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**Patented July 12, 1898.**

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**PLUMBER'S SCREW THREADING DIE.**

(Application filed Aug. 6, 1897.)

(No Model.)

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# UNITED STATES PATENT OFFICE.

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## PLUMBER'S SCREW-THREADING DIE.

SPECIFICATION forming part of Letters Patent No. 607,068, dated July 12, 1898.

Application filed August 6, 1897. Serial No. 647,349. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD C. MCKEE, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain  
5 new and useful Improvements in Plumbers' Screw-Threading Dies; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming  
10 a part of this specification, and to the letters of reference marked thereon.

This invention relates to improvements in tools which are particularly adapted for use by plumbers in screw-threading the ends of  
15 pipes where the ends of the pipe project in inaccessible places—as, for instance, in the bottom of a trench; and the invention has for its object to provide a simple and efficient device for enabling the desired end to be ac-  
20 complished.

The invention consists in certain novel details of construction and combinations and arrangements of parts, all as will be now de-  
25 scribed, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, Figure 1 is a longitudinal section through a tool embodying my present improvements, with portions shown in elevation. Fig. 2 is  
30 a view looking at the top of Fig. 1, with one of the die-jaws removed and portions broken away to prevent obscurity. Fig. 3 is a similar view looking at the opposite side of the tool, with the face-place removed to show the  
35 vise-jaws. Fig. 4 is a detail sectional view taken through the handle and clutch-wheel, showing the end of the clutching-pawl. Fig. 5 is a detail sectional view corresponding to Fig. 1 and showing the screw-threaded sec-  
40 tions of the two heads in engagement.

Like letters of reference in the several figures indicate the same parts.

In carrying this invention into effect I provide a working head A, having upon its face  
45 guideways *a*, upon which slide screw-cutting jaws *a'*, held in place by set-screws *a<sup>2</sup>* and adapted to be advanced by longitudinal set-screws *a<sup>3</sup>*, the arrangement being such that  
50 pipes of different diameter may be threaded or different jaws *a'* substituted for cutting threads on very small pipe or for cutting threads of different pitch. From the center

of the head A a rearwardly-extending boss or head A' projects, which boss is internally screw-threaded for a purpose to be presently  
55 explained, and externally it is provided with a notched or toothed enlargement A<sup>2</sup>, Fig. 4, surrounding which is an annular casing B, forming the end of the hollow operating-handle B'. This handle B' is adapted to move  
60 freely with its annular end B around the boss A' or to be clutched thereto and held against independent movement in either direction by a pawl C, sliding longitudinally in the handle B' and preferably adapted to be advanced  
65 by a coil-spring *c*, located within the handle at the rear end of the pawl C and to be retracted by a bell-crank handle C<sup>2</sup>, connected to said pawl by a link C<sup>3</sup>, passing through a slot *b* in the handle and through a suitable  
70 aperture in the pawl itself. The teeth or recesses A<sup>2</sup> are formed with straight sides, and the end of the pawl C is similarly formed, so as to lock the head A and handle B' rigidly  
75 against independent movement in either direction, and the handle, with its annular surrounding portion, is held against movement longitudinally of the hub A' on the one side by the head A and on the other side by the  
80 split ring D, adapted to be clamped to the end of the hub A' by means of a screw *d*, Fig. 1.

A vise-head E is provided with a central projection or tubular hub E', adapted to pass into the hub A' in alinement with the screw-threading jaws *a'*. The tubular hub E' is  
85 provided, preferably at a point near its end, with a section of internal screw-threads which project, preferably, somewhat beyond the internal face of the other portion of the hub and is adapted to coöperate with a similar thread-  
90 ed section on the internal tube or cylinder M, secured rigidly within the hub A', preferably by means of the before-mentioned internal screw-threads. The two screw-threaded sections (lettered, respectively, *m* and *e'*)  
95 are relatively short, and the arrangement is such that when they have passed each other the two heads are free to move toward and from each other, the alinement, however, being preserved, but they are independent so  
100 far as rotation is concerned.

The vise-head E is provided with internal bearing-surfaces *e*, between which vise-jaws F, oppositely arranged and both adapted to



slide toward each other, work. Said vise-jaws F are held in place by a face-plate G, having a central opening *g* and index-graduations *g'*, for a purpose to be presently explained. One of the vise-jaws F is adapted to be moved in and out by a screw-threaded handle H, preferably extending out parallel with the operating-handle B', and the other of said jaws is similarly moved by a short screw-threaded stem K, working through the vise-head E and having its extremity pointed at *k*, and further provided with a nut-head *k'*, to which a wrench or other device may be applied for setting the jaw up or moving it backwardly, as occasion requires. The latter jaw is provided with a pointer or indicator L, adapted to cooperate with the graduations *g'*, whereby the said jaw may be set to properly center pipe of various diameters before the tool is placed in position, and then the cooperating jaw may be brought down against the pipe to properly center and clamp it while the initial thread is being cut thereon.

In using the tool, the lower vise-jaw having been set to properly center the size of pipe to be operated upon, the tool is adjusted upon the end of the pipe so as to bring the extreme end in contact with the screw-threading jaws. The other jaw of the vise is then brought down to properly clamp the pipe, when by the manipulation of the handle B' and the clutch the screw-threading head A, with its threading-jaws *a'*, is turned in the proper direction to advance along the end of the pipe, being fed by the cooperating threaded sections *m* and *e'* on the respective heads. The vise will be held against turning, together with the pipe which it clamps, either by means of the handle H or by forcing the pointed end *k* into the earth or against some adjacent structure, as will be readily understood.

The two threaded sections *m* and *e'* serve to initiate the feed of the dies, and the threads on these two sections *m* and *e'* are preferably relatively fine. Hence with this tool threads of any pitch may be cut by changing the dies, inasmuch as the two screw-threaded sections as soon as they have initiated the movement of the die pass out of engagement with each other and the subsequent feeding is effected by the die itself.

By this arrangement not only can threads of any pitch be cut, but the necessity of re-

leasing the vise or the set-screws where an ordinary stop is employed is entirely overcome, and a further advantage with this particular tool lies in the fact that the vise is available at all times for preventing the rotation of the pipe end being operated upon.

The whole tool, it will be seen, is composed of few and simple parts readily made up from castings of a simple character and when assembled will be accurate and certain in operation.

Having thus described my invention, what I claim as new is—

1. In a plumber's screw-threading tool, the combination with the screw-threading head having the guides thereon and the central tubular hub, the adjustable threading-jaws mounted on said guides, the vise-head having the ways thereon and the central tubular threaded hub cooperating with the threaded hub on the threading-head, the oppositely-moving vise-jaws mounted in the ways in the guides on the vise-head, the oppositely-arranged screws for adjusting said vise-jaws and the index for indicating the proper adjustment of one of said jaws, of the handle having the annular enlargement surrounding the hub of the threading-head, the collar for holding the said annular enlargement in place, the toothed or recessed enlargement on said hub, the pawl working longitudinally in the handle and engaging said toothed or recessed enlargement and the controller for said pawl mounted on the handle and projecting through a slot therein; substantially as described.

2. In a plumber's screw-threading tool the combination with the screw-threading head carrying the dies and a vise-head having means for clamping the same to the pipe, of telescoping hubs or projections on the respective heads having relatively short cooperating screw-threaded sections whereby the initial feed may be given the threading-dies and relatively long unthreaded bearings or sections back of the threaded sections, permitting of a relatively longitudinal movement of the parts without following the pitch of the threaded sections; substantially as described.

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Witnesses:

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