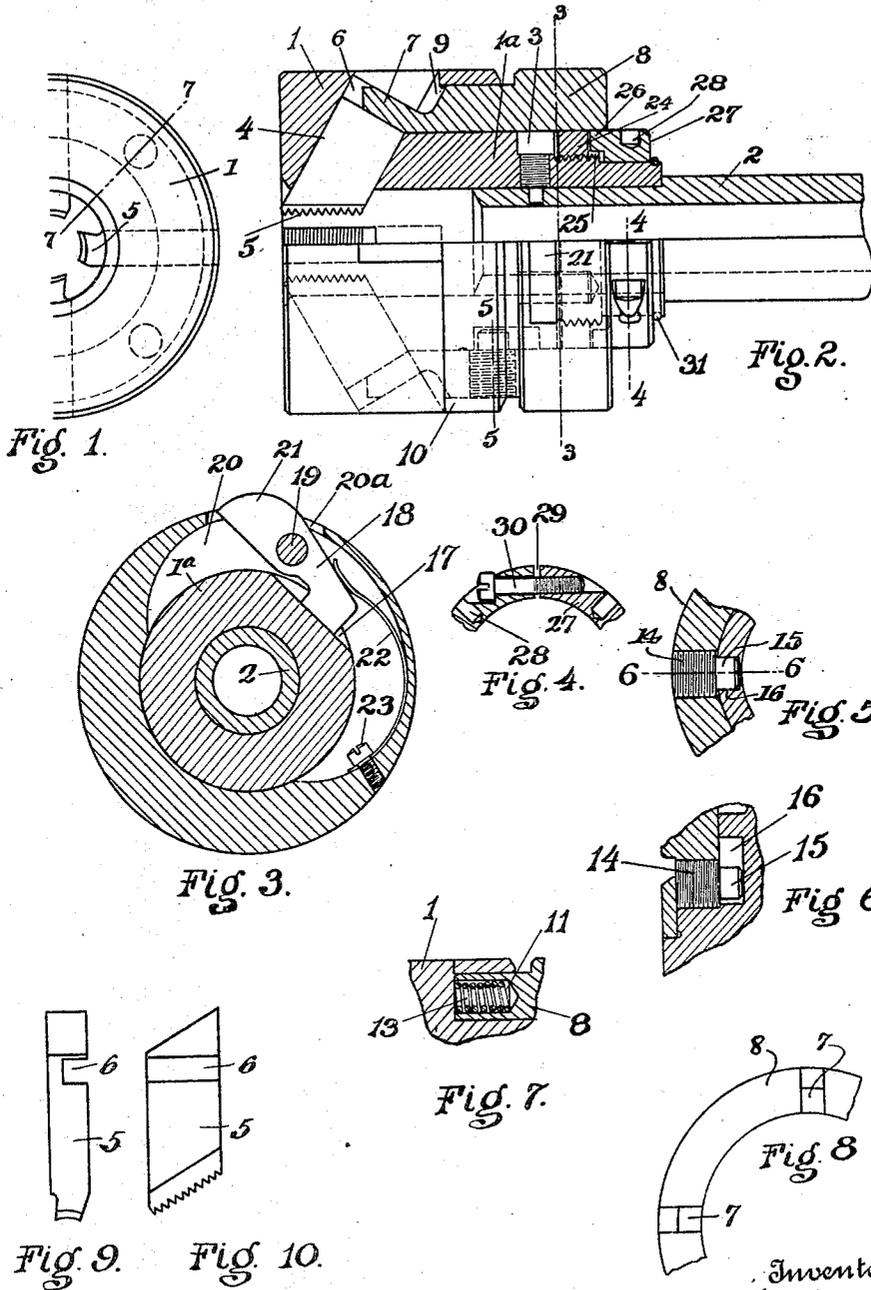


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H. T. WHITE
QUICK OPENING DIE
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Inventor
Harry T. White
By *W. Z. Lind*
Attorney

UNITED STATES PATENT OFFICE.

HARRY T. WHITE, OF ERIE, PENNSYLVANIA.

QUICK-OPENING DIE.

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With most quick-opening dies it is difficult, if not impossible, to carry the thread up to a shoulder. The present invention is designed to obviate this difficulty and accomplishes it by placing the chasers in an inclined guide which carries the forward end of the chasers clear of the head while at the same time providing sufficient strength and material to properly hold the chasers to the work. By this means also the threads are arranged diagonally across the chaser and consequently a greater width of thread is possible with a given width of chaser. The invention also involves simplified and strengthened construction. Other features and details of the invention will appear from the specification and claims.

The invention is illustrated in the accompanying drawings as follows:—

Fig. 1 shows an end view of the die.

Fig. 2 a longitudinal elevation, partly in section.

Fig. 3 a section on the line 3—3 in Fig. 2.

Fig. 4 a section on the line 4—4 in Fig. 2.

Fig. 5 a section on the line 5—5 in Fig. 2.

Fig. 6 a section on the line 6—6 in Fig. 5.

Fig. 7 a section on the line 7—7 in Fig. 1.

Fig. 8 a detached view of the cam ring.

Fig. 9 an end elevation of the chaser.

Fig. 10 a side elevation of the chaser.

