

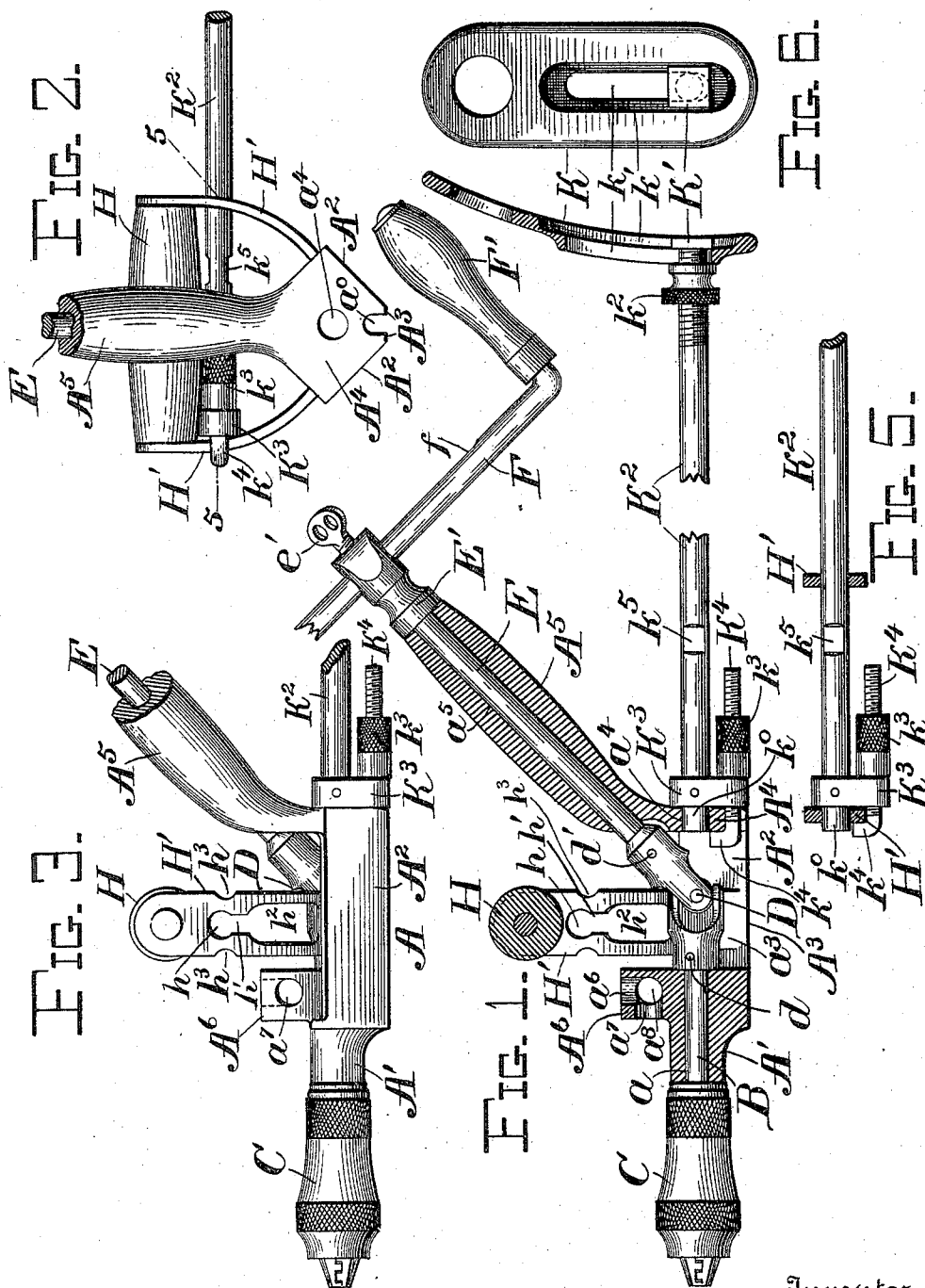
(No Model.)

