

No. 864,964.

PATENTED SEPT. 3, 1907.

H. L. FISHER.  
BOLT CUTTING MACHINE.  
APPLICATION FILED JAN. 26, 1907.

FIG. 1.

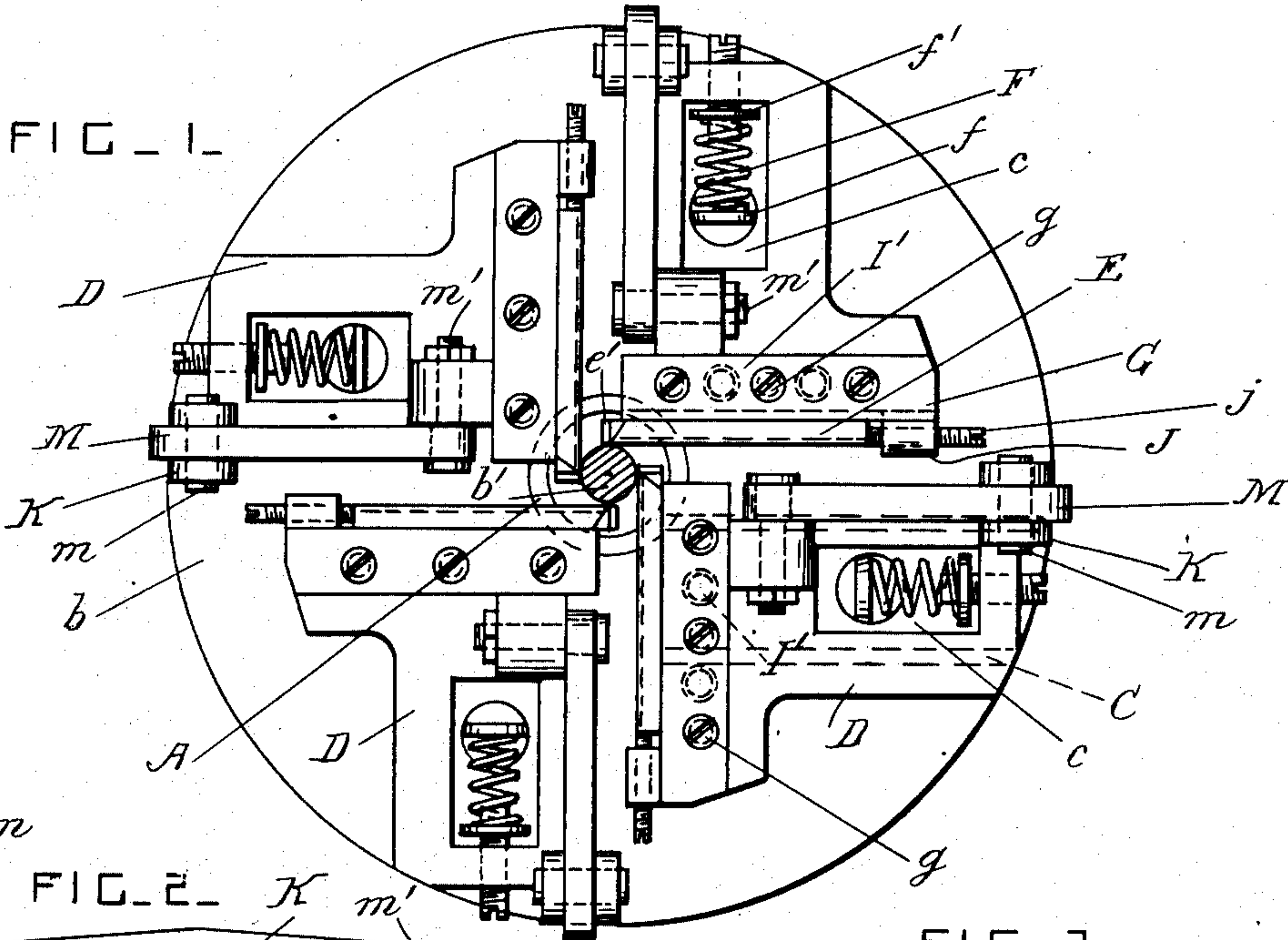


FIG. 2.

