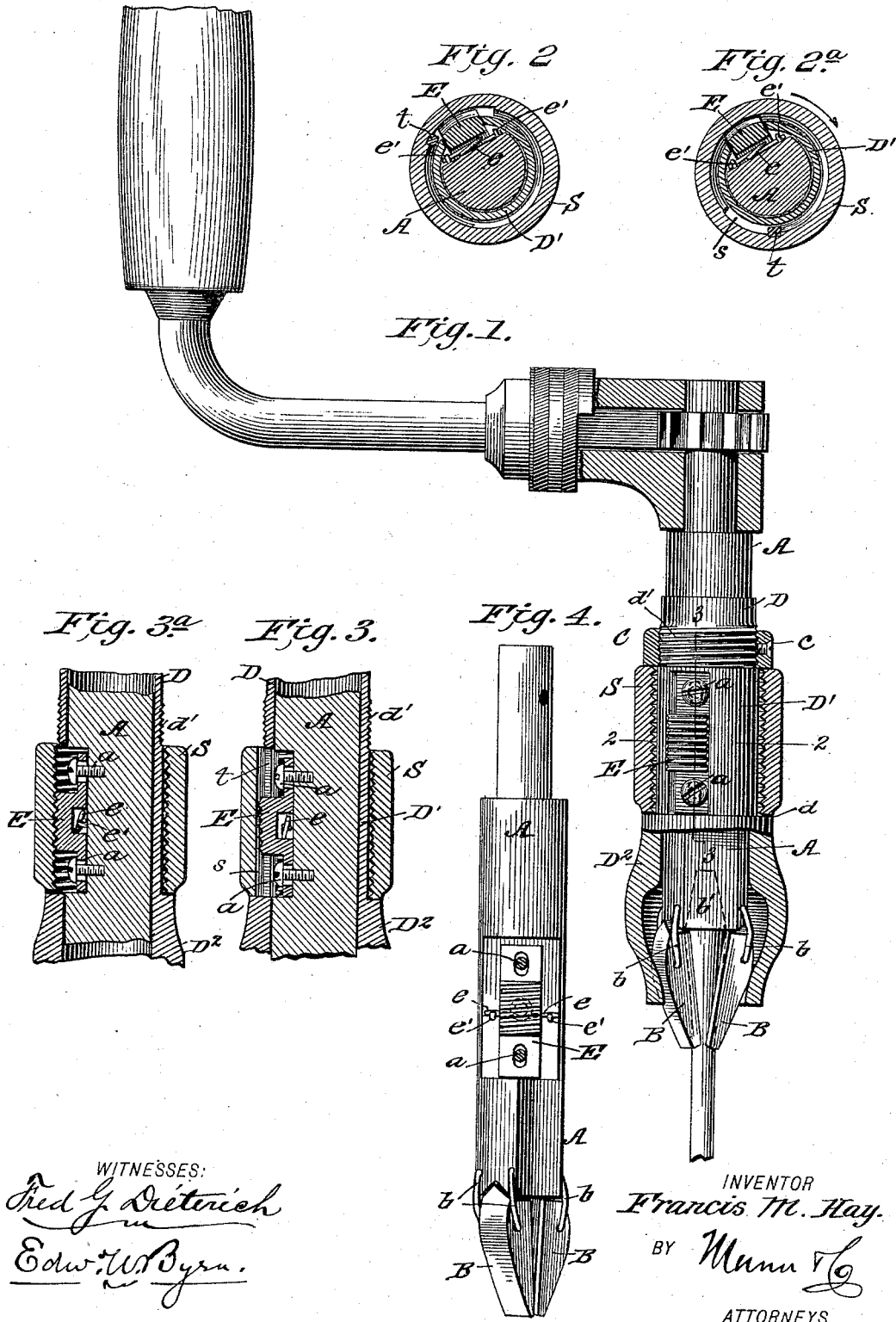


(No Model.)

F. M. HAY.
BIT STOCK.

No. 526,314.

Patented Sept. 18, 1894.



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BIT-STOCK.

SPECIFICATION forming part of Letters Patent No. 526,314, dated September 18, 1894.

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To all whom it may concern:

Be it known that I, FRANCIS M. HAY, of Erie, in the county of Erie and State of Pennsylvania, have invented a new and useful Improvement in Bit-Stocks, of which the following is a specification.

My invention is designed to secure a bit within the movable jaws of a bit stock by a quick motion, and it consists chiefly of an elastic or yielding screw connection between an outer sleeve and the stock proper, which screw connection has a slot or channelway across its threads, so that a screw segment may be slid longitudinally therein to close quickly the jaws, and the other sleeve then turned with a rotary axial adjustment to tighten the screw connection and give a final clamp to the jaws.

My invention also consists in the peculiar construction and arrangement of parts operating upon the above principle, and also further in the special means whereby the screw segment may be made to more certainly and easily enter into mesh with the other screw threads after having been disconnected therefrom for longitudinal adjustment, all as hereinafter more fully described.

Figure 1 is a side view of a bit stock with the adjusting sleeve and retaining collar in section, and with the lower portion of the stock casing also broken away in section. Fig. 2 is cross section through line 2—2 of Fig. 1, and Fig. 3 a longitudinal section through line 3—3 of Fig. 1, both these views showing the screw segment in the longitudinal slot of the adjusting sleeve, and out of engagement with its screw threads. Figs. 2^a and 3^a are views similar to Figs. 2 and 3, but showing a position of parts in which the screw segment is engaged with the interior screw thread of the adjusting sleeve. Fig. 4 is a side view of the central stem or stock proper with attached jaws.

