

(No Model.)

2 Sheets—Sheet 1.

A. DENSMORE.
METHOD OF AND MEANS FOR PRODUCING SCREW THREADED BOLTS
OR SCREWS.

No. 463,445.

Patented Nov. 17, 1891.

Fig. 1.

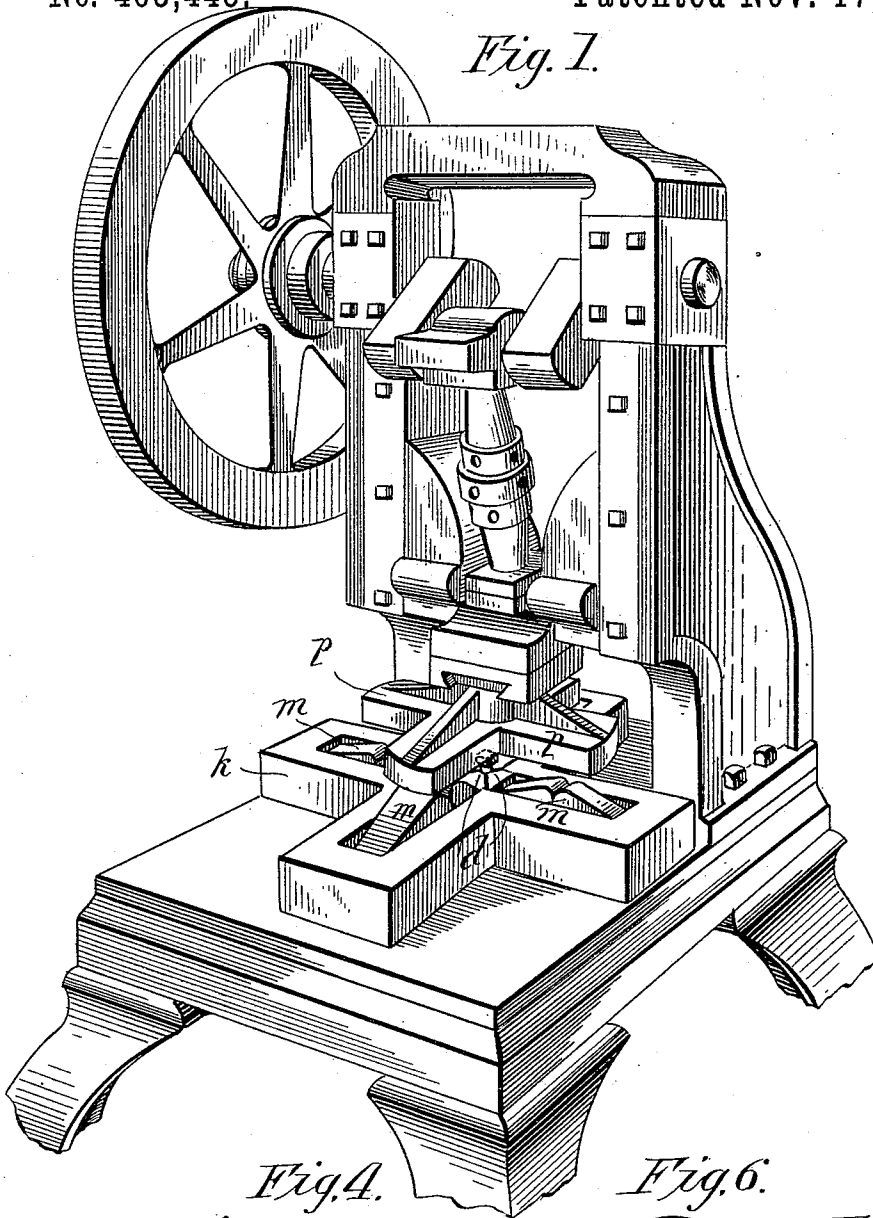
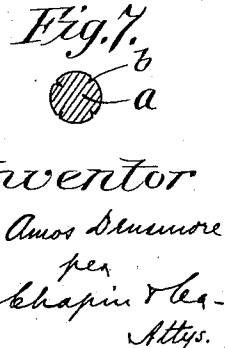
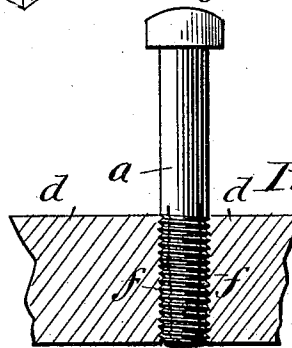
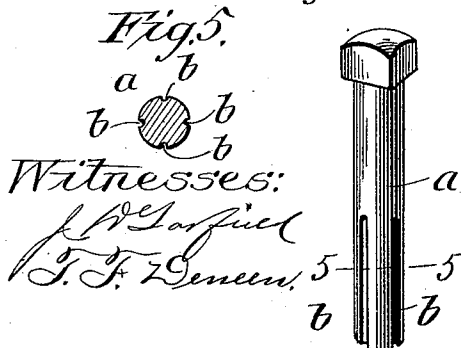


Fig. 4.

