J. A. KATZENMEYER.

ADJUSTABLE DIE HEAD.

APPLICATION FILED JUNE 27, 1908.

949,278.

Patented Feb. 15, 1910.

FIG. 1

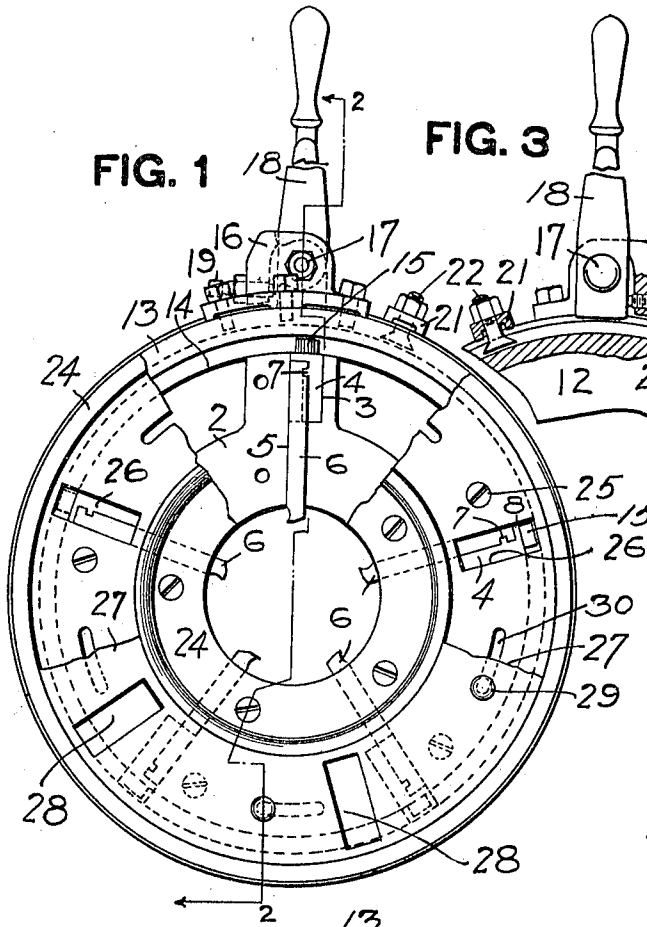



FIG. 3




FIG. 2

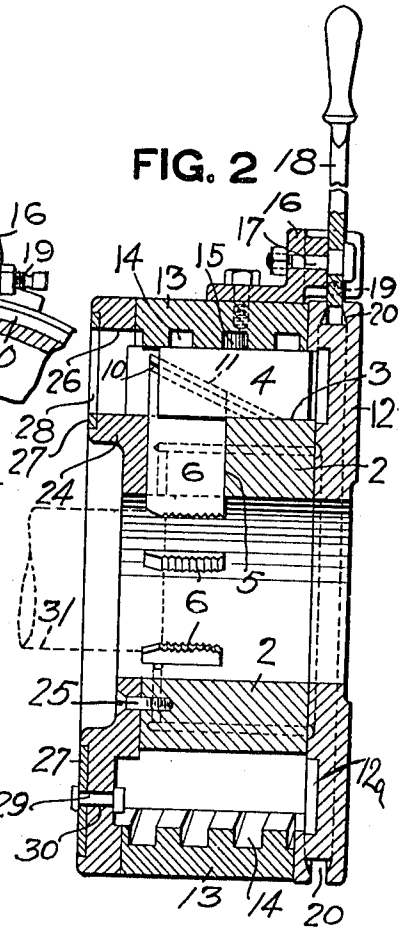



FIG. 4

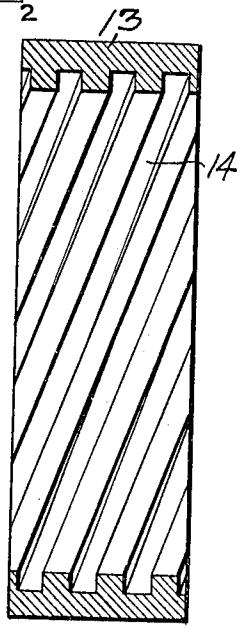



FIG. 5

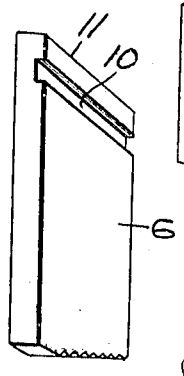
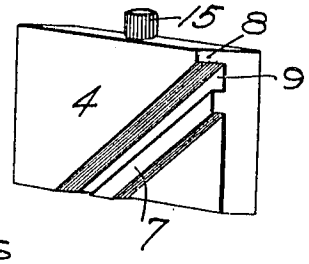



FIG. 6




WITNESSES.

