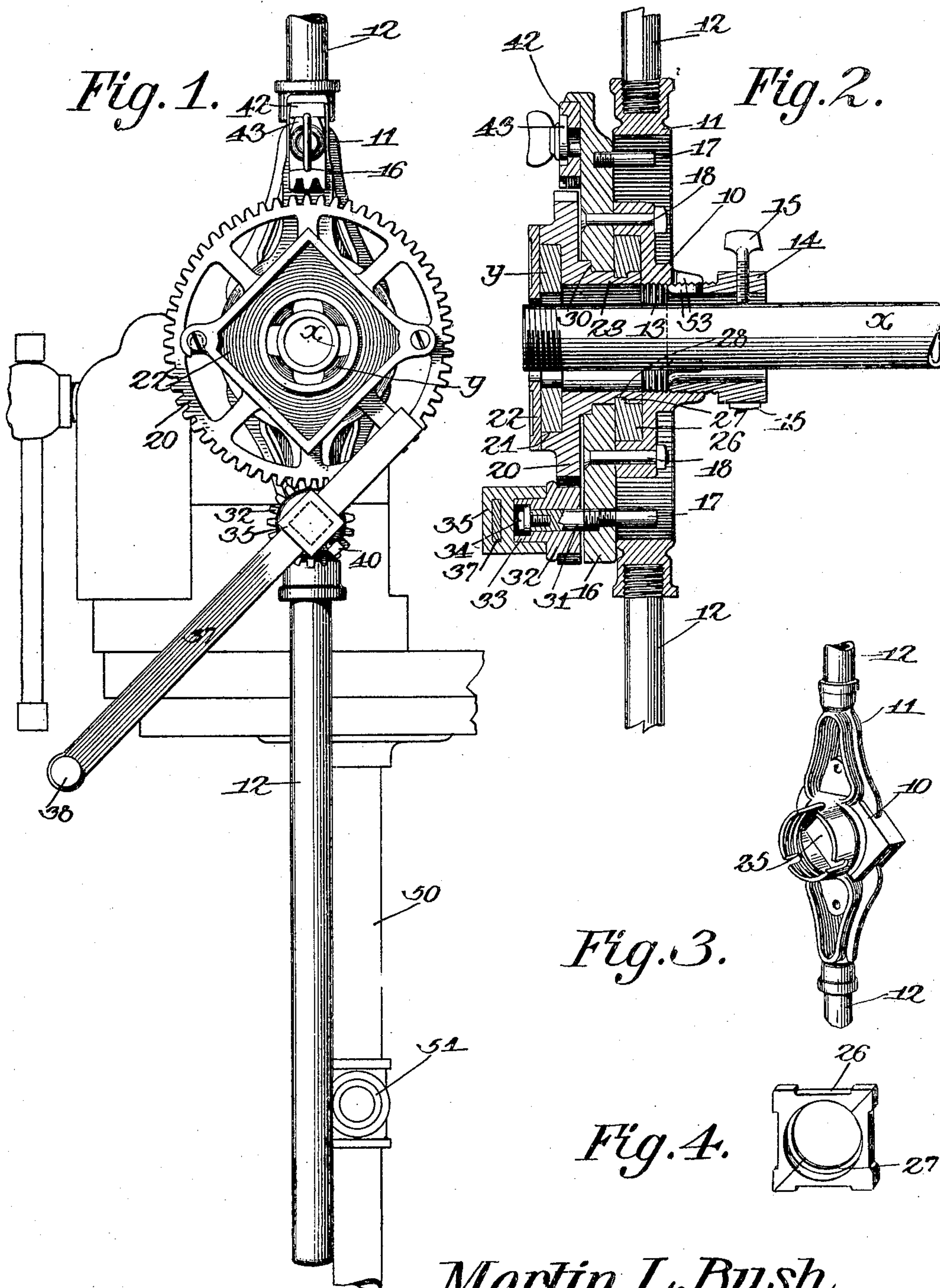


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PATENTED AUG. 29, 1905.

M. L. BUSH.
DIE STOCK.

APPLICATION FILED NOV. 25, 1904.



Witnesses

E. J. Stewart
Jno. C. Carter

Martin L. Bush, Inventor.

by *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

MARTIN LUTHER BUSH, OF LAWRENCE, MASSACHUSETTS.