3 Sheets—Sheet 1.

S. McCLELLAN.
BIT BRACE.

No. 585,531.

Patented June 29, 1897.



Witnesses

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J. Stephen Gusta

Inventor

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Attorneys.

(No Model.)

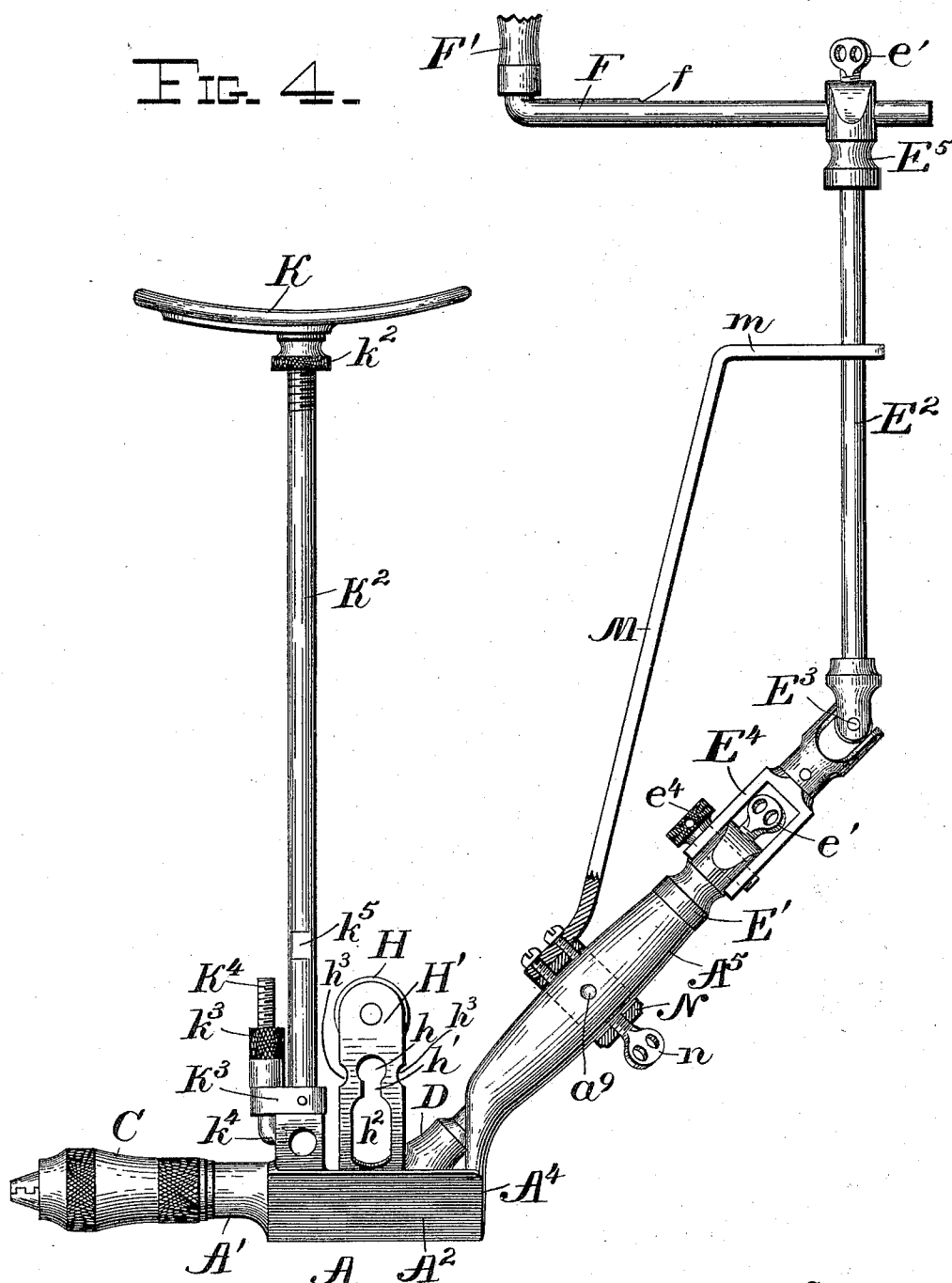
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FIG. 4.