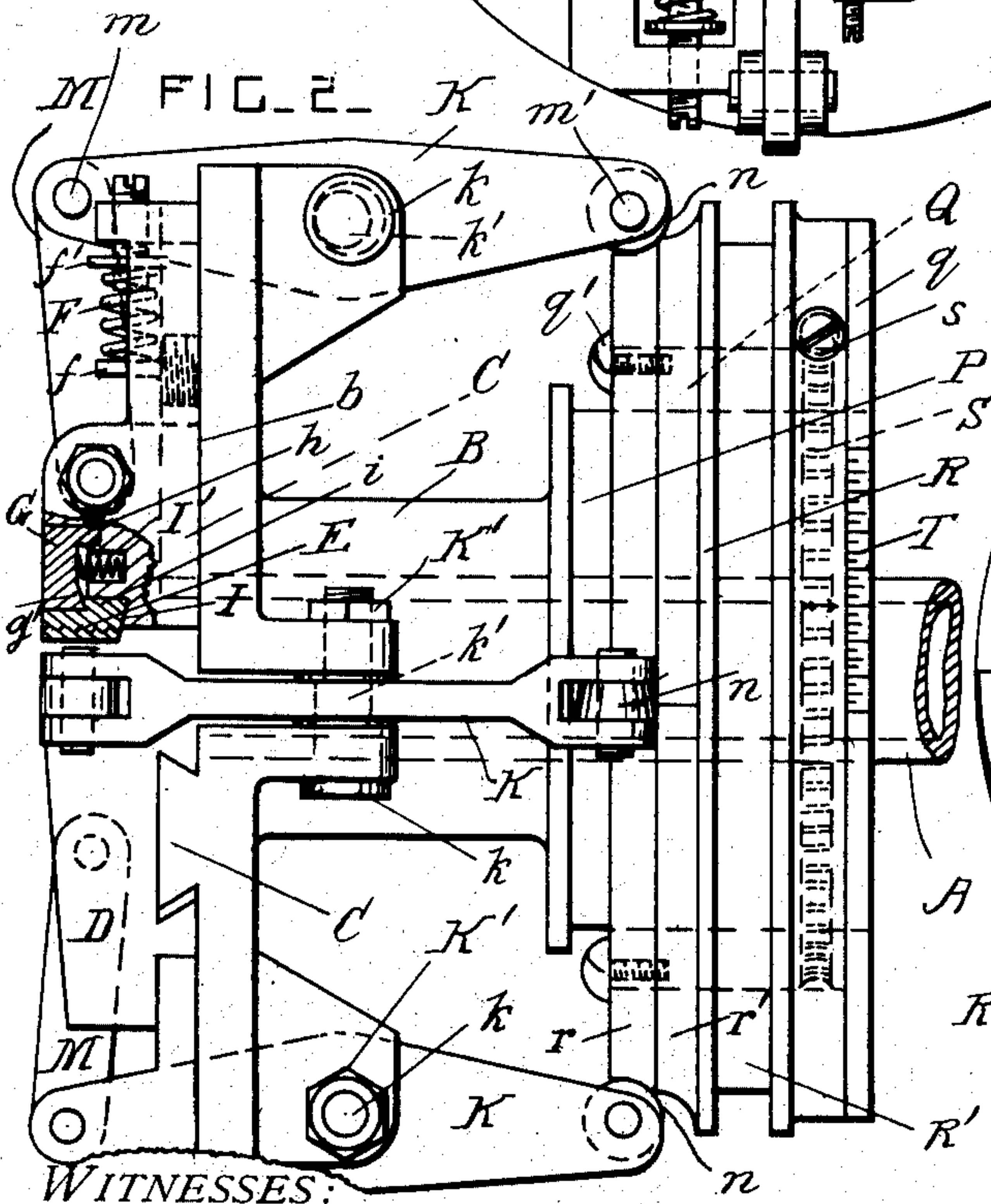
