L. W. WELLS.

Machine for Tapping Mains.

No. 197,235. Patented Nov. 20, 1877.

Fig. 1.

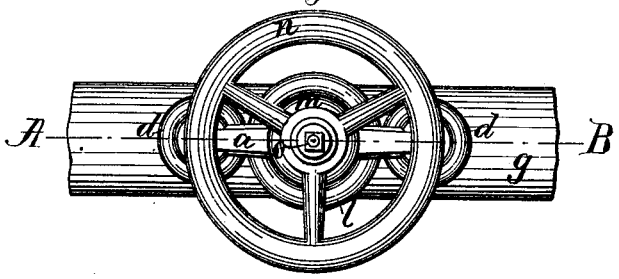


Fig. 2.

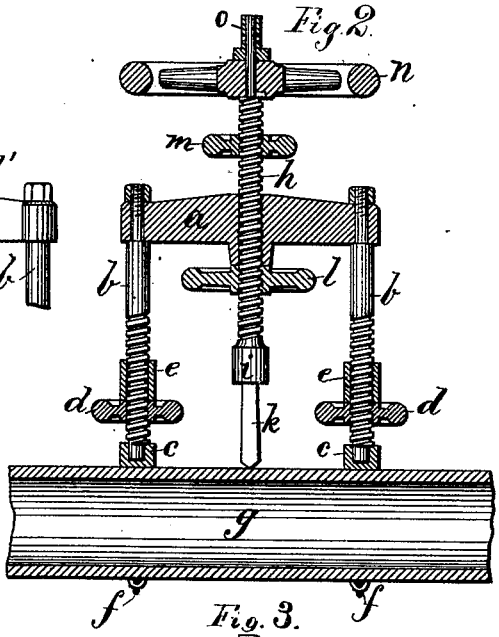


Fig. 4.

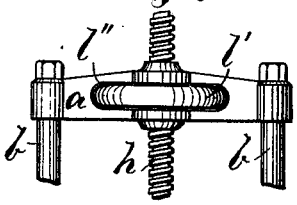
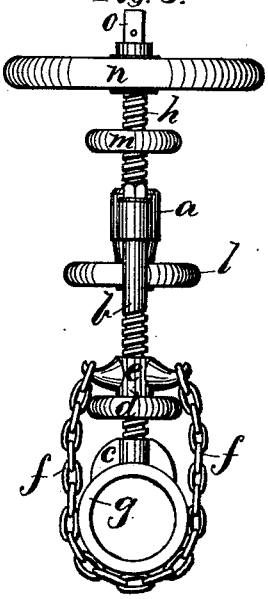


Fig. 3.



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UNITED STATES PATENT OFFICE.

LEVI W. WELLS, OF HOPEWELL, CANADA.

IMPROVEMENT IN MACHINES FOR TAPPING-MAINS.

Specification forming part of Letters Patent No. **197,235**, dated November 20, 1877; application filed October 18, 1877.

To all whom it may concern:

Be it known that I, LEVI W. WELLS, of Hopewell, in the county of Albert and Dominion of Canada, have invented certain new and useful Improvements in Drilling and Tapping Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in drilling and tapping machines, for the purpose of drilling and tapping gas or water mains, or other pipes, as well as drilling and tapping girders, beams, boilers, pillars, &c.

My invention consists of a metallic frame, having secured to it upright screw-bolts in its outer ends, each screw-bolt being provided in its lower end with a foot-piece, resting against the pipe or other piece of work that is to be drilled or tapped. Each screw-bolt is furthermore provided with a screw-threaded hand-wheel, on the top of which is supported a double hook, to the ends of which are attached the links of a chain that passes around the pipe, &c., that is to be operated upon.

In this manner the frame of the machine can easily be secured to pipes, girders, beams, boilers, &c., very firmly, and in any desired direction, whether vertical, horizontal, or any desired inclined position. The article to be drilled or tapped may be of any size or shape, necessitating only a pair of longer or shorter chains to be attached to the double hooks on the screw-bolts, for the purpose of securing the frame of the machine firmly and temporarily to the article that is to be drilled or tapped. Through the central part of the frame a screw-shaft passes loosely, which screw-shaft is provided in its lower end with a socket for the reception of the drill or tap that is to be used.

