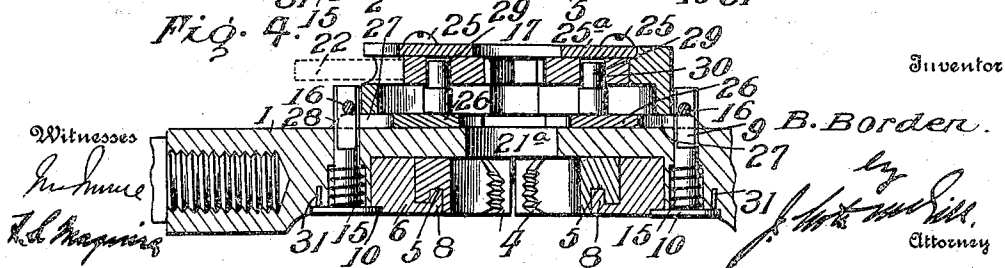
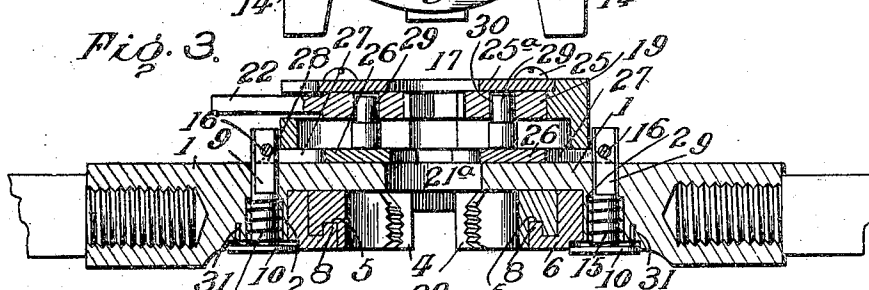
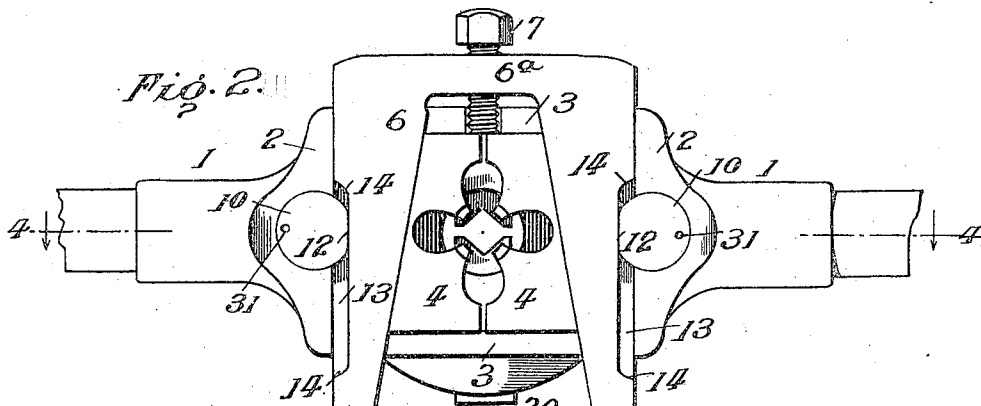
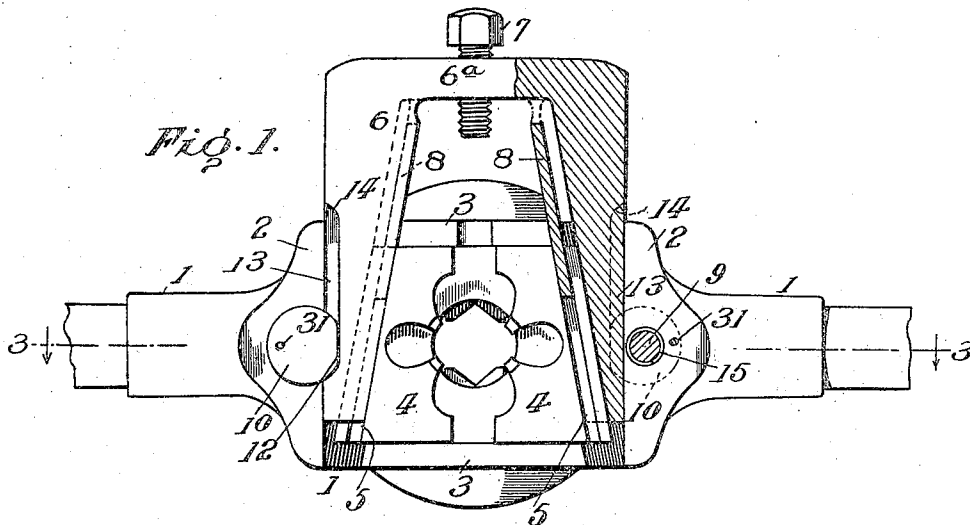