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# UNITED STATES PATENT OFFICE.

JOHN A. KATZENMEYER, OF ELLWOOD CITY, PENNSYLVANIA.

## ADJUSTABLE DIE-HEAD.

949,278. Specification of Letters Patent. Patented Feb. 15, 1910.

Application filed June 27, 1908. Serial No. 440,650.

*To all whom it may concern:*

Be it known that I, JOHN A. KATZENMEYER, a resident of Ellwood City, in the county of Lawrence and State of Pennsylvania, have invented a new and useful Improvement in Adjustable Die-Heads; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to die-heads for use in connection with machines for threading pipe, bolts or other purposes.

The object of my invention is to provide a die-head in which the chasers are moved in a direct and positive manner at right angles, or substantially so, to the axial line of the head, the mechanism for moving the chasers being simple in construction and positive in action so that the movement of the chasers may be calculated to a degree of nicety which insures great accuracy of adjustment.

To these ends my invention comprises the novel features hereinafter set forth and claimed.

In the drawings Figure 1 is a face view of my improved die-head partly broken away; Fig. 2 is a section on the line 2—2, Fig. 1; Fig. 3 is a view of an operating lever from the rear partly in section; and Figs. 4, 5 and 6 are detail views of the guide ring, slide block and chasers.

In the drawings the numeral 2 designates a die-ring, said die-ring having the slots or recesses 3 formed at intervals therein to receive the slide-blocks 4 and the slots 5 to receive the lower portions of the chasers 6, forming together L-shaped slots which are adapted to receive the slide blocks and chasers, the chasers as well as the slide blocks being thus contained within the body of the die-ring so as to be backed up by the solid metal of the die-ring, whereby a very strong and rigid construction is obtained. The blocks 4 are formed with the inclined ribs 7. Each block 7 furthermore has the overhanging inclined portion 8 which forms the guide-way 9 on its inner face. The chasers 6 are formed with the grooves 10 formed at an incline corresponding to the incline of the ribs 7 of the blocks 4 and said ribs fit within said grooves 10 so as to be in sliding engagement therewith. The upper edge of the chaser 6 is inclined, as at 11, and this inclined face engages the inclined face 8 of the block 4 so as to be in sliding engagement therewith, forming a straight and serviceable seat for the chasers 6 while cutting. By this construction when the block 4 is moved in the direction to move the chasers 6 outwardly the inclined face 11 of the chaser will be supported for its entire length, or substantially so, by the inclined face 8 of the block 4 and in this way a very strong backing is given to the chaser which will prevent it from canting in any manner in use. It will be apparent that by this manner of securing the chasers in place the side faces of the chasers will bear against the solid metal of the ring 2 for practically the entire length so that said chasers are securely supported and backed and prevented from movement during the threading operation. The ring 2 is secured to the plate 12 by means of which the die-head is attached to a suitable threading machine. The plate 12 is provided with seats or recesses $12^a$ adapted to receive and guide the inner ends of the block 4, and said plate further acts to restrain the longitudinal movement of the lead ring 13.

The lead-ring 13 surrounds the die-ring 2 and said lead-ring is provided with the spiral grooves 14 corresponding in number to the slide-blocks and chasers. These spiral grooves do not necessarily equal in number the slide blocks and chasers, as where a pipe of larger diameter is to be threaded it is possible to operate several slide blocks by means of a single groove, the slide blocks being located with their pins 15 at different points within the groove to provide for the proper movement of the blocks. The slide-blocks 4 are provided with the pins 15 which are adapted to engage the grooves 14. To provide for the turning of the lead-ring 13 a bracket 16 is bolted to said ring, and pivoted on said bracket by means of the bolt 17 is the lever 18. An adjusting screw 19 is supported by the bracket 16 and said adjusting screw is adapted to bear against the lower end of the lever 18 to provide for adjustment as fully hereinafter set forth. The plate 12 is provided with the annular groove 20 in its periphery and secured within said groove is the stop 21 secured in place by the bolt 22. This stop 21 is in the path of the lever 18 and so controls the amount of movement of the lead-ring 13.

