B. BORDEN.

DIE HEAD.

APPLICATION FILED JAN. 11, 1911.

1,036,550.

Patented Aug. 27, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

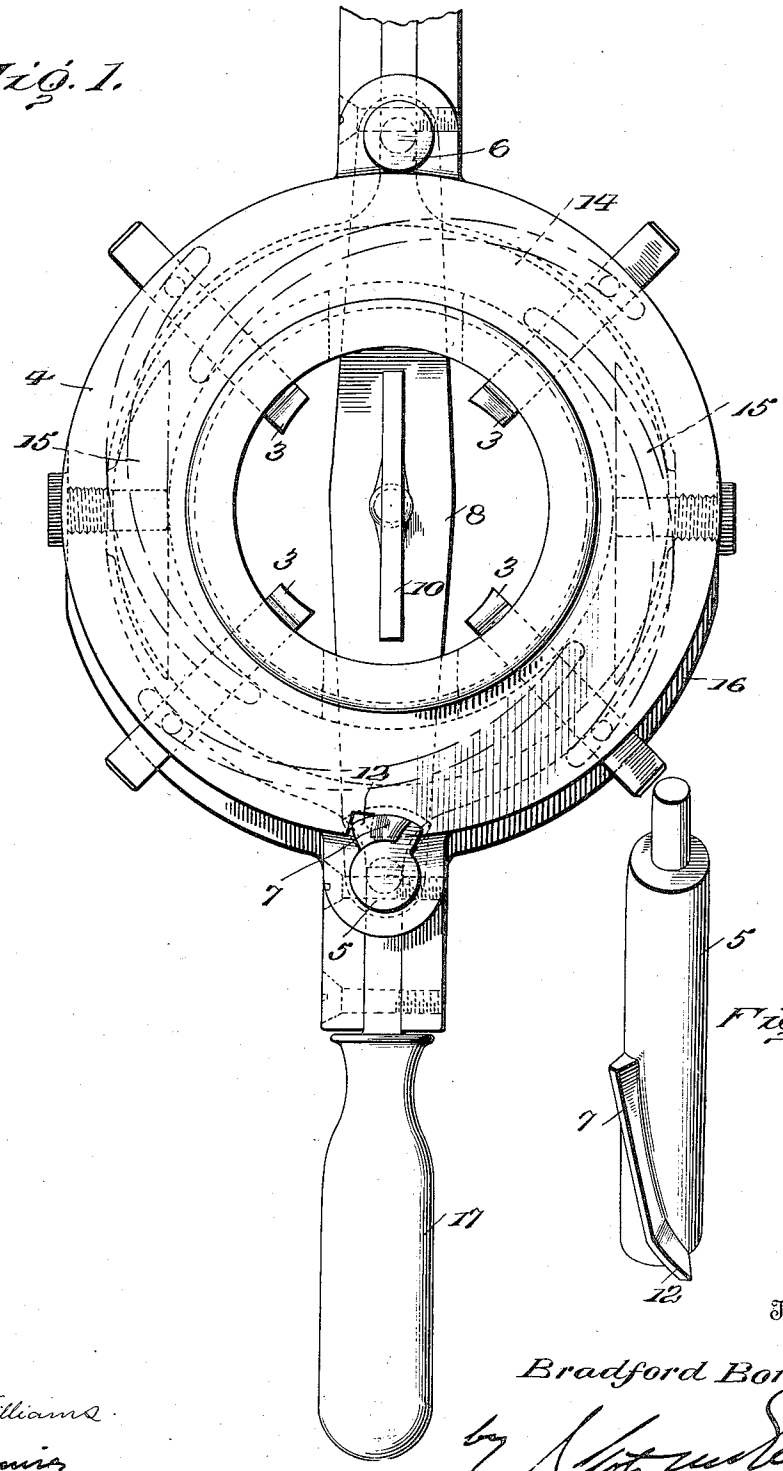

Fig. 4.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

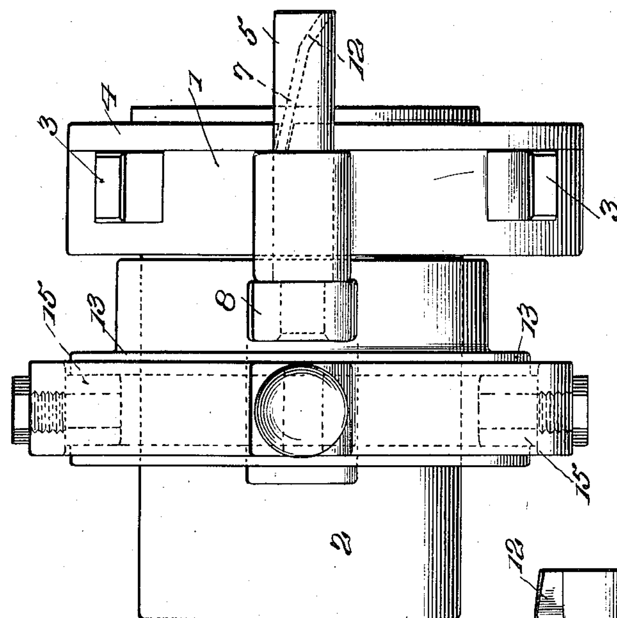
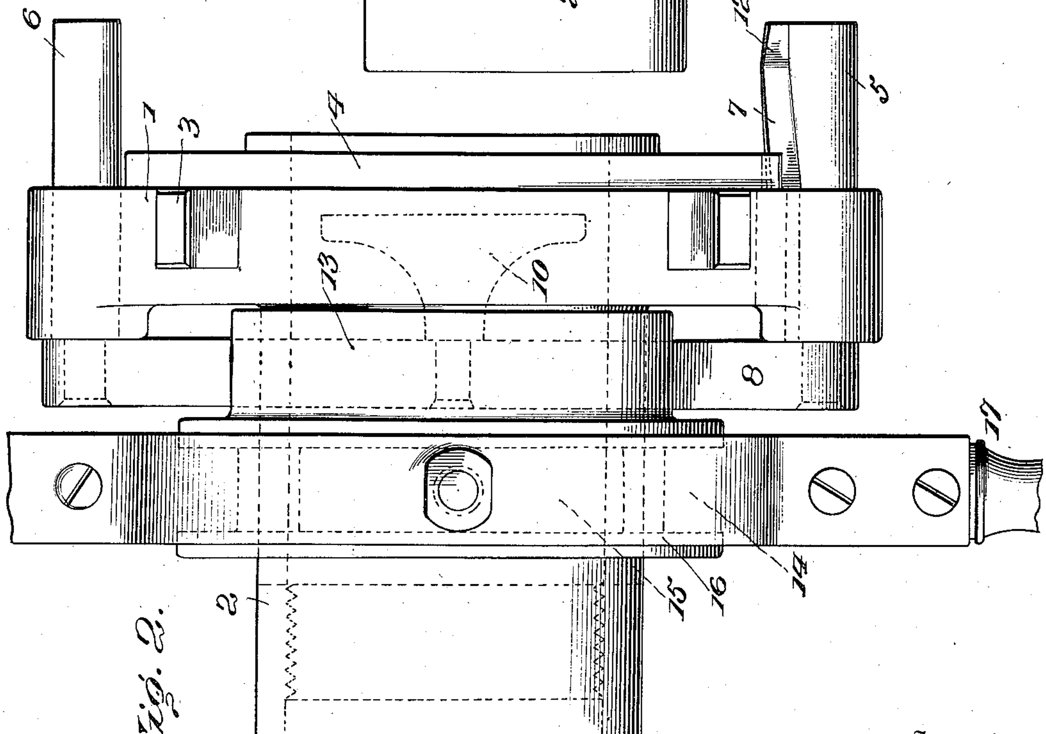


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

BRADFORD BORDEN, OF TORONTO, ONTARIO, CANADA, ASSIGNOR TO THE BORDEN COMPANY, OF WARREN, OHIO, A CORPORATION OF OHIO.

DIE-HEAD.

1,036,550. Specification of Letters Patent. Patented Aug. 27, 1912.

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To all whom it may concern:

Be it known that I, BRADFORD BORDEN, of Toronto, in the Province of Ontario and Dominion of Canada, have invented certain new and useful Improvements in Die-Heads; 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.

