XIV. Description of a machine for drawing bolts in and out of ships

Capt. William Bolton

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XIV. *Description of a Machine for drawing Bolts in and out of Ships. Invented by CAPT. WILLIAM BOLTON of the Navy. From Transactions of the Society for the Encouragement of Arts, &c. Vol. XVI.*

THE gold medal was voted to Captain Bolton for this contrivance, a model of which is preserved for the use of the Public in the Society's repository.

AAAAAA (Plate IV.) is the frame of the machine. B, a cylindrical tube, having a female screw in the inside. C, a wheel with teeth attached to the cylinder B. D, an endless screw adapted to the wheel C. E, handle of the winch. F, the bolt drawing out. GG, blocks to support the frame. H, a hollow piece of steel, having on its outside a male screw, whose threads work within the female screw in the cylinder B. To this piece of steel the bolt is to be riveted. I, a semicircular piece of steel, which is to be introduced into the notches on H, when a similar notch has been cut in the head of the copper bolt, which by this means is prevented from turning in H, while drawing. K, the bolt, as prepared to receive the machine. L, a steel bar, somewhat smaller than the bolt to be drawn, having at one end a male screw, A, and at the other end another male screw that fits into the female screw in B. M, a section of a male screw, having a square hole larger than the bolt. N, a bolt with a male screw at one end ready to be drawn in.

The machine, of which a plate is annexed, consists of a frame supporting a cylindrical female screw tube. On this tube is mounted a wheel with teeth adapted to an endless screw fitted to the frame, and worked by a handle.

To draw the Bolt out.

The head of the bolt must be cut off, and a hole made in the timber big enough to receive the male screw H, which
is

Levy Sculp.

is put over the bolt: a slit is then to be made, either by a saw or cold chissel, in the head of the bolt, to receive the key I, and which corresponds to the slit in H: the bolt head is then to be riveted as firmly as possible upon H: the cylindrical tube, B, is then to be screwed on, turning the whole machine round till it can be done no longer, when the endless screw is to be used. If the machine is of a proper strength, and the riveting well done, the power is such as to extract the bolt or break it, but generally it will be drawn out uninjured.

To draw Bolts into Ships.

It will be necessary to have a bar, L, which I recommend to be made of steel, long enough to pass from the inside to the outside of the ship, and somewhat smaller than the copper bolt intended to be drawn in. This may be called a conductor. On one end should be a male screw, *a*; the bolt to be drawn in should be tapped at one end to receive the male screw, *a*, on the conductor, and at the other end should be another male screw that fits into the female screw in B; after which the operation is the same as drawing a bolt out, and the machine should be applied accordingly. When the bolt arrives at its destined place, it may be secured on the inside by a nut, which is as good a way of fastening as clinching, and much more expeditious.

This machine, though only of the height of eighteen inches, will draw bolts in or out of any length; for, after the bolt has risen to the top of the tube, it will only be necessary to screw the machine back, and follow up the work with blocks of timber, as represented in the drawing.

Note. If the upper part of the hole in H be made square, larger than the round hole as shewn at M, and the head of the bolt riveted into it, it will do away the necessity of the key, I, render the machine less complicated, and save much time and trouble.