The machine is also very well adapted to the use of Humphrey's combined drill, reamer, and tap, by which a hole can be drilled, reamed, and tapped with one single tool without the need of using one separate tool each for the work of drilling, reaming, and tapping a hole.

The central screw-shaft is furthermore provided with a screw-threaded feed-wheel below the frame, and a smaller screw-threaded hoisting wheel or nut above the frame. To the upper end of the screw-shaft is secured a hand wheel, by which the drill or tap is operated. The extreme upper end of the screw-shaft projects above the hand-wheel, as a square or other polygonal head or nut, on which a ratchet-wrench can be used in case of heavy drilling.

To use my improved drilling and tapping machine, I secure it first to the pipe, or other part that is to be drilled or tapped, by means of the chains, hand-wheels, and double hooks, as hereinbefore described, and secure the drill, reamer, or tap in its place in the socket, after which the feed-wheel below the frame is screwed up against the under side of the frame, the lower end of the drill resting on the pipe, &c. By turning the screw-shaft around its axis, either by means of the hand-wheel or by a suitable ratchet-wrench, and occasionally turning the feed-wheel in an opposite direction, the drill is revolved, and at the same time fed forward. In tapping a hole, the feed-wheel is turned downward on the screw-shaft, so as not to be in contact with the frame of the machine, and the tap is screwed into the hole by the turning of the hand-wheel, or by means of an additional ratchet-wrench, as may be desired.

The object of the small screw-threaded hoisting wheel or nut above the frame is for the purpose of raising and holding the screw-shaft with its drill or tap above the work, so as to be able to insert a plug in the hole, or for the purpose of changing a tap for the drill previously used, or otherwise, as may be desired.

For drilling purposes only, I modify my invention in this manner: that I dispense with the hoisting-wheel, and place the feed-wheel in a slotted opening in the frame, by which said wheel is made to serve the purpose of both feed-wheel and hoisting-wheel, on account of its having a bearing in the frame both on the upper and under side.

On the accompanying drawing, Figure 1 represents a plan view of my invention. Fig. 2 represents a longitudinal section on the line A B. (Shown in Fig. 1.) Fig. 3 represents an

end view; and Fig. 4 represents a modification of the arrangement of the feed-wheel.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

A represents the cross-bar or frame of the machine, and *b b* represent the upright screw-bolts, secured in their upper ends to the cross-bar *a* in any suitable manner. *c c* represent the movable feet, attached to the lower ends of the screw-bolts *b b*. *d d* represent the hand-wheels, having screw-threaded hubs fitting around each of the screw-bolts *b b*. *e e* represent the double hooks, movable up and down on the screw-bolts *b b*. *f f* represent the chains hooked to the hooks *e e*, and passing around the pipe, &c., *g*, as shown. *h* represents the central screw-shaft, having socket *i* in its lower end, into which the drill, reamer, or tap *k* is inserted, in the usual manner. *l* represents the feed-wheel, and *m* represents the hoisting wheel or nut above the frame. *n* represents the hand-wheel by which the drill or tap is operated; and *o* represents the polygonal head on the top of the screw-spindle *h*.

In Fig. 4, *l'* represents the modification of the feed-wheel, located within the slotted opening *l''* in the frame or cross-bar of the machine, as shown, and for the purpose set forth.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. In combination, the frame or cross-bar *a*, screw-bolts *b b*, with their movable seat *c c*, hand-wheels *d d*, with their double-hooks *e e* and chains *f f*, central screw-shaft *h*, with its screw-threaded wheels *l m* or its equivalent, and the hand-wheel *n*, as and for the purpose set forth.

2. In a tapping-and-drilling machine, the herein-described clamping apparatus, consisting of the screw-bolts *b b*, movable feet *c c*, hand-wheels *d d*, hooks *e e*, and chains *f f*, as and for the purpose set forth and described.

In testimony that I claim the foregoing as my own invention I have affixed my signature in presence of two witnesses.

LEVI W. WELLS.

Witnesses:

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HENRY CHADBOURN.