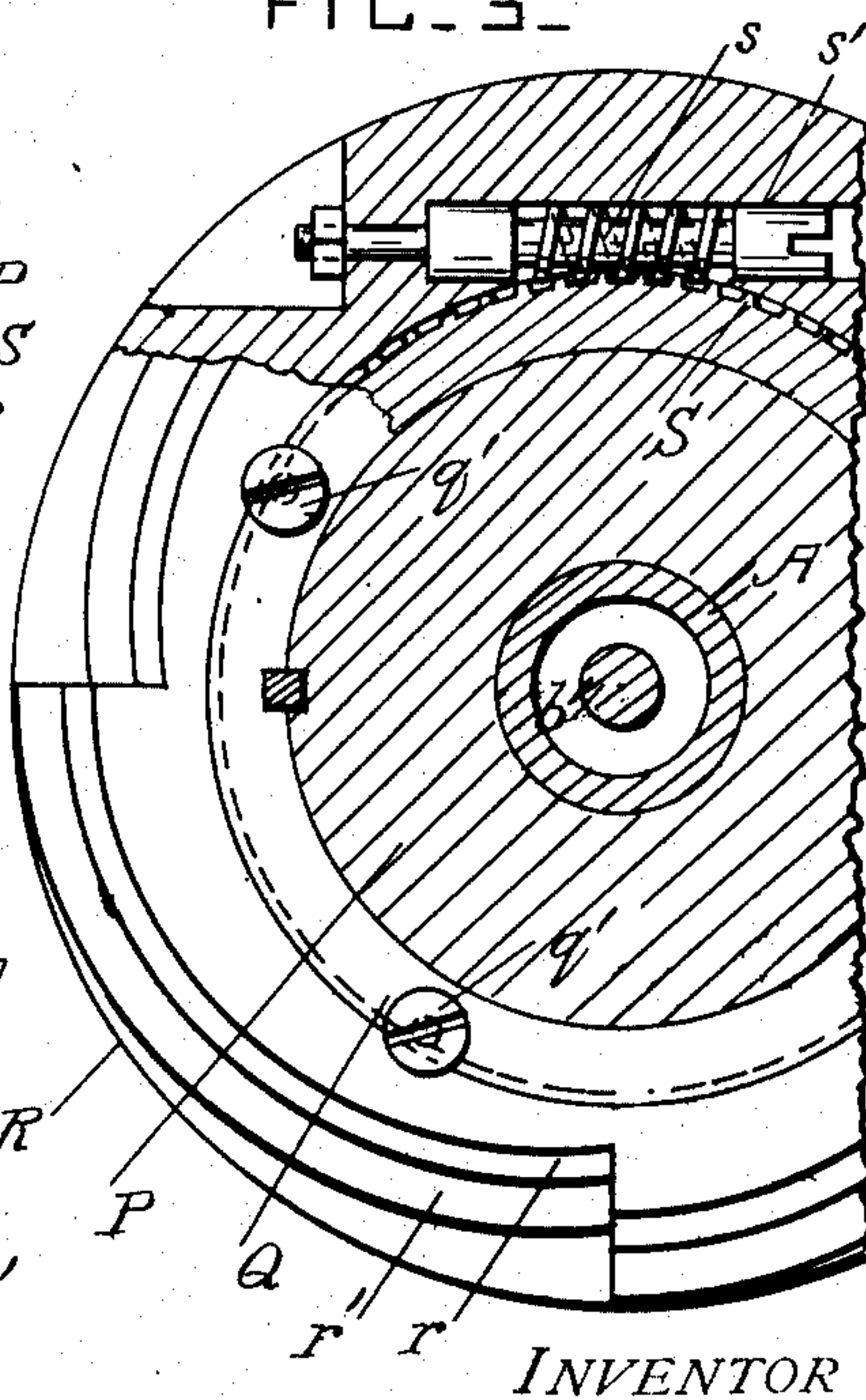