A face-ring 24 is bolted to the die-ring 2 by means of the screws 25. The purpose of this face-ring 24 is to hold the chaser 6 and lead-ring 13 in position within and on the

die-ring 2, and said face ring is provided with openings 26 for the insertion and withdrawal of the blocks when it is desired to remove said blocks and chasers for the purpose of cleaning and renewal. Furthermore, the face ring 24 with its openings 26 permits the blocks 4 to move into said openings in the movement of the block whereby the block is supported by the metal of the face-ring and in this way a longer bearing is provided for the block 4 and as a consequence better support is given to the chasers. In order to close the openings 26 and prevent the entrance of dirt the cover-plate 27 is employed, said cover-plate being fastened to the face-ring 24 and having the openings 28 adapted to coincide with the openings 26 in the face-ring 24. In case the adjustment obtained by the location of the stop 21 is not quite accurate the screw 19 may be employed for getting a fine adjustment. The cover-plate 27 is adapted to be moved around in position to bring the openings 28 into coincidence with the openings 26 of the face-ring and said cover-plate is accordingly provided with screws 29 which are adapted to engage the circular slots 30 formed in the face-ring 24.

The operation of my improved die-head in the threading of pipe is as follows: The pipe 31 is inserted within the central opening of the die-head in position to be operated on by the chasers. The operator, by moving the lever 18 until the lower end thereof comes in contact with the stop 21 imparts a rotary movement to the lead-ring 13 and this movement of the lead-ring 13 will act to move the slide-blocks 4 longitudinally of the axis of the die-head. This movement is effected by the engagement of the pins 15 with the spiral grooves 14 of said lead-ring. As the blocks 14 are moved in this manner the chasers 6 will be moved at right angles to the axial line of the die-head, or into position to receive the pipe, due to the inclined faces of the blocks 4 moving over the inclined faces of the chasers. The chasers are moved in a positive manner in a straight course and securely supported against end thrust by the blocks 4, while at the same time the side faces of the chasers are supported by the solid metal of the die-ring for substantially the entire length so that wabbling of the chasers during the threading operation and consequent uneven cutting is prevented. The pipe is fed to the chasers after they have been advanced and the threading operation takes place. After the threading operation, the lever 18 may be thrown in the opposite direction and the chasers withdrawn.

It is apparent that by adjusting the stop 21 the movement of the chasers may be regulated with great accuracy and when once the stop has been fixed for the diameter of pipe to be threaded the movement of the chasers will not vary and consequently great accuracy in the formation of the threads is obtained. By having the slide-blocks 4 engaging the spiral grooves of the lead-ring an equal movement on the part of each slide-block is insured, which gives a correspondingly accurate movement to the chasers 6. The spiral grooves, being formed on the inner faces of the lead-ring, prevent dirt or foreign matter collecting in said grooves so as to interfere with their operation and, furthermore, it is possible to have each groove extend continuously around the inner face of the lead-ring, whereby any number of chasers may be employed, which is, of course, a great point of advantage in connection with the threading of pipes of large diameter, and the lead-ring may be given a complete rotation if desired.

What I claim is:

1. In a die head, the combination of a die body, a plurality of blocks longitudinally movable of said die head, chasers movable at an angle to the axial line of said die head and in operative engagement with said blocks, a rotatable lead ring, said lead ring having on its inner face independent spiral grooves with open ends, and projections on said blocks engaging said grooves.

2. In a die-head, the combination of a die-body, having a series of slots formed therein, blocks in said slots movable longitudinally of said die-head, chasers in said slots movable at right angles, or substantially so, to said axial line, means for moving said chasers by the movement of said blocks, means for moving said blocks, a face-ring secured to said die-body, said face-ring having openings corresponding to said slots in said die-body, and a rotatable cover-plate on said face-ring having slots adapted to be brought into coincidence with said openings in said face-ring.

In testimony whereof, I the said JOHN A. KATZENMEYER have hereunto set my hand.

JOHN A. KATZENMEYER.

Witnesses:
C. D. COBAN,
JOS. W. HUMPHREY.