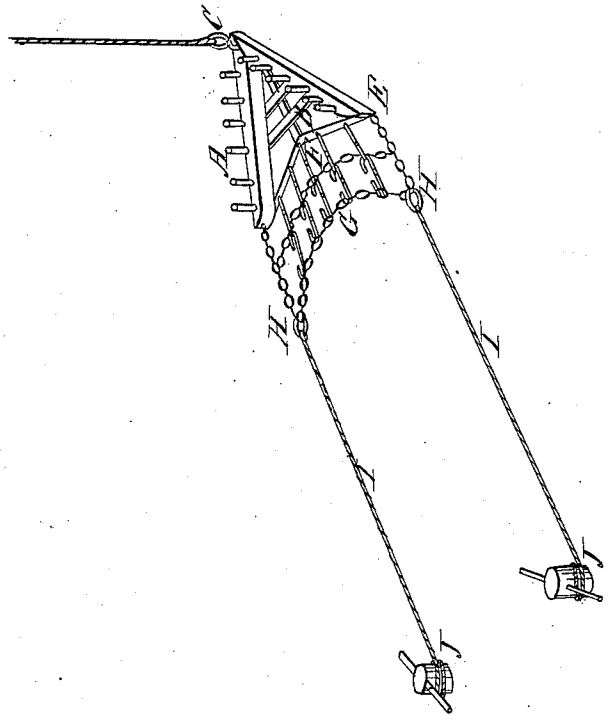
P. Lee,

Dredger,

No. 1,386. Patented Oct. 31, 1839.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PHILANDER LEE, OF LYME, NEW YORK.

DRAG FOR REMOVING STONES AND OTHER OBSTRUCTIONS FROM THE BOTTOMS OF LAKES, RIVERS, &c.

Specification of Letters Patent No. 1,386, dated October 31, 1839.

To all whom it may concern:

Be it known that I, PHILANDER LEE, of Lyme, in the county of Jefferson and State of New York, have invented a new and improved machine for the purpose of removing stones and other obstructions from the bottom of bays, lakes, harbors, rivers, &c., and for the purpose of breaking off projecting points from stones, rock, &c., under water; and I do hereby declare that the following is a full and exact description.

My said machine consists of two pieces of stout timber, about eight inches square, and four feet in length. See the drawing accompanying this paper, Figure A. These are fastened together at one of their ends, while the other ends are separated about four feet from each other. These timbers are firmly secured in their places by bars of iron passing diagonally from one timber to the other, in such manner as to constitute an apron or platform, Fig. B, upon which the bodies to be removed are usually drawn. Into the upper surface of the frame are inserted teeth or bolts of iron, D, about one foot in length, and placed so near each other as to retain any bodies placed thereon during their removal.

To the outer extremities of the wooden frame are firmly fixed the two ends of a strong heavy chain, about thirteen feet long, G; at about three feet from the ends of this chain are inserted two stout iron rings which, for convenience, I shall call tug rings. When the machine is in use it is intended that these tug rings shall be kept at about four feet from each other, and three feet from the wooden frame. When the tug rings are placed in the position they are intended to be in when at work the slack part of the chain is carried as far as may be toward the apron or platform and then connected with it by a net work of smaller chain or rope, thus constituting a flexible apron or platform, F, attached to the fixed one. The meshes of both platforms must be made of less diameter than that of the bodies to be removed. On shore, or at such point as may be selected, are placed two windlasses, J, J, or other proper mechanical power, at such distance from each other as will allow the windlasses to be worked with facility. To these windlasses are attached two strong ropes or chains, I, I, the other ends of the ropes or chains being connected to the tug rings. To the apex of the wooden frame is secured an iron ring, C, made to receive a rope at one end of which is secured a buoy, that the place where the machine lies may always be known, the rope being used to raise or let it down. It is intended to clear a piece of ground, of the width of the machine and of any convenient length at each operation.

The operation of the machine is as follows: The windlasses being securely fixed, at a convenient distance from each other, on shore or otherwise, and the machine attached to them by its tug ropes, the machine is conveyed to its proper station and sunk. The windlasses on being worked, it is obvious, will draw the machine to itself, while, in its passage, the flexible part of the apron will be inserted beneath such bodies as lie in its track, and cause their being deposited upon the apron or platform, and consequently their removal to the site of the windlass. When the object to be effected is to break off projecting points of rocks, cliffs, &c., the place of the machine may be supplied by a chain, or series of chains, or the machine may be used itself. In either case the object will be accomplished by the ordinary operation of the machine; but when the power, or strength of the machine is insufficient, by driving the machine or chain in a direct line toward the windlasses, I take a boat of sufficient burden and place it directly over the body to be broken, and secure it there by passing the tug ropes over its center and making them fast to the boat. Now, on working the windlasses it is obvious the power will act at right angles with the direction of the cliff, or obstruction, and in this new direction it is seldom that the intention will not be accomplished. This operation is to be repeated, until by removing the machine from place to place as may be necessary the entire ground is cleared.

I wish to be distinctly understood that I do not confine myself to the precise dimensions aforesaid, nor to the use of the aforesaid materials for constructing the machine, but design to make the machine of any desired dimensions, and with any materials calculated to answer my purpose.

I wish it likewise understood that my said machine differs from all others heretofore used for the same purpose in having a flexible apron, a stationary apron, two parallel

tug ropes, and two stationary powers for working it.

I wish in addition to what has been previously described to remark: That in cases, where the machine is too much loaded, to be readily drawn I place a boat of sufficient burden under the tug ropes and near the load by which, in the operation of the windlasses, the load will be materially lightened and consequently will be removed with greater facility.

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

The combination of the flexible apron of network with the wooden frame or platform provided with teeth &c. as herein described, for the purpose herein described.

PHILANDER LEE.

Witnesses:
SAMUEL GUTHRIE,
SIBYL GUTHRIE.