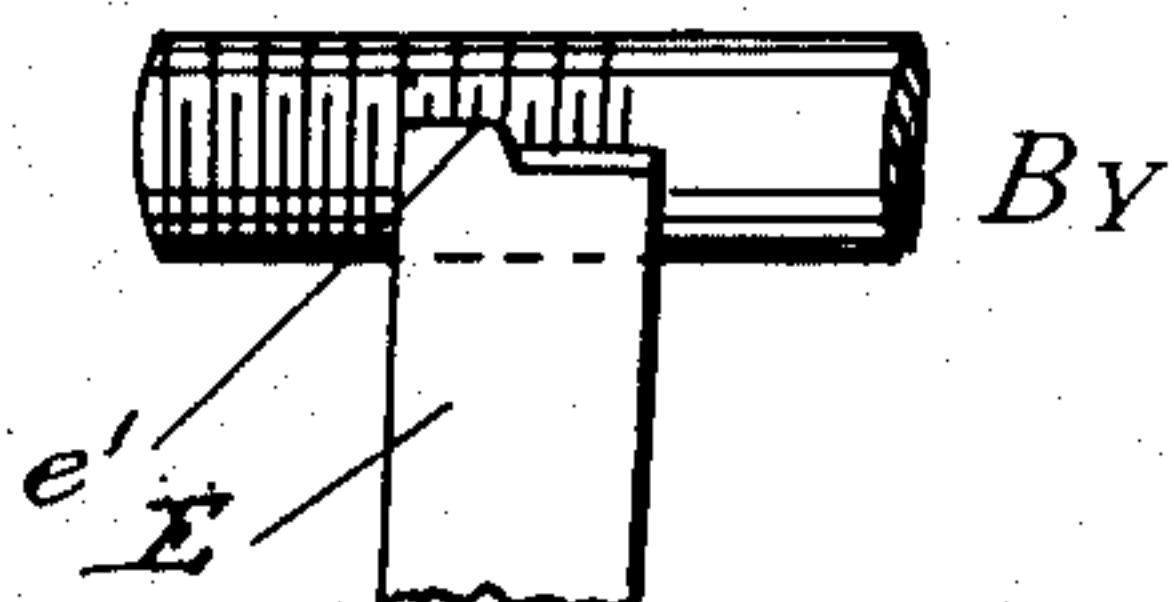
FIG. 3.



