J. SCHAUB.

SCREW-CUTTING TAPS AND DIES.

No. 194,469. Patented Aug. 21, 1877.

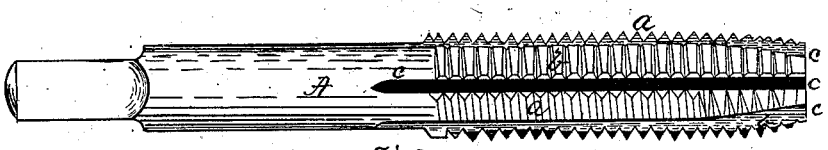

Fig. 1.

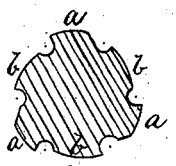

Fig. 2.

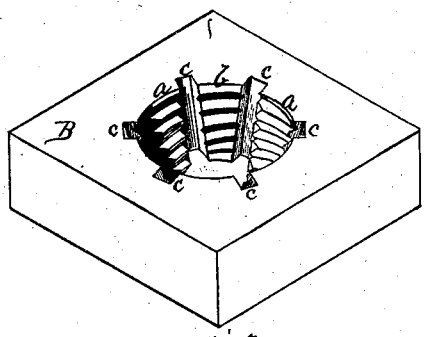

Fig. 3.

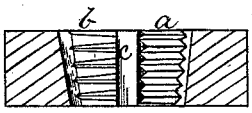

Fig. 4.

Witnesses.
J. K. Smith
L. C. Fuller.

Inventor.
John Schaub
by Bakewell & Kerr
Attys.

UNITED STATES PATENT OFFICE.

JOHN SCHAUB, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO HIMSELF, JAMES C. REYMER, AND JOHN H. RHINE.

IMPROVEMENT IN SCREW-CUTTING TAPS AND DIES.

Specification forming part of Letters Patent No. **194,469**, dated August 21, 1877; application filed May 14, 1877.

To all whom it may concern:

Be it known that I, JOHN SCHAUB, of Allegheny city, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Taps and Dies; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is an elevation of a tap embodying my improvements. Fig. 2 is a transverse section of the same. Fig. 3 is a perspective view of a die embodying the invention, and Fig. 4 is a sectional view of the same.

Like letters refer to like parts wherever they occur.

My invention relates to the construction of taps and dies for cutting threads on various articles; and consists in combining with the usual cutting-bearings of a tap or die a series of mutilated or leading bearings, which form a preparatory thread upon or in the article, whereby the friction incident to the action of the cutting-bearings is greatly reduced, a single tap or die can be used where two or more are now required, and the work can be performed in less time and with less power than is required with taps or dies in common use.

Heretofore the common method of screw-cutting has been by means of two or more taps or dies—as, for instance, with taps, the first would be the "taper tap," from a sixteenth to a thirty-second scant, and this would be followed by the use of what is termed a "bottoming-tap," or, if desired, an intermediate tap might be employed termed the "plug-tap," the necessity for the use of so many taps being the great amount of friction, and inability to obtain a full thread in hard and brittle metals.

To overcome these difficulties a tap has been heretofore devised in which the alternate cutting-threads of a bearing have been reduced or filed down; but the labor and cost of producing such taps, the impossibility of applying such construction to the dies, and the limited benefits derived, have prevented its general adoption.

The object, therefore, of the present invention is to obtain a tap and die which reduce the friction and loss of time incident to the use of the tap or die usually employed, and which can be cheaply and readily constructed.

I will now proceed to described my invention so that others skilled in the art to which it appertains may apply the same.

In the drawing, A indicates a tap, and B a die, each having a series of cutting-bearings, *a*, three or more in number, of the usual or any improved form.

Interposed between the usual cutting-bearings *a* are a corresponding number of mutilated bearings, *b*, or what I term "leading-bearings," whose office is to form a preliminary thread in advance of the cutting-bearing *a*, so that the latter simply bottoms out or completes the thread, and is relieved of the friction which would occur if it were required to cut over its entire cutting-surface.

In making a tap or die of the form above specified the thread is formed on the tap or in the die in the ordinary way, the space is then divided by the relief-grooves *c* into twice the number of bearings required for cutting-bearings, and the intermediate bearings *b* are then filed away one-half, as shown in both tap and die.

The lower end of a tap and entrance of the die may be tapered and beveled in the usual manner, for the purpose of entering and centering the tool.

I am aware that a tap, having detachable and adjustable bits, wherein certain bits of the series are arranged to lead the cutting-bearings, has been constructed, and do not claim such subject-matter; but by my improvement leading-bearings can be applied to taps and dies of any size down to the smallest, a strong and effective article obtained, and at a materially reduced cost.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

As a new article of manufacture, a tap or die formed in a single piece, and having a series of mutilated leading-bearings interposed or arranged between the cutting-bearings, substantially as and for the purpose specified.

In testimony whereof I, the said JOHN SCHAUB, have hereunto set my hand.

JOHN SCHAUB.

Witnesses:
A. C. JOHNSTON,
L. C. FITLER.