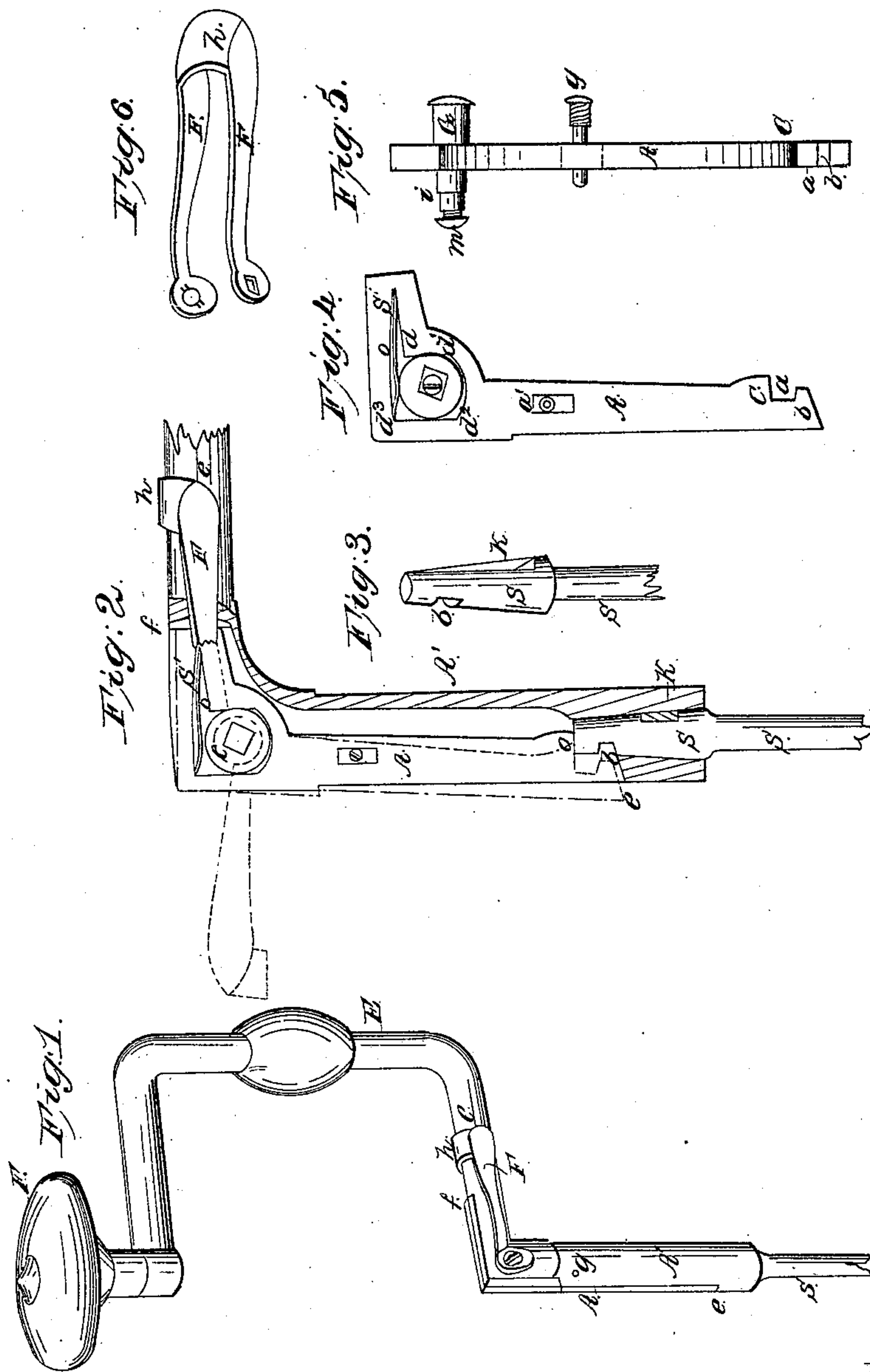


O. G. Stratton,

Bit Stock.

N^o 81,031.

Patented Aug. 11, 1868.



Witnesses:
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O. G. STRATTON, OF GREENFIELD, MASSACHUSETTS.

Letters Patent No. 81,031, dated August 11, 1868.

IMPROVEMENT IN BIT-STOCKS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, O. G. STRATTON, of Greenfield, in the county of Franklin, and State of Massachusetts, have invented a new and improved Bit-Stock and shank; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon, in which—

Figure 1 is a perspective view of a bit-stock having my improvement applied thereto, and holding the shank of a bit or other instrument.

Figure 2 is a longitudinal vertical section through that portion of the stock to which my improvement is applied.

Figure 3 is an elevation of the shank of a bit or other tool used in a bit-brace.

Figure 4 is a side view of the locking-mechanism of the bit-stock.

Figure 5 is an end view of the same; and

Figure 6 is a perspective view of the yoke or thumb-piece, by the movement of which the shank is secured in the stock or released therefrom.

My invention consists in the application to a bit-stock or brace of a device for holding the shank of the bit in its socket, which device is operated by a cam and convenient thumb-piece. The socket is also made conical in longitudinal section, in preference to the prismatic socket generally used, and the shank of the tool which is to be used in the bit-stock is made of a corresponding conical form, and provided with a slot, which is filled by a feather in the socket, and prevents the tool from turning in its seat. The action of the locking-device is not only to hold the shank securely in the socket, but also to exert a slight draught to draw it into the socket in the operation of locking, and to produce a slight thrust when it is released, so as to start it from the stock.

