

No. 753,739.

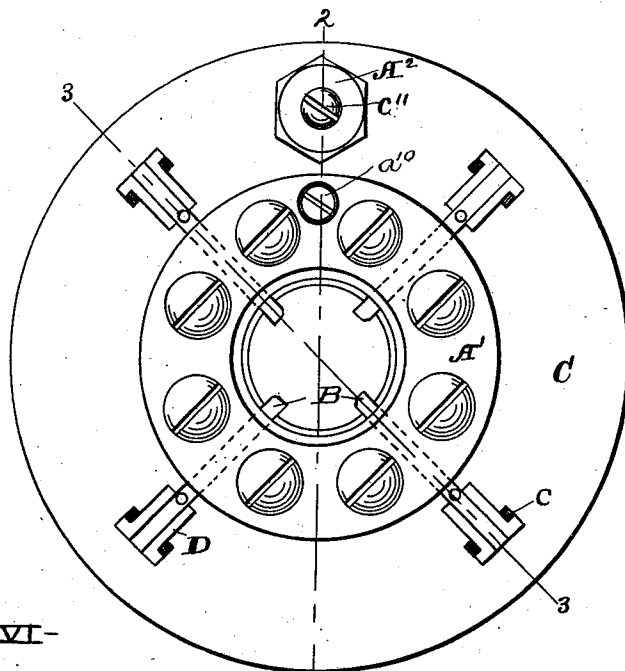
PATENTED MAR. 1, 1904.

W. RIEVALDT.
BOLT THREADING HEAD.
APPLICATION FILED JUNE 16, 1900.

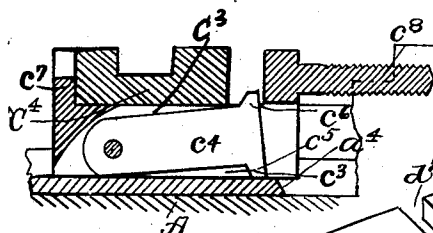
NO MODEL.

3 SHEETS—SHEET 1.

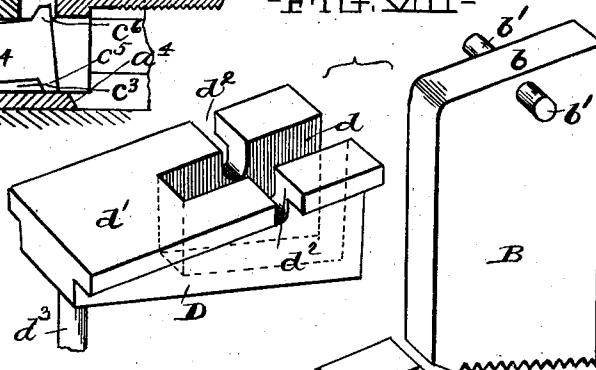
-FIB, I-



-FIG. VI-



-FIG. VII-



-FIG. IX-

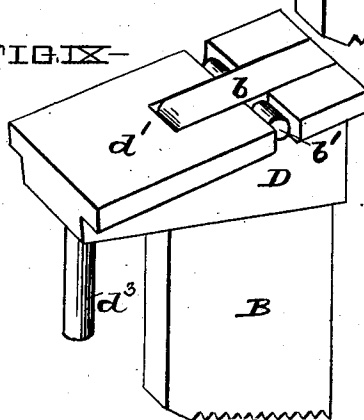
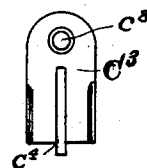


