2 Sheets—Sheet 1.

B. STOTT.

Screw-Cutting Machine.

No. 225,305. Patented Mar. 9, 1880.

Fig. 1.

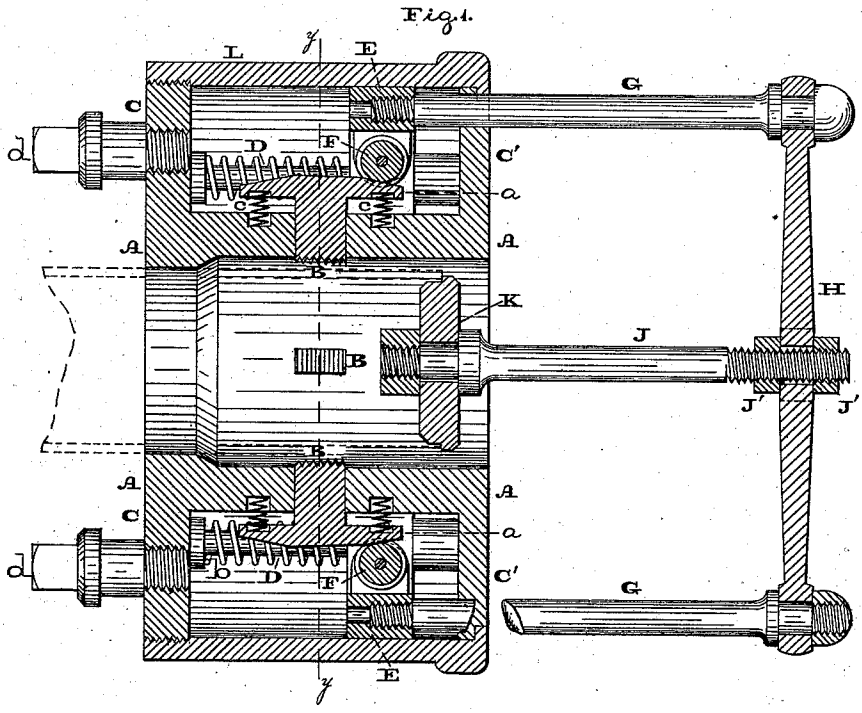
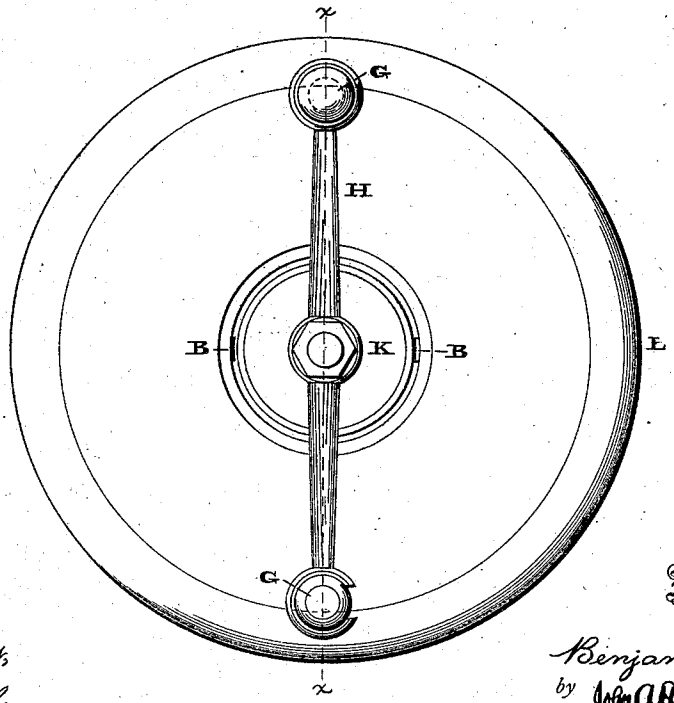


