

T. Shrewsbury

Expanding Die

N^o 5,154.

Patented Sept. 21, 1869.

Fig. 1.

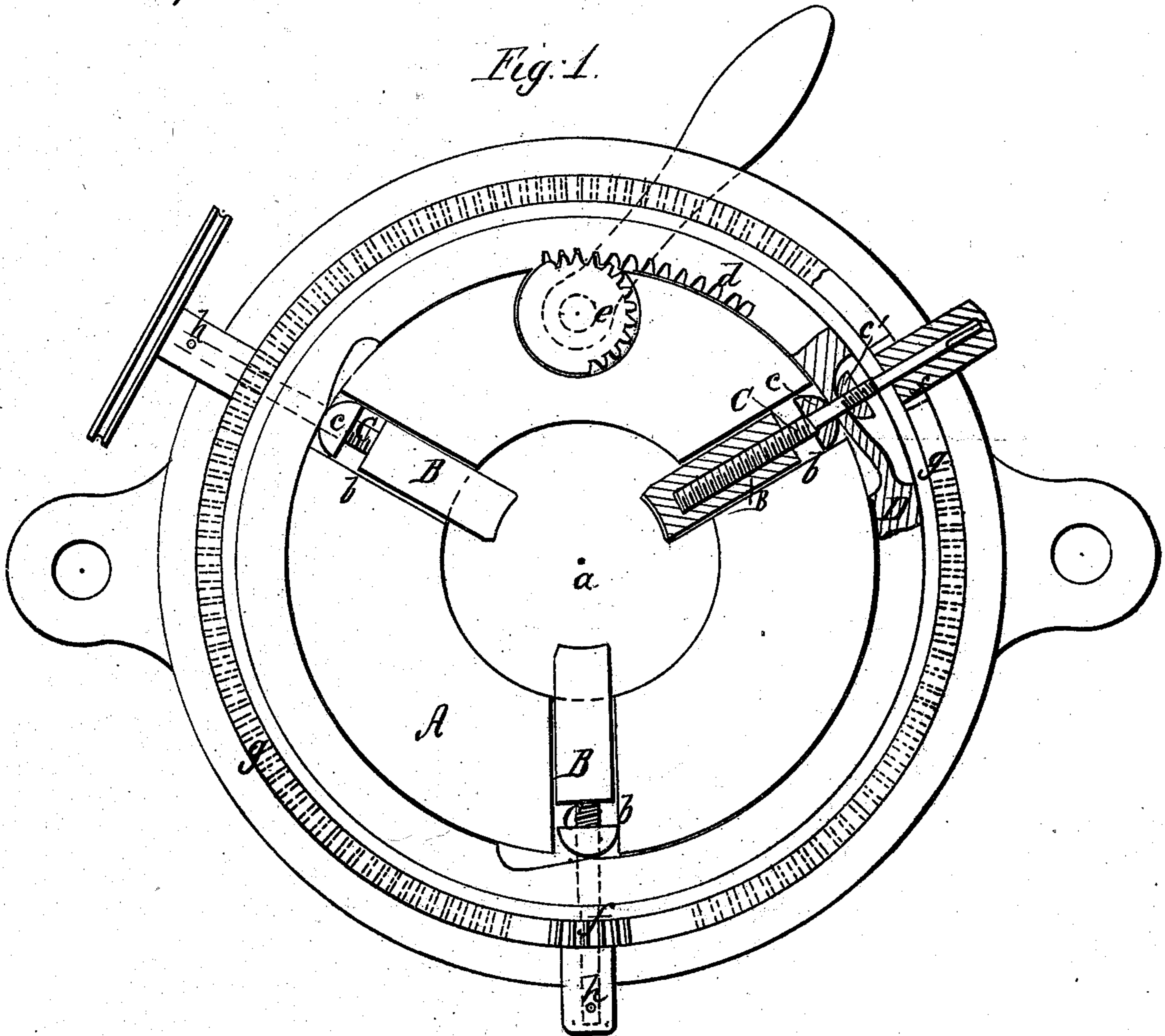
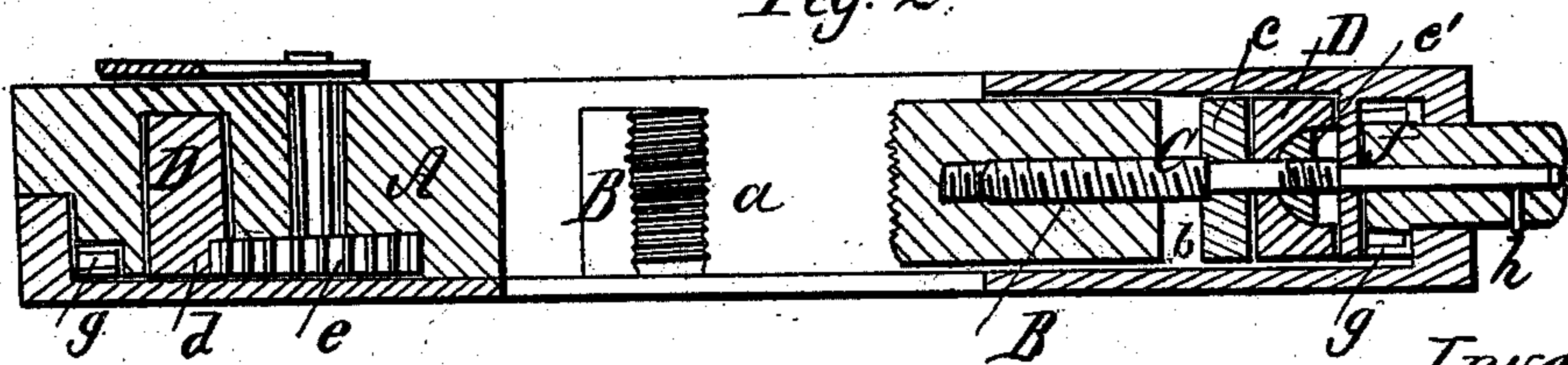