In the drawings A represents the central stem or stock proper, which is designed to be rotated, to do the boring, by a brace bow, or any other suitable devices for turning. As shown a brace bow is used provided with a double acting ratchet mechanism which need not be further described since it forms no part of this invention. The stock A has loosely connected to its lower end the clamping jaws

B B for the bit head, which jaws are connected to the stock by freely swinging wire links *b*, or by any other suitable means.

DD'D² is the main casing of the stock. This casing fits over the stock, and the lower portion D² of said casing is made as an enlarged chamber within which the jaws B B of the stock may expand to admit of the insertion or removal of the head of the bit. When the jaws move inwardly in relation to the casing said jaws expand, but when the jaws move outwardly, or the casing is slipped up over the jaws, the lower edge of said casing binds against the inclined outer faces of the jaws and forces them tightly together upon the bit head.

Between the lower portion D² of the casing and the middle portion D' there is a shoulder *d*. Upon this middle portion D' of the casing and against the shoulder *d* there swivels the adjusting collar S. This is screw threaded upon its inner surface, and is milled or roughened upon its exterior surface to permit it to be readily grasped and turned by the hand.

The upper portion D of the casing is provided with a screw thread *d'* with which there engages an interiorly screw threaded collar C. This collar is designed to hold the adjusting sleeve S in place, and prevent it from moving upwardly, and when the collar has been screwed down to its proper position it is locked in this position by a small set screw *c*.

Upon the inside of the adjusting sleeve S there is cut across its threads a longitudinal channelway *s*, see Figs. 2 and 3, and on one side of said channelway is held a stop bar *t* whose width projects inwardly past the interior screw threads of the sleeve and rests upon the outer periphery of the part D' of the casing.

E is the screw segment. This is adjustably secured in a recess of the stock A, and its teeth project outwardly through a slot in the casing to the range of engagement with the interior screw threads of the adjusting sleeve S. This segment is attached to, and moves with the stock A and it slides longitudinally in the adjusting sleeve. It is also capable of being turned into mesh with the screw threads of the adjusting sleeve when turned in one direction, see Fig. 2^a, but when turned in the

opposite direction it strikes against the stop bar *t* which opposes its further motion and stops it in the channel *s* in which it can slide longitudinally. This screw segment E and stock A constitute one set of parts, and the casing D D' D², sleeve S, and collar C, constitute another set of parts, which two sets of parts are moved, one in relation to the other, to open or close the jaws B by a double motion. The first motion is a longitudinally sliding motion of the casing sleeve and collar, over the stock A and segment, to quickly close or open the jaws B, and this longitudinal adjustment may be always made when the sleeve is turned to a position in which the segment E lies in the channel *s* of the sleeve as in Fig. 2. The other motion is a rotary motion of the sleeve to give a final tightening or squeezing of the jaws B, and this is effected by the turning of the screw threads of the sleeve S into the screw threads of the segment E, whose pitch or cam action causes the casing, sleeve, and collar, to be further strained in one direction and the stock A with segment E in the other. This furnishes a very quick and secure method of locking the bit head in the jaws, for it is only necessary to hold the devices in a position which allows the jaws B and stock A to drop within the casing, then insert the bit, then force the casing longitudinally against the jaws, and then to give a rotary turn to the sleeve S which gives the final tightening.

When the threads of the sleeve S are turned so that the segment E passes from the channel *s* into engagement with its threads, the threads of the segment may or may not smoothly enter into the threads of the sleeve, depending upon the size of the bit head and whether or not the threads of the segment are in coincidence with the threads of the sleeve. To insure this certain engagement, the segment E is connected to the stock in such a way as to permit it to yield slightly in longitudinal direction on the stock to adapt the threads of said segment to coincidence with the threads of the sleeve irrespective of the size of the bit head. For this purpose the segment is connected to the stock by slots and screws *a* which allow a slight longitudinal yielding between the two, and a recess is formed on the under side of the segment and a spring *e* is placed in this recess and is made to bear against little pins or shoulders *e'* on the stock as shown in Fig. 4. This makes a smooth and perfectly working adjustment that never hangs but always permits an adaptation of the two sets of screw threads to each other.

As shown in the drawings the screw seg-

ment is fixed to the solid bit stock, and the channeled screw threads are formed on the external adjusting sleeve, but it is obvious that the relation of these parts may be reversed, *i. e.*, the screw segment may be attached to the external adjusting sleeve, and the channeled screw threads may be formed on the central bit stock.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bit stock having a central stem or stock with jaws, a longitudinally sliding casing with rotary sleeve, the said sleeve and central stem or stock having a screw threaded connection with a longitudinal channelway in the same, and said screw threaded connection having one of its parts made yielding or spring seated to insure the certain registration of the threads in entering into engagement substantially as and for the purpose described.

2. A bit stock having a central stem or stock with jaws, and a projecting screw segment fastened to the same, a slotted casing encompassing the stock and giving passage to the screw segment through its slot, and a rotary sleeve encompassing the casing and having an interior screw thread extending continuously around its inner periphery with longitudinal channelway across its threads and stop bar on one side of the channelway, the said channelway being adapted to receive the segment and allow it to move longitudinally thereon and mesh with the interior screw threads when turned substantially as and for the purpose described.

3. The combination with the central stem or stock A having yielding screw segment E attached thereto and jaws at its end, and encompassing casing D D' D² with slot to give passage to the screw segment, and the swiveling sleeve S surrounding the casing D' and having channelway *s*, stop bar *t*, and interior screw threads adapted to mesh with the screw segment substantially as and for the purpose described.

4. The central stem or stock A, the screw segment E having recess upon its lower side and slotted ends, the screws *a a* for securing it adjustably to the stock, and a spring *e* arranged in the recess and bearing against the segment and stock as described to render their connection yielding, in combination with the outer casing and adjusting sleeve substantially as shown and described.

FRANCIS M. HAY.

Witnesses:

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