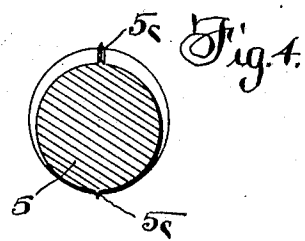
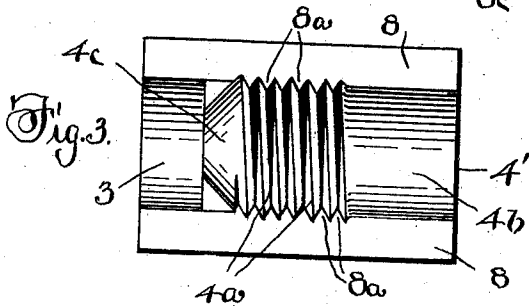
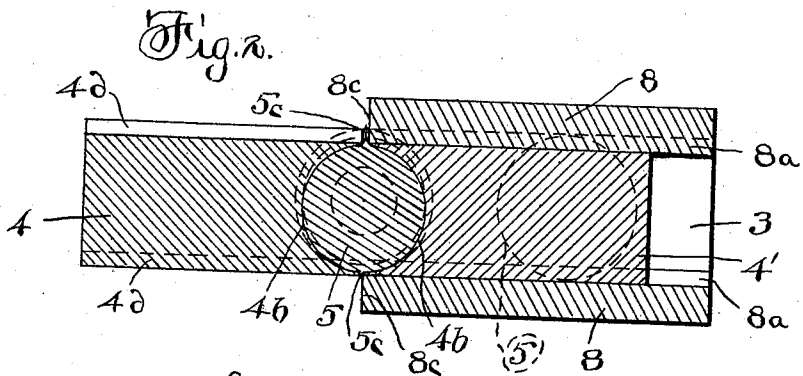
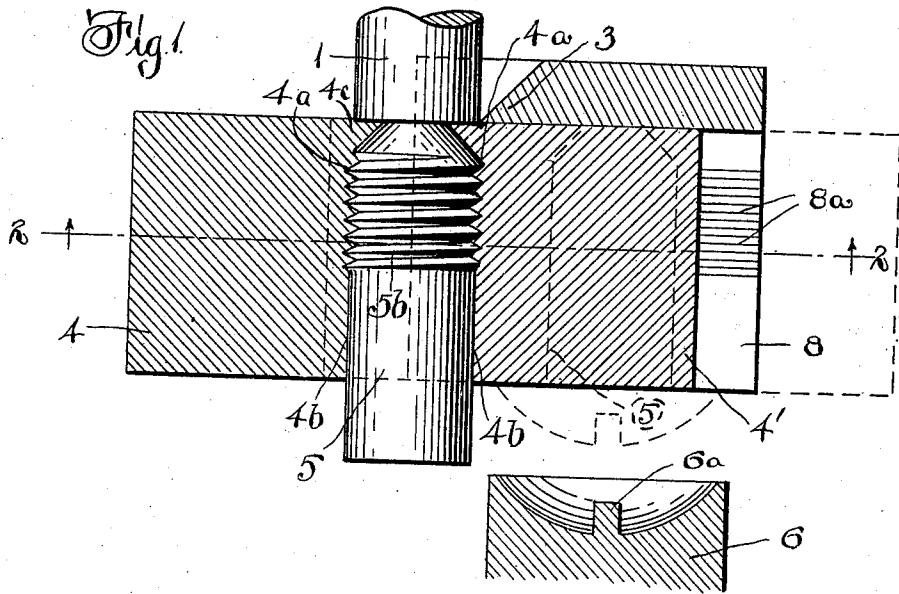


F. F. DEEDS.
 MECHANISM FOR MAKING BOLTS.
 APPLICATION FILED DEC. 17, 1909.

986,697.

Patented Mar. 14, 1911.



Witnesses:
 Monroe E. Milley
 Edward M. Wise.

Fred. Deeds, Inventor
 By Bomhardt & Co.
 Attorneys.

UNITED STATES PATENT OFFICE.

FRED F. DEEDS, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-THIRD TO FRANK McHALE AND ONE-THIRD TO ANTON B. SPURNEY, OF CLEVELAND, OHIO.

MECHANISM FOR MAKING BOLTS.

986,697.

Specification of Letters Patent. Patented Mar. 14, 1911.

Application filed December 17, 1909. Serial No. 533,534.

To all whom it may concern:

Be it known that I, FRED F. DEEDS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Mechanism for Making Bolts, of which the following is a specification.