Fig. 2.



Witnesses;
E. F. Kastner
& Wahlers.

Inventor;
Tom Shrewsbury
per
Van Saterwood & Haupp
attys

United States Patent Office.

TOM SHREWSBURY, OF NEW YORK, N. Y.

Letters Patent No. 95,154, dated September 21, 1869.

IMPROVED SCREW-CUTTING DIE-PLATE.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, TOM SHREWSBURY, of the city, county, and State of New York, have invented a new and improved Expanding Die; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a sectional face view of my invention.

Figure 2 is a transverse section of the same.

Similar letters indicate corresponding parts.

This invention consists in the arrangement of an annular cam, fitting between two shoulders or projections on each die, in such a manner, that by turning said annular cam, the dies are carried in or out simultaneously, thereby enabling the operator to expand the dies, and release the work instantaneously, and at the same time said dies are held firmly in position by the annular cam, being prevented from moving in either direction by their shoulders or projections, while the screw to which the dies are attached, (for a purpose hereinafter described,) moves freely through the pinion, and along its fastening-screw, by means of a longitudinal slot.

With said annular cam and dies I have combined adjusting-screws, which are provided with two heads or projections, bearing from opposite sides against the cam, and furnished with pinions, which gear in an annular rack, in such a manner, that by turning one of the pinions, the several dies are moved in or out simultaneously, and retained in a concentric position, without being thrown out of gear with or detached from the annular cam.

In the drawing—

The letter A designates a chuck, which is provided with a central aperture, *a*.

From this aperture radiates a series of grooves, *b*, which form the guides for the dies B.

In the outer end of each of these dies is tapped a screw, C, the shank of which is provided with two heads or projections, *c c'*, which straddle an annular cam, D, so that one of said projections bears on the inner, and the other on the outer edge of the cam, as shown in the drawing.

The annular cam D is situated in a cavity in the body of the chuck, and it is provided, at its inner edge, with a series of cogs, *d*, which gear into a pinion, *e*, so that by turning said pinion, the annular cam is caused to slide in its groove, and, by the action of said cam on the projections *c c'*, the dies are expanded or contracted simultaneously.

The pinion *e* is mounted on a spindle, which passes transversely through the body of the chuck, and is provided with a square or flattened end, to receive a

wrench or key, by means of which the required motion is imparted to the pinion and annular cam.

The projections *c c'* hug the annular cam closely, so that the dies are firmly retained in position, in whatever position said cam may be brought, and the cam is so shaped, that by turning the pinion *e* in one direction, the dies will be contracted, to cut a thread of the required size, and by turning said pinion in the opposite direction, the dies will be expanded, so as to release the work, and enable the operator to put in a fresh blank without loss of time, or without the necessity of turning the chuck backward.

If the chuck is to be used for cutting threads on blanks or pipes of a uniform size, the projections *c c'*, instead of being attached to screws C, will be attached to the dies themselves, and the screws can be dispensed with.

The screws C serve to adjust the dies for different sizes of blanks or pipes, and, to effect this purpose, they are provided with pinions *f*, which gear into an annular rack, *g*, situated in a suitable groove in the body of the chuck.

Said pinions are fastened to the shanks of the screws C by set-screws *h*, the inner ends of which catch in grooves in the shanks, so that they do not prevent the screws from moving in and out in a radial direction, while they compel said screws to revolve with the pinions.

The pinions *f* have central openings, in which the shanks of the screws C have their play. These openings allow the radiation of the screws, while their rotation is caused by the pinions, through the medium of set-screws *h*, as previously described.

The screws are thus guided in their radiations, in a convenient and economical manner.

By turning one of the pinions, therefore, all the dies are moved in or out simultaneously and concentrically, while, at the same time, said dies remain in gear with the annular cam, so that they can be expanded and contracted instantaneously and independent of the size to which the dies may have been adjusted.

What I claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the pinion *e*, annular cam D, shoulders *c c'*, and reciprocating screw C, in the manner and for the purpose specified.

2. The combination, in the same screw-cutting die-plate, of the device above described, for opening and closing the threaders, and the swivelled screw C, pinions *f*, rack *g*, and set-screw *h*, for adjusting the throw of the cutters to bolts of different size, all constructed and arranged together, in the manner described.

Witnesses:

TOM SHREWSBURY.

W. HAUFF,

E. F. KASTENHUBER.