to a provision of a series of crosscut-saws, arranged at convenient distances along that side of either hull nearest to the other one, and each worked by its proper engine, situated below deck.

The fifth part of my invention relates to the provision of two sheaves or chocks, one near to the stem of each guard, next to the cradle, for leading-lines or chains to haul the snag back into the cradle, preparatory to sawing or cutting up.

The sixth part of my invention consists in a certain arrangement of rollers and inclined planes, constituting the cradle proper.

### *General Description with Reference to the Drawings.*

In the accompanying drawings—

Figure 1 is a plan of my snag-boat.

Figure 2 is a longitudinal section, cut through the cradle, and showing the starboard hull in elevation, said section being taken at the line X X.

Figure 3 is an end view of the larboard boat's bow, with a portion of the butting-beam and derrick.

Figure 4 is a transverse section at the line Y Y, showing portions of the two hulls and one of the crosscut-saws, with its engine in elevation.

Figure 5 is an enlarged end view of the larboard drag-chain boom.

A and A' represent two precisely similar hulls, of such build as to present large displacement and tonnage, with shallow draught; in other words, having nearly vertical sides and flat bottoms.

The said hulls are framed firmly together, by means of suitable timbers, C D E F, about midships, and a timber, G, called the "butting-beam," which timber passes into both hulls, near their bows, and is firmly bolted to the breast-hooks and side-frames or ribs of the hulls.

The said beam slopes downward and forward, and has a rounded front edge, so as to enable it easily to receive the end of any snag that may be drawn on to it, and to enable the snag to slide easily backward upon a series of rollers, H H', which constitutes the cradle proper.

Inclined planes I, placed between the roller H', assist in elevating and passing knots and other projections of the snag over the rollers, and discharging the snag over the stern, after having been sawed into fragments.

Projecting forward from the bow of each hull is a boom or bowsprit, B, within which is mounted an oblique sheave, b, for a drag-chain, K, employed for sweeping the bed of the river, to detect the presence of snags or other hidden obstructions, and to upend the same.

The ends of the said drag-chain may be made fast to the bills L, or other fixed objects upon the boat.

Erected upon the adjacent guards of the two hulls, a little ahead of midships, is the frame M, of a hoisting-apparatus, containing a suitable windlass, N, propelled by two steam-engines, O O', through the medium of any suitable gearing, P, which may have a sliding shaft, Q, for gearing up or down, according to the power or speed required.

The hoisting-chain R may be either attached to the windlass, or be simply wound around it.

For the purpose of supplying the necessary power, I provide each hull with a battery of boilers, S, which, instead of being placed centrally, are located near that side of each hull most distant from the other one, so as to afford on each hull a clear and unobstructed fore-and-aft gangway for handling the lines and chains, and operating the crosscut-saws.

3 and 4, in fig. 1, show steps or sockets for the points of a pair of shears, 5, supported by guys 6 and 7, and having a pulley, 8, to carry the hoisting-chain R, when said chain is required for a dead lift on the snag.

T T represent the customary engines for propelling and handling the boat.

U represents a series of crosscut-saws, located on one of the hulls, adjacent to the cradle.

Each saw is attached to a bell-crank, V, operated by a pitman, V', from a small steam-cylinder, W, below decks.

The cables or chains Z Z', employed to draw in the snag into the cradle after having been detached from the bed of the river, are carried around in the sheaves

1 2, near the sterns of the hulls, at their adjacent sides, and are thence carried forward to the customary steam-capstans Y Y'. The same lines and capstans are also employed to draw back and discharge the sawed fragments over the stern.

*Operation.*

A ripple, indicating a sunken obstruction, being observed, the drag-chain is let out, and the boat headed up-stream, into the ripple, until the tautness of the chain indicates that it has caught the obstruction.

The boat being then still driven forward, upends the snag, enabling the butting-beam to be brought under the same, and the chain (see dotted line, fig. 2,) of the hoisting-apparatus is then put in motion, so as to disengage the snag from the bed of the river, and to draw it backward on to the first two rollers H.

When a dead lift is necessary, in order to lift the root of the snag clear of the guards, the chain R is taken through the pulley 8 before being engaged around the snag.

The leading-lines Z Z' are (before disengaging the hoisting-chain) attached to the top end of the snag, and, the steam-capstans being put in motion, the snag is drawn abaft on to the cradle, ready for being reduced to convenient lengths or fragments by the cross-cut-saws.

The said leading-lines are then again used for discharging the fragments overboard.

*Claims.*

I claim, as my invention—

1. The provision, in a snag-boat, of one or more steam-engines, adapted to operate the hoist independently of the main propelling-engines of the boat, substantially as and for the purpose set forth.

2. The pair of drag-chain booms B, having the oblique sheaves b, as and for the purpose designed.

3. The provision, in a snag-boat, of a series of cross-cut-saws, U, at suitable intervals along one of the nearer or adjacent sides of the hulls, and each operated by an independent engine, as set forth.

4. The provision, in this connection, of the derrick or shears 5, for the purpose stated.

5. The sheaves 1 2, arranged and located as and for the purpose stated.

6. The arrangement of rollers H and inclined planes I, as described.

In testimony of which invention, I hereunto set my hand.

E. M. SHIELD.

Witnesses:

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JAMES H. LAYMAN.