FIG. VII-



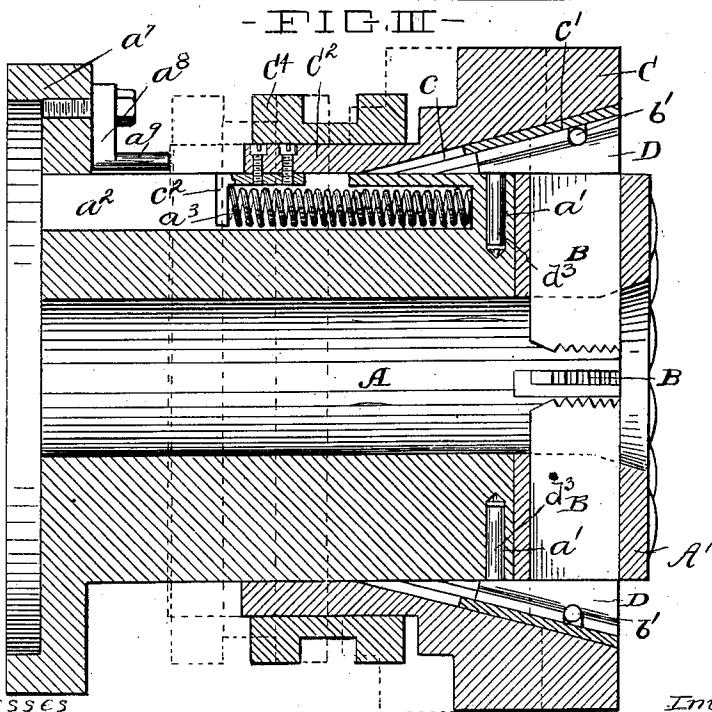
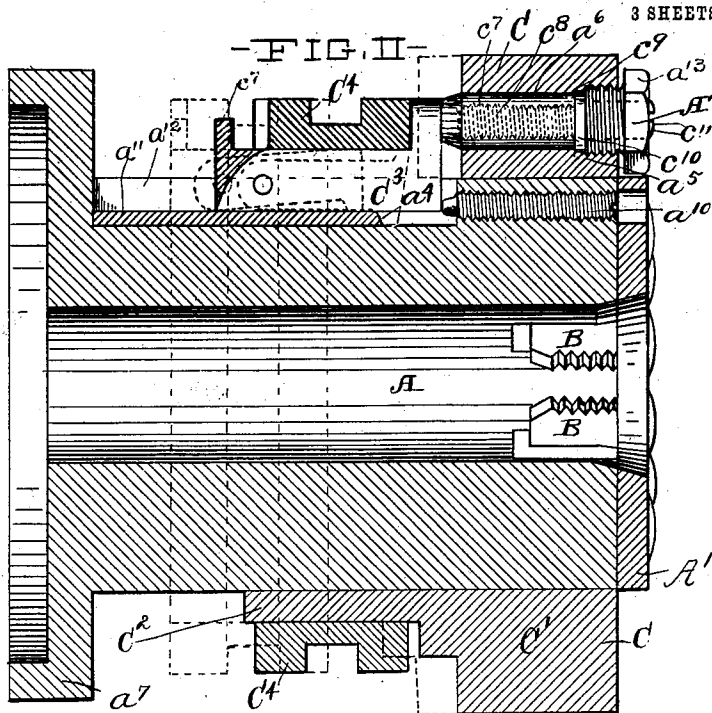
Witnesses,
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A. E. Merkel.

Inventor,
Wm. Rivalier
By J. D. Fay
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NO MODEL.

