

C. BURLEIGH & J. PUTNAM.

SCREW-CUTTING MACHINE.

No. 175,026.

Patented March 21, 1876.

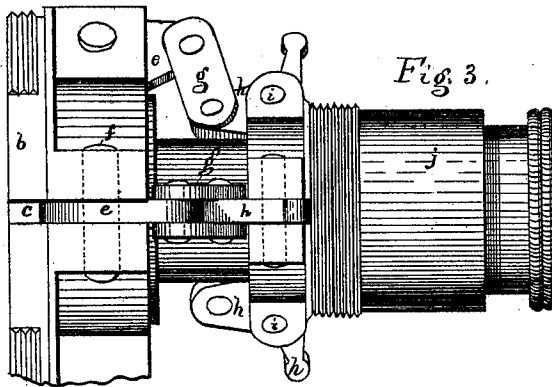


Fig. 3.

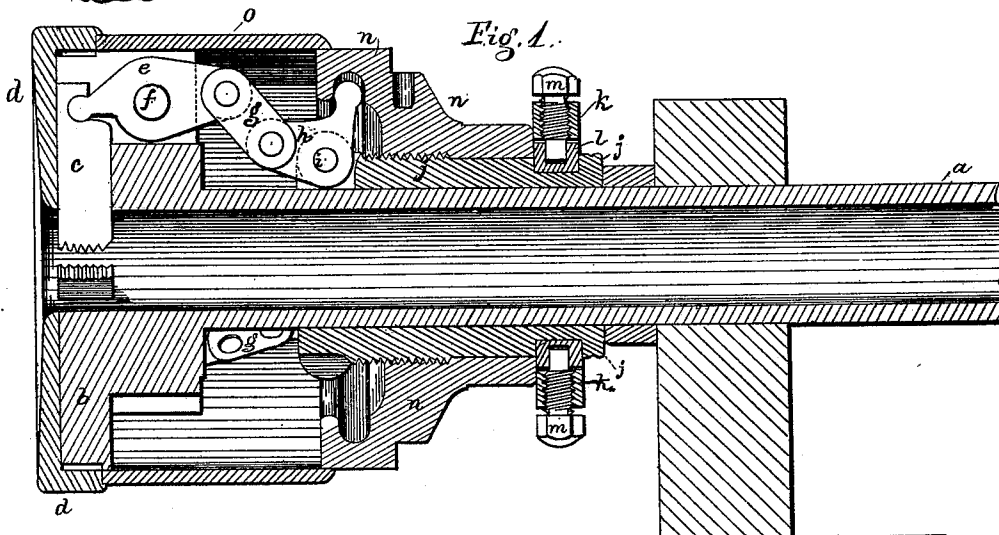


Fig. 4.

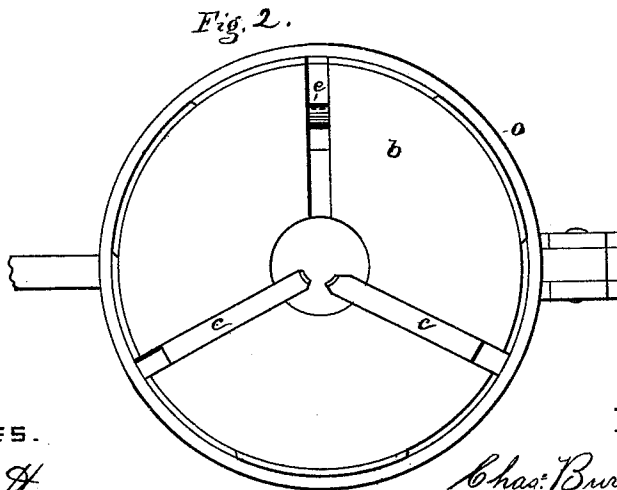


Fig. 2.

Witnesses.

Wm. Pratt.
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Inventors.

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UNITED STATES PATENT OFFICE

CHARLES BURLEIGH AND JOHN PUTNAM, OF FITCHBURG, MASSACHUSETTS,
ASSIGNORS TO THE PUTNAM MACHINE COMPANY, OF SAME PLACE.

IMPROVEMENT IN SCREW-CUTTING MACHINES.

Specification forming part of Letters Patent No. **175,026**, dated March 21, 1876; application filed March 3, 1876.

