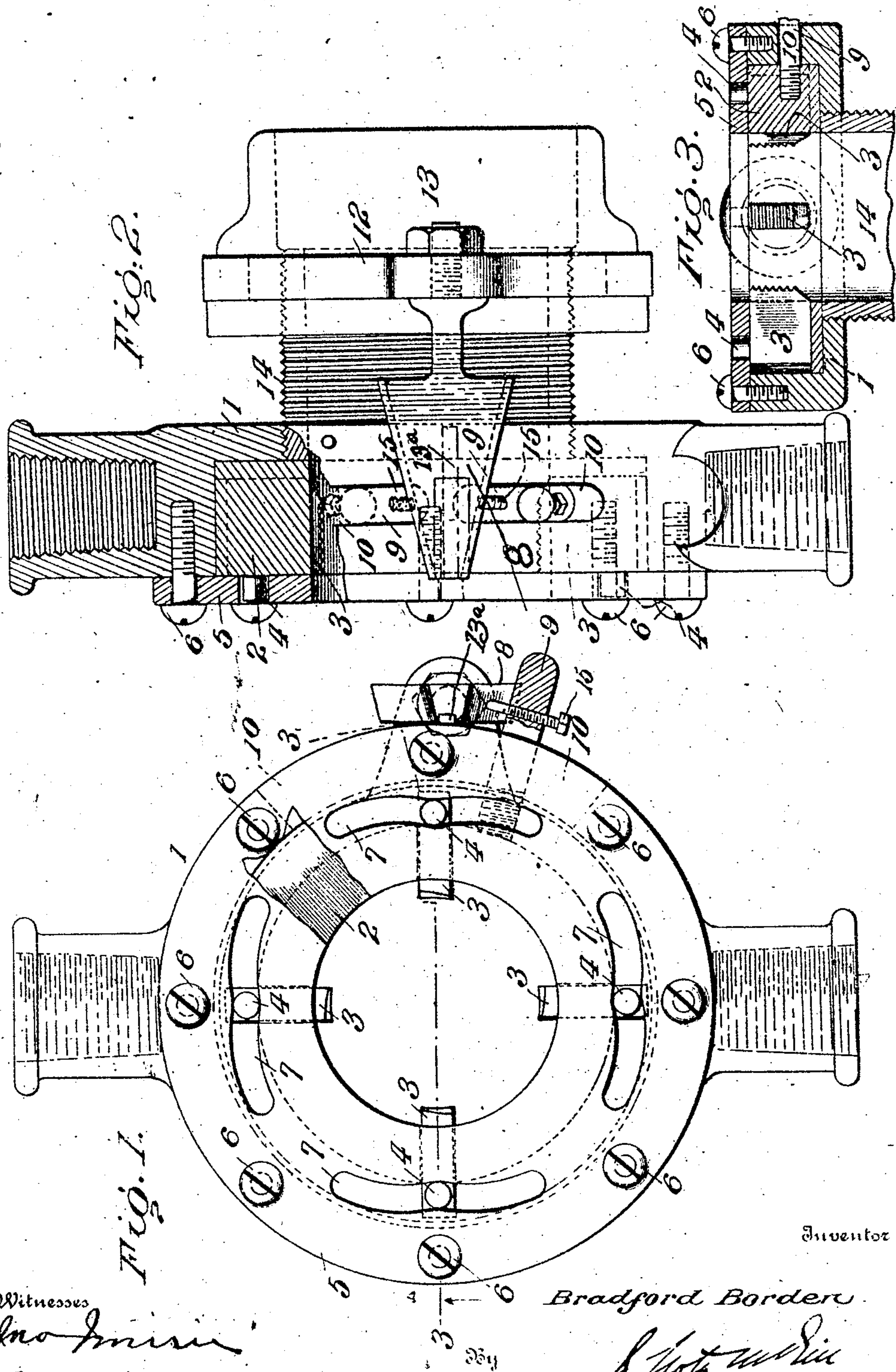


No. 865,157.

PATENTED SEPT. 3, 1907.

B. BORDEN.  
ADJUSTABLE DIE STOCK.  
APPLICATION FILED APR. 13, 1905.



Witnesses

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# UNITED STATES PATENT OFFICE.

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

## ADJUSTABLE DIE-STOCK.

No. 865,157.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed April 13, 1905. Serial No. 255,341.

*To all whom it may concern:*

Be it known that I, BRADFORD BORDEN, of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Adjustable Die-Stocks; 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 objects of this invention are, first, to insure the holding of the chasers to their work and at the same time allow of their gradual outward movement in the cutting of a taper thread, either right or left hand; and, secondly, to maintain the integrity of the device by avoiding any impairment of the strength of the chaser holder.

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

In the accompanying drawings, Figure 1 is a face view. Fig. 2 is a side elevation partly broken away. Fig. 3 is a longitudinal sectional view.

Referring to the drawings, 1 designates the circular housing having a concentric chamber to accommodate the chaser holder 2, which latter is shown in the form of a solid ring fitted in said chamber, bearing against the back of the housing and capable of being rotated in either direction. This ring has a series of transverse slots forming guideways for a series of chasers 3, which latter are threaded at their inner ends, and near their outer ends are equipped with laterally extended studs 4.

5 designates a cover plate by which the ring is held within the housing, such plate being rigidly secured thereto by screws 6, and at its center it has a circular opening corresponding to the openings in the ring and the rear wall of the housing. In this cover plate are formed cam slots 7 into which the studs 4 project, said cam slots being arranged in pairs so that the device may be used for cutting both right and left hand threads, the inner end of each slot opening into the corresponding end of the complementary slot, said inner ends being nearer the axial center of the housing than the outer ends thereof. As the cutting begins the studs 4 are ordinarily located at the inner ends of their respective cam slots, and as the work progresses the studs are caused to travel toward the outer ends thereof and thereby gradually draw the chasers outward so as to produce a taper thread.