No. 812,398.

PATENTED FEB. 13, 1906.

B. BORDEN.
ADJUSTABLE DIE STOCK.
APPLICATION FILED JAN. 4, 1905.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 5.

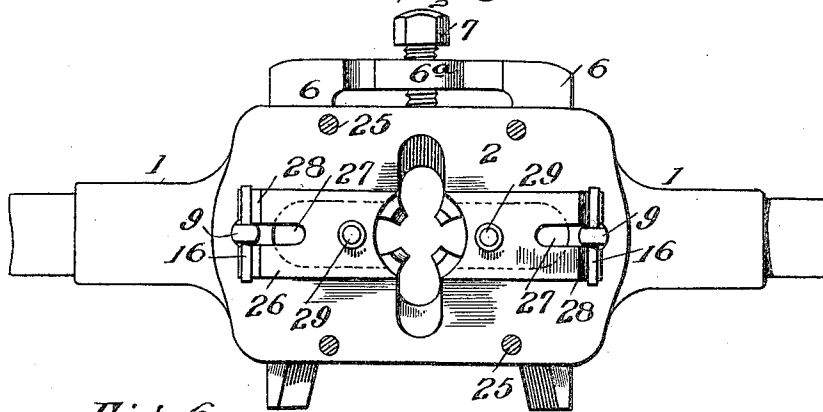


Fig. 6.

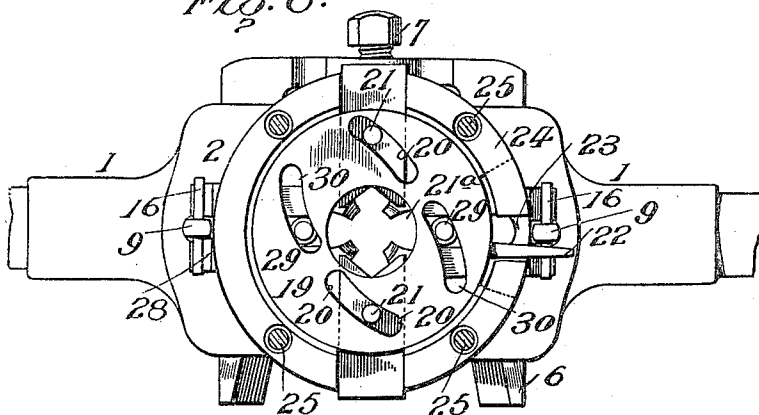


Fig. 7.

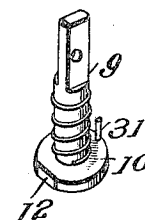
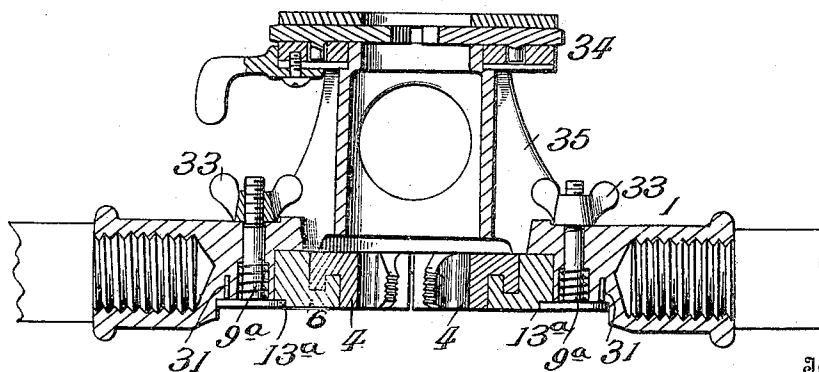


Fig. 8.