3 SHEETS—SHEET 2.



Witnesses

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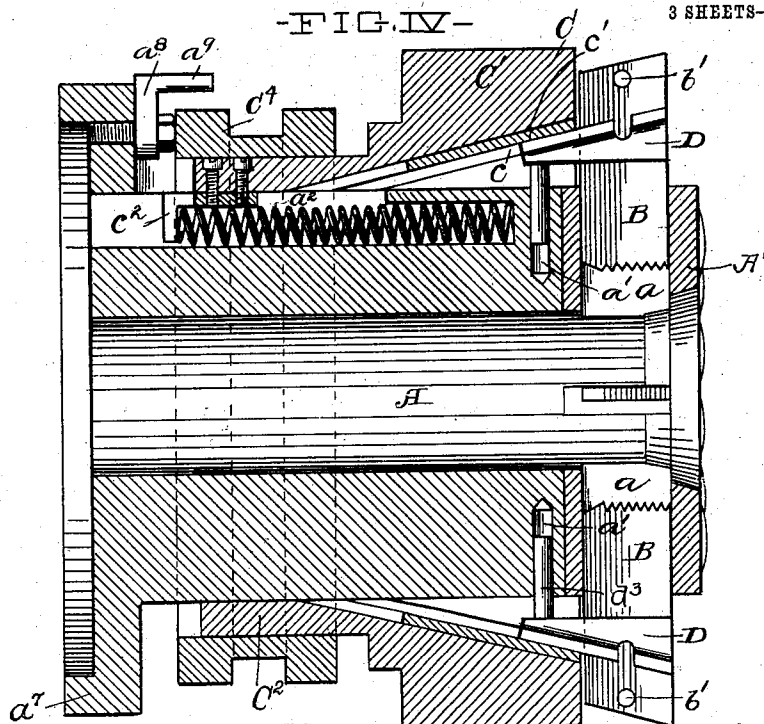
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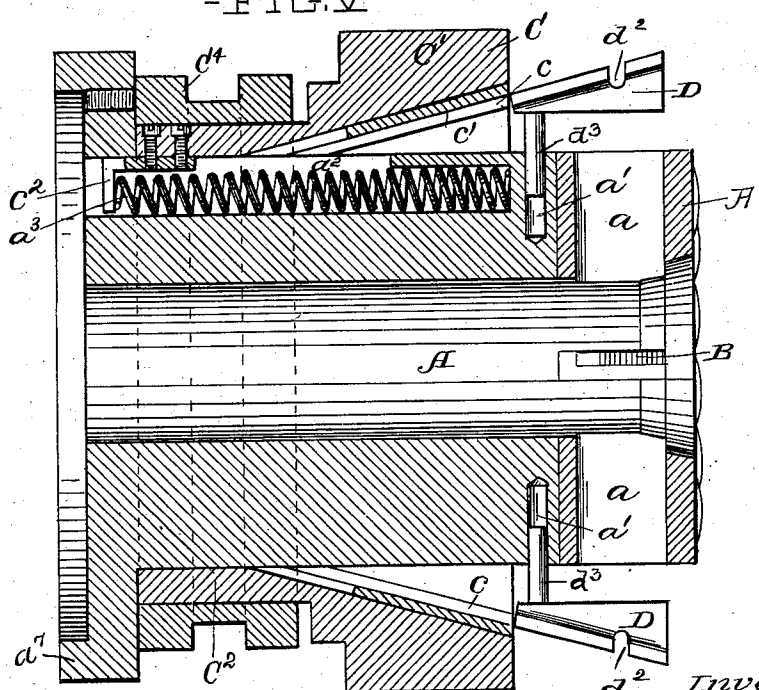
NO MODEL.

3 SHEETS—SHEET 3.

—FIG. IV—



—FIG. V—



Witnesses,

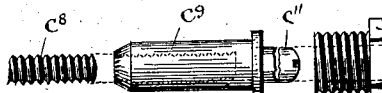
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—FIG. X—

UNITED STATES PATENT OFFICE.

WILLIAM RIEVALDT, OF CLEVELAND, OHIO, ASSIGNOR OF ONE-HALF TO
THOMAS H. KEANE, OF CLEVELAND, OHIO.

BOLT-THREADING HEAD.

SPECIFICATION forming part of Letters Patent No. 753,739, dated March 1, 1904.

Application filed June 16, 1900. Serial No. 20,538. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM RIEVALDT, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Bolt-Threading Heads, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to heads for cutting threads upon bolts; and it consists of means hereinafter fully described.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents an end elevation of said head. Fig. II represents an axial section taken upon the plane indicated by line 2 2, Fig. I. Fig. III represents an axial section taken upon the plane indicated by line 3 3, Fig. I. Figs. IV and V represent a section similar to that shown in Figs. II and III, illustrating the parts in various positions. Fig. VI is a sectional detail view of the trigger pivoted to the slide and showing the locking-ring moved back to disengage the trigger. Fig. VII is an end elevation of the slide and trigger. Fig. VIII is a detail perspective of the die-cap and the die disengaged therefrom. Fig. IX is a detail perspective of the die and cap engaged. Fig. X is a detail side view of the locking-screw.

The end of a barrel A is provided with slots a , as shown in Fig. V, in which dies B are capable of sliding in a direction radial with respect to the barrel-axis. The end of said slots is closed by a cap-plate A' , as shown. A die-ring C slides upon the end of said barrel in the direction of the barrel-axis and is provided with T-shaped guiding-slots c , having inclined contact-surfaces. Die-caps D, formed with inclined contact-surfaces to correspond

with those of the slots c , fit and slide in said slots and are each formed with a slot d , forming an opening for receiving the die, passing completely through the cap transversely of and intersecting the plane of the outer contact-surface d' of the cap shown in Fig. VIII. Transversely of slot d and upon the upper portion of the cap are formed two recesses $d^2 d^2$. Each die is formed with an outer inclined surface b , whose inclination is equal to that of the surface d' and is provided with two lateral studs $b' b'$, which are adapted to rest in the recesses $d^2 d^2$ and cause said inclined die-surface to be located in the plane of the surface d' , as shown in Fig. IX, whereby said die-surface b may be caused to contact the adjacent die-ring surface c' , and thus prevent the outward radial movement of the dies during the cutting operation. Each slot c is in the axial plane of a slot a , Fig. I, each die being located in its operative position in such slot a , as shown in Fig. III. Projecting from the inner surface of each cap is a pin d^3 , which slides in a corresponding aperture or bore a' , whereby the caps are guided during their radial movement toward and from the barrel-axis.