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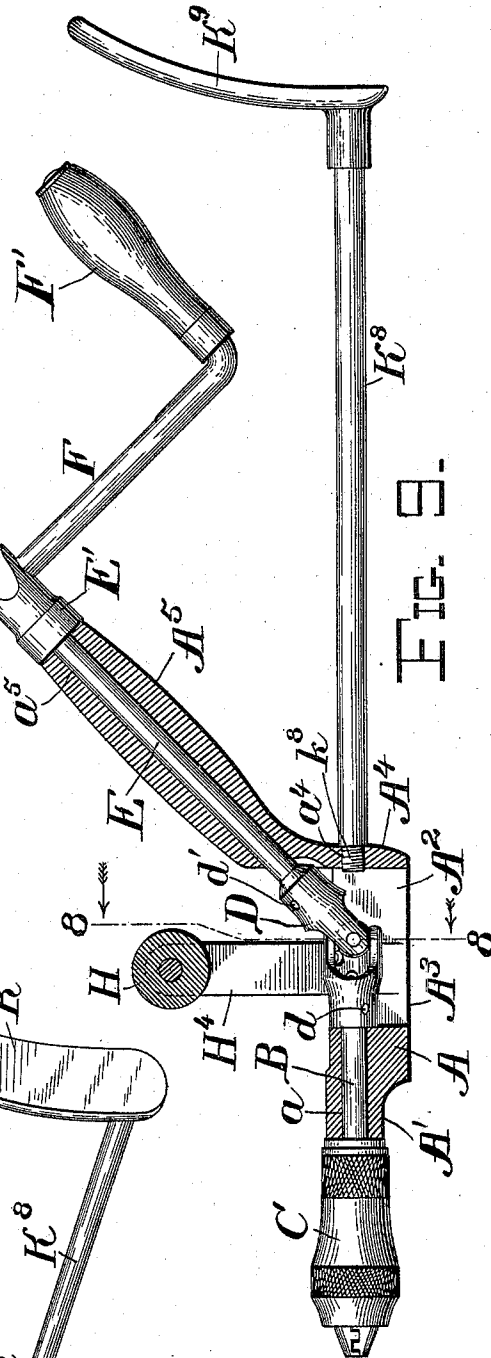
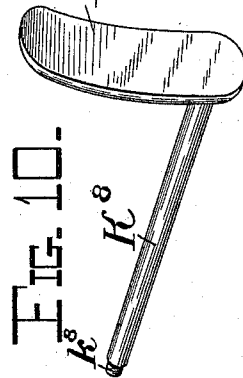
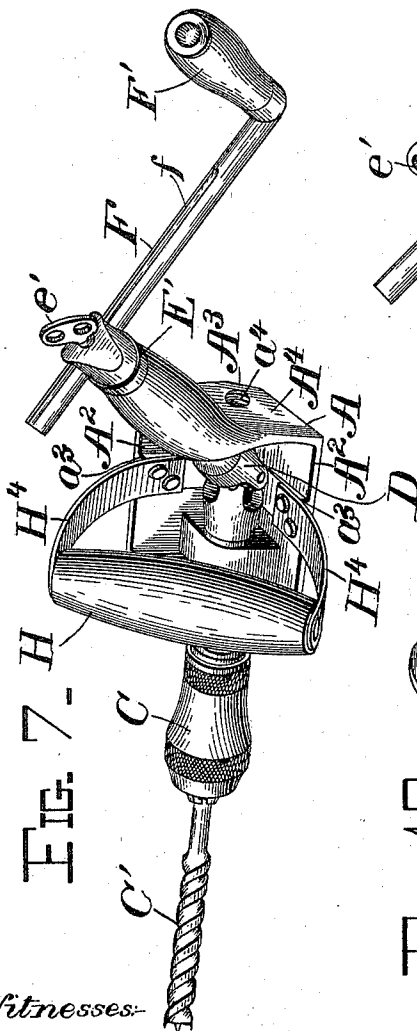
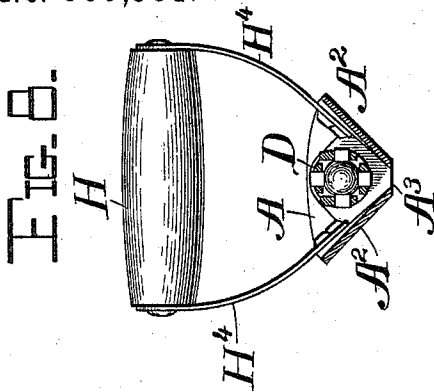
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3 Sheets—Sheet 3.