WITNESSES:

L. B. Middleton  
Richard H. Tucker.

FIG. 4.



INVENTOR  
Henry L. Fisher.  
Herbert W. Jenner.  
Attorney



# UNITED STATES PATENT OFFICE.

HENRY L. FISHER, OF WAYNESBORO, PENNSYLVANIA.

## BOLT-CUTTING MACHINE.

No. 864,964.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed January 26, 1907. Serial No. 354,289.

To all whom it may concern:

Be it known that I, HENRY L. FISHER, a citizen of the United States, residing at Waynesboro, in the county of Franklin and State of Pennsylvania, have

5 invented certain new and useful Improvements in Bolt-Cutting Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 This invention relates to machines for cutting screw-threads on bolts and rods; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a front view of the head 15 of a bolt cutting machine constructed according to this invention. Fig. 2 is a side view of the same. Fig. 3 is a front view of the cam-ring and its bearing-ring with a portion of one of the pairs of cams broken away to show the worm and worm-wheel. Fig. 4 is a 20 plan view of a portion of a bolt and a chaser showing the projection  $e'$ .

A is a tubular supporting shaft, and B is a head secured on the said shaft and having a face-plate  $b$  at its front part. This face-plate has dovetailed guides 25 C on its face, and D are chaser-slides which work upon the said guides against the face of the face-plate. Each slide carries a screw thread-chaser E. Four slides are preferably provided, and they are all alike, but more or less than four slides may be provided, if 30 desired. Each chaser-slide has a recess or hole  $c$ , and F is a retracting spring arranged in the said recess. One end of this spring bears against a stop  $f$  which projects from the face-plate, and the other end of the spring bears against the head  $f'$  of an adjusting screw. 35 The adjusting screw engages with the slide at the outer end of the hole  $c$ , and it affords a means for regulating the tension of the spring F.

The chaser E is clamped to the chaser-slide D by a bar G and screws  $g$ . The bar G is let into a recess in 40 the slide, and it has a dovetailed projection or rib  $g'$  upon one side.

Upon the other side the bar G has a rectangular rib  $h$  which engages with a corresponding groove in the slide. The slide has a dovetailed portion I, and the 45 chaser has a dovetailed part  $i$  on its back which engages with the dovetailed socket formed between the parts I and  $g'$ .

I' is a spring arranged between the bar G and the slide, so that the bar is moved away from the slide so 50 as to release the chaser when the screws  $g$  are slackened.

The chaser has grooves formed longitudinally in its front face, and its front end is beveled so as to form a suitable serrated cutting-edge. A guide projection  $e'$  55 is formed on the front end of the chaser to the rear of its cutting-edge, and the point of the cutting-edge is arranged opposite the center of the bolt  $b'$  with the

front and grooved face of the chaser at a tangent to the periphery of the bolt. The projection  $e'$  projects a little over the center line of the bolt and it enables the chaser to cut a better screwthread on the bolt. 60 The projection  $e'$  forms a leader or nut which follows the cutting portion of the chaser and which operates to preserve the correct pitch as soon as it engages with the threads which have been cut into the bolt by the cutting portion of the chaser. This projection  $e'$  does 65 not differ in structure or in use from those heretofore used on chasers of this sort.

A nut J is secured to the slide, and  $j$  is a screw which engages with the said nut and bears against the heel of the chaser so that it can be slid in its socket before 70 being tightly clamped to the slide.

K is a lever having its middle part pivoted on a pin  $k$  which is carried by the head and provided with a clamping-nut  $K'$ . The bearing-portion  $k'$  upon which the lever works is eccentric of the end portions of the 75 pin which engage with the head. The pin  $k$  can be turned around before being clamped by its nut and the position of the cutting-edge of the chaser with reference to the bolt  $b'$  can be adjusted thereby with great exactness. 80

M is a connecting-rod which is pivoted to the front end of the lever K by a pin  $m$ , and to the said slide by a pin  $m'$ . The rod M is arranged at an acute angle with the face-plate so as to press the slide against the face-plate when it is moved towards the bolt  $b'$ . By press- 85 ing the slide in this manner against the face-plate, the chaser is prevented from being tilted in the act of cutting the screwthread.

The rear end of the lever K is provided with an anti-friction roller  $n$ . P is a cylindrical guide on the rear 90 part of the head A, and Q is a bearing-ring which is splined on the said guide so that it may be moved back and forth longitudinally. This bearing-ring is provided with a flange  $q$  at its rear end, and stop-screws  $q'$ , or other equivalent stops, at its front end. 95

R is a cam-ring which is journaled on the bearing-ring Q between the flange  $q$  and the heads of the stop-screws. This cam-ring is provided with a circumferential groove  $R'$ , for an operating lever of approved construction to engage with. Grooved eccentric cams  $r$   $r'$  100 are formed on the front face of the cam-ring for engaging with the roller of the lever K. The cams  $r$   $r'$  are arranged in pairs, the cams  $r$  being shorter or smaller in diameter than the cams  $r'$  and projecting forwardly in advance of them. Four pairs of cams are provided, one 105 pair for each lever K, and these cams form adjustable abutments for the rollers  $n$  to engage with.