Fig. 6.

Fig. 5.

Fig. 7.



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Fig. 2.

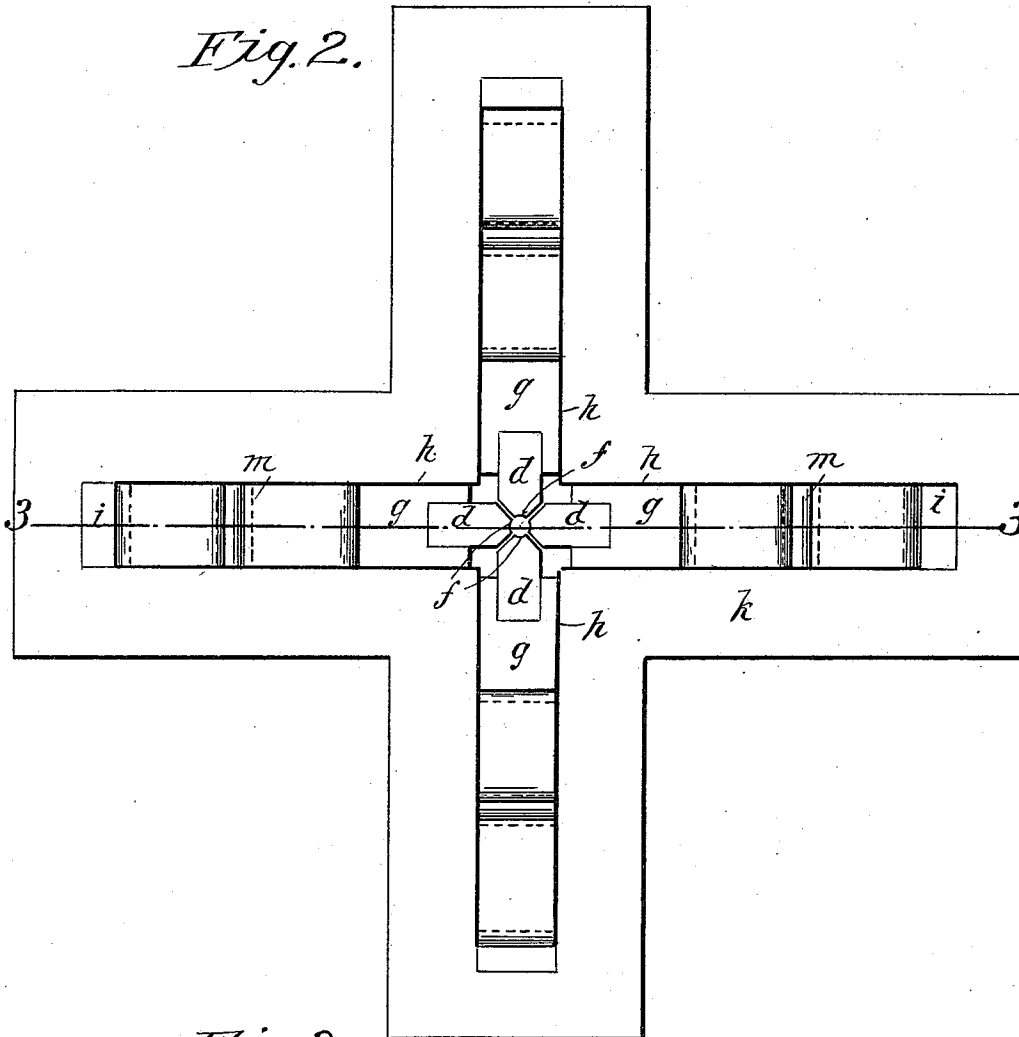
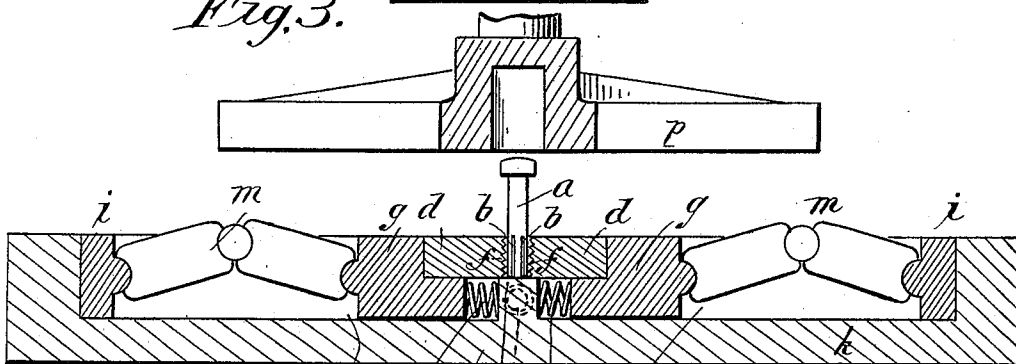


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

AMOS DENSMORE, OF NEW YORK, N. Y.