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No. 585,531.

Patented June 29, 1897.



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UNITED STATES PATENT OFFICE.

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TO THOMAS H. WHELESS, OF AUSTIN, TEXAS, AND DENIS NUNAN, OF
NEW YORK, N. Y.

BIT-BRACE.

SPECIFICATION forming part of Letters Patent No. 585,531, dated June 29, 1897.

Application filed March 20, 1897. Serial No. 628,474. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN McCLELLAN, a citizen of the United States, residing at San Marcos, in the county of Hays and State of Texas, have invented certain new and useful Improvements in Bit-Braces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in bit-braces; and it consists in an improved form of brace having a V-guide which is substantially right-angled and mechanism mounted therein for driving a bit so arranged that the crank-arm of the handle may turn in a corner without striking the wall or without striking a plane support should the guide rest thereon when boring a hole.

The brace is so constructed that it may be used in boring a hole in a corner up or down, right or left, by simply turning the hand-crank, or it may be used in boring a hole on a line parallel to a base on which the guide rests, or it may be used in combination with a removable breast-rest, as with an ordinary brace.

Figure 1 represents a central longitudinal section of the preferred form of my machine with the removable breast-rest in place. Fig. 2 represents an end elevation of the same with the breast-rest attached to the handle and extending at right angles to the central line of the device. Fig. 3 represents a side elevation of the device, parts being broken away. Fig. 4 represents a side elevation of my machine with a detachable extension of the main shaft carrying the handle to enable the device to be used between beams or in other openings, showing also the removable breast-rest secured in a vertical position. Fig. 5 represents a horizontal section taken on the line 5 5 of Fig. 2. Fig. 6 is an end view of the breast-rest, showing the adjustable rest-plate thereon. Fig. 7 is a perspective view showing modification of the handle. Fig. 8 is a transverse sectional view of the same, taken on the line 8 8 of Fig. 9. Fig. 9 is a central longitudinal section of the device shown in Figs. 7 and 8, showing also a modified form of breast-rest. Fig. 10 is a perspec-

tive view of the form of breast-rest shown in Fig. 9.

A represents a casting or guide having the forward portion A' thereof bored out, as at *a*, to receive the journal B, carrying the chuck C. This casting is provided with inclined side walls A², preferably at, or nearly at, right angles to each other and may have their lower edges cut off to form a plane A³, on which the instrument can be supported or guided in boring. The two sides A², with the base-plane A³, form a V-shaped guide adapted to fit snugly in the corners of walls, cabinets, or the like, whereby the tool may be steadied in use, or the base A³ or either of the sides A² may be caused to rest on the floor or against a wall or partition, whereby the tool may be steadied in use and a straighter hole bored. The rear end of the guide-frame is preferably made solid, as at A⁴, and extends upward and rearward to form the journal-bearing A⁵, perforated, as at *a*³, to receive the driving-spindle E, or this arm or extension A⁵ may be detachably connected to the frame or hinged to adjust it to any angle, if desired.