When the rollers  $n$  engage with the shorter or smaller cams  $r$  the cutting-edges of the chasers are held clear of the bolt, but when the cam-ring and bearing-ring are 110 slid longitudinally so as to place the rollers  $n$  in engagement with the larger cams  $r'$ , the chasers are moved into



position to cut the screwthreads. These pairs of cams are not for the purpose of feeding up the chasers against the bolt, but for holding the chasers in two extreme positions.

5 The cam-ring is moved circumferentially to adapt the chaser-slides for bolts of different size, and for this purpose worm-wheel teeth *S* are formed on the bearing-ring *Q*. A worm *s* is journaled in a bearing *s'* in the cam-ring, and engages with the said teeth. The worm is revolved by any approved means, and a graduated scale *T* is formed on the flange of the bearing-ring so as to indicate the relative positions of the bearing-ring and cam-ring.

15 In cutting the screwthreads the bolt *b'* may be revolved in the head, or the head may be revolved about the bolt by any approved driving mechanism. The cam-ring enables the parts to be adjusted simultaneously, by moving it circumferentially, so as to suit bolts of different diameters. The eccentric pivot pins *k* enable each chaser and its slide to be adjusted individually and independent of the others. When moved longitudinally the cam-ring slides the chasers radially of the bolt into their cutting and clear positions. The springs *F* press the rollers *n* against the abutment cams, and slide the chasers radially away from the bolt when the cam-ring is slid rearwardly to permit the rollers *n* to engage with the smaller cams *r*.

What I claim is:

30 1. The combination, with a head provided with guides and a face-plate, of chaser-slides engaging with the said guides and bearing against the front face of the said face-plate, levers pivoted to the said head and projecting out from the front face of the said face-plate, connecting-rods between the said slides and the front ends of the said levers, and means for operating the said levers.

35 2. The combination, with a head provided with guides, of chaser-slides engaging with the said guides, levers operatively connected with the said slides, means for operating all the said levers and slides simultaneously, adjustable pivot-pins for the said levers carried by the said head and affording a means for adjusting the position of each said slide independent of the others, and locking-devices

for securing the said pivot-pins to the said head after their positions have been adjusted.

45 3. The combination, with a head provided with guides, of chaser-slides engaging with the said guides, adjustable eccentric pivot pins journaled in the said head, levers pivoted on the said pins and having their front ends operatively connected with the said slides, and abutments engaging with the rear ends of the said levers. 50

4. The combination, with a chaser-slide provided with a recess and a dovetailed portion, of a clamping-bar arranged in the said recess and provided with a dovetailed rib, a chaser having a dovetailed projection engaging with the socket formed between the said dovetailed projection and rib, and means for securing the said bar in the said recess. 55

5. The combination, with a head provided with guides, of chaser-slides engaging with the said guides, levers pivoted to the said head and operatively connected with the said slides, and circumferentially adjustable cams for operating the said levers simultaneously, the said cams being arranged in pairs, and the cams of each said pair being of different height and arranged parallel with each other and eccentric of the said head. 60 65

6. The combination, with a head provided with guides, of chaser-slides engaging with the said guides, levers pivoted to the said head and having their front ends operatively connected with the said slides, a bearing-ring slidable longitudinally of the said head, a cam-ring carried by the said bearing-ring and provided with cams of different height arranged in pairs the cams of each pair being parallel with each other and eccentric of the said head and engaging with the rear ends of the said levers, and means for adjusting the said cam-ring circumferentially upon the said bearing-ring, whereby the cams of each pair are adjusted simultaneously. 70 75

7. The combination, with a chaser-slide provided with a recess and a dovetailed portion, of a clamping-bar arranged in the said recess and also provided with a dovetailed portion, a chaser having a dovetailed projection which is adjustable longitudinally in the socket formed between the two said dovetailed portions, and screws which secure the said bar to the said slide and thereby clamp the said chaser to the said slide. 80 85

In testimony whereof I have affixed my signature in the presence of two witnesses.

HENRY L. FISHER.

Witnesses:

CHAS. F. KOONE,  
A. STOVER FITZ.