

933,884.

Fig.1.

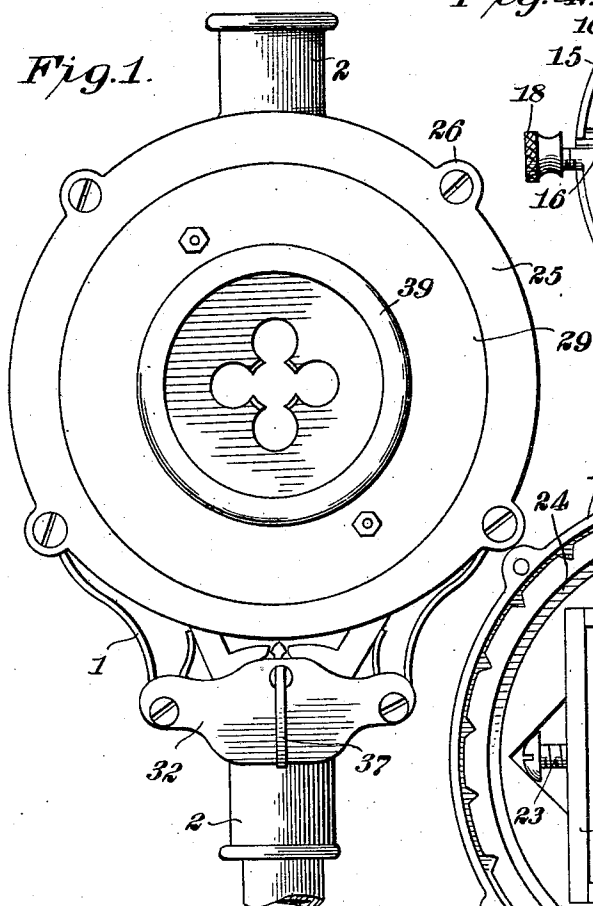


Fig. 4.

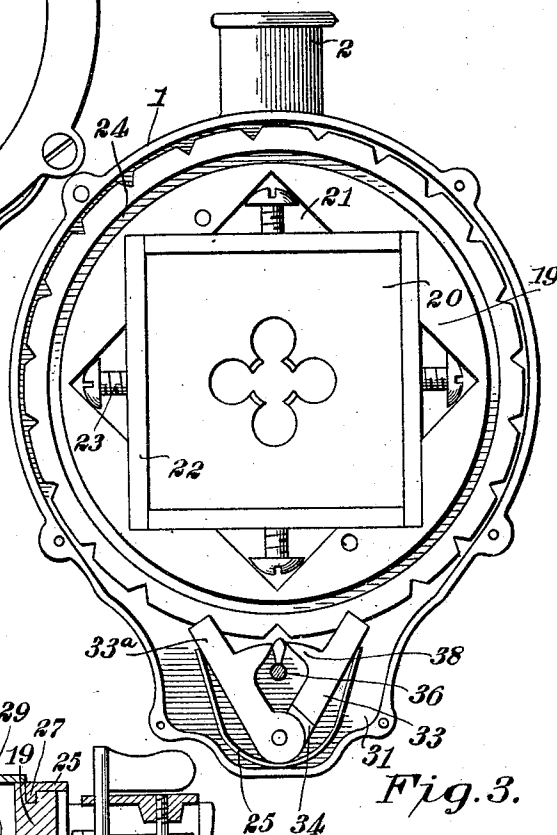
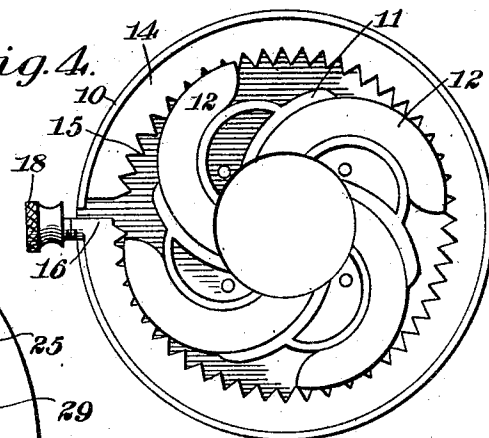


Fig. 3.

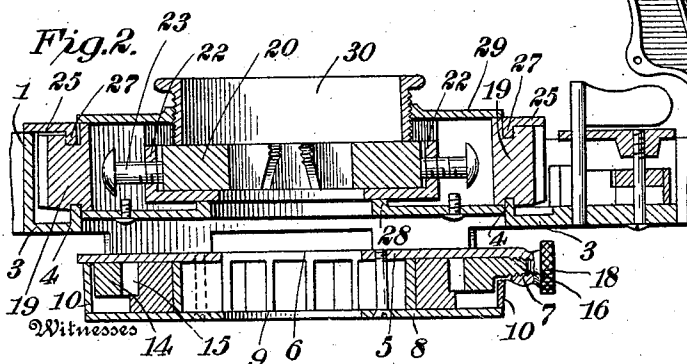


Fig. 2.