DIE-STOCK.

No. 798,088.

Specification of Letters Patent.

Patented Aug. 29, 1905.

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To all whom it may concern:

Be it known that I, MARTIN LUTHER BUSH, a citizen of the United States, residing at Lawrence, in the county of Essex and State of Massachusetts, have invented a new and useful Die-Stock, of which the following is a specification.

This invention relates to die-stocks, and particularly to that class employed for the threading of pipes, rods, and the like.

The principal object of the invention is to provide a die-stock with operating means of such nature as to permit a single workman to accomplish with ease the threading of a pipe or rod which with ordinary tools requires considerable exertion on the part of two workmen.

A further object of the invention is to construct a die-stock in which a powerful leverage force may be exerted by the workman in rotating the die-stock, the construction being such that at the starting of the operation or in backing off the stock may be turned rapidly.

A still further object of the invention is to improve, simplify, and cheapen the construction of the die-stock and to provide means whereby the die-carrier proper may be moved independently of the stock and locked thereto, as required.

A still further object of the invention is to improve the construction of that class of stocks where leading-screws are employed by providing for the escape of the chips of metal from between the threads of the leading-screw in order to avoid injury to the latter.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a front elevation of a die-stock constructed in accordance with the invention. Fig. 2 is a longitudinal sectional elevation of the same. Fig. 3 is a detail perspective view of the stock proper. Fig. 4 is a similar view of one of the connections between the stock and the movable die-carrier.

Similar characters of reference are employed

to indicate corresponding parts throughout the several figures of the drawings.

The stock proper, or that portion which constitutes the stock of an ordinary threading-die, comprises a central hub portion 10 and a pair of diametrically-opposed arms 11, the outer ends of which have threaded sockets for the reception of handles 12. The hub 10 is provided with female threads 13 for the reception of the threaded portion of a collar 14, which may be secured to the pipe or bar x by means of one or more screws 15, this device constituting the leading-screw in common use in some classes of dies.

To the front of the stock is secured a plate or collar 16, the general contour of which is the same as that of the stock. The two are connected by threaded pins 17, carried by the plate, extending into recesses formed in the arms 11, and by bolts 18, which are passed through suitable openings formed in the plate, the heads of the bolts being arranged in countersunk recesses formed in the upper face of the plate.

The die-carrier is in the form of a gear-wheel 20, in the outer face of which is a recess 21 for the reception of a die y , and said die is retained in place by a pivotally-mounted cover-plate 22 of the usual construction. The gear-wheel 20 is provided with rearwardly-extended hub 23, that extends through a shouldered opening formed in the plate 16 and into a non-circular recess 25, formed in the stock, said non-circular recess being shown in the present instance as rectangular in form and receiving a holding-collar 26, the collar 26 being of a contour corresponding to that of the recess and formed in two sections divided on a diagonal line. The collar is further provided with an inwardly-projecting flange 27, that fits within an annular groove 28, formed in the rear portion of the hub 23, thus serving as a locking means for preventing outward movement of the hub and gear-wheel. Inward movement is prevented by contact of the shoulder 30 of the hub with a shouldered recess or opening in the plate 16.

To the plate 16 is secured a stud 31, forming a bearing for a pinion 32, that intermeshes with the gear 20, and the hub of this gear is extended in the form of a rectangular lug 33, that is recessed for the reception of a cap-screw 34, that is tapped into the stud and serves to hold the pinion in place. To this squared lug 33 is applied a block 35, having a suitable socket for the reception of the lug.

The block is further provided with a transverse opening for the reception of a handled bar 37, constituting the operating-crank of the device, the bar being adjustable in the opening to alter the distance between the axis of the pinion and the handle 38, and thus increase or decrease the leverage in accordance with the character of the work to be performed. When adjusted, the bar may be locked in position by a set-screw 40. At a point diametrically opposite the pinion the plate 16 is further provided with a slidable gear-lock 42 in the form of a recessed plate having at one end a plurality of teeth for engaging with the teeth of the gear 20. This gear-lock is under the control of a revoluble eccentric 43 and may be moved to or from locking position by merely turning the eccentric. When in the position shown in Figs. 1 and 2, the gear is free to turn independently of the plate; but when moved to locking position the gear, plate, and stock are all positively connected and must move together.

