

H. H. MORGAN.
Bolt-Threading Dies.

No. 155,840.

Patented Oct. 13, 1874.

Fig. 1.

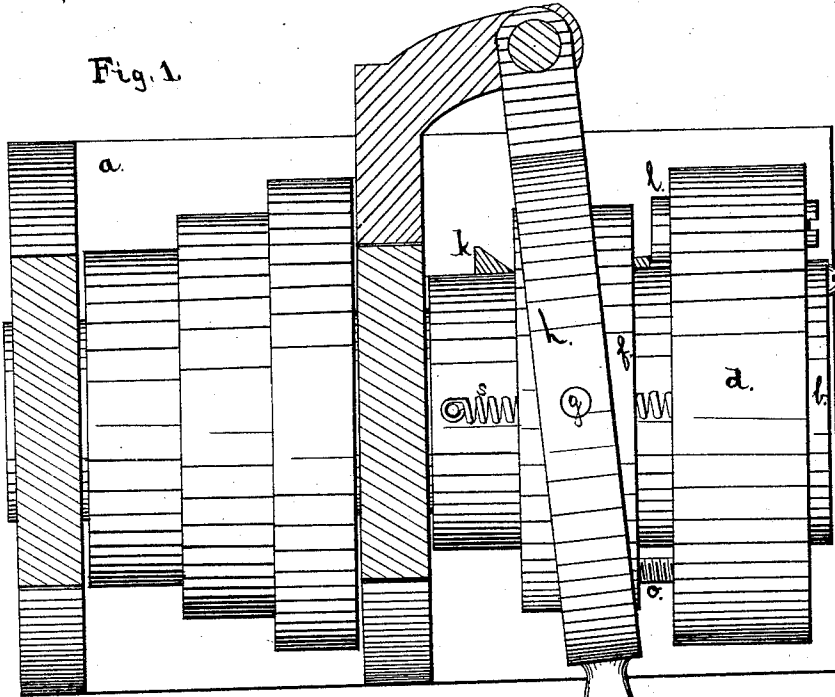
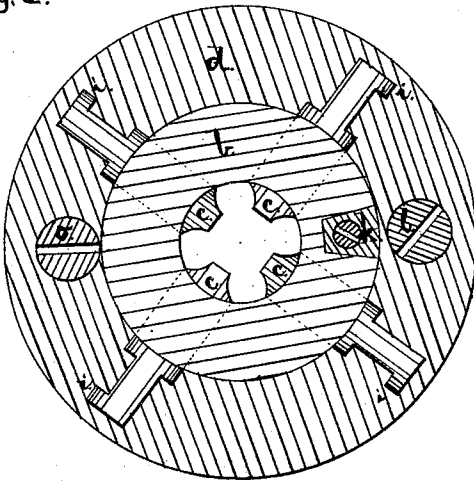


Fig. 2.



Witnesses.

J. H. Nichols
M. Stuart

Inventor.
Hugh H. Morgan,
by Bradford Howland
his Attorney;

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Fig. 3.

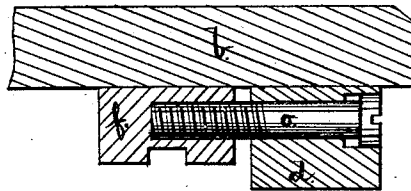
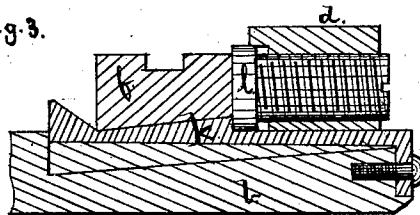


Fig. 5.

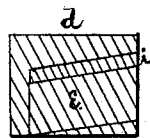
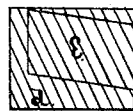


Fig. 4.



Witnesses.

J. A. Nichols
M. Stuart

Inventor,
Hugh H. Morgan,
by Bradford Howland,
his Attorney.

UNITED STATES PATENT OFFICE.

HUGH H. MORGAN, OF RAVENNA, OHIO.

IMPROVEMENT IN BOLT-THREADING DIES.

Specification forming part of Letters Patent No. **155,840**, dated October 13, 1874; application filed April 22, 1874.

To all whom it may concern:

Be it known that I, HUGH H. MORGAN, of Ravenna, in the county of Portage and State of Ohio, have invented certain Improvements in Machines for Cutting Threads on Metallic Bolts, of which the following is a specification:

The nature and object of this invention is a bolt-threading machine in which the dies are made to open or recede from the bolt after it is threaded so as to permit it to be withdrawn. This is done by means of a sliding collar, which is grooved to hold the outer ends of the die, so that by sliding the collar on the hollow shaft through which the dies pass the dies are opened and closed. The principal features of novelty are, first, the manner of holding the sliding collar in position while the dies are threading the bolt, and also the adjustment of the dies to compensate for wear of dies; second, the device for opening the dies.