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Fig.

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UNITED STATES PATENT OFFICE.

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DIE-STOCK.

933,884.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed January 7, 1909. Serial No. 471,190.

To all whom it may concern:

Be it known that I, RICHARD H. BURKE, a citizen of the United States, residing at Lexington, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Die-Stocks, of which the following is a specification.

The invention contemplates the construction and arrangement of a die stock, the principal object of which is to increase the capacity of the stock, whereby dies of varying size may be easily and quickly introduced or withdrawn and retained in such manner as to facilitate and promote the cutting efficiency of the dies.

The invention comprises essentially an outer casing or cover to which operating handles are secured, and a ratchet wheel retained in spaced relation to the casing and provided with an opening of angular formation designed to receive and retain dies of varying size as will hereinafter more fully appear.

For a full understanding of the invention, and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a top or front plan view, Fig. 2 is a longitudinal sectional view, Fig. 3 is a top or front view with the plate or cover removed, and Fig. 4 is a bottom or rear view with the plate or cover removed.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The numeral 1 designates a rim or outer casing constituting a frame to which oppositely disposed handles 2 are secured, and said rim or frame at one side is provided with a flange 3 the inner edge of which is deflected at right angles to form an annular rib or projection 4. A plate 5 provided with a central opening 6 is secured to and extended slightly below the flange 3 as indicated at 7, and a corresponding and registering plate 8 provided with an opening 9 is held in spaced relation to the plate 5 as by screws or bolts and by the rim 10. Within the space formed between the plates 5 and 8 and rim 10 and secured to the plate 5 are a plurality of transversely disposed curved ribs or guides 11 the function of which is to guide a plurality of curved segments 12 in

their extended or receding movements in the transverse opening formed between the plate and defined by the central openings 6 and 9. These segments are provided upon their outer edge or periphery with teeth 13 and a ring 14 surrounding the guides 11 and segments 12 and provided with inwardly disposed teeth 15, is designed to mesh with the segments 12 and control the movement thereof when said ring is turned in either direction. The threaded shank 16 is rigidly secured to the ring 14 and protrudes through a slot 17 formed in the rim 10, and a knob 18 screwed upon the shank is adapted to form a binding connection with the rim 10 to prevent movement of the ring 14. To increase the binding efficiency between the rim and said knob 18, the periphery of the rim adjacent to the slot 17 is preferably roughened or corrugated (not shown), and the connection thus formed between the relatively movable sections will retain the ring in such manner as to lock the segments 12.

The numeral 19 designates a ratchet wheel or stock proper in which the dies or cutters 20 are carried, and the central angular opening 21 formed in said wheel is designed to receive a die frame 22 in which the dies or cutters 20 are retained as by screws 23. The wheel 19 is also provided upon both sides with annular grooves or slots 24 and the annular flange or rib 4 carried by the plate 3 is adapted to fit in said groove on the lower side of the wheel and form a bearing surface upon which said wheel revolves. An annular plate 25 provided with suitably located ears 26 is secured to the rim or frame 1 as by screws, and an annular rib or flange 27 formed at the inner edge of said plate is designed to fit within the groove 24 at the upper side of the ratchet wheel 19 and cooperate with the flange or rib 4 to retain the wheel in its operative position and in spaced relation to the rim or frame 1.

The die frame 22 is retained within the opening 21 by an annular plate 28 secured to one side of the ratchet wheel 19, and at the opposite side by a detachable annular plate 29 provided with a threaded opening in which a threaded ring or bushing 30 operates. Said ring or bushing when occupying an operative position against the face of the die 20 will prevent the grit or cuttings from entering the frame 1, and will also promote the die retaining efficiency of the stock.

The formation of the rim or frame 1 at

the intersection of one of the handles 2 is such that a suitable space 31 is provided intermediate said handle and ratchet wheel 19, and a plate 32 designed as a closure for said space is secured to the rim or frame 1 as by screws. Pivotaly secured to the flange 3 and plate 32 within the space 31 are pawls 33 and 33^a coöperating with the ratchet wheel 10 and designed to hold said wheel rigid with the frame 1 or to permit relative movement under proper manipulation by the operator. The pawls are overlapped as indicated at 34 and normally held in engagement with the wheel 10 by a spring 35, and an actuator 36 pivotaly secured to the flange 3 and plate 32 and interposed between the pawls, is adapted to be operated by a finger piece 37. The operating surface of the pawls upon which the actuator 36 contacts comprises lateral extensions or projections 38 formed upon the inner or adjacent edges of the pawls and of such formation that either of said pawls may be locked permanently out of engagement with the ratchet wheel 10.

