No. 762,630. PATENTED JUNE 14, 1904.

L. F. HART.

RATCHET MECHANISM FOR DIE STOCKS.

APPLICATION FILED OCT. 31, 1901.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1,

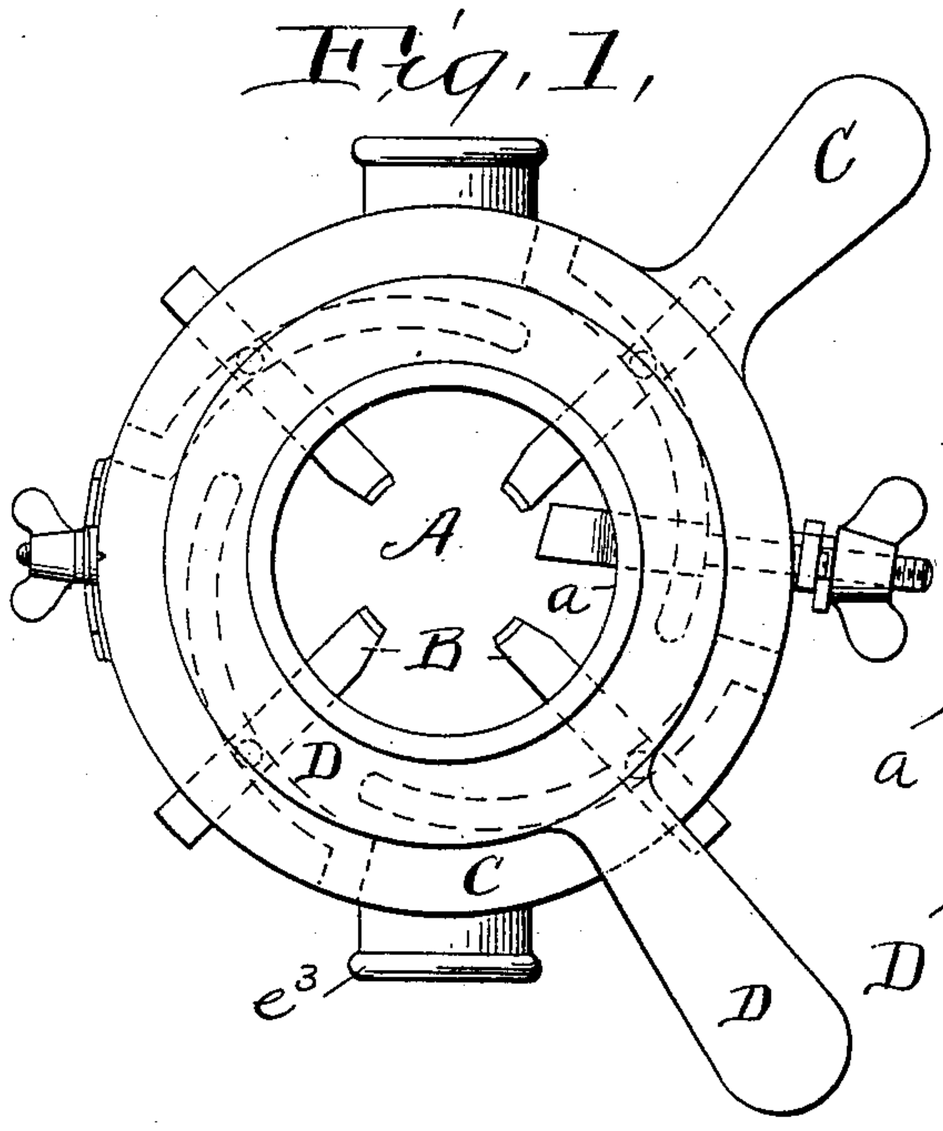


Fig. 2,

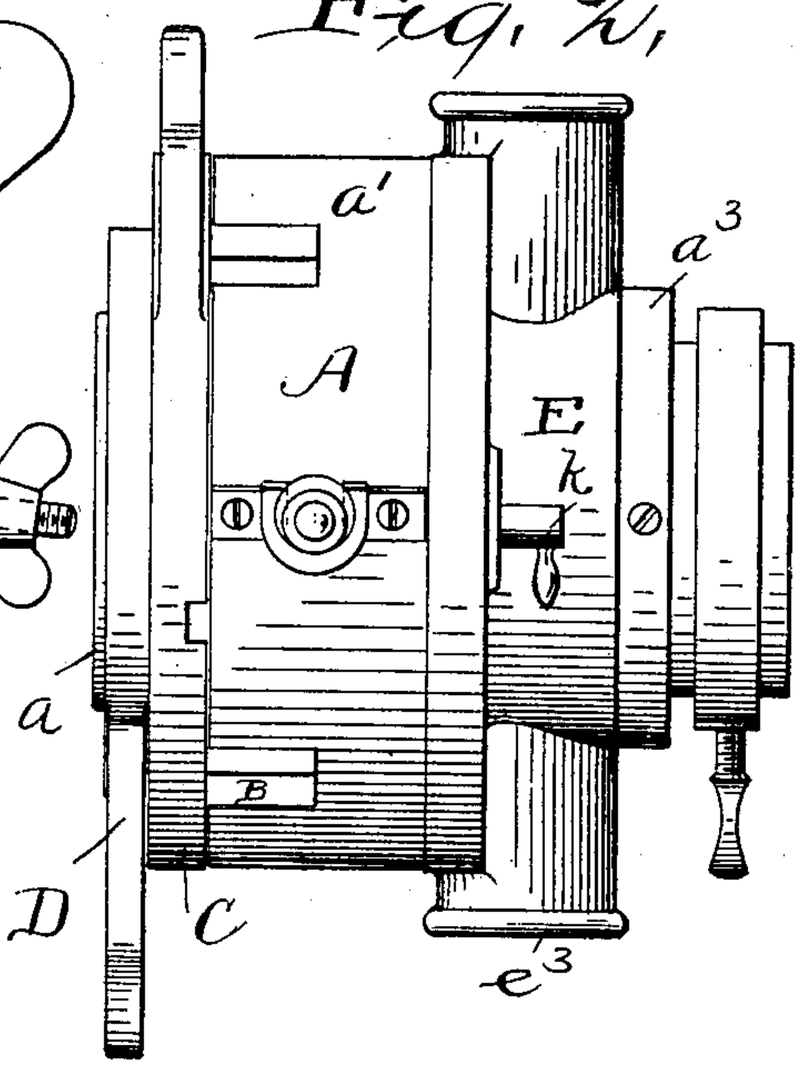


Fig. 3,

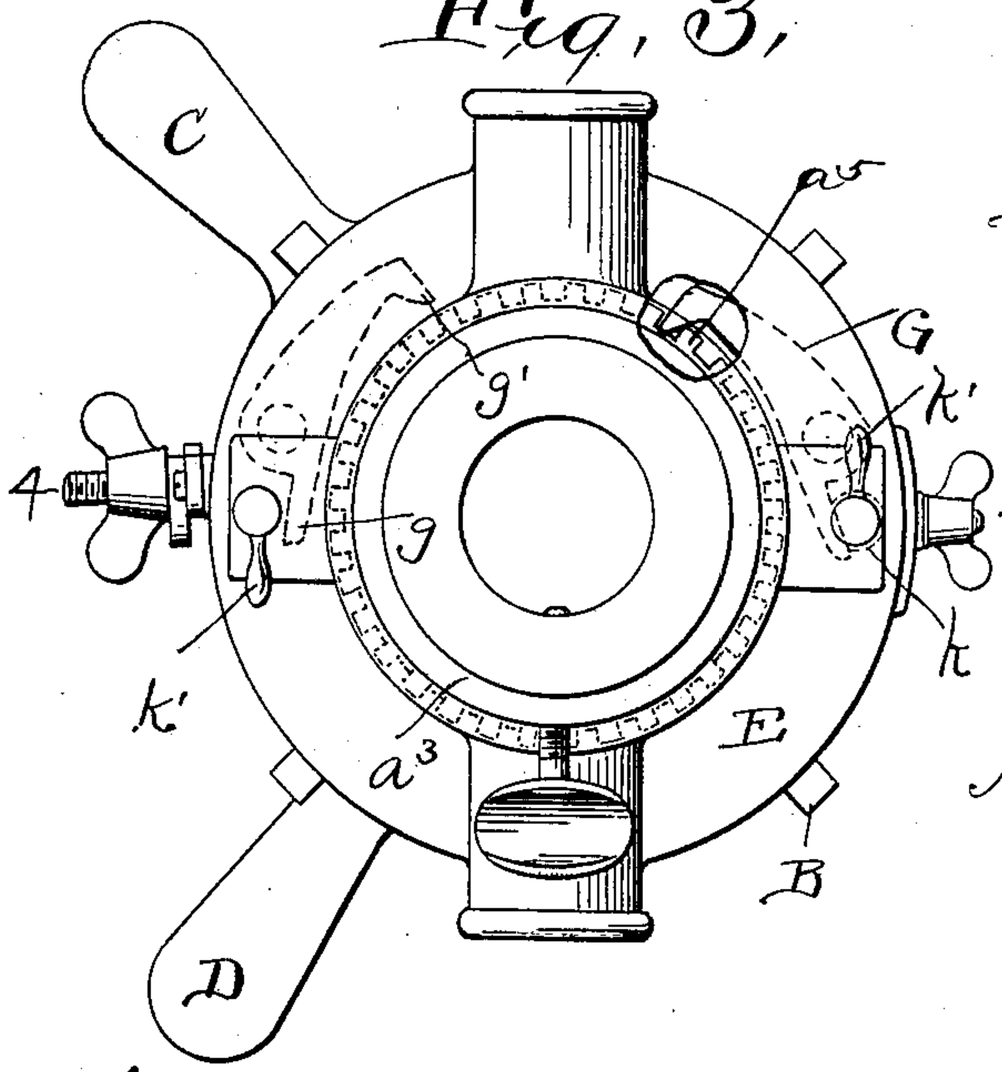
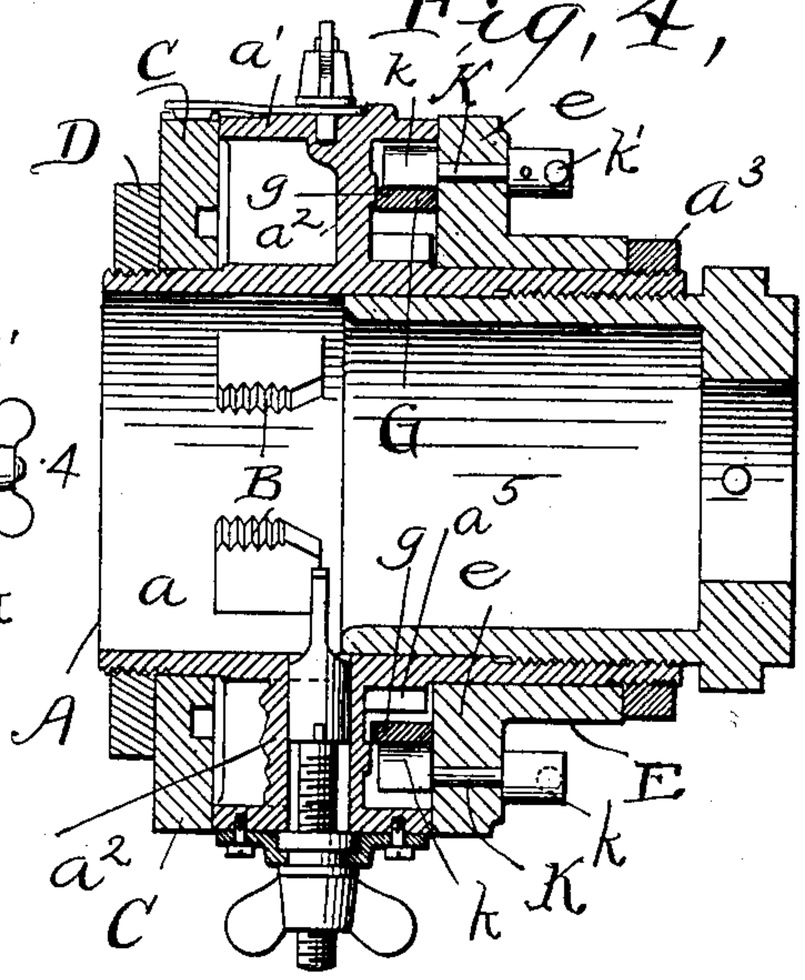


Fig. 4,



Witnesses
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H. M. Wise

Inventor:
Lewis F. Hart,
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NO MODEL. 2 SHEETS—SHEET 2.