Secured upon the lower surface of the die-ring is an angle-piece e^2 , Fig. III, which projects into a slotted bore a^2 , formed in the barrel and is engaged by a helical spring a^3 , located in said bore, such spring tending to urge the ring in the direction of the barrel-axis and away from the die end thereof. Said die-ring is formed with a flanged portion C' and a body portion C^2 and is formed with a slot c^3 , in which is located a slide C^3 , Fig. II, a registering slot a^{12} being formed in the barrel A. Said slide is provided with a central longitudinal opening, Fig. VII, in which is pivoted a trigger e^4 , having two lugs at its free extremity, a downwardly-extending lug e^5 , and an upwardly-extending lug e^6 , each formed with an inclined back surface, as shown in Fig. VI. Said slide is further provided with an end projection e^7 and a threaded stud e^8 . Upon the cylindrical surface intermediate of the extremities of the body portion C^2 of the die-

ring rests a lock-ring C⁴, Figs. II and III. Said lock-ring is of a width less than that of said intermediate surface and may be caused to slide in the direction of the barrel-axis, so as to engage or disengage the upper lug c⁶ of the trigger, as will further appear.

An inclined shoulder a⁴ is provided on the barrel and in the path of the lower lug c⁶ of the trigger, Fig. II, such shoulder being preferably formed by forming a slot lengthwise of the barrel, as shown, and then securing by brazing or otherwise a strip a¹¹ thereon shorter than the slot. The stud c⁸ enters and is engaged by an internally-threaded sleeve c⁹, formed with a flange c¹⁰, which is caused to rest upon a shoulder a⁵, formed by countersinking a bore a⁶, formed in the flanged portion C⁷ of the die-ring for the reception of said sleeve, Fig. II, by a hollow locking-screw A², provided with a head a¹³. Said sleeve is provided with a slotted head c¹¹, (shown in dotted lines and projecting through the screw A², Fig. I.)

The rear end of the barrel is formed with a flange a⁷, upon the inner face of which is secured, by means of a screw, a stop a⁸. Said stop is formed with a projection a⁹, which may be located by partially rotating the stop in the path of the die-ring, thereby determining its extremity, as shown in dotted lines in Fig. III. The length of said projection is such as to cause such limitation to the path of said ring to be at a point such that the extremity of the ring will partially cover the outer end of the die when the ring is in such extreme position, thereby preventing the withdrawal of such die, as shown in dotted lines in said figure. The nut which secures said stop is placed in a position such that upon the removal of the lug from the ring's path the said ring may be drawn back a distance sufficient to entirely uncover said dies, and thereby permits of their removal, while a portion of the die-caps remain covered, as shown in Fig. IV. The length of the barrel and location of the inner surface of the flange is such as to permit the die-ring to be withdrawn from the die end of the barrel upon the entire removal of the stop and its securing-nut, so as to entirely uncover the die-caps, as shown in Fig. V, and allow of their removal without obstruction. A stop-screw a¹⁰ determines and varies the other extremity of the path of the die-ring.

In assembling or removing the parts of the above-described device the stop a⁸ is entirely removed and the die-ring slid back until it abuts the flange a⁷, Fig. V, in which position the die-caps may be placed in position upon the barrel opposite the guiding T-slots c in the ring-die or removed, as the case may be. Said ring is now moved forward so as to cause the caps to enter their respective slots and the stop a⁸ then placed in the position shown in Fig. IV, whereby the caps are secured in place and are incapable of removal. By

placing the parts in the position shown in Fig. IV the slots d are left entirely unobstructed, whereby the dies themselves may be inserted in said caps or are removable in an outward radial direction with respect to the barrel-axis. The dies being in place in the caps, a portion of or the whole of their outer surfaces engage the inclined contact-surface c⁷ of the die-ring when the stop is in the position shown in Fig. III, according to the position of the die-ring, thereby preventing the removal or dislocation of said dies.