With the arrangement of the several parts as shown, the operation is as follows: The die or cutter 20 of the desired cutting capacity having been selected and secured within the die frame 22, and the annular plate 29, and bushing 30 having been secured in their proper position upon the face of the ratchet wheel 19, the stock is placed upon the extremity of the pipe or other article under operation. The pipe extends through the openings 6 and 9 in the plates 5 and 8 and the curved segments 12 constituting a guide for the stock in its movement upon the pipe, are moved to a gripping position by manipulation of the ring 14 and knob 18. In this position, the cutting operation of the die 20 is directed upon the extremity of the pipe when the stock is turned by the handles 2, and under ordinary conditions a complete revolution of the stock and handles is desirable. To turn the stock within limited and confined spaces the handles 2 may be moved as far as possible in an operative direction and either of the pawls 33 or 33^a disengaged or permanently locked from engagement with the ratchet wheel 10 to permit relative movement of the ratchet wheel and frame 1, and to relocate the handle and frame to an operative or cutting position in relation to the ratchet wheel or stock proper.

The practical merit of the die stock wherein dies or cutters of varying size are easily and quickly introduced or withdrawn and the numerous advantages of a stock of this character will be manifest.

Having thus described the invention, what is claimed as new is:

1. The combination with a die frame adapted to receive and clamp dies of different sizes, of a plurality of segmental pipe

clamping elements, and a rotatable ring surrounding the clamping elements, said ring engaging with the outer faces of the pipe clamping segments to move them inward or outward, toward or from the axial center of the stock whereby the segments may be simultaneously moved in curved paths within the said ring.

2. In a die stock the combination of a die frame adapted to receive and clamp dies of different sizes, of a plurality of pipe clamping elements mounted in conjunction with said frame, said elements each consisting of a grooved segment, the outer face of which is toothed, and an integrally toothed ring surrounding the said segments, the teeth of which engage with the teeth of the segment, and means for rotating said ring in one or the other direction to force said segments inward or outward toward or from the axial center of the stock and means for guiding the segments in curved paths radiating from said center.

3. The combination with a die stock, of a rim or frame provided with handles, of a guide comprising registering plates carried by said frame and provided with openings and also retained in spaced relation to each other, a plurality of ribs or guides interposed between said plates, and a plurality of segments operating within spaces formed by said ribs or guides and means for moving said segments to grip a pipe or other article under operation.

4. The combination with a die stock of a rim or frame provided with handles, a guide designed to direct the movement of the stock upon a pipe or other article under operation and comprising registering plates carried by said frame and provided with openings and also retained in spaced relation to each other, a plurality of toothed segments interposed between said plates, a ratchet ring also interposed between the plates and meshing with said segments for the purpose of regulating their movement, and a knob carried by said ring designed to govern and to retard the movement of said segments.

5. The combination with a die frame adapted to receive and clamp dies of different sizes, of a plurality of pipe clamping elements, each consisting of a grooved segment formed with teeth upon its outer face, a plate provided with a central opening and supporting said segments, and curved guiding ribs on the plate between which the segments move, and a ring mounted upon the plate for rotation thereon, the interior edge of the ring being toothed and engaging with the toothed faces of the segments whereby upon the rotation of the ring the segments will be forced inward or outward, toward or from the axial center of the stock.

6. A die stock comprising a rim or casing provided with handles, an annular disk car-

ried by said casing and rotatable therein, said disk having a ratchet device thereon, whereby the disk may be connected to the casing for movement therewith in either
5 direction, the disk at its center being formed with a rectangular-sided opening, a rectangular-sided die frame adapted to be received in said opening and provided with outwardly projecting clamping screws, the
10 sides of the rectangular opening in the disk being recessed radially to accommodate the screws of said die frame.

7. A die stock including a rim or casing provided with handles and having an inwardly extending annular flange on one side
15 surrounding the central opening, means for holding a die in said casing in registry with the opening in said flange, an annular plate or cover adapted to be attached to the casing
20 to close the other end thereof, the edge of the central opening in said cover being screw-threaded, and a sleeve exteriorly screw-threaded to engage with said screw-threaded edge, said sleeve being thereby adapted to

be screwed into the casing to engage with 25 the face of a die carried therein.

8. A die stock comprising a casing or rim provided with handles and having an inwardly extending annular flange on one end thereof, inwardly movable means con- 30 tained within the casing for clamping different sized dies therein, an annular cover provided with a threaded central opening secured to the other end of said casing and closing that end thereof, and a threaded 35 sleeve engaging with the threaded opening of said cover and adapted to be screwed inward or outward to contact with the face of the die contained within the casing and to permit the engagement of dies of various 40 thicknesses.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD H. BURKE.

Witnesses:

JOHN H. BROWN,

JOHN G. FITZGERALD.