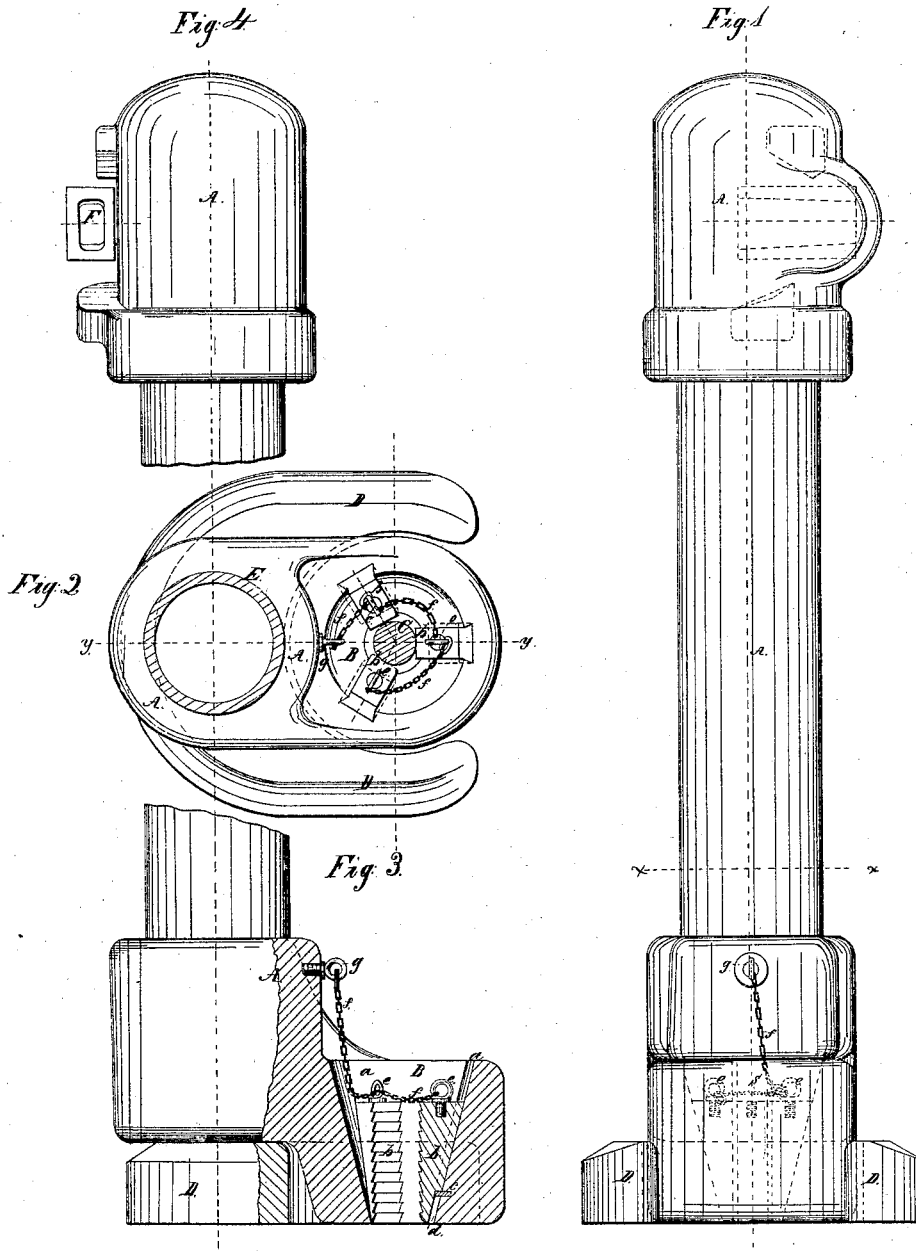


*S. Wilmarth,*  
*Spike Extractor.*

*N<sup>o</sup> 45,785.*

*Patented Jan. 3, 1865.*



*Witnesses:*

*W. Schumacher*

*H. W. Stearns*

*Inventor:*

*S. Wilmarth*

# UNITED STATES PATENT OFFICE.

SETH WILMARTH, OF BOSTON, MASSACHUSETTS.

IMPROVED MACHINE FOR DRAWING BOLTS BY HYDRAULIC PRESSURE.

Specification forming part of Letters Patent No. **45,785**, dated January 3, 1865.

*To all whom it may concern:*

Be it known that I, SETH WILMARTH, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Machine for Drawing Bolts by Means of Hydraulic Pressure; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a front elevation of my improved bolt-drawing machine. Fig. 2 is a horizontal section on the line *x x* of Fig. 1. Fig. 3 is a vertical section through a portion of the foot of the machine, taken in the direction of the line *y y* of Fig. 2, a part of the base also being represented in elevation. Fig. 4 is a side elevation of the upper portion of the machine, showing where the power is applied to operate the force-pump.

The object of my invention is to employ a power for withdrawing bolts, &c., from timbers which shall perform the operation in a most expeditious and effectual manner without injury to the bolt or timber; and my invention consists in grasping the bolt by two or more wedge-shaped jaws sliding in inclined slots within a cavity formed at the base of the outer cylinder of a hydraulic jack or lift, whereby I am enabled to exert and apply an immense force in the most advantageous manner, the line of draft being directly in the line of the axis of the bolt.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings the base of the outer casing A of the hydraulic lift is enlarged so as to admit of a conical cavity, B, being formed within it, and inclined slots *a* are cut in its sides for the wedge shaped jaws *b* to slide in. These jaws are prevented from projecting below the base of the outer casing A by means of pins *c*, fitting into grooves *d* made in the lower part of the backs of the jaws, and their front surfaces are notched or serrated to enable them to securely hold the bolt C. Eye-bolts *e* are screwed into the heads of the jaws,

and a chain, *f*, passes through them and through the eye of a bolt, *g*, in the side of the outer cylinder A, by which means the jaws are raised and adjusted to fit the heads of bolts of various diameters. The base of this outer cylinder, when down in its normal position, rests partly on the surface of the timber from which the bolt is to be drawn and partly on the enlargement D at the foot of the inner cylinder, E, which is made hollow to contain the water or other fluid, by pressure on which the outer cylinder is elevated. The inner and outer cylinders are made to fit each other truly, so that the joint between them is perfectly water-tight when the pressure is applied. The enlargement D at the lower end of the inner cylinder is bifurcated, and extends around a part of the base of the outer cylinder for the purpose of insuring greater stability during the operation of extracting the bolt.

The power for operating the pump for forcing the water into the chamber formed by the outer cylinder rising above the top of the inner cylinder is applied at F. (See Fig. 4.)

Operation: The machine being placed with the lower surfaces of the bases of the cylinders resting upon the timber from which the bolt is to be extracted, the jaws *b* are adjusted by means of the chain *f*, so as to embrace the projecting end of the bolt C, when, power being applied to the hydraulic pump at F, an enormous pressure is exerted in elevating the outer cylinder A, which, as it commences to rise, tightens the grasp of the jaws *b* on the bolt, the grip upon the bolt being at all times proportionate to the amount of resistance to be overcome.

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

A bolt-drawing machine consisting of a vise or jaws for grasping the bolt, in combination with a hydraulic lift for withdrawing the same, operating substantially in the manner herein set forth.

SETH WILMARTH.

Witnesses:

P. E. TESCHEMACHER,  
N. W. STEARNS.