In the drawings, Figure 1 is a vertical view of the machine. Fig. 2 represents the front end of the machine. Fig. 3 is a horizontal section of the machine. Fig. 4 is a section of the sliding collar, showing the grooves which hold the dies. Fig. 5 represents one of the dies.

a is the frame which holds the revolving hollow shaft *b*. Near the front end of the hollow shaft round holes are drilled through it, in which the dies *c c c c* are fitted, so that no face-plate is required. The sliding collar *d* on the hollow shaft *b* is grooved to hold the dies near their outer ends. The grooves *e e e e* are made across the sliding collar *d*. The outer ends of the dies and the parts of the grooves *e e e e* which are in contact with the ends of the dies are at an angle to the axis of the cutter-head. The shape of the grooves is shown in Figs. 2 and 4. The parts of the dies which project outside of the hollow shaft *b* are made to fit these grooves, which prevent the dies from turning in the cutter-head. One side of each die, at its outer end, projects into the part of the groove *e*, shown at *i*, by means of which the end of the die is kept in contact with the bottom of the groove, and as it is at an angle to the axis of the cutter-head, when the sliding collar *d* is moved forward on the

hollow shaft *b* the dies approach each other, and when the sliding collar is moved back the dies are opened. Around in the outside of the ring *f*, on the hollow shaft, just back of the sliding collar *d*, is a groove, into which the pins *g g* in the lever *h* project. The lever *h* passes around the ring *f*, and the pins *g g* project through the lever into the groove of the ring *f* at the top and bottom of the ring. One end of lever *h* is loosely pinned to the frame, and the other end of the lever is a handle. The outside of the hollow shaft *b* is grooved lengthwise to receive the spring *k*, one end of which is attached to the front end of the hollow shaft *b*. The ring *f* is also grooved across the inside to receive the spring *k*. There is a shoulder on the outside of spring *k*, just back of the sliding collar *d*, when the dies are closed, which prevents the sliding collar *d* from sliding back while the dies are cutting, by means of the screw or adjustable stop *l*. The screw or stop *l* passes through the collar *d*, and its head presses against the shoulder of the spring *k*, thus holding the collar *d* in position while the dies are cutting. The top of the spring *k*, back of the ring *f*, is inclined toward the axis of the cutter-head, and projects from the hollow shaft *b* while the dies are cutting. One end of the spiral spring *s* is attached to the outside of the hollow shaft *b*, back of the ring *f*, and the other end is attached to the sliding collar *d*, the spring passing loosely through a hole in the ring *f*. The spiral spring *s* draws back the collar *d* to open the dies when the spring *k* is pressed into the groove of the hollow shaft *b*, so that its shoulder is not in contact with the screw-stop *l*. The pin *o* passes loosely through a hole in the collar *d*, and is screwed into the side of the ring *f*. It is used for the same purpose as the spiral spring *s* in case the spring *s* should fail at any time to draw back the collar *d* and open the dies. For this purpose there is a shoulder in the hole in the collar *d*, against which the head of the pin *o* presses when the collar *d* is drawn back. The collar *d* and ring *f* revolve with the hollow shaft *b*.

The machine is operated as follows: When the dies are closed to thread a bolt, by turning the screw-stop *l* in the collar *d*, as the head of the screw-stop *l* presses against the

shoulder of the spring *k*, the collar *d* is moved on the hollow shaft *b*, thus adjusting the dies. When the bolt has been threaded the dies are opened to release the bolt by pressing back the handle of lever *h*, which slides back the ring *f* against the inclined projection on the spring *k*, pressing the spring into the groove in the hollow shaft *b* till the head of the screw-stop *l* ceases to press against the shoulder of spring *k*, when the spiral spring *s* draws back the collar *d*, and thus opens the dies and releases the bolt. In case the spiral spring *s* fails to draw back the collar *d*, it is done by pressing back the lever *h* until the head of the pin *o* presses against the shoulder in the hole through collar *d* and draws back the collar. By turning the screw-pin *o* in the ring *f* it is adjusted so that its head will not press against collar *d* until the spring *k* is pressed down by the ring *f* to permit the collar *d* to be drawn back. To close the dies against the bolt the

handle of the lever *h* is moved forward, pressing the ring *f* against the stop *l*, and thereby sliding the collar *d* forward, which closes the dies, and at the same time permits the spring *k* to rise into the groove in the ring *f* until the shoulder of the spring *k* is against the end of the stop *l*.

I claim as my invention—

1. The grooved sliding collar *d*, in combination with the spring *k* and hollow shaft *b*, substantially as and for the purpose herein set forth.

2. The spring *k*, in combination with the hollow shaft *b*, the stop *l*, the sliding collar *d*, and the ring *f*, substantially as and for the purpose herein set forth.

HUGH H. MORGAN.

Witnesses:

BRADFORD HOWLAND,
GEORGE F. ROBINSON.