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

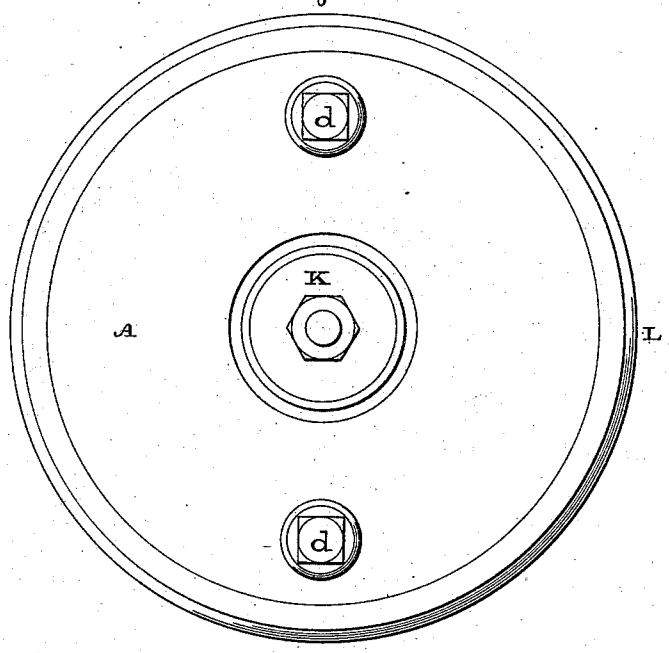
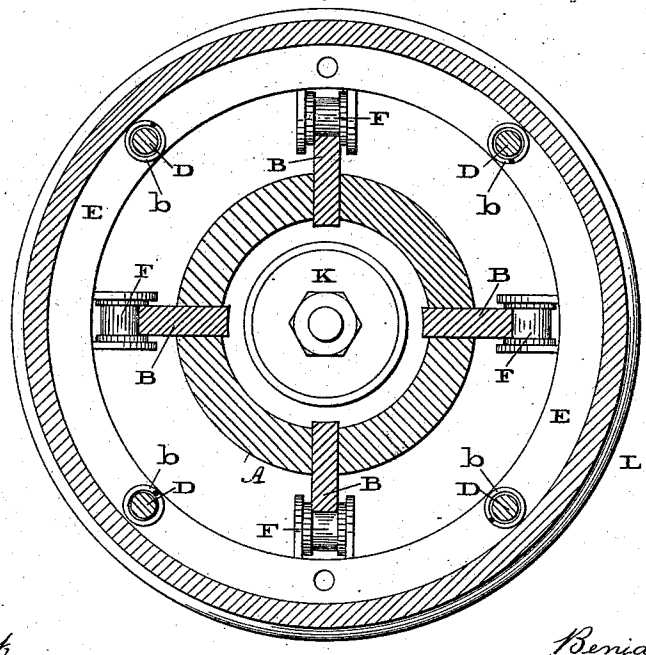


Fig. 4.



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UNITED STATES PATENT OFFICE.

BENJAMIN STOTT, OF SOUTH CHESTER, PENNSYLVANIA, ASSIGNOR TO CHESTER TUBE AND IRON COMPANY, OF SAME PLACE.

SCREW-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 225,305, dated March 9, 1880.

Application filed June 6, 1879.

To all whom it may concern:

Be it known that I, BENJAMIN STOTT, of South Chester, in the county of Delaware and State of Pennsylvania, have invented a new and useful Improvement in Screw-Cutting Machines, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of the device embodying my invention. Fig. 2 is an end view thereof. Fig. 3 is a rear view of the end opposite to that shown in Fig. 2. Fig. 4 is a vertical transverse section through the line *y y* of Fig. 1.

Similar letters of reference indicate corresponding parts in the different figures.

My invention consists of novel means for cutting threads of varying depths on the exterior of cylindrical shapes.

Referring to the drawings, A represents a stock or cylinder having openings in its wall, in which are fitted screw-cutters B, which protrude through said stock and have heads *a a*, the outer faces or backs of which have the shape of a double incline with an intermediate space, which is at right angles to the shank of the cutter, as shown in Fig. 1.

