

United States Patent Office.

THOMAS F. ROWLAND, OF GREENPOINT, NEW YORK.

Letters Patent No. 89,794, dated May 4, 1869.

IMPROVED SUBMARINE DRILLING-APPARATUS.

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

To all whom it may concern:

Be it known that I, THOMAS F. ROWLAND, of Greenpoint, in the county of Kings, and State of New York, have invented a new and useful Improvement in Submarine Drilling-Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents an elevation of my improved submarine drilling-apparatus; and

Figure 2, a sectional inverted plan of the drill-frame or stand.

Similar letters of reference indicate corresponding parts.

My invention consists—

First, in a novel construction of drill-frame, or stand, or, as it may be termed, working-platform, by providing or forming it with telescopic legs, made up of tubes and plungers, and connected with suitable hydraulic attachments or devices for forcing water into the legs for the proper support of the platform at different elevations, according to the depth of the water, and to adjust the legs or their plungers to a firm bearing on the rock to be drilled.

Secondly, the invention consists in a combination of a floating steam-pump, or engine, a separate water-pressure engine, carried by an independent fixed frame, or support, an elastic tubular connection, whereby the latter engine is driven by water forced, or conveyed under pressure from the former, and a drill operated by the stationary or non-floating engine.

Thirdly, the invention consists in a combination of a floating steam-pump, a water-pressure engine for operating the drill, an independent or stationary platform, provided with telescopic legs for carrying said engine, and flexible tubular connections between the floating steam-pump, auxiliary engine, and platform or its legs, whereby said pump serves to convey water both for driving the drill, through the independent or water-pressure engine, and for adjusting or setting the platform, through its telescopic legs, on and at a suitable height above the rock to be drilled.

In the accompanying drawing—

A represents a boat, float, or scow, which serves to carry a steam-pump, B, and boiler for working the same. Said float, or scow also should be of sufficient dimensions to carry to and from the place of work, the remainder of the apparatus or working-platform, with its attachments and derrick, for lowering and lifting the same out of and into said scow.

The drill-frame is made up of a table, C, preferably fitted with one or more leaves *a*, to admit of its extension, and facilitate carriage, and telescopic legs formed of tubes D D, and rods or plungers E E fitting freely within the tubes, and arranged to project through stuffing-boxes in the lower ends of the latter, the whole being stayed by braces *b b*.

On the table C is erected a rotary, or other suitable

water-pressure engine, F, which serves to operate, through appropriate gear, the drill G.

This engine is worked by water conveyed or forced under pressure to it from the steam-pump F, by or through a hose, or flexible tube H, which establishes connection between said pump and engine.

Arranged below the table C is a circular pipe, I, having a branch, *c*, that is also connected by a hose, or flexible tube, J, with the steam-pump, said branch being fitted with a valve, or cock, *d*, for turning on and off the supply of water from the pump.

This pipe I, which forms a distributing-conduit, connects by branches *e e*, having cocks, or valves *f f*, with the tubes D D, near their tops, which are closed.

From this description, it will be seen that on the drill-frame, or stand being lowered by the derrick to its place on the rock to be drilled, and the cocks *f f* opened, the working-platform, or table C may, on setting the steam-pump B in motion, be elevated or set to any desired height by hydraulic pressure or action, as caused by forcing water into the tubes D D, and pressure of the same on or against the upper ends of the plungers E E.

In this way, or by these means, the working-platform is made to rest upon a series of columns of water, and by opening or closing the cocks *f f*, or certain of them, and opening or closing water-discharge taps to the legs for lowering them, it may be adjusted or set to any desired height or level, and a firm support secured to the drill-frame, or stand on the rock.

This being done, communication, through a suitable valve, is opened between the steam-pump B and water-pressure engine F, which sets in motion the drill G.

Thus the pump B serves to set and adjust the working-platform, and indirectly, that is, through the engine F, to work the drill.

The independent character, however, of the working-platform and engine carried by it, relatively to the floating steam-pump, and connection therewith by flexible tubes, is an important feature, for such not only secures to said platform and engine a fixed, or stationary character, that facilitates the operation of drilling, while the floating pump is free to rise and fall with the undulations on the surface of the water, but the engine F may be worked under circumstances and conditions that would be neither safe nor practicable were it the primary driving-power; thus it and the working-platform may be under water without impairing or interfering with the general action of the apparatus, and the floating engine, or pump B, which is the primary power, be at any desired distance from the drill-frame, or stand, and be operated with equal facility under the most varied conditions of the work being done, and totally independent, as it were, of the latter.

What is here claimed, and desired to be secured by Letters Patent, is—

1. The telescopic drill-frame, forming or carrying a

working-platform, and made up of tubular legs and plungers or rods projecting therethrough, in combination with hydraulic attachments, or devices for forcing water, under the control of suitable valves, into the legs, substantially as and for the purpose or purposes herein set forth.

2. The combination of a floating steam-pump, or engine, an auxiliary water-pressure engine, carried by an independent stationary frame, or support, a flexible tubular connection, for transmitting power, through hydraulic pressure, or action from the one engine to

the other, and a drill operated by the auxiliary, or stationary engine, essentially as specified.

3. The combination of the floating steam-pump B, the stationary water-pressure engine F, for operating the drill, flexible tubular connections H J, and a working-platform, made up of a table and telescopic legs, for action, substantially as described.

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Witnesses:

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