METHOD OF AND MEANS FOR PRODUCING SCREW-THREADED BOLTS OR SCREWS.

SPECIFICATION forming part of Letters Patent No. 463,445, dated November 17, 1891.

Application filed June 3, 1891. Serial No. 395,006. (No model.)

To all whom it may concern:

Be it known that I, AMOS DENSMORE, a citizen of the United States, residing in the city, county, and State of New York, have invented new and useful Improvements in Methods of and Means for Producing Screw-Threaded Articles, of which the following is a specification.

This invention relates to improvements in the method or process of producing screws, threaded bolts, and analogous articles.

The invention also consists in improved mechanism by means of which the process may be carried out.

The improved method and the means for carrying out the same will be hereinafter fully described, and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the machine. Fig. 2 is a plan view of the die mechanism, Fig. 3 being a section taken on line 3 3, Fig. 2. Fig. 4 is a perspective view of the screw or bolt blank as formed preparatory to being subjected to the action of the thread-forming dies, Fig. 5 being a cross-section on line 5 5, Fig. 4. Fig. 6 represents the bolt as undergoing the thread-forming action of and by the dies, certain of which latter are shown in section. Fig. 7 is a cross-section through the threaded portion of the bolt.

The improvement in the method of producing a threaded bolt in accordance with this invention consists in forming in the shank *a* of the blank for the bolt or screw longitudinal grooves *b b* at suitable intervals and then die-pressing a thread into and around the shank, portions of the displaced material being forced into the said longitudinal grooves and accommodated by the latter.

In order to carry out the process which has been hereinabove substantially set forth, mechanism more or less like that which is here illustrated and now to be described may be provided, and *d d* represent a series of segmental dies each provided with die-depressions in their inner and approached ends *f*, which depressions of the several dies conduce to the formation of a practically continuous screw-thread. Each of the segmental dies *d* is mounted upon a die-carrier *g*, respectively

provided therefor, the said several dies and carriers being movable radially toward and from a common axis which is coincident with the axis of the screw or bolt blank to be worked upon. As shown, the die-carriers move in the slideways *h* of the casting, block, or bed-piece *k*, which latter comprises or has formed thereon the rest or anvil *l* (see Fig. 3) for the end of the blank *a*.

As one of many means for imparting the movements of the dies *d* toward each other for their thread-forming action upon the blank, there is here shown a series of toggles *m*, applied between the backs or outer edges of the die-carriers *g* and the abutment-pieces *i*. The toggles are broken down or straightened by the reciprocatory plunger-block *p*, to which movement is imparted as usual in die-presses or otherwise, as may be deemed expedient. The die-carriers and dies are retracted by means of the springs *q*, suitably applied, the application here shown being between the faces of the anvil or rest-block *l* and inner portions of the die-carriers.

The blanks having been grooved longitudinally, as hereinbefore stated and illustrated, and in any manner well known for performing this part of the operation, they are then one by one, while the plunger-block *p* is raised and the dies are separated, placed within the opening between the working ends of the dies to rest upon the fixed part *l*, when, on the inward forcible movements of the dies, a thread is struck into the portion of the blanks subjected to the action thereof, and in order that this may be readily done the grooves *b* are formed of sufficient width so that the sections of the screw-threads which are separated by the grooves will not be forced one upon the other to form a burr, and yet the grooves which are perceptible in the threaded shank are practically immaterial in the use of the bolt or screw, they not forming any material breaks in the continuity of the screw-threads.

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

1. The improvement in the method or process of producing a threaded bolt or screw, the same consisting in first grooving the shank longitudinally at intervals around the same and then die-pressing a thread into the

shank, portions of the material displaced by the dies being thereby forced into said grooves, substantially as set forth.

2. Mechanism for forming a screw-thread
5 around a longitudinally-grooved shank of a screw or bolt blank, the same consisting of a series of segmental dies movable radially toward and from a common axis and each having thread-forming depressions upon its inner end,
10 and means for imparting reciprocating movements to the several die-sections, substantially as set forth.

3. Mechanism for forming a screw-thread

around a longitudinally-grooved shank of a screw or bolt blank, the same consisting of a 15 rest, as *l*, for the end of the blank and a series of segmental dies movable radially toward and from a common axis and each having thread-forming depressions upon its inner end, and means for imparting reciprocating 20 movements to the several die-sections, substantially as set forth.

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Witnesses:

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