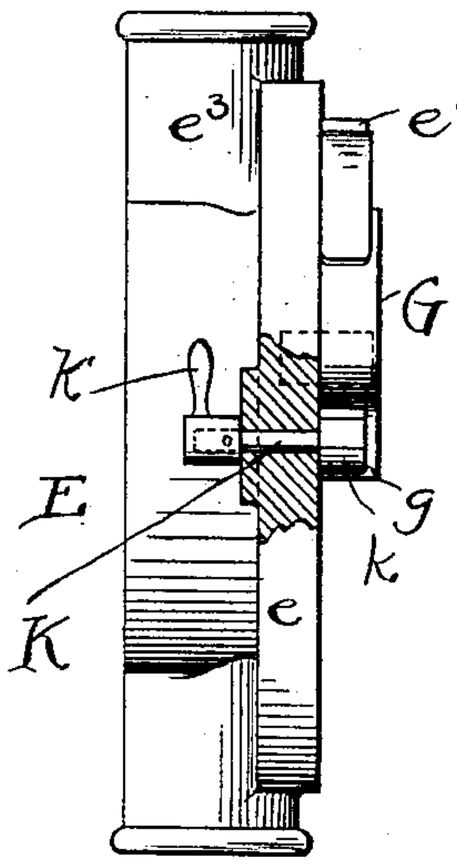

Fig. 5.

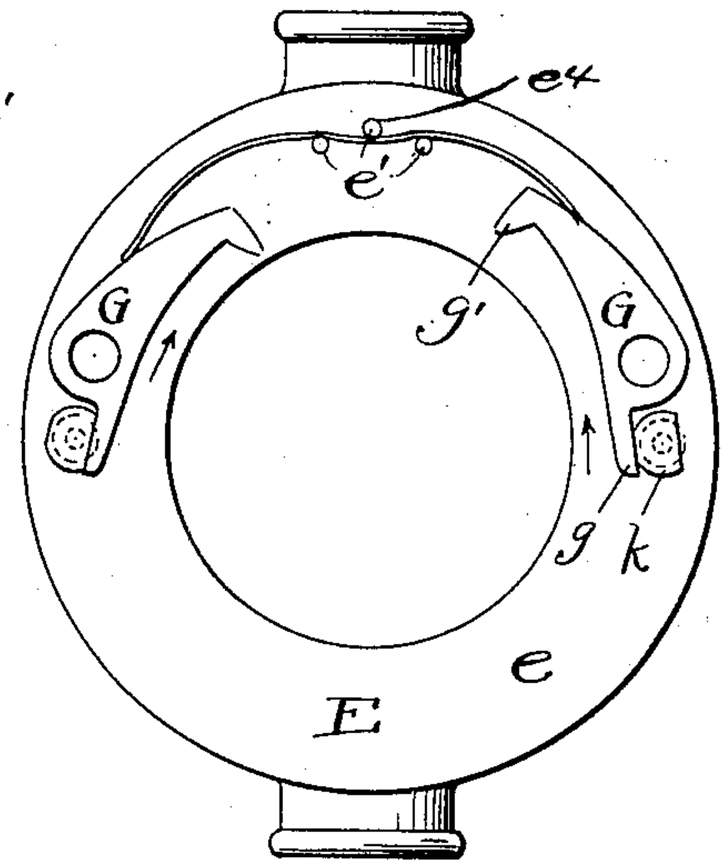

Fig. 6.

