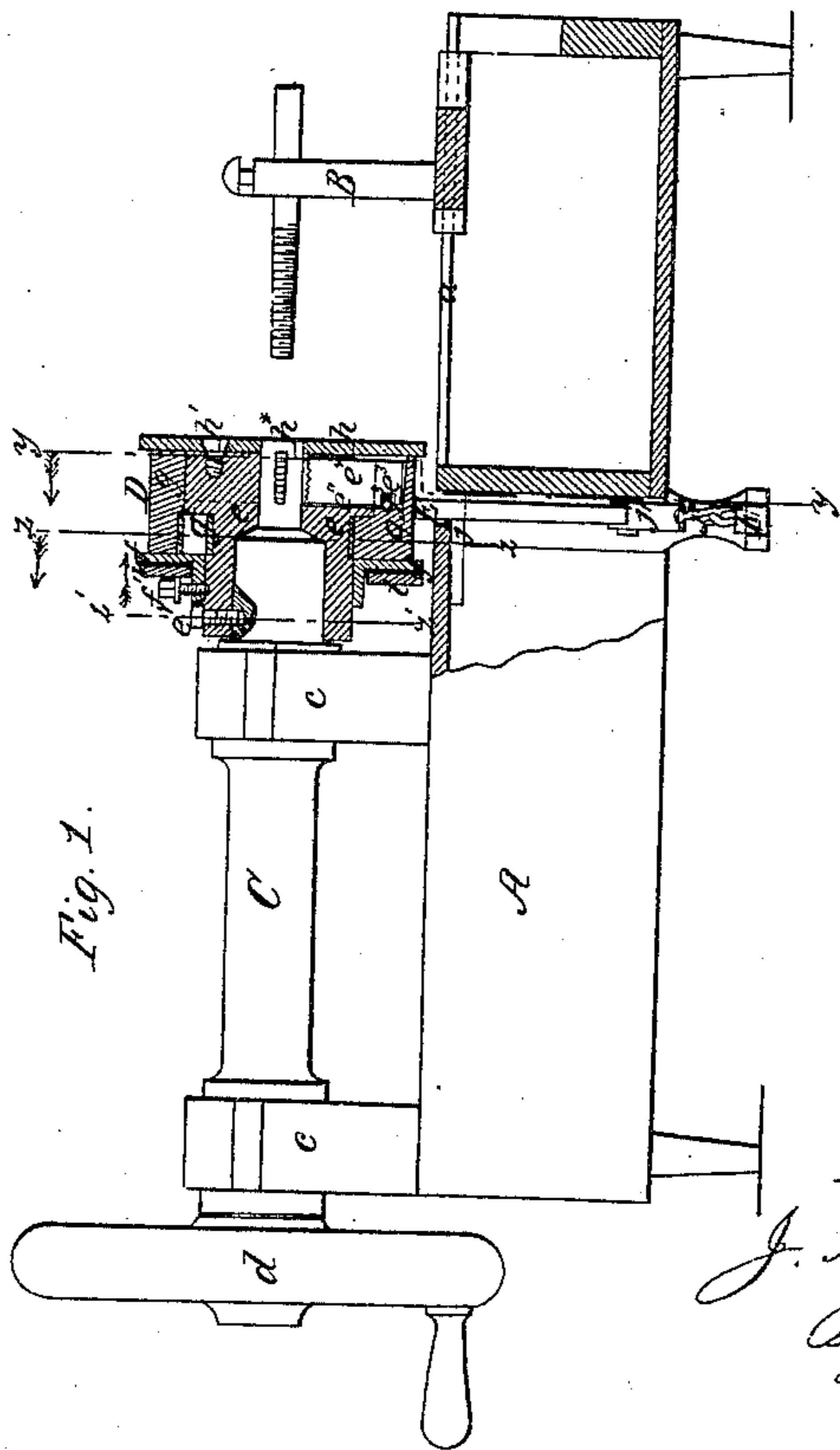