The driving-spindle E is preferably provided with the head E', adapted to receive the sliding arm F of the hand-crank, which is rotated by means of the handle F'. This hand-crank F is preferably grooved, as at *f*, to engage the end of the set-screw or clamp *e'*, and by means of this clamp the handle is maintained in the proper position, projecting outward, and also the length of the crank-arm may be shortened or lengthened at will, whereby a greater leverage at decreased speed or a lesser leverage at increased speed may be obtained.

The driving-spindle E may be connected to the journal B by means of a universal joint D, as shown, or by means of a bevel-gear, or in any other convenient way in which the motion of the spindle E may be imparted to the journal B.

Where a universal joint is used, such as is shown, the two parts may be connected to their respective shafts by means of the locking-pin or clamp-screws *d* *d'*, respectively.

To steady the brace in position, a handle H is provided, preferably connected by the arms H' to lugs *a*³ on the frame A, or this

handle may be cast integrally with the frame, if desired, or it may be secured thereto in any other desired way.

To enable the operator to steady the device and hold the same more firmly, a removable breast-rest, such as shown in Figs. 1 and 4, may be used. This breast-rest consists of a curved plate K, slotted longitudinally, as at k , and recessed around the slot k on the concave or outer side, as at k' , to receive the square head K' on the end of the rod K^2 . This rod K^2 is screw-threaded on the end adjacent to the head K' , and a milled nut k^2 is placed on the threaded portion thereof, after which the end of the rod is passed through the slot k in the rest-plate K, and the head K' is rigidly secured thereto in any well-known manner. Thus the rest-plate K is adjustable transversely on the rod K^2 within the limits of the slot k , and may be clamped securely at any position within the said limits by the milled nut k^2 , as will be readily understood. Near the other end of the rod K^2 is rigidly secured a lug or offset K^3 , which is perforated near its outer end to receive a threaded bolt K^4 , which bolt is free to slide through the perforation in the said lug K^3 . The outer end of the bolt is hooked, as at k^4 , and a milled nut k^3 is screwed upon the threaded end thereof to bear upon the lug K^3 , for a purpose to be hereinafter explained.

The solid end of the frame A is perforated, as at a^4 , and provided with a slot a^0 , open between the edges A^3 , as shown in Fig. 2. To attach the breast-rest, as shown in Fig. 1, the milled nut k^3 is turned to move along the bolt K^4 away from the lug K^3 . The outer end of the bolt is then placed in the slot a^0 , with the hook k^4 inside of the frame A. The end k^0 of the rod K^2 , projecting through the lug K^3 , is placed in the perforation a^4 , and the milled nut k^3 is then screwed down upon the lug K^3 , binding the hook k^4 against the inner end of the frame A, thus holding the rod and breast-rest firmly in the position shown in Fig. 1.

The planes A^2 are preferably at right angles to each other, so that when the tool is to be used in a corner the axis of the chuck and boring device may be exactly parallel with the two walls forming the corner, and the boring device may be made to bore a hole exactly parallel with said walls, either down in the floor or up in the ceiling or laterally in either wall, or the tool, if placed flat on the plane A^3 or on either of the planes A^2 and held in position, may be made to bore a hole exactly parallel to the supporting-surface.

It may sometimes be desirable to attach the breast-rest from the side of the machine, and for this purpose the arms H' of the handle are perforated, as at h , to receive the rod K^2 , the said perforations opening through slots h' into the larger openings h^2 .

The breast-rest is inserted by passing the lug K^3 through the opening h^2 on one side of the handle and passing the reduced part k^5 through the slot h' , so that the rod K^2 will

pass through the perforation h . The end k^0 of the rod K^2 is then inserted in the perforation h on the other side of the handle, and the hook end k^4 of the bolt K^4 is placed over the right or left edge of the side of the handle in either of the notches h^3 and the nut k^3 screwed down to hold the parts firmly in position, as shown in Figs. 2 and 5.