1 marks the head. This is secured on a rotating spindle 2, the head being secured on the spindle by a screw 3 which extends through the head shank 1^a into the spindle. The head is provided with chaser guide slots 4. These are inclined with the forward end inwardly. Chasers 5 are arranged in the slots. The chasers have operating slots 6 in their faces at right angles to the side edges of the chasers. This makes the slot 6 at an inclination to the axis of the chuck. The chasers are arranged with their edges to the front and rear and the operating slots are arranged in the side faces and are of less depth than the thickness of the chasers from side face to side face, in other words, the operating slots are of less depth than the circumferential dimensions or thicknesses of the chasers. Cam fingers 7 extend into the operating slots 6 and guide the chasers inwardly and outwardly as the cam fingers 6 are moved axially. The cross dimensions of the operating slots are at least as great as the cross dimensions of the operating fingers so that the operating fingers are received wholly within the operating slots. The cir-

cumferential dimension of the fingers particularly should be narrow enough so that they are received within the slots. By this arrangement the guide slots which receive the chasers need no added provision in size to receive these fingers. The cam fingers are formed on a ring 8 which is slidingly mounted on the shank 1^a of the head. The head is cut out immediately to the rear of the guide slots to provide an opening through which the fingers operate. A ring 10 is arranged around the head and immediately over the front end of the cam ring 8 and closes the opening to the slots 9.

Spring sockets 11 are arranged in the face of the ring 8 and springs 13 are arranged in these sockets and operate against the rear of the head 1. The effort of the spring, therefore, is to move the cam ring to the rear so that the cam fingers 7 operating on the chasers tend to retract the chasers.

A screw 14 extends through the cam ring and has a projecting end 15 which operates in a slide 16 in the shank of the head and this forms a stop locking the cam ring on the shank of the head. A catch notch 17 is formed in the shank 1^a and a latch 18 operates in this notch. The latch is mounted on a pin 19. The latch is arranged in a cavity 20 in the cam ring and has a cam face 21 which projects through an opening 20^a in the shell outside of the cavity 20. A spring 22 is arranged in the cavity 20 and secured by a screw 23 which tends to force the latch into the notch or catch 17. When the cam ring is forced forward, this latch drops into the catch 17 and locks the chasers in the inner position and when the cam surface 21 engages an operating part it throws the latch and releases the cam ring.

In order to adjust the position to which the cam ring is locked and consequently the inner position of the chasers I provide an adjusting screw 24 which is screwed on to the screw on the rear end of the shank 1^a. This adjusting screw forms the rear shoulder of the catch 17. It has a notch 25 and a finger 26 extends into this notch. The finger is formed on a lock ring 27. The lock ring is swivelled on the rear of the shank. It is adjustable by means of a spanner wrench, openings 28 being provided for this purpose. It is split at 29 and can be clamped for locking adjustment by means of a screw 30. It is locked on the shank by a spring ring 31. In the operation of the device, the cam

ring is pushed forward, thus moving the chasers to their inner position, the latch moving into the catch 17 and locking it in this position for cutting the screw. When the screw has reached the desired position, the latch 21 is made to contact some abutment, this tripping the latch and with the tripping of the latch the springs 13 force the cam ring to the rear position opening the dies.

10 What I claim as new is:—

1. In a quick-opening die, the combination of a head having chaser guide slots diverging from the axis of the head; chasers arranged in the guide slots and having operating slots in the sides thereof inclined to the axis of the die, said operating slots being of less depth circumferentially than the thickness of the chaser in which the slot is arranged; a cam ring; and cam fingers on the cam ring and extending into the operating slots, said fingers being narrower circumferentially than the guide slots and being receivable wholly within the operating slots, said cam ring being operable to actuate the chasers through the action of the fingers.

2. In a quick-opening die, the combination of a head having chaser guide slots inclined to the axis extending inwardly forward; chasers in said slots, said chasers having operating slots in the sides thereof and inclined to the axis, each of said slots being of less depth circumferentially than the thickness of the chaser in which the slot is arranged; a cam ring; and cam fingers on the ring, said fingers being narrower circumferentially than the depth of the operating slots and extending into the operating slots and arranged in sliding contact with the side walls of the guide slots, said cam ring being operable to actuate the chasers through the action of the fingers.

3. In a quick-opening die, the combination of a head having chaser guide slots inclined to the axis and extending inwardly forward; chasers arranged in the guide slots and having operating slots inclined to the axis of the die; cam fingers extending into the operating slots; a cam ring on which said fingers are mounted, said fingers being fixed relatively to the cam ring and the circumferential space between the cam surfaces being unobstructed; and means for actuating the cam ring for actuating the dies.

4. In a quick-opening die, the combination of a head having chaser guide slots inclined to the axis and extending inwardly forward; chasers arranged in the guide slots and having operating slots inclined to the axis of the die; a cam ring; cam fingers on the cam ring extending into the operating slots; spring sockets in the cam ring; springs in the sockets operating against the head for moving the cam ring to retract the dies; and means for locking the cam ring to close the dies comprising a latch carried by the cam ring, a catch on the head in which the latch operates, and means for adjusting the catch comprising a ring screw threaded on the head.

5. In a quick-opening die, the combination of a head having chaser guide slots inclined to the axis and extending inwardly forward; chasers arranged in the guide slots and having operating slots inclined to the axis of the die; a cam ring; cam fingers on the cam ring extending into the operating slots; spring sockets in the cam ring; springs in the sockets operating against the head for moving the cam ring to retract the dies; and means for locking the cam ring to close the dies comprising a latch carried by the cam ring, a catch on the head in which the latch operates, and means for adjusting the catch comprising a ring screw threaded on the head and means for locking the ring in adjustment comprising a clamping ring mounted on the head.

6. In a quick-opening die, the combination of a head having chaser guide slots inclined to the axis extending inwardly forward; chasers arranged in said guide slots, said chasers having operating slots inclined to the axis; a cam ring; cam fingers on the cam ring extending into the operating slots; said cam ring being axially movable on the head; springs tending to retract the cam ring; a latch carried by the cam ring; a catch on the head with which the latch engages; a screw ring on the head for adjusting the catch; and means for locking the screw ring in adjustment.

In testimony whereof I have hereunto set my hand.

HARRY T. WHITE.