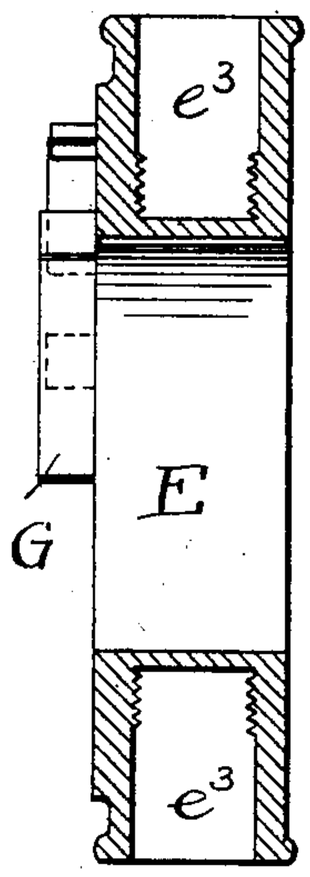

Fig. 7.

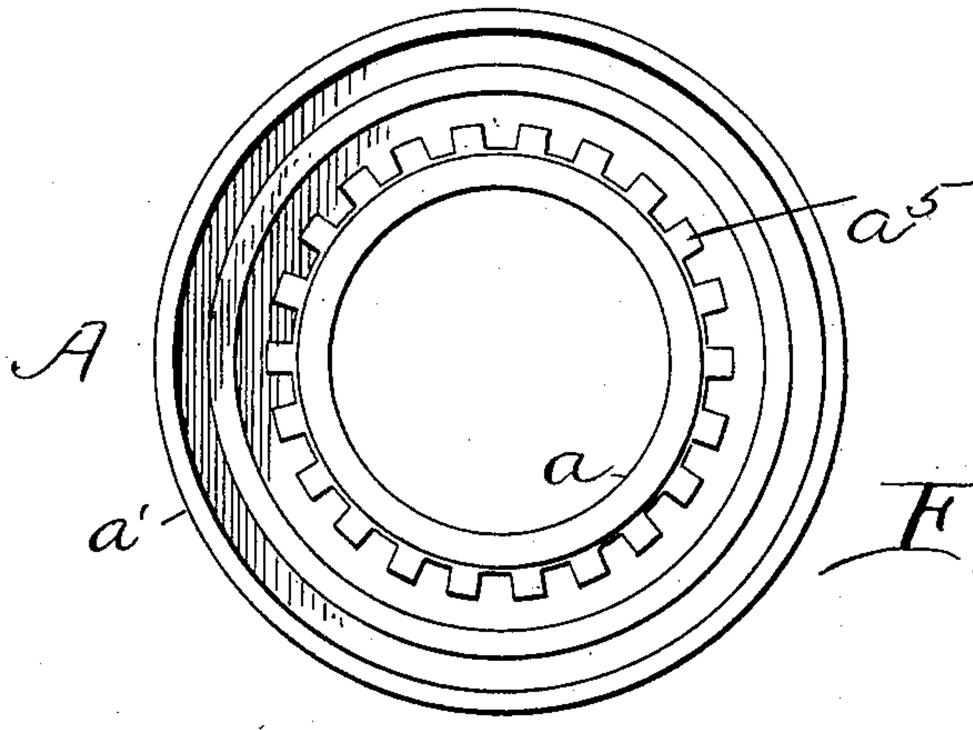

Fig. 8.