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UNITED STATES PATENT OFFICE.

BRADFORD BORDEN, OF WARREN, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE BORDEN COMPANY, OF WARREN, OHIO; A CORPORATION OF OHIO.

ADJUSTABLE DIE-STOCK.

No. 812,398.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed January 4, 1905. Serial No. 239,669.

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 primary object of this invention is to improve the construction and promote the efficiency of a bolt or pipe threading machine of the type embraced by Letters Patent of the United States No. 744,465, issued to me November 17, 1903. As pointed out in said patent, the adjustment of the sectional dies is controlled by the movements of a free sliding device entirely filling the spaces between the dies and the end walls of the housing, the inner movement of the adjuster being limited by an adjustable stop set to insure uniformity in the depth of cuts and to accommodate bolts or pipes of different sizes. In said patent I showed as the means for preventing any possible deflection of the adjuster and dies a single thumb-screw working in the housing and having a flange for engaging the face of the adjuster. According to my present invention I employ improved means for this purpose which serves the further office of limiting the extreme inner and outer movements of the adjuster and yet will permit the latter to be readily moved in opposite directions in the setting of the dies.

A further object is to effect the application and release of such means simultaneous with the adjustment of a centering device, the jaws of which may be set for all bolts or pipes within the range of the machine, and a further object is to enable bolts to be threaded well up toward the heads thereof, the threading-machine being free on its front face of all projections which might interfere with the threading being carried very near the bolt-heads.

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 with the adjuster moved outwardly. Fig. 2 is a similar view with the ad-

juster moved inwardly. Figs. 3 and 4 are cross-sectional views on lines 3 3 and 4 4, respectively, of Figs 1 and 2. Fig. 5 is a rear face view with the centering device removed, showing the two bolt-actuating slides. Fig. 6 is a face view of the centering device with the cap-plate removed. Fig. 7 is an enlarged view of one of the stop-bolts. Fig. 8 shows a transverse sectional view of a slightly-modified form especially adapted for threading larger pipe.

Referring to the drawings, 1 designates the body or housing of an open-front stock, 2 the parallel end walls thereof, and 3 the top and bottom walls. Fitted between these latter walls and movable back and forth in the space between the end walls are the sectional dies 4, which, as pointed out in my before-noted patent, are inclined along their sides toward each other to conform to the correspondingly-inclined faces of the side members of the free sliding adjuster 6. The latter is shown in the form of a frame composed of corresponding side members and a connecting portion 6^a, wherein is mounted a set-screw 7 for limiting the inward movement of the adjuster and permit the latter to be so set that the dies will accommodate bolts or pipes of different sizes and render readjustment unnecessary in the further cutting at the same gage notwithstanding the fact that the adjuster may be moved outwardly after each threading operation in order to release the hold of the dies on the bolt or pipe. The outer walls of the side members are straight to conform to the end walls 2 of the housing; also, as pointed out in my said patent, the dies are formed with grooves to accommodate tongues 8 of the overlapping portions of the adjuster, such tongues effecting the opening or outward movements of the dies as the adjuster is moved outwardly.

9 9 designate two bolts fitted in openings in housing 1 and having on their front ends rounded heads 10, segments of which are removed at 12. These heads intersect the planes of the end walls 2, so as to project over the outer face of the adjuster. The front edges of the sides of the latter are formed with two grooves 13, which are overlapped by the heads of the bolts, said grooves having at their ends rounded shoulders 14,

which upon striking against the bolt-heads limit the free sliding movements of the adjuster. On the other hand, the bolts prevent any outward deflection of the adjuster and hold it and the sectional dies in proper position within the housing. These bolts are always under the tensions of springs 15, which normally tend to hold them extended, as shown in Fig. 3, permitting of the free sliding of the adjuster within the limits of its grooves. When, however, the bolts are drawn inwardly, compressing their springs, the overlapping edges of the heads are drawn against the bottoms of the grooves of the adjuster. I have shown each of the bolts as having a retaining cross-pin 16, which limits its forward movement.

