(No Model.)

R. C. NUGENT.

SCREW TAP.

No. 330,999. Patented Nov. 24, 1885.

Fig. 1

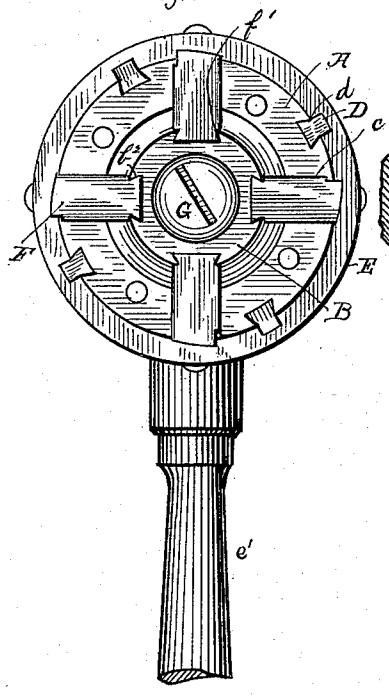


Fig. 2

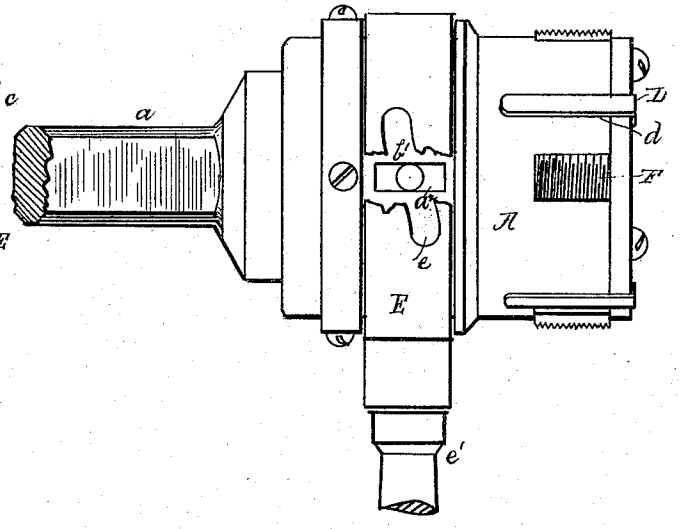


Fig. 3

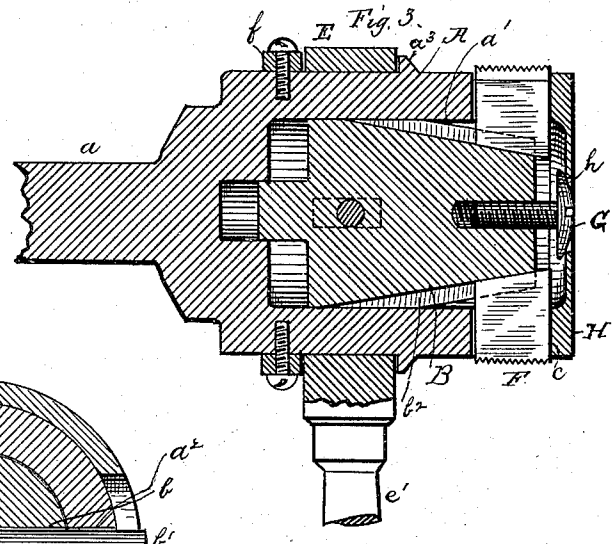
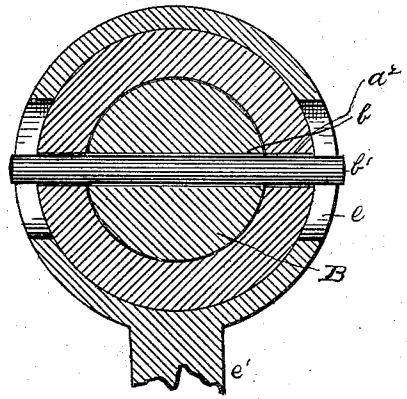


Fig. 4



Witnesses:
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UNITED STATES PATENT OFFICE.

RICHARD C. NUGENT, OF PITTSBURG, PENNSYLVANIA.

SCREW-TAP.

SPECIFICATION forming part of Letters Patent No. 330,999, dated November 24, 1885.

Application filed June 8, 1885. Serial No. 167,953. (No model.)

To all whom it may concern:

Be it known that I, RICHARD C. NUGENT, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Expanding Taps, of which the following is a full, clear, and exact description.

The object of the invention is to expand without tilting the thread-cutting dies; to regulate the amount of expansion of said dies; to provide means whereby the expansion shall be uniform at all points of the cutting-edges of said dies, and to simplify and render less expensive the construction of the tap.

The invention consists in the means hereinafter described for attaining said object.

In the drawings, Figure 1 represents a front elevation of the tap with the annular face-plate removed; Fig. 2, a side elevation with parts broken away; Fig. 3, a longitudinal median section of tap; Fig. 4, a transverse section of same, taken through the plunger-pin.

Similar letters of reference indicate corresponding parts throughout the different views.

A represents the body of the tap, provided with the ordinary spindle *a*, by which it is secured in the lathe or other suitable operating-machine. Said main body surrounds a cylindrical chamber, *a'*, within which reciprocates the plunger B.

c are radial slots, in which the thread-dies work; and *d* are longitudinal beveled grooves, in which are secured the reamers D.

The plunger B is provided with a transverse pin-hole, *b*, in its rear extremity, through which, and through longitudinal slots a^2 in the body A, passes a pin, *b'*. The extremities of said pin extend outwardly beyond the periphery of body A, and through oblique slots *e* formed in the ring E. Said ring rests against a shoulder, a^3, formed on the outside of body A, and is held in place by a retaining-collar, *f*, secured by screws to said body. A lever, *e'*, is attached to or made integral with the ring. By this construction it will be seen that when the lever *e'* is thrust from side to side the plunger B will be reciprocated. The forward extremity of the plunger B is reduced to the form of a frustum of a cone, and has a series of die-grooves, b^2, which have beveled sides for the purpose of holding the dies in place. The dies F have their inner extremities beveled to correspond with the slope of the conoid extremity of the plunger, by which construction all parts of the outer extremities of said dies are equally projected beyond the body A when the tap is expanded. Said inner extremities of the dies are provided with grooves *f'* to cause them to dovetail with the plunger. Upon the outer end of the plunger is a set-screw, G, whose head is of somewhat greater surface than the area of the orifice *h* of the annulus H. The latter is secured to the body A by screws or other suitable means.

The pipe, valve, or other article to be operated upon is first reamed out while the thread-dies are in retracted position. The lever *e'* is then operated, and the plunger B, through the medium of the obliquely-slotted ring E and pin *b'*, is thrust forward. The conical end of said plunger, acting upon the internal extremities of the thread-dies forces the latter outward. The extent of the expansion of the dies is dependent upon the screw G, which is forced against the annulus H whenever the plunger is reciprocated, and thus limits the outward movement of the latter. The thread is then cut, the plunger retracted, and the tap removed.

It will be seen that by my construction the thread-dies have at all times a solid bearing, that there is no tilting of the dies, and that all parts of the latter are expanded and retracted uniformly.

Having thus described my invention, what I claim is—

The combination, with the body A, having inner chamber, *a'*, dies F, and the reciprocating plunger B, of the headed end screw, G, and annulus H, the latter having an orifice, *h*, smaller than the head of said screw, whereby the screw may be adjusted to regulate the throw of plunger from the outside of body.

RICHARD C. NUGENT.

Witnesses:
HENRY C. LYON,
LENOX SIMPSON.