8 designates a wedge with which a pin 9 of the chaser holder is caused to engage, such pin projecting through a slot 10 formed in the circular wall of the housing. This wedge is shown in the form of a triangular block having at its rear a threaded extension which is mounted in a ring 12 axially movable on the ordinary work holder 13 wherein the pipe to be threaded is secured. The

wedge is held by a spline 13<sup>a</sup> to housing 1 to retain it in proper position relative to such housing and still allow the latter to move at right angles to the wedge. The work holder is interiorly threaded to receive the leader screw 14 projecting from the rear of the housing. This screw is removable so that screws and work holders for left and right hand threads may be interchangeably employed, the chasers themselves being also removable for the same purpose. When the device is so employed for cutting a left hand thread the pin 9 must be transferred to the other side of the wedge as shown in dotted lines, Fig. 1. To provide for nicety of adjustment, the pin 9 is preferably equipped with an adjustable screw 15 passed transversely therethrough so as to contact with the tapered side of the wedge, thereby enabling the chasers to be adjusted to conform to the size of pipe to be threaded. When cutting a right-hand thread, pin 9 is located, as shown in full lines, Figs. 1 and 2, while in cutting left hand threads the chaser holder is turned axially so as to position the pin on the other side of the wedge. As the work progresses the die stock travels inwardly toward the work holder, and the pin 9 of the chaser holder being in engagement with the wedge is gradually forced longitudinally of slot 10, thereby turning the chaser holder in the housing and drawing the chasers outward by reason of the studs thereof moving toward the outer ends of the cam slots.

In practice, as the cutting operation begins, with a pipe held in the work holder as soon as pressure is applied to the housing to turn it in the desired direction, the chasers will move in the opposite direction, until arrested by the engagement of pin 9 with the wedge. The limit of movement of the chasers is coextensive with the inner ends of the cam slots, and as the cutting operation begins the chaser holder is gradually caused to turn axially within its housing by reason of the engagement of the wedge with pin 9, the studs 4 of the several chasers at the same time moving toward the outer ends of their respective cam slots.

The advantages of my invention will be apparent to those skilled in the art. It will be seen that the strength of the chaser holder is in no way impaired, since the cam slots are not formed therein, but in lieu are formed in the cover plate. Thus the chaser holder is a solid body with the exception of the slots formed to accommodate the chasers. In consequence all danger of deflection of the latter is avoided. It will also be seen that the device may be used for both right and left hand threads, it only being necessary to substitute different leader screws and work holders; and also that by means of the screw 15 the chasers may be adjusted to accommodate pipes of different sizes, or to regulate the depths of the initial cut.



## I claim as my invention:—

1. A die stock comprising a housing, a series of chasers, a holder therefor mounted in said housing rotatable with and independently thereof during the cutting operation, a  
5 plate fixedly held to said housing having cam slots, studs projecting from said chasers into said slots, and means rotatable with said housing and relative to the plane of rotation of which the latter is movable at right angles, for automatically rotating said holder independently of its ro-  
10 tation with the housing as the work progresses, said studs thereby traveling in said cam slots during the cutting operation to effect the outward movements of the chasers.
2. A die housing having a circular chamber, a ring fitted in said chamber, chasers mounted in said ring having out-  
15 wardly-projecting studs, a cover plate rigidly secured to said housing over said ring and having a series of cam slots into which said studs project, and means rotatable with said housing and relative to the plane of rotation of which the latter is movable at right angles, for causing  
20 said studs to automatically travel in said slots in the direction in which the housing is rotated as the work progresses.
3. A die-housing having a circular chamber, a ring fitted in said chamber, chasers mounted in said ring having out-  
25 wardly projecting studs, a cover plate rigidly secured to said housing over said ring and having a double series of cam slots into which said studs project, and means for causing said studs to travel outwardly in either series of slots, according as the chasers are cutting right or left  
30 hand threads.
4. A die stock comprising a housing, a series of chasers, a holder therefor mounted in said housing and capable of being rotated with and independently thereof, a fixed plate  
35 having cam slots, studs projecting from said chasers into said slots, a pin projecting laterally from said chaser

holder, and a wedge rotatable with the housing and with which said pin is designed to engage, the wedge and the housing having a relative movement at right-angles to the plane of rotation.

5. A die stock comprising a housing, a series of chasers, 40 a holder therefor mounted in said housing and capable of being rotated with and independently thereof, a fixed plate having a series of double cam slots, studs projecting from said chasers into either slot of a pair thereof, a pin projecting laterally from said chaser holder, and a wedge hav- 45 ing two tapered side edges with either of which said pin is designed to engage, the wedge and the housing having a relative movement at right-angles to the plane of rotation.

6. The combination with the housing, the leader screw, and the work holder with which said screw engages, of the 50 radially adjustable chasers, the holder therefor having a pin projecting outwardly through said housing, a wedge rotatably mounted on said work holder for engaging said pin, said wedge having a spline connection with the hous- ing, and means for drawing the chasers outwardly as the 55 holder therefor is rotated independently of the housing by the engagement between said wedge and pin.

7. The combination with the housing, the leader screw, and the workholder with which said screw engages, of the 60 radially adjustable chasers, the holder therefor having a pin projecting outwardly through said housing, a wedge rotatably mounted on said work holder for engaging said pin, said wedge having a spline connection with the housing, a fixed plate having cam slots, and studs project- 65 ing from said chasers into said cam slots.

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

BRADFORD BORDEN.

Witnesses:

FRANK S. CHRYST,  
JOHN R. LACHMAN.