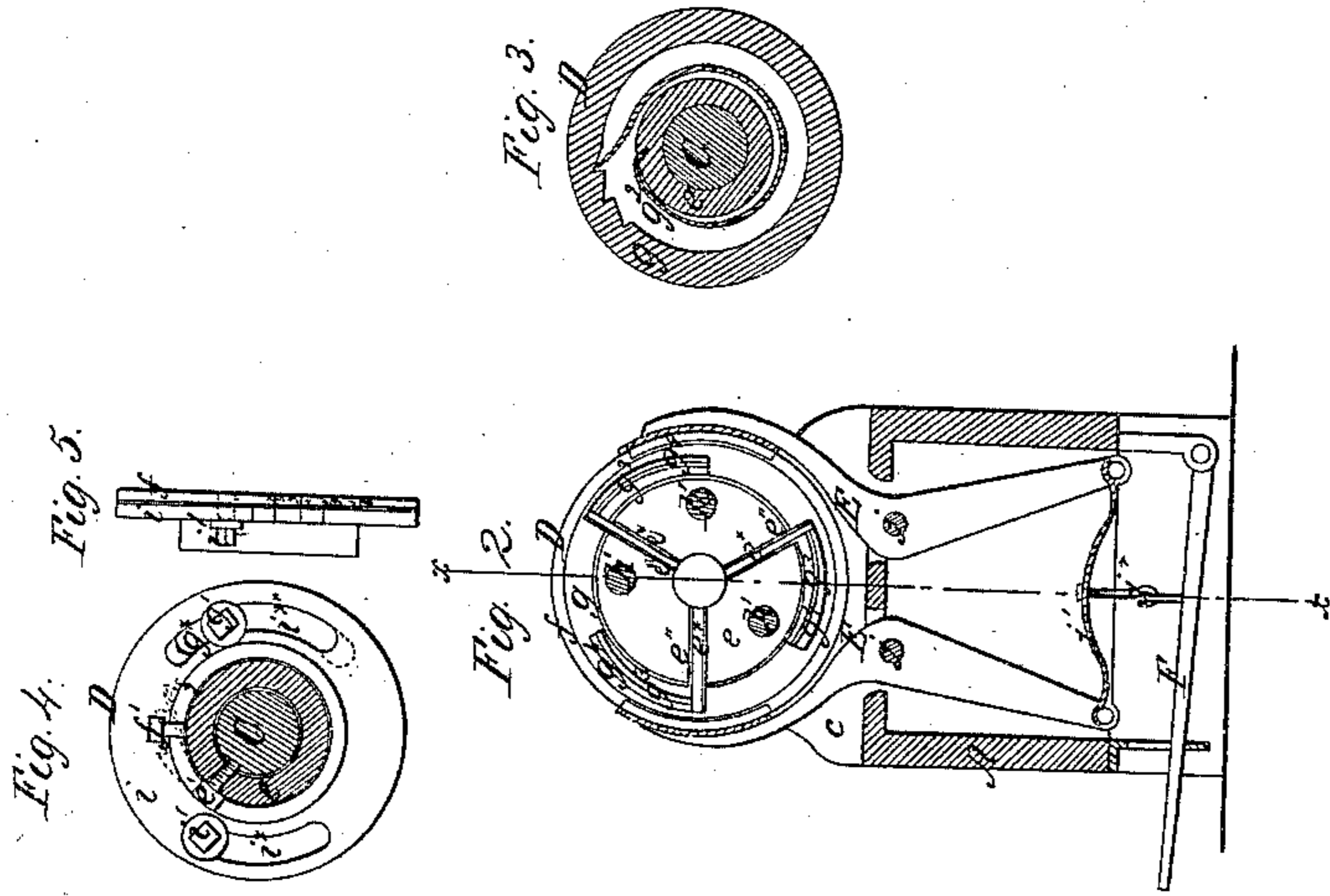


