

(No Model.)

F. N. GARDNER.  
SCREW CUTTING DIE.

No. 420,904.

Patented Feb. 4, 1890

Fig. 1.

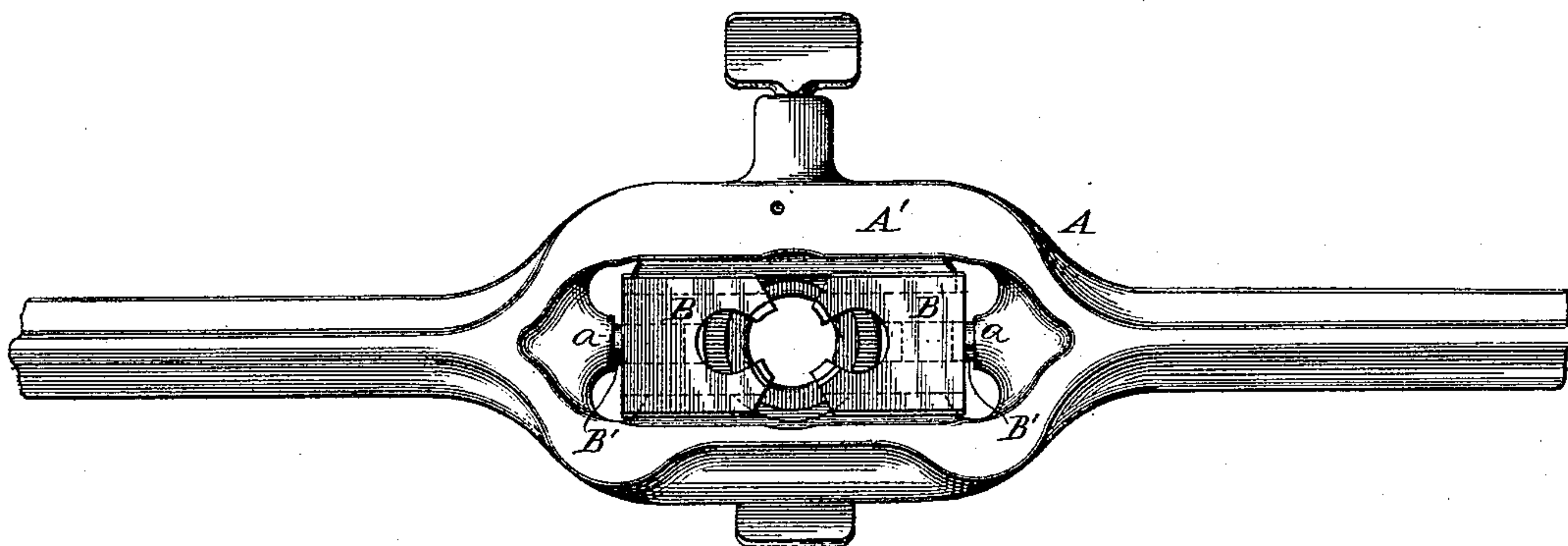


Fig. 2.