To all whom it may concern:

Be it known that we, CHARLES BURLEIGH and JOHN PUTNAM, both of Fitchburg, in the county of Worcester and State of Massachusetts, have invented an Improvement in Screw-Threading Machines, of which the following is a specification:

This invention relates to details of construction, which will be best understood from description of the drawing which illustrates an embodiment of our invention—

Figure 1 being a central longitudinal section of the rotating tubular die holder and carrier, showing the details of construction, combination, and adjustment which are the peculiarities of our invention; Fig. 2 being an end view of the die-carrying holder or chuck with its face-cap removed. Fig. 3 shows, in plan, some of the important parts.

a is the hollow mandrel to which power is applied, it being mounted in suitable bearings. The die-holder or chuck *b* is either made integral with the mandrel or is fixed thereunto. It is slotted radially to receive the steel die-pieces *c*, said slots making guideways for the dies to be moved in, the front edges of the dies being flush with the front face of the holder *b*. The circumference of *b* is screw-threaded to fit nut-threads formed in the removable die-covering piece *d*, and both on *b* and in *d* sections of the threads are removed, so that by a sliding movement the inner face of *d* can be brought against the front faces of *b* and *c*, it being held in place by a slight rotary motion, which causes the screw-threads to interlock, removal of the cover *d* being effected by reversal of said motions. This makes an effective union of the parts *b* *d*, and by it little time is consumed in removal and replacement of *d* when changing dies or removing them for examination.

The mechanism for bringing the dies to their cutting position, and for withdrawing them from their work, is as follows: Each die-piece is interchangeable for others, and is shaped, as shown, at its upper end to hook upon the end of the short arm of lever *e*, pivoted to *b* at *f*, the long arm of lever *e* being connected by links *g* to a bent lever, *h*, pivoted at *i* to a sleeve, *j*, to which a sliding move-

ment can be imparted on the mandrel *a* by means of a lever, *k*, worked by the attendant. This surrounds the sleeve *j*, in the further outer end of which a groove is turned, into which fits a loose ring, *l*, in halves, the pivot-screws *m* in lever *k* entering sockets in the ring *l*. If the links *g* were connected directly to the sleeve *j* instead of to the lever *h*, which is connected to said sleeve, it will be evident that, by the connections described, movement of sleeve *j* toward the holder *b* would cause the cutting-ends of the dies *c* to approach a common center—viz., the axis of rotation of mandrel *a*, and also that movement of sleeve *j* in the reverse direction would cause retraction of said dies from said center; but to adjust the dies so that their greatest movement inward shall adapt them to any given diameter (within the capacity of the machine) of a rod or bolt to be screw-threaded, one end of the bent lever *h* engages in a groove turned in the piece *n*, which piece has nut-threads which fit screw-threads made on the periphery of the sleeve *j*, so that it will be evident that if piece *n* is rotated so as to move toward the holder *b* the dies will be retracted from the axis of rotation, while if movement of *n* is in the contrary direction the dies will be adjusted toward the center of rotation.

Thus it will be obvious that by rotation of *n* the dies are adjusted with relation to the finished size of screws to be cut, and that by reciprocation of *j* the dies are brought to the position where they do their work, or are suddenly disengaged from the screw-threads which they have formed.

Any convenient number of dies may be used and connected as shown; but in practice three dies are found to operate best. When the dies are in position to operate upon a bolt, the lines passing through the pivots of the links *g* are nearly, if not quite, at right angles with the axis of rotation, so that no amount of outward pressure exerted on the cutting-ends of the dies will cause sliding movement of the sleeve *j*.

In Fig. 1 the position of parts shown is that in which the adjustment of the dies is for the smallest size of screws to which the machine is adapted, while the position of the dies is

that of extreme withdrawal from the bolt, as required, when the screw-cut on the bolt is completed and it is liberated from the action of the dies.

o is a sleeve which protects the parts of the operative mechanism.

We claim—

1. In a screw-cutting machine, the dies *c*, the die-carrying holder *b*, made tubular and grooved to receive and rotate the dies, and provided with interrupted sections of screw-threads, in combination with the removable open-centered covering-piece *d*, provided with interrupted sections of screw-threads, as and for the purpose described.

2. The mechanism for adjusting the dies to work of various diameters, consisting of the threaded slide *j*, threaded and grooved piece *n*, levers *h*, links *g*, and levers *e*, combined and arranged to operate substantially as described.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CHARLES BURLEIGH.
JOHN PUTNAM.

Witnesses:

LOUIS D. BARTLETT,
P. C. BURR.