In operation the stop a⁸ is located in the die-ring path and the die-ring slid to its extreme position over the caps and dies, thereby actuating the latter in a radial direction toward the barrel-axis. The locking-ring now being moved to its extreme position toward the dies thereby engages the inclined surface of the upper lug c⁶ of the trigger and causes the latter to engage the shoulder a⁴, thus locking the die-ring and dies in their operative position. The above-described movement of the die-ring and locking-ring are effected by means of a suitable lever or arm (not shown) engaging said locking-ring, such movement of the die-ring being effected by the engagement of the locking-ring with the upper lug c⁶ of the trigger while the latter is riding upon the surface of the barrel, in which position said lug projects into the path of said locking-ring, Fig. II, dotted lines. When the lower lug reaches the depression adjacent to the shoulder a⁴, lug c⁶ drops and permits of the subsequent locking movement of the locking-ring. Upon completion of the threading operation the actuating-lever is operated to move the locking-ring, so as to disengage and free the upper lug c⁶, and said ring contacting the projection c⁷ the subsequent continuation of such movement effects the retraction of the dies through the resulting movement of the die-ring. Such continuation is accomplished by means of the spring a³, which upon the unlocking of the die-ring immediately becomes operative, and thus causes a quick opening action on the part of the dies.

In order to obtain a nice adjustment of the dies relatively to each other when in their operative position, stop-screw a¹⁰ is first withdrawn some distance and the locking-screw A² is loosened and the sleeve c⁹ turned in the desired direction. Such turning of the sleeve c⁹ alters the relative positions of the slide C³ and the die-ring, thereby altering the point of engagement of the trigger with the barrel with relation to the relative position of the dies in their operative position. After such adjustment the stop-screw a¹⁰ is readjusted to conform with the new position of the slide, as will be readily understood.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards

the mechanism herein disclosed, provided the means covered by any one of the following claims be employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a bolt-threading head, the combination of a barrel, a series of die-caps movable radially with respect to the barrel-axis, a die-ring for so moving said caps and movable in the direction of said axis, each cap being formed with an opening for receiving a die intersecting the plane of outer cap-surface, and an adjustable stop arranged to limit the movement of said ring whereby said opening may be wholly or partially obstructed during the operation of the head.

2. In a bolt-threading head, the combination of a barrel, a series of die-caps movable radially with respect to the barrel-axis, a die-ring for so moving said caps and movable in the direction of said axis, each cap being formed with an opening for receiving a die intersecting the plane of the outer cap-surface, and a removable and adjustable stop for limiting the movement of said ring, whereby said opening may be wholly or partially obstructed during the operation of the head, and whereby said opening may be caused to be wholly unobstructed and the dies removed from same.

3. In a bolt-threading head, the combination of a die-cap provided with an inclined contact-surface and formed with an opening intersecting the plane of such surface, a die secured in said opening and having its outer surface inclined and in the plane of said contact-surface, and a movable die-ring engaging such die-cap contact-surface and die-surface.

4. In a bolt-threading head, the combination of a die-cap provided with an inclined contact-surface and formed with an opening intersecting the plane of such surface, a die in said

opening provided with two lateral studs, said cap formed with two grooves located transversely of said opening for receiving said studs, and a die-ring engaging such die-cap contact-surface and die-surface.

5. In a bolt-threading head, the combination of a barrel, the dies and caps, a die-ring movable in the direction of the barrel-axis, means for locking the ring to the barrel, and a spring for actuating the ring when unlocked.

6. In a bolt-threading head, the combination of a barrel, the dies and the caps, a die-ring movable in the direction of the barrel-axis for adjusting the dies, a trigger carried by the ring and adapted to engage the barrel, a locking-ring movable upon the die-ring to actuate the trigger, and a spring for moving the die-ring when unlocked from the barrel.

7. In a bolt-threading head, the combination of the dies and their caps, a barrel having an inclined shoulder, α' , a reciprocating die-ring for actuating the dies, a trigger having a lug for engaging said shoulder, a locking-ring slidable on the die-ring for releasing the trigger from the shoulder, and a spring for moving the die-ring when the trigger is disengaged from the shoulder.

8. In a bolt-threading head, the combination of the dies and their caps, a barrel having a shoulder, the die-ring for holding the dies and caps in adjusted position, a trigger carried by the die-ring and adapted to engage the shoulder on the barrel, a locking-ring for locking the trigger, and a spring for moving the die-ring when the trigger is disengaged from the shoulder.

Signed by me this 12th day of June, 1900.

WILLIAM RIEVALDT.

Attest:

D. T. DAVIES,
A. E. MERKEL.