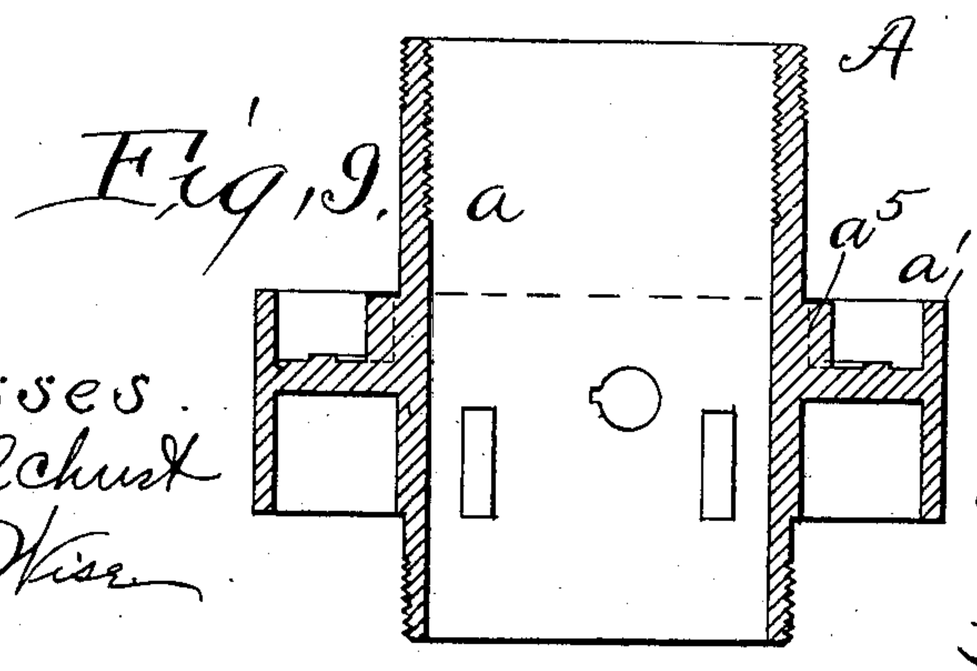

Fig. 9.

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No. 762,630. Patented June 14, 1904.

UNITED STATES PATENT OFFICE.

LOUIS F. HART, OF CLEVELAND, OHIO, ASSIGNOR TO THE HART MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

RATCHET MECHANISM FOR DIE-STOCKS.

SPECIFICATION forming part of Letters Patent No. 762,630, dated June 14, 1904.

Application filed October 31, 1901. Serial No. 80,590. (No model.)

To all whom it may concern:

Be it known that I, LOUIS F. HART, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Ratchet Mechanism for Die-Stocks, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of the invention is to improve thread-cutting die-stocks, particularly in respect to the mechanism through which the head is rotated in either direction by the oscillation of the operating-handles about the common axis.

In the drawings, Figure 1 is a view of one end of a die-stock embodying my invention. Fig. 2 is a side view thereof. Fig 3 is a view of the other end. Fig. 4 is a longitudinal sectional view on line 4 4 of Fig. 3. Fig. 5 is a detached view, partly in section, of the operating-sleeve. Fig. 6 is an inside end view thereof. Fig. 7 is a sectional view of said sleeve. Fig. 8 is an end view of the head, showing that end thereof which is presented to the operating-sleeve; and Fig. 9 is a longitudinal central section of the head.

The head A consists of a hollow inner cylinder a, a concentric outer cylinder a', and a web a^2, connecting said cylinders and lying in a plane at right angles to their axes, the inner cylinder being prolonged beyond both ends of the outer cylinder. The cutters B are radially movable in recesses in both cylinders, and they are moved by a cam-plate C, rotatably mounted upon the inner cylinder and having on its under face a plurality of cam-grooves which receive pins projecting from the cutters, and this cam-plate is locked in the desired position by the locking-plate D. The construction in respect to the cutters and their operating mechanism is that which is usually employed. On the opposite end of the central cylinder a a sleeve E is mounted so as to be capable of turning freely. This sleeve has an outwardly-extended flange e, whose inner face bears against the end of the outer cylinder a'. This sleeve is held in the position shown by a collar a^3, screwed onto the cylinder a. Two spring-pawls G are pivoted to the inner face of the flange on the sleeve E, and consequently they lie in the recess bounded by the two cylinders a a', the web a^2, and the flange e. On the head and in this annular recess and projecting radially out from the cylinder a are the teeth a^5, having substantially square operating-faces on both sides of each tooth. The spring-pawls G are adapted to engage with these teeth. A flat spring secured to the inner face of the flange e by the three pins e' e^4 bears at one end upon the top of one of these pawls and at the other end upon the top of the other of these pawls, thereby pressing them toward said teeth. As will be seen on an inspection of Fig. 6, two of these pins, e', are at substantially the same distance from the central portion of the stock, while tho third pin, e^4, which is intermediate of the other two, is at a slightly greater distance from the center of the stock; but such distance is less than the distance of either of the other pins from the center plus the thickness of the spring. By this arrangement of the pins the spring is held securely between the outermost and the two innermost pins, but in such manner as to permit the longitudinal adjustment of said spring, so as to secure an equal pressure by the extremities thereof against the pawls G. At the same time the central portion of the spring is slightly depressed, thereby decreasing somewhat the pressure of the extremities on said pawls and rendering their disengagement from the teeth by the cams k easy and certain. Each of these pawls is provided with a tailpiece g, and each of these tailpieces engages with a cam k, secured to the inner end of a short rock-shaft K, which is mounted in the flange e and has on its outer end an operating-handle k'. Each cam is provided with flattened surfaces on its opposite sides, and the spring-pressed tailpiece of its pawl bears against one or the other of these surfaces and prevents accidental rotation of the cam. When either of these cams is in one position relative to the tailpiece of its associated pawl, the pawl will occupy the