J. A. Merriman.

Cutting Screws.

N^o 44,773.

Patented Oct. 18, 1864.



Witnesses;
W. L. Topleff
Henry Morris

Inventor;
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Attys

UNITED STATES PATENT OFFICE.

J. A. MERRIMAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND E. E. BOUNS, OF SAME PLACE.

IMPROVED MACHINE FOR CUTTING BOLTS.

Specification forming part of Letters Patent No. 44,773, dated October 18, 1864.

To all whom it may concern:

Be it known that I, J. A. MERRIMAN, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Machine for Cutting Bolts; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable any person skilled in the art to make and use the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention, taken in the plane indicated by the line *x x*, Fig. 2. Fig. 2 is a transverse vertical section of the same, the plane of section being indicated by the line *yy*, Fig. 1, and looking in the direction of the arrow marked near that line. Fig. 3 is a similar section taken in the plane indicated by the line *z z*, Fig. 1, and looking in the direction of the arrow marked near to that line. Fig. 4 is a similar section, the line *z' z'*, Fig. 1, indicating the plane of section and looking in the direction of the arrow marked near that line. Fig. 5 is a detached side elevation of the index-plate to adjust the size of opening in the dies.

Similar letters of reference indicate like parts.

This invention consists in a ring having eccentric recesses or ways provided with ribs to connect with the dies, said ribs and ways being made to expand in the direction in which the machine revolves, in combination with a spring stationary flange, index-plate, and brake or friction-clutch in such a manner that by applying the brake to the circumference of the ring the dies are instantly expanded or opened, which allows of the bolt being withdrawn without stopping or reversing the machine. By changing the position of the index-plate in relation to the stationary flange, the size of the opening in the dies can be adjusted to compensate for wear in the dies, or to cut bolts of different sizes.

A represents a frame, made of cast-iron or other suitable material, and provided with two guide ways, *a*, to receive the movable head-block B. In this head-block the bolts are fastened to which a screw-thread is to be cut.

C is the spindle, which carries the head D containing the dies. Said spindle has its

bearings in two standards, C, rising from the frame A, and it is provided with a hand-wheel or pulley, *d*, by means of which a rotary motion can be imparted to it. The head D is composed of five distinct parts, which are connected to each other and to the spindle, as will be presently explained. The inner part or core *e* is rigidly attached to the spindle by means of a set-screw, *e'*, or in any other suitable manner, and it is provided with three (more or less) slots *e''* to receive the dies *e**. The rear portion of the core *e* forms the guide for the stationary flange *f*, which is fastened in the proper position by the set-screw *f'*, or in any other suitable manner. In front of this flange, and fitted to move on the circumference of the core *e*, is the ring *g*. Firmly secured or otherwise attached to this ring is the stud *g'*. This stud passes through the flange *f* and the index-plate *i* in a long circular slot *g** and *i***, (see Fig. 4,) and is permitted to work freely in the said slot at all times.

g² is a scroll-shaped spring, one end of which is firmly fastened to the core *e*. The other end of this spring fits firmly in a triangular-shaped recess in the inner circumference of the ring *g*. There are several of these recesses, so that the spring may be taken up in case it should become slack by constant use. By the action of this spring it will be seen that the ring *g* is held in the same position (the stud *g'* bearing against the end of the slot in the index-plate) during the operation of cutting. The dies *e** are retained in the slots *e''* by means of the disk or face plate *h*, which is secured to the core *e* by screws *h'*, and which is provided with a central hole, *h**, to admit the screw-bolts. This face-plate, with the stationary flange *f*, also forms the guides or lateral bearings for the ring *g*. Each of the dies is furnished with a nick, *e³*, near its outer end, and these nicks fit over eccentric ribs *g³*, which are cast solid with or otherwise rigidly attached to the ring. The ribs *g³* are fitted within eccentric recesses *g⁴* in the body of the ring, and if the ring is turned on the core the dies are drawn in or pushed out by the action of the eccentric ribs. If the ring is turned far enough to carry the dies from one end of the eccentric ribs to the other, the radial motion imparted to said dies is equal to the difference between the largest and smallest dis-

tance of the ribs from the center, but said ribs are so adjusted that sufficient radial motion is imparted to the dies when they are carried over a portion only of the ribs.

The position of the ring *g*, and consequent size of opening in the dies while the machine is cutting the screw, is regulated by the index-plate *i*, which is fastened to the rear surface of the stationary flange *f* by means of the screw *i'*. By means of the circular slot *i**, (see Fig. 4,) through which the screw *i'* passes, the index-plate may be moved in either direction, and fastened in the desired position. The index-plate is also provided with a second circular slot, *i***, corresponding with the one marked *g**, in the stationary flange. The end of this slot *i*** forms a stop or bearing for the stud *g'* while the machine is cutting the thread. This arrangement is intended for cutting bolts of different sizes, and also to compensate for wear in the dies.

In order to arrest the motion of the ring *g*, and thereby open the dies to allow of the bolts being withdrawn after being cut while the machine is running, a brake or friction-clutch, *E*, is applied to its outer circumference. This brake consists of two jaws, which embrace the ring and swing on pivots *j* in a slot in the frame *A*. The shanks of these jaws extend down below the frame *A*, and connect by a

spring cross-bar, *j*, from the center of which a treadle, *F*, is suspended by an eye-bolt, *j**. By stepping on this treadle the shanks of the two jaws are forced apart and the brake is applied. The motion of the ring is thereby checked, and the dies are instantly opened and the bolt withdrawn. The foot being removed the brake ceases to act, the ring then resumes its former position by means of the spring, and the dies are ready to receive another bolt.

I do not wish to confine myself, however, to this particular construction of the brake, and this can be changed in various ways without changing materially the result of the operation.

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

1. The brake *E*, applied in combination with the ring *g* and dies *e**, substantially in the manner herein shown and described, so that by the application of the brake the dies are opened without stopping the machine.

2. The spring *g**, applied in combination with the ring *g* and dies *e**, substantially as herein specified, for the purpose of closing the dies.

J. A. MERRIMAN.

Witnesses:

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