A flange or disk, C, is cast with or secured to one end of the stock A, and to the same are secured guide-rods D, which extend longitudinally, and are connected to a flange or disk, C′, cast with or secured to the other end of the stock A.

On the rods D is loosely fitted an annulus, E, which circumscribes the heads *a* of the cutters B and carries rollers F, which are in contact with and ride over said heads. On said rods are also fitted springs *b*, which, bearing against the annulus and disk C, are adapted to restore the annulus to its normal position.

Interposed between the heads *a* of the cutters B and the stock A are springs *c*, whose tendency is to force said cutters outward or to their normal positions.

To the annulus E are attached rods G, which, passing loosely through the disk C, are connected to a cross-head, H, to the center of which is secured one end of an adjustable rod, J, whose opposite end carries a rotatable disk or head, K, which occupies a position within the stock A, as clearly shown in Fig. 1, the diameter of the head being less than that of the adjacent or inner end of the hollow stock A, while the opposite or outer end of the latter is somewhat contracted and corresponds with the diameter of the article to be threaded.

Head K is shown as specially adapted to a tube; but a slight change of configuration and attachment will adapt it to be used with a rod.

The operation of the device is as follows: One end of the tubular or cylindrical shape is introduced into the stock A, the normal position of the cutters permitting the same, and said shape is rested against the shoulder of the head K, and also supported and guided by the outer end of the stock. The cross-head H is held stationary, and the stock forced in toward the cross-head by the movement of the carriage, to which it is secured by means of the bolts *d* and the tube rotated to the left. Owing to the movement of the stock the backs of the heads *a a* are brought in contact with the rollers F, and the cutters are forced through the walls of the stock and against the surface of the tubular or cylindrical shape at a distance from the end thereof equal to the length of the portion of said shape to be threaded.

The action of rollers F on the backs of the heads *a a* is such as to force them gradually inward until the middle uninclined part of the head is reached; then for a time to retain the heads in the same position; then to allow the springs *c* to withdraw the heads and cutters as the rollers pass over the second incline of each head. The result of the action of said devices is that the screw-thread gradually increases in depth at first, then retains an equal depth for some distance, and finally decreases in depth until the end of the screw-thread is reached.

The shape of the screw-thread may be varied by changing the shape of the backs of heads *a a*.

It will be noticed that as the stock is forced in the cutters are carried longitudinally toward the head K. Consequently, when the thread is cut, the cutters have entirely left or cleared the extreme end of the shape, whereby the latter is released from the cutters and is then removed from the stock simply by withdrawing it therefrom without separating, expanding,

or disturbing any part of the apparatus or rotating the tube in reverse order. The parts are now permitted or caused to assume their normal positions, and another shape may be introduced and threaded by repeating the operations stated.

It will be seen that while during the threading operation the tube is rotated to the left the thread produced is properly right-handed.

The length of the thread to be cut is determined by means of nuts J′, fitted to the rod J on opposite sides of the cross-head H, whereby the head K may be brought nearer to or farther from the cutters, and the cutters travel a less or greater extent in contact with the shape.

The cutters B and heads are preferably made of T form, whereby I may employ two springs, *c*, for each head, and cause the cutters to move with uniformity in the wall of the hollow stock.

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

1. The hollow sliding stock A, provided with inwardly-projecting cutters B, and the head K, connected to a stationary support, combined and operating substantially as and for the purpose set forth.

2. The sliding stock provided with cutters having heads *a*, and the stationary annulus E, carrying rollers or bearings F, combined and operating substantially as and for the purpose set forth.

3. The stock A, rod J, and rotatable head K, in combination with the annulus E, rollers F, guide-rods D, springs *b c*, and cutters B, substantially as and for the purpose set forth.

4. The hollow stock A, annulus E, and cutters B, in combination with the head K, rollers F, guide-rods D, springs *b c*, rods G, cross-head H, adjusting-nuts J′, and the adjustable support or rod J, substantially as and for the purpose set forth.

BENJAMIN STOTT.

Witnesses:
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