position shown at the left of Fig. 6, and when in that position it is adapted to engage with the ratchet-teeth a^5. When, therefore, this sleeve E is turned in the direction indicated by the arrow at the left of Fig. 6, the said engagement of the pawl with said teeth causes a like movement of the head. When the said sleeve is turned in the opposite direction, the pawl whose tooth g' is inclined on its rear face rides over the teeth without making any operative engagement therewith. When either of the cams is in the position shown at the right of Fig. 6, it holds the pawl against the spring-pressure in a position where its tooth cannot engage with said ratchet-teeth. If the pawl at the left of Fig. 6 were raised by the turning of the cam k and if the pawl at the right of said figure were by the proper movement of the associated cam k permitted to move inward, then when the sleeve E was turned in the direction indicated by the arrow at the right of said figure the head A will be moved concurrently in the same direction, but would not be moved in the opposite direction when the sleeve is so moved. If by the proper movement of both cams both pawls are allowed to move into the position of the pawl shown at the left of Fig. 6, then the sleeve will be locked to the head and a movement of the sleeve E in either direction will be necessarily accompanied by a like movement of the head. The sleeve E is provided with integral radially-placed sockets e^3 for the reception of operating-handles.

Having described my invention, I claim—

1. In a reversible ratchet-driver for stocks and the like, the combination of a rotatable body having a ratchet thereon, a rotatable flange on the body, a pair of oppositely-arranged pawls pivoted on the flange and arranged to engage the ratchet, a plurality of fixed members on said flange, located at different distances from the axis thereof, a leaf-spring adjustably held or supported on the flange by means of said fixed members so as to be adjustable longitudinally with its ends resting on the pawls, whereby the pressure on said pawls may be varied, and means whereby one of said pawls may be held out of engagement with the ratchet, substantially as described.

2. In a reversible ratchet-driver for diestocks and the like, the combination of a rotatable body having a ratchet thereon, a rotatable flange on the body, a pair of oppositely-arranged pawls pivoted on the flange and arranged to engage the ratchet, pins projecting from said flange intermediate of said pawls, a leaf-spring adjustably held or supported on the flange by engagement with said pins so as to be capable of longitudinal adjustment, said spring having its end portions resting on the pawls, whereby the pressure on said pawls may be equalized, and means whereby one of said pawls may be held out of engagement with the ratchet, substantially as described.

3. In a reversible ratchet-driver for diestocks and the like, the combination of a rotatable body having a ratchet thereon, a rotatable flange on the body, a pair of oppositely-arranged pawls pivoted on the flange and arranged to engage the ratchet, a longitudinally-adjustable leaf-spring supported on the flange with its ends resting on the said pawls, a friction engaging means for said spring midway between said pawls, said engaging means being so disposed as to diminish the pressure upon said pawls, and means whereby one of said pawls may be held out of engagement with said ratchet.

4. In a reversible ratchet-driver for diestocks and the like, the combination of a rotatable body having a ratchet thereon, a rotatable flange on the body, a pair of oppositely-arranged pawls pivoted on the flange and arranged to engage the ratchet, three pins projecting from said flange intermediate of said pawls, a leaf-spring adjustably held or supported on the flange by said pins so as to be adjusted longitudinally with its ends resting on the pawls, two of said pins being at substantially the same distance from the axis of the rotatable body and the third pin being intermediate of the other pins and at a distance from the axis of the stock less than the distance of either of the other pins plus the thickness of said spring, whereby the spring may be adjusted longitudinally with its ends resting on said pawls and the pressure of the spring extremities on the said pawls may be lightened and equalized, and means whereby one of said pawls may be held out of engagement with the ratchet, substantially as described.

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

LOUIS F. HART.

Witnesses:

ALBERT H. BATES,

H. M. WISE.