17 designates a chuck or centering device having two sliding jaws capable of being moved toward and away from each other by the axial adjustment of a plate 19, having cam-slots 20 to accommodate lugs 21 of said jaws, said plate having a central opening 21^a and a laterally-extended handle 22. The latter projects through a slot 23 of the chuck-casing 24, which is secured to the rear side of the housing by the screws 25, which also serve to retain the cap-plate 25^a in position.

26 26 designate two adjusting or wedging plates fitted against the rear of housing 1 and having in their outer ends centrally-arranged slots 27, forming spaced-apart fingers 28, beveled so as to engage the cross-pins 16 of the spring-pressed bolts and effect the movements of the latter as against the tensions of their springs, thereby drawing their heads within the grooves of the adjuster. These plates 26 work in grooves in the inner face of the chuck-casing 24 and are provided with lugs 29, which fit in a second set of cam-slots 30, formed in plate 19. As the latter is turned axially to bring the two centering-jaws closer together the wedging-plates are forced outwardly, so that their beveled ends will be further projected between the housing and the retaining-pins 16, thereby drawing the heads of the bolts tight against the adjuster and prevent any deflection of the latter or of the dies during the threading operation. The slots 27 extend inwardly of each plate 26, beyond the beveled portions thereof, so that once the cross-pins 16 are at the inner ends of the bevels and the bolts 9 are set such plates may be further moved without affecting the bolts. This permits the centering-jaws to be brought nearer together to act as a guide and center for all bolts and pipes within the range of the machine. As soon as the threading operation is completed and the cam-plate 19 is turned axially to move the centering-jaws apart the two adjusting-plates are drawn inwardly toward each other, thereby drawing their beveled ends beneath the retaining-pins sufficiently to allow the bolts to

move outwardly under the actions of their springs. Thus the adjuster is free to be moved outward and draw the sectional dies apart, and in so being moved all danger of its being carried out of engagement with the dies or the housing is avoided by the rounded shoulders at the ends of the grooves contacting with the heads of the bolts. When it is desired to remove the adjuster, as in substituting new dies, the plates 26 are drawn inward sufficiently to allow the heads of bolts 9 to extend beyond the planes of the grooves 13. The extent of the inward movement of the adjuster is always limited by the set-screw 7, which, as before stated, is adjusted to maintain the fixed relation between the dies in the cutting of pipes of like sizes or threads of corresponding gage. In order to prevent the bolts from turning laterally, I equip the heads thereof with guiding-pins 31, which extend into small openings of the housing. In this way the straight portions of the heads are always maintained in parallelism with the straight sides of the grooves of the adjuster.

In practice the set-screw 7 is adjusted so that when the adjuster is moved inwardly the space between the sectional dies will always be uniform when working at a fixed gage, the return movement of the adjuster always repositioning the dies at the same point. As a bolt is inserted through the dies the cam-plate of the chuck is turned axially to cause the jaws to properly center the bolt. Simultaneous with this operation the adjusting-plates 26 are forced outwardly, so as to draw the spring-pressed bolts snug against the grooves of the adjuster and prevent any lateral deflection of the latter or of the dies. There being no projections on the face of the machine, the threading of a bolt close up to the head thereof may be readily accomplished, since the chuck or vise (not shown) in which the bolt-head is held may be moved close up to the face of the housing without interfering with the turning of the latter. As soon as the threading operation is completed the cam-plate is turned axially to withdraw the centering-jaws and the adjusting-plates, thereby releasing the hold of the bolts against the adjuster and permitting the latter to be moved outwardly to draw the dies apart, such outward movement being limited, however, by the ends of the grooves contacting with the heads of the bolts.

In Fig. 8 I have shown the spring-pressed bolts as applied to a large size bolt or pipe threading device wherein instead of making the tightening of the bolts against the adjuster depend upon the movement of the cam-plate of the centering device such bolts are shown as threaded on their rear ends and equipped with thumb-nuts 33. In this arrangement the centering device 34 is mount-

ed on a skeleton extension 35 of the housing. According to this construction after a bolt or pipe is positioned the thumb-nuts 33 are tightened, so as to draw the heads of the bolts 9^a into the grooves 13^a of the adjuster.