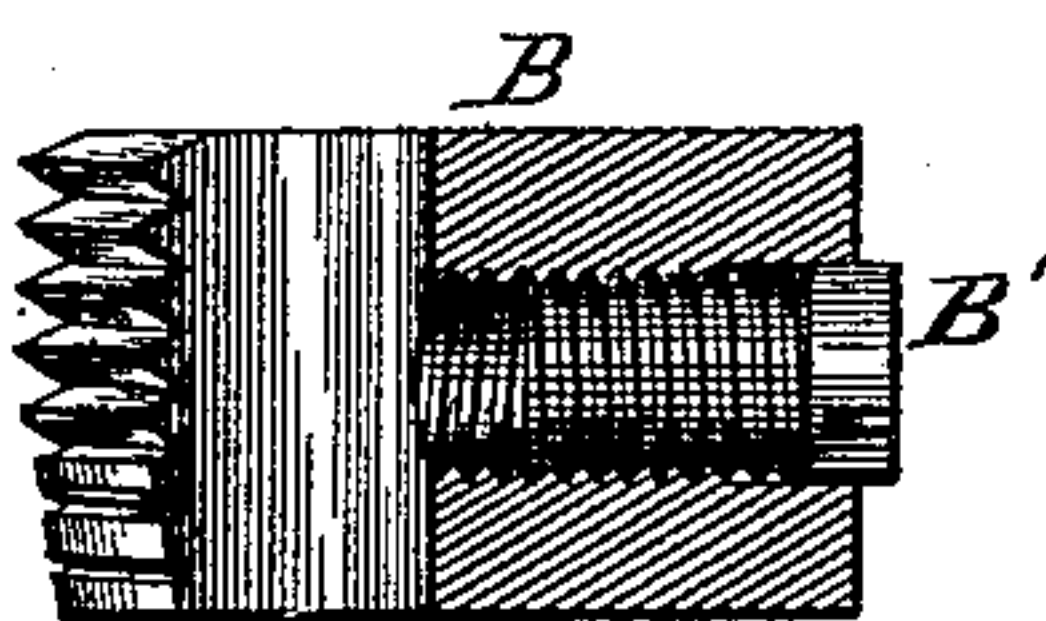
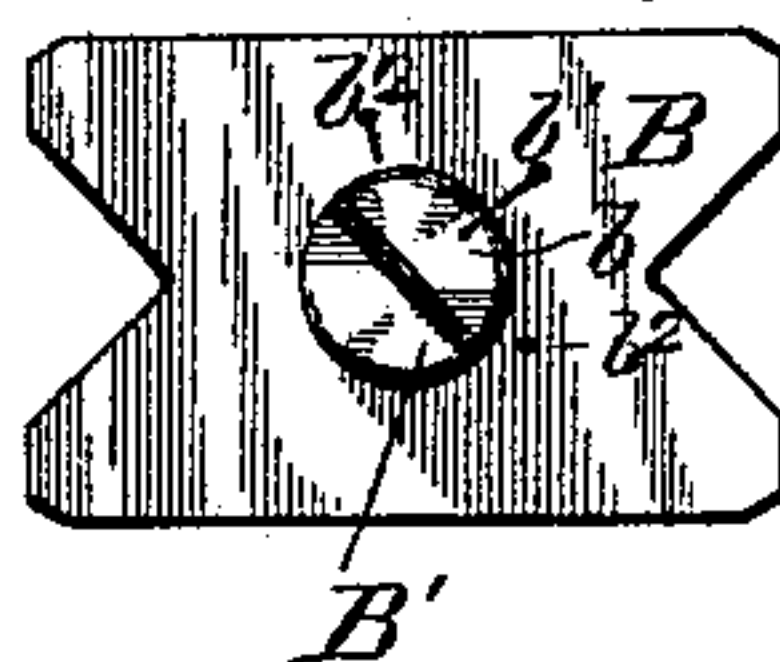


Fig. 3.



Witnesses:-

Louis H. F. Whitehead.

Wm. J. Hemming.

Inventor's

Frederick N. Gardner:-

by:-

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# UNITED STATES PATENT OFFICE.

FREDERICK N. GARDNER, OF BELOIT, WISCONSIN.

## SCREW-CUTTING DIE.

SPECIFICATION forming part of Letters Patent No. 420,904, dated February 4, 1890.

Application filed October 22, 1888. Serial No. 288,826. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK N. GARDNER, of Beloit, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Screw-Cutting Dies; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to adjustable screw-cutting apparatus comprising a die-stock and removable or interchangeable dies.

The invention has for its object to provide what I have termed a "micrometer adjustment" of the dies, by which the latter may be speedily and accurately adjusted while out of the stock, to give a predetermined diameter of a screw to be cut.

In Letters Patent of the United States No. 250,801, granted to me December 13, 1881, I have described a die-stock provided with stops or abutments for the two-part dies in the ends of the die box or yoke, together with adjusting-screws in the dies, which bear against the abutments, by which the dies may be adjusted to give a screw-bolt of the desired diameter.