The primary object of this invention is to provide a die-head which may be employed with equal facility on either the live spindle or the dead spindle of a lathe; and a further object is to provide in a die-head for cutting tapered threads on pipes or other cylindrical bodies, improved means for throwing the chasers out of engagement with the work at the completion of the threading operation, or at any point during the threading operation while the die-head is in operation.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is an end elevation. Fig. 2 is a side elevation. Fig. 3 is a plan view. Fig. 4 is a view in perspective of the plate-controlling post.

Referring to the drawings, 1 designates a housing or chaser-carrier which is provided with a tubular sleeve 2 which is designed to be held in a suitable socket of a lathe. The chasers 3 are arranged in radial guideways in the chaser-carrier, and each chaser is engaged by a cam plate 4 which has eccentrically-arranged chaser-engaging means, as indicated in dotted lines, Fig. 1.

5 and 6 designate two posts which are projected through openings in the chaser-carrier. The post 5 has an interlocking engagement with the chaser-engaging plate 4, such engagement being shown as consisting of a diagonally-arranged lug 7 on the inner face of the post fitting in a peripheral cut-out in the plate. Upon the posts being moved longitudinally, on a plane paralleling the axis of the chaser-carrier, the chaser-engaging plate 4 will be rotated and thereby control the recession of the chasers. If the chaser-carrier is on the live spindle of the lathe this rotation of the chaser-engaging plate is independent of and in addition to the rotation of the chaser-carrier. The two posts are mounted on a cross bar 8 which is passed transversely through a longitudinal slot in sleeve 2, and at its center has a stop 10 with which the end of the pipe being threaded is designed to engage, which engagement causes the posts to move longitudinally. Neither the chaser-carrier nor any portion thereof, nor the chaser-engaging plate, has any longitudinal movement. The lug 7 at its outer end has an acute pitch, as shown at 12, so that at the termination of the longitudinal travel of the posts the chaser-engaging plate will be turned to an extent sufficient to throw the chasers out of engagement with the work. The throw out of the chasers will occur automatically at the end of the threading operation, or it may be manually effected at any stage while the die-head is in operation, simply by moving rearwardly the post-carrying cross-bar longitudinally of the axis of the die-head.

For the purpose of enabling the throw out to be effected manually at any stage of the operation, any suitable means may be employed, for instance, a collar 13 slidably mounted on sleeve 2 and equipped with a peripheral groove 14 for taking in shoes 15 carried by the ring portion 16 of a lever 17, the handled end of which latter is located beneath the die-head. Through opposite openings in this collar is passed cross-bar 8 so that any movement of the collar longitudinally of the axis of the die-head will carry the cross-bar with it, and this in turn will move the posts relatively to the chaser-carrier. By this means the operator by manipulating lever 17 may, even while the die-head is rotating, throw out the chasers at any desired point in the cutting operation. This is of advantage especially when it is desired to cut a short thread. The inward movement of the chasers is likewise under the control of the lever. When the die-head is on the dead spindle of a lathe the lever is not absolutely essential, as the operator by grasping the collar may move the cross-bar and posts rearwardly to throw out the chasers.

It is understood that if the die-head is mounted in a turret or on the dead spindle of a lathe the pipe or work is mounted on the live spindle or tail stock, and is rotated as it is presented to, and while being acted upon by, the chasers. If, however, the die-head is rotated, the work remains idle. As the end of the pipe to be threaded engages

stop 10 a relative movement is produced between the posts and the chaser-carrier, that is, the posts are caused to travel longitudinally, and by reason of the engagement between the lug of post 5 and the cam plate the several chasers are caused to uniformly recede, or are controlled in their recession, during the cutting operation. At any stage of the latter the operator may advance the turning of the cam plate, and hence throw out the chasers at any point, regardless of whether the die-head is fixed or rotating.

I claim as my invention:—

1. A die-head comprising a chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable relatively to the chaser-carrier, means having a longitudinal movement parallel to the axis of the chaser-carrier during the threading operation, such means coöperating with such chaser-engaging plate for controlling the rotation thereof, means for effecting the throw out of the chasers normally at a predetermined point in the threading operation, and means capable of rendering the last mentioned means effective before the predetermined point of operation is reached.

