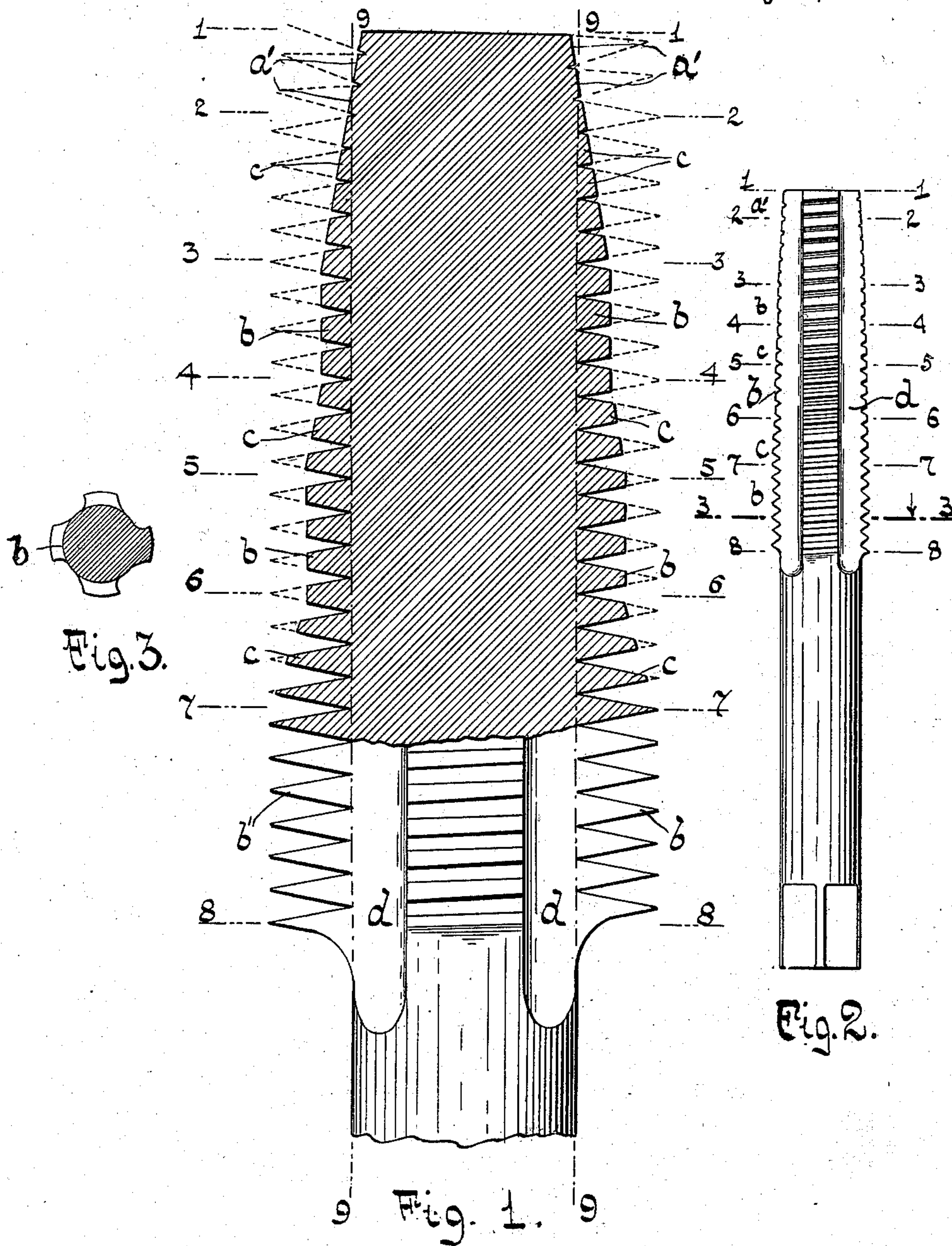


(No Model.)

C. ELTERICH.  
TAP.

No. 559,372.

Patented May 5, 1896.



WITNESSES:

*Roscoe W. Thoning*  
*Eugene A. Persides*

INVENTOR

*Charles Elterich*  
BY  
*Adrian duRoi*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

CHARLES ELTERICH, OF NEW YORK, N. Y.

## TAP.

SPECIFICATION forming part of Letters Patent No. 559,372, dated May 5, 1896.

Application filed June 28, 1895. Serial No. 554,288. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES ELTERICH, a citizen of the United States of America, residing at New York, in the county and State of New York, have invented certain new and useful Improvements in Taps, of which the following is a specification.

My invention has reference to improvements in taps for cutting internal or female screw-threads, and has for its object to provide a tap adapted singly for the purpose of cutting a perfect continuous thread of any desired length. To this end I construct the tap with a continuous thread consisting of alternate taper and straight portions, the straight portions increasing in diameter toward the shank, while the diameter of the bottom of the thread is substantially uniform from beginning to end.

Heretofore taps have been constructed with two or more threaded sections of different diameters, each section having a uniform diameter throughout its length; but in every instance the diameter of the bottom of the thread increases with the increased diameter of the apex of the thread.

The main feature of my invention consists, therefore, in having the diameter at the bottom of the thread uniform throughout the length of the tap.

The known taps, as above described, have also usually been formed with clearing-spaces between the several sections, which spaces I omit, and so increase the strength of the tap and avoid clogging.

The nature of my invention will best be understood when described in connection with the accompanying drawings, in which—

Figure 1 is a diagrammatic exaggerated view illustrating the principle on which the tap is constructed. Fig. 2 is an elevation of the tap as constructed in practice. Fig. 3 is a section on the line 3 3, Fig. 2.

Similar letters and figures of reference designate corresponding parts throughout the several views of the drawings.

Referring at present to Fig. 1, I shall proceed to describe the manner of construction of the tap, which is as follows: A suitably-turned steel rod is first cut with a parallel thread extending from one end to the other. At the extreme end of the tap the thread is tapered for a short distance, as at *a'*, between lines 1 and 2, the bottom of which taper-

thread extends within the line 9, defining the bottom of the thread *a*. The thread is then reduced and cut taper between the lines 1 2 and 2 3, for the purpose of facilitating the entering of the tap and the cutting. The section 3 4 is then reduced cylindrical or straight, the section 4 5 is reduced to an abrupt taper, section 5 6 is reduced parallel and of greater diameter than section 3 4, and so on, until finally the finishing-thread section 7 8 is reached, which latter is left in its original condition. The bottom of the thread is therefore uniform throughout with the exception of the extreme end of the tap, where it is reduced for the purpose above mentioned. The finished tap therefore consists of a reduced end or point, a series of reduced alternating straight and tapered portions *b c*, and a finishing portion *b'*. It is, as usual, provided with flutes *d*.

I have found that by having the thread continuous and of uniform diameter at its bottom, with the exception as to its point, as above stated, to facilitate entering, a single tap will answer for the cutting of a perfect thread of any desired length without appreciable wear on the tap. By forming the thread continuous great strength and resisting power, a matter very essential in taps, is obtained. In practice I make the taper portion *c* between the cylindrical or straight portions *b* quite abrupt.

One of the important features of the present construction for taps is that the thread is finished smooth and solid, without break or tear, in view of the fact that the successive taper and straight portion will equalize and smooth the thread, even if the tap should tear on entering.

What I claim as new is—

A tap constructed with a thread composed of alternating straight and taper sections of constant diameter at its bottom; the top of the thread being reduced at the entering end of the tap and gradually increasing in diameter toward the finishing end, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two witnesses.

CHAS. ELTERICH.

Witnesses:

EUGENIE A. PERSIDES,  
A. FABER DU FAUR, Jr.