The object of the invention set forth in said Letters Patent was to provide a construction by which a series of adjustable dies could be fitted to one die-stock, and any of the two-part dies, after being exactly adjusted, could be removed and replaced without deranging the adjustment, the die-stock being meanwhile used for other dies. In that case the same dies were not intended to be used for cutting more than a single size of screw, since adjustment was a matter requiring so much care and time that, once adjusted, they were to be left undisturbed and other dies employed for even slight variations. It was also a difficulty with such former construction that a change or movement of the adjusting-screw, mischievously or otherwise made when the die was out of the stock, could not be detected, and there was not that certainty of obtaining the proper diameter of the screw which has been found desirable. Besides, if it were necessary or desired to cut a bolt of slightly less or greater diameter than those

for which the dies had last previously been used and other dies for such purposes were not at hand it was necessary to make the usual trials and to readjust the dies by means of their adjusting-screws both for the new size and to restore them to their former size, all of which required their removal and reinsertion at each trial, and involved considerable trouble and loss of time, besides not giving at last that accuracy of result necessary in the use of these tools. To remedy these defects, I have provided the dies with what may be termed a "micrometer-scale," consisting of a mark or marks adjacent to the adjusting-screw by which, in conjunction with a marked screw, the dies may be set before being placed in the stock to give any one of several possible diameters of screw.

Describing the invention by reference to the accompanying drawings, Figure 1 is a top view of a die-stock having a central yoke the ends of which form abutments against which may bear the adjusting-screws in the dies, also there shown. Fig. 2 is a longitudinal section of one of the dies detached, showing an adjusting-screw therein. Fig. 3 is an end view of one of the dies containing the adjusting-screw and also provided with marks on the die and a mark on the screw by which the micrometer adjustment contemplated may be effected in the manner described.

The die-stock, as here shown, contains additional improvements in the nature of a movable side support or V-shaped rib for holding the dies, which rib is movable side-wise in the stock or to and from the opposite similar die-support, whereby the dies may be conveniently removed and inserted. This feature of construction forms no part of the present invention, but is described and claimed in another application for patent filed by me of even date herewith and serially numbered 288,825.

A is a die-stock, of which A' is the yoke or die-box and A<sup>2</sup> A<sup>2</sup> are the handles. The end stops of the yoke or die-box, against which the dies abut to prevent their spreading in operation, are shown at *a a*, being in the present case in the form of central projections at the ends of the yoke A', so that they are adapted to be squared off conveniently to a standard distance apart.



B B are the dies, and B' B' are the adjusting-screws set in the outer ends of the dies. These screws are preferably flat-faced, so as to bear broadly and squarely against the abutments *a a* of the stock and to thereby hold the dies firmly and without yielding. The screw B' is provided with some sort of mark *b* upon its end, at or near its periphery, which mark is, desirably, not the usual slit for the screw-driver by which the adjusting-screw is turned, but may be such slit without departure from the invention. After the dies B B are finished they are supplied with the adjusting-screws B' B' and placed in the stock for the purpose of adjustment, and the screws are retracted from or advanced into the dies until the latter give the standard or required diameter of thread on a bolt cut by said dies. The dies are then removed and a mark, as *b'*, is carefully made in the end of each die opposite the mark in the screw. The dies are then adjusted to cut a thread of a certain smaller or greater diameter, (within limits consistent with perfection of thread,) and one or more marks, as *b''*, are made in the end of the die to indicate these limits. The dies thus marked may be used for either of the sizes of screw-thread which it is adapted to cut and immediately reset or adjusted to another size without experiment for that purpose and simply by turning the screw to bring

the mark thereon in line with the appropriate mark on the die. By these means the nicest possible adjustment and readjustment of the dies are conveniently and quickly made, while the utmost certainty of results as to size of screw produced by the dies is assured in every case.

The dies will be furnished by the manufacturer with the micrometer-scale applied thereto and duly marked (as formerly) with their standard size, so that the user can make any adjustment desired and can restore the die to its standard without delay or uncertainty.

I claim as my invention—

A screw-cutting die for use in a stock having fixed end stops, said die being provided with a screw-threaded hole in its outer end, with a marked-headed adjusting-screw fitted to said hole and with a mark or marks on its end face outside the screw-head, whereby a desired adjustment may be assured to the die before placing it in its stock.

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

FREDERICK N. GARDNER.

Witnesses:

EDWARD LARSON,  
GEORGE DORMER.