2. A die-head comprising a chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable relatively to the chaser-carrier, means having a longitudinal movement parallel to the axis of the chaser-carrier during the threading operation, such means coöperating with such chaser-engaging plate for controlling the rotation thereof, means for automatically effecting a further rotation of the chaser-engaging plate to throw out the chasers at a predetermined point in the threading operation, and manually controlled means capable of advancing the chaser throwing-out means before the predetermined point of operation is reached.

3. A die-head comprising a chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable relatively to the chaser-carrier, means having a longitudinal movement parallel to the axis of the chaser-carrier during the threading operation, such means coöperating with such chaser-engaging plate for controlling the rotation thereof, means with which the article being threaded is designed to engage for moving the first mentioned means longitudinally during the threading operation, and other means capable of advancing the movement of the article-engaging means independently of its engagement with the article.

4. A die-head comprising a chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable relatively to the chaser-carrier, means having a longitudinal movement parallel to the axis of the chaser-carrier during the threading operation, such means coöperating with such chaser-engaging plate for controlling the rotation thereof, means for automatically effecting a further rotation of the chaser-engaging plate to throw out the chasers at the termination of the longitudinal travel of the aforementioned means, means with which the article being threaded is designed to engage for moving the first mentioned means longitudinally during the threading operation, and other means capable of advancing the movement of the article-engaging means independently of its engagement with the article.

5. A die-head comprising a chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable relatively to the chaser-carrier, a post having a longitudinal movement parallel to the axis of the chaser-carrier during the threading operation, such post coöperating with such chaser-engaging plate for controlling the rotation thereof, a stop carried by said post and with which the article being threaded is designed to engage for automatically moving the post longitudinally, means carried by the post for throwing out the chasers at the termination of its longitudinal travel, and means for moving the post independently of its movement by the article being threaded to throw out the chasers at any point in the threading operation.

6. A die-head comprising a chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable relatively to the chaser-carrier, a post having a longitudinal movement parallel to the axis of the chaser-carrier during the threading operation, such post coöperating with such chaser-engaging plate for controlling the rotation thereof, a stop carried by said post and with which the article being threaded is designed to engage for automatically moving the post longitudinally, and manually-operable means for moving the post independently of its movement by the article being threaded.

7. A die-head comprising a chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable relatively to the chaser-carrier, a post having a longitudinal movement, a cross-bar arranged perpendicularly to the axis of the chaser-carrier, a stop connected to said cross-bar and designed to be engaged by the article being threaded to move said post longitudinally, a member movable longitudinally of the axis of the chaser-carrier and designed to control said cross bar, and means for moving such member.

8. A die-head comprising a chaser-carrier, a series of radially-arranged chasers, a chaser-engaging plate rotatable relatively to the chaser-carrier, a post having a longitudinal movement, a cross bar arranged per-

pendicularly to the axis of the chaser-carrier, a stop connected to said cross bar and designed to be engaged by the article to be threaded to move said post longitudinally, a collar movable longitudinally of the axis of the chaser-carrier and designed to control said cross bar, and a lever for shifting said collar.

9. A die-head comprising a chaser-carrier having no longitudinal movement, chasers movable therein, a chaser-engaging plate having normally a uniform movement relatively to the chaser-carrier, an element movable on a plane paralleling the axis of the chaser-carrier for controlling said chaser-engaging plate, coöperating means to positively throw out the chasers at the completion of the travel of said element, and means capable of moving such element in advance of its normal movement.

10. A die-head comprising a chaser-carrier, chasers movable therein, a chaser-gaging plate movable relatively to the chaser-carrier, a post movable longitudinally on a plane parallel with the axis of the chaser-carrier and engaging said plate to control the rotation thereof, means with which the article being threaded is designed to engage to automatically effect the movement of said post, means for positively throwing out the chasers at the completion of the travel of said post, and manually-operable means for moving said post and the article-engaging means.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

BRADFORD BORDEN.

Witnesses:
J. B. TAYLOR,
W. H. BECHTEL.