This invention is a means for making bolts, screws and similar screw threaded articles, and has for its object to provide improved devices involving the use of shaping and cutting off dies, dies for swaging the threads on the stock, and dies for finishing the threads by a cutting action.

The manner of operating the devices will be apparent from the following description in connection with the accompanying drawings illustrating the improved means used for producing the articles.

In the accompanying drawings—Figure 1 is a horizontal section of the dies for forming a bolt. Fig. 2 is a section on the line 2—2 of Fig. 1. Fig. 3 is a face view of one of the dies. Fig. 4 is a cross section of a partly completed bolt formed by the dies.

The dies shown as the selected means for producing the articles may be applied to or adapted for use in various bolt or screw making machines, and in the operation the stock or blank rod 1 is fed lengthwise between two swaging dies 4 and 4' having opposite semi-circular depressions 4^b for forming and gripping the rod, threads 4^a for producing the threads on the bolt, and shaping projections 4^c for shaping the end of the bolt and assisting in cutting off the same. When the swaging dies thus described are pressed together on the rod it is clamped and shaped at the part 5 and the threads are swaged thereon, the projections 4^c cutting into the stock to form the tapered point. The diameter between the threaded parts of the dies is a trifle larger than the bolt diameter, to allow for the expansion incident to the impression of the threads.

The swaging action thus described will produce fins or feathers 5^c (see especially Fig. 4) extending along the bolt and across the threads thereof, on opposite sides, incident to the expansion produced by the pressure of the dies, and which cannot well be avoided. These fins are removed by sliding both of the swaging dies, with the stock therebetween, in a lateral direction between

a pair of fixed cutter plates 8 which have straight or parallel threads 8^a located in line with the threads of the swaging dies, which have complementary grooves or threads in the sides thereof as indicated at 4^a in which the threads 8^a travel when the dies are moved laterally, and when the parts are so moved the edges of the cutter 8 shear or cut the fins from the stock, and at the same time the transverse cutter 3, fixed across the space between the cutters 8, cuts off the bolt from the remainder of the stock, the bolt passing to the position shown in dotted lines in Fig. 1. The head of the bolt must then be formed, and this is done by a reciprocating die 6, having a concave face. This die is forced lengthwise against the projecting end of the bolt blank and a head is swaged thereon, as also shown in dotted lines in Fig. 1. The head forming die may have a rib 6^a for producing a kerf in the head of the bolt, if desired. Obviously the head may be shaped otherwise. The head die 6 is then backed off and the swaging dies 4 and 4' slid back to original position and then separated to allow the completed bolt to drop out and to receive the end of the rod for the next bolt. The shear action of the parts 8 may form slight flattened portions on the sides of the bolt, but this imperfection will be immaterial to ordinary use of the bolt. For producing a square-ended bolt the projecting portions 4^c of the swaging dies may be omitted.

I am aware that bolt blanks have been made between swaging dies, and the blanks subsequently worked by cutting or rolling to produce the threads thereon, thus requiring two operations. The present invention enables bolts to be produced by a continuous operation, and in one mechanism, and the dies have the further advantage that they may be operated by existing automatic machines with possibly slight variation of the die mechanism, the particular means for operating the dies being immaterial. The stock to be worked is preferably annealed, and the bolts afterward tempered.

What I claim as new is:—

1. In a mechanism for making bolts, screws, or the like, the combination of a pair of thread-swaging dies, and cutters at opposite sides of the dies, to remove fins produced by the swaging operation.

2. In a mechanism for making bolts,

screws, or the like, the combination of opposed clamping and thread-swaging dies, and cutter plates at opposite sides of the dies, the contacting sides of the dies and
 5 cutter plates having complementary straight threads, and the dies being movable laterally between said plates, while the bolt blank is clamped therebetween, to trim off the fins produced by the swaging operation.

10 3. In a mechanism for making bolts, screws, or the like, the combination of opposed thread-swaging dies, between which the stock is clamped, and means to trim the sides of and cut off the bolt blank, while it
 15 is so clamped.

4. In a mechanism for making bolts,

screws, or the like, the combination of opposed clamping and thread swaging dies, cutters at opposite sides of said dies for trimming the blank, said dies being movable
 20 laterally between said cutters while the blank is clamped therebetween, a cutting off cutter at one end of the dies, and a header cooperating with the other end of the dies,
 25 to form the head, while the blank is so clamped.

In testimony whereof, I affix my signature in the presence of two witnesses.

FRED F. DEEDS.

Witnesses:

STEDMAN J. ROCKWELL,
 MONROE E. MILLER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."