The construction of my invention is as follows:

E represents the handle or winch of a bit-stock of the usual form. In the straight part, A', of the stock is formed a socket for the shank of the tool, which is conical in longitudinal section, as shown in fig. 2, to fit closely the conical shank s of the tool. A ridge or feather projects into one side of the socket, to fill the slot k' in the conical shank of the tool, and prevent it from turning in its socket. A recess is cut in the stock from the point f in the crank portion of the stock to the point e in the socket A', to receive the lever A, which, with the cam C and its shaft G and thumb-piece, mainly constitute the locking-mechanism. This mechanism is shown in figs. 4 and 5, the cam C being in its seat, and the shaft or journal G, by which the cam is rotated.

A slot, a, is cut in the edge of A, and the shoulder b is made of the proper shape to enter the corresponding notch b' in the shank of the tool. The shoulder c, above the slot a, projects slightly more than the shoulder b, and acts therefore as a gauge or stop, which arrests the end of the shank when it is pushed into the socket at the proper point, so that the shoulder b will always enter the slot b' in the shank. As the shoulder c is in contact with the end of the shank, any longitudinal movement of the lever A will press the shoulder c against the shank and thrust the tool out of the socket, thereby obviating an objection to conical sockets, inasmuch as tools are often dislodged from such sockets with difficulty.

An elongated slot, a', is formed in A, through which passes the pin g, which acts as a pivot, about which the lever A moves when actuated by the cam. An opening, d d' d² d³, is formed in the upper part of A, in which the cam C revolves. A slot, s', is also formed in it, as a seat for the friction-spring o, which bears against the cam C, and holds it in any position to which it is adjusted.

The cam C is somewhat irregular in shape, having certain bearing-points which work against the sides of the opening d d², or against the spring o, and cause the lever A to move about the pivot g as a centre of motion. A rectangular opening in the cam receives the shaft G, which latter is turned by means of the forked thumb-piece or yoke, of which F F' are the two arms, and h the strap which connects them, the yoke being so formed as to embrace the part e of the bit-stock, and to be entirely out of the way when the stock is in use.

A portion of the shaft G is cylindrical, (fig. 5,) and a rectangular portion in the middle part of its length fits the rectangular opening in the cam C; so that the latter turns when the shaft is turned.

The portion *i* of the shaft is also rectangular, and fits the rectangular opening *l* in the arm F of the yoke. The opening *l'*, in the other arm of the yoke, receives the cylindrical end of the shaft G. The yoke therefore operates the shaft and cam by means of the square opening *l* fitting upon the square portion *i* of the shaft, and turning the same in the same manner as a winch.

The operation of my invention is as follows: The thumb-piece being brought into the position shown by the dotted lines in fig. 2, the shank *s* of the bit or other tool is thrust into the conical socket in the end of A', so that the slot *k'* is filled, or nearly filled, by the feather in the socket. The thumb-piece is then brought to the position shown by the full lines in fig. 1, and the shank is securely fastened in the socket by the shoulder *b*, which enters the slot *b'* in the shank of the tool.

The relative conformation of the cam C and its socket *d d' d'' d'''* is such, that the action of the lever A upon the shank of the tool is twofold, when the cam is revolved by the thumb-piece, both in the operation of fastening the tool in the socket and also in releasing it therefrom; that is to say, in the operation of fastening the tool into the socket, the end of the lever A will first be depressed, so that the shoulder *b* is forced into the socket and into the slot *b'* in the shank of the tool, and as the cam is still further revolved to bring the thumb-piece closely against the stock, the lever A will be drawn upward, or away from the socket in the direction of its length, and thereby the shank of the tool will be drawn forcibly and tightly into the socket of the bit-stock.

In the reverse operation of releasing the shank of the tool, the first action of the cam upon the lever A, when the thumb-piece is raised from the stock, will be to move the lever slightly but forcibly towards the outer end of the socket, whereby the shoulder *c* will be pressed against the end of the tool, and the latter will be started from the socket. As the thumb-piece is turned still further, to the position shown by the dotted lines in fig. 2, the lower end of A will rise out of its recess in the stock sufficiently to withdraw the shoulder *b* from the slot in the shank of the tool, and the latter can then be readily removed from the bit-stock.

I am aware that bit-stocks have heretofore been constructed, to a limited extent, with an eccentric or cam, for directly or indirectly fastening the bit into the socket, and I do not claim broadly the use of a cam for holding the shank in place, except when applied to operate the lever A, the fulcrum of which is placed in the straight part A' of the bit-stock, and which has a seat or opening, *d d' d'' d'''*, formed in it to receive the cam. I believe the construction of my improvement, as described, possesses many advantages in its simplicity, convenience, and the secure manner in which it holds the shank in the socket. Moreover, it does not materially add to the weight of the instrument, and fits so closely to the stock that there are no inconvenient projections exposed when the stock-bit is in use.

I also believe that the arrangement of parts whereby the shank is not only fastened into the socket, but forcibly and tightly drawn into it in the operation of locking, and forcibly crowded outward in the operation of unlocking, to be a new and valuable improvement; and also, that the described arrangement of a slotted conical shaft, with a recess, *k'*, and a socket of corresponding shape, with a feather or spline projecting into it, to fit the elongated recess in the shank, possesses many and essential advantages over the prismatic shanks and sockets generally used.

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

1. The combination and arrangement of the yoke or thumb-piece F F', shaft G, cam C, pivot *g*, and recessed and slotted lever A with a bit-brace or stock, substantially as and for the purpose described.

2. A conical shank, *s*, of a bit or other tool used in a bit-stock, having a recess, *k'*, therein, to receive a feather or projection in the socket, in combination with a socket in the bit-stock, which is conical in longitudinal section, as described.

Witness my hand, this 21st day of April, 1868.

O. G. STRATTON.

Witnesses:

J. P. BUCKLAND,
JOS. C. PYNCHON.