In both forms not only do the bolts serve to prevent deflection of the sectional dies and adjuster, but they also limit the movements of the latter, thereby enabling the work to be quickly and accurately performed without the delay attendant upon the adjuster being moved out of engagement with the dies when drawn outwardly.

I claim as my invention—

1. A die-stock comprising an open-front housing having end walls, sectional dies within the housing between such walls, a free sliding adjuster filling the spaces between the dies and the end walls for moving the former toward and away from each other, said adjuster having stops on its front face adjacent its edges, and means for limiting the extreme movements of the adjuster and holding the latter and the dies as against lateral displacement during the cutting operation, such means comprising spring-pressed bolts mounted in the housing and having their heads overlapping the side edges of the adjuster, and means for simultaneously drawing the heads of said bolts tight against the adjuster.

2. A die-stock comprising an open-front housing having opposite end walls, sectional dies between such end walls having grooves in their front faces, a free sliding adjuster having side members filling the spaces between the dies and the end walls for moving the former toward and away from each other, said side members having grooves in their outer faces and tongues on their inner faces fitting the grooves of said dies, spring-pressed bolts mounted in said end walls and having their heads extended into said grooves of said side members, and means for simultaneously binding the heads of both bolts against said side members.

3. A die-stock comprising a housing having end walls, sectional dies within the housing, a free sliding adjuster for filling the spaces between the dies and said end walls and for effecting the movements of the dies toward and away from each other, a centering device, means for actuating such centering device, means mounted in the housing for limiting the extreme movements of the adjuster and preventing the lateral displacement thereof, and means for controlling such latter means operated simultaneously with and by the means for actuating the centering device.

4. A die-stock comprising a housing having end walls, sectional dies within the housing, a free sliding adjuster for filling the spaces between the dies and said end walls

and for effecting the movements of the said toward and away from each other, a centering device, means for actuating such centering device, means mounted in the housing for preventing the lateral displacement of the adjuster, and means for controlling such latter means operated simultaneously with and by the means for actuating the centering device.

5. A die-stock comprising a housing having end walls, sectional dies within the housing, a free sliding adjuster for filling the spaces between the dies and said end walls and for effecting the movements of the dies toward and away from each other, a centering device, means for actuating such centering device, spring-pressed bolts mounted in said housing having their heads overlapping portions of said adjuster, stops on the latter with which said heads engage for limiting the extreme movements of the adjuster, said bolts also preventing the lateral displacement of the latter, and means for drawing said bolts against the adjuster, such means being controlled by the actuating means of the centering device.

6. A die-stock comprising a housing, sectional dies within the latter, a free sliding adjuster having side members filling the spaces between the dies and said end walls for effecting the movements of the dies toward and away from each other, said side members having grooves in their front faces, spring-pressed bolts extended through said housing and having their heads projecting into said grooves, retaining-pins passed through said bolts, adjusting-plates having beveled ends engaging said retaining-pins for moving said bolts as against the spring-pressure thereon, a centering device, and a common means for simultaneously actuating the latter and said adjusting-plates.

7. The combination with the housing, the sectional dies and the adjuster for the latter, of the spring-pressed bolts passed transversely through the housing having their heads overlapping the edges of the adjuster, retaining-pins passed through the bolts, adjusting-plates having slotted beveled ends engaging said pins, and also having lugs, a centering device having two sliding jaws formed with lugs, and an actuating-plate having two sets of cam-slots to receive all of said lugs, whereby as the centering-jaws are moved toward each other the adjusting-plates will be forced between the housing and said retaining-pins.

8. The combination with the housing, the sectional dies and the adjuster for the latter, of the spring-pressed bolts passed transversely through the housing having their heads overlapping the edges of the adjuster, a centering device having opposite jaws, adjusting-plates for engaging said bolts and moving them into engagement with the ad-

juster, said adjusting-plates being capable of
being moved to a greater extent than is re-
quired to so move said bolts, and a control-
ling-plate for simultaneously moving said
5 jaws and adjusting-plates, the latter permit-
ting the former to be adjusted to accommo-
date bolts or pipes of different sizes.

In testimony whereof I have signed this
specification in the presence of two subscrib-
ing witnesses.

BRADFORD BORDEN.

Witnesses:

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JOHN R. LACHMAN.