In the operation of the device the collar 14 is screwed outward until its threads are nearly disengaged from the female threads 13 and is then locked in proper position on the pipe or rod to be threaded by means of the set screw or screws 15. The gear-lock is then moved to locking position, and the stock is turned by means of the handles 12 to start the threading operation. The leading-screw draws the stock and die inward, and thus avoids the necessity of pressing the stock inward during the starting of the threading operation. As soon as the thread is started the gear-lock is moved from engagement with the gear and the crank-bar 37 is turned, the movement being transmitted through the pinion to the gear, and as the latter carries the die the die will be rotated, and the threading operation may be carried on with ease, owing to the greater leverage which the workman is able to exert. After the commencement of the threading operation the leading-screw is released, being now unnecessary, inasmuch as the die guides itself on the threads previously cut until the threading operation is completed. When this has been accomplished, the gear-lock 42 is again moved into engagement with the gear 20, and the handles 12 of the stock are again brought into play and the device rapidly backed off, it being unnecessary to resort to the slower movement of the pinion and gear.

The locking device is further convenient in recutting a worn or mutilated thread, where the die may be traveled over an old thread without great exertion by means of the ordinary handles 12.

During the operation of the crank it becomes necessary to prevent rotative movement of the stock 11, and in order to avoid the necessity of holding this by hand two of the standards 50 of the work-bench are pro-

vided with a slidable pipe 51, which may be moved out to form a stop for engagement with one of the handles 12 to thereby prevent turning movement of the handles and stock. This pipe may be readily slid into and out of place, as required.

In the use of die-stocks provided with leading-screws it is found in practice that the small chips from the cutting-dies will in many cases become clogged in the threads of the leading-screw, resulting in the rapid wearing away of the latter, and in order to avoid this the leading-screw and the hub 10 are both provided with notches 53, arranged at intervals to permit the free escape of any chips which may enter the screw.

It is obvious that the device may be employed in connection with threading-dies of any diameter, the dies γ being interchangeable in accordance with the character of the thread and the diameters of the pipe on which said thread is to be cut.

One of the principal advantages of the structure herein described is that the working parts may be applied to a die-stock of ordinary construction. The die-stock herein illustrated is of a type in commercial use, and the non-circular recess at its center ordinarily constitutes the die-receiving recess, while the openings for the passage of the locking-bolts are the openings usually found in said stocks for the reception of the bolts to hold the cover-plate in position. This permits of the manufacture of the remaining portions of the device as an attachment to the usual die-stock.

Having thus described the invention, what is claimed is—

1. The combination with a die-stock, of a die-carrier, means for revolving the carrier independent of the stock, and means for locking the stock to the carrier.

2. The combination with a die-stock having a non-circular recess, of a plate secured to the die and provided with a central opening, a die-receiving gear having a hub portion extending through the opening into said recess and being provided with an annular groove, a sectional collar of non-circular contour fitting within the recess and having a rib projecting into said groove, a pinion supported by said plate, and means for revolving the pinion.

3. The combination with a die-stock having a non-circular recess, of a plate secured thereto and provided with a central shouldered opening, a die-receiving gear having a projecting hub extending through the opening and into the recess, said hub being provided with an annular groove, a sectional non-circular collar fitting within the recess and having a flange adapted to said groove, a pinion intermeshing with the gear, and means for revolving the pinion.

4. The combination with a die-stock, of a

plate secured thereto, a die-receiving gear
revolvable independently of the plate, a pin-
ion mounted on the plate and engaging the
gear, a slidable block mounted on the plate
5 and having teeth for engagement with those
of the gear, and means for moving said block
to operative and inoperative positions.

10 5. The combination with a die-stock having
a threaded hub, of a leading-screw engaging
the threaded hub and provided with means
for locking it to the object to be threaded,

both the screw and hub being provided with
openings or notches for the escape of the
chips.

In testimony that I claim the foregoing as ¹⁵
my own I have hereto affixed my signature in
the presence of two witnesses.

MARTIN LUTHER BUSH.

Witnesses:

WILLIAM WOODS,
GEORGE C. CORLESS.