On the upper part of the frame A, just in front of the handle H, is cast a lug A^6 , which is bored out vertically, as at a^6 , transversely, as at a^7 , and in from the front, as at a^8 . This will allow of the breast-rest being attached to the said lug either transversely or vertically, as may be required by the nature of the work in hand, the end k^0 being placed in one of the perforations on the lug and the hook k^4 on the bolt K^4 turned to engage in perforation a^8 , as will be readily understood.

In Fig. 4 is shown an attachment which may be placed on the extension A^5 to lengthen the main shaft E should it be desirable to use the machine between beams or in any small opening. The said attachment consists of a piece of metal or bracket M, bent substantially at right angles, as at m , and perforated to receive the shaft E^2 . The other end of the piece M is secured to a ring N of suitable size to pass freely over the extension A^5 of the frame A and adapted to be held thereon by the set-screw n . Small indentations a^9 are formed in the said extension for the end of the said set-screw to hold in. The shaft E^2 is connected by a universal joint E^3 (similar to the universal joint D) with a fork E^4 , which is formed of such size as to fit snugly over the head E' on the shaft E. A milled head-screw e^4 is passed through the said fork E^4 and the opening in the head E' to hold the two firmly together, as shown in Fig. 4.

The upper end of the shaft E^2 is provided with a head E^5 similar to the head E' on the shaft E, and when this attachment is used the crank-arm F and handle F' are removed from the head E' and placed in the head E^5 . By reference to Fig. 4 it will be seen that the shaft E^2 extends at right angles to the axis of the chuck C for holding the boring-bit. In this instance the breast-rest would preferably be placed in the vertical position, as shown in Fig. 4.

By turning the ring N upon the extension A^5 the shaft E^2 may be caused to extend backward in a line parallel with the axis of the chuck C, or it may be arranged to extend at an angle on either side, as will be readily understood.

In Figs. 7 and 8 is shown a modified form of brace in which the side arms H^4 of the handle H are not perforated to receive the breast-rest. This would probably only be used where it was desirable to produce a brace at small cost.

In Figs. 9 and 10 is shown a simple form of breast-rest consisting of a rod K^8 , reduced and screw-threaded, as at k^8 , where it enters the opening a^4 , which in this instance is

threaded to receive it. The rest proper in this instance consists of a curved plate K⁹, rigidly secured to the rod K⁸. This form would probably only be used in order to cheapen the construction of the tool.

I claim as my invention—

1. A bit-brace consisting of a frame, with a journal-bearing in one end of said frame, an inclined arm with a journal-bearing therethrough near the other end of said frame, a journal and a shaft mounted in said journal-bearings respectively, a universal joint connecting said journal and said shaft, a chuck carried by the journal, a bracket detachably connected to said arm, a second shaft journaled in said bracket, and connected by means of a universal joint to the first shaft and a hand-crank connected to said second shaft, and a breast-rest detachably connected to the frame, substantially as described.

2. A detachable breast-rest or handle for use with bit-braces or the like comprising a rod adapted to fit into one or more perforations in the bit-brace, an offset projecting from said rod near the front end thereof, and adapted to bear against the surface of the bit-brace when the end of the rod is inserted, a hooked-shaped bolt passing through said offset and revolvably mounted therein and screw-threaded at its outer end, and a nut adapted to screw on said bolt, and a rest-plate or handle at the outer end of said rod, substantially as described.

3. A detachable breast-rest or handle for use with bit-braces or the like comprising a rod adapted to fit into one or more perforations in the bit-brace, an offset projecting from said rod near the front end thereof, a hook-shaped bolt passing through said offset and screw-threaded at its outer end, and a nut adapted to screw on said bolt, and an adjustable rest-plate or handle at the other end of said rod, substantially as described.

4. A detachable breast-rest or handle for use with bit-braces or the like, comprising a rod screw-threaded near its rear end and provided with an angular cap and having its front end adapted to fit into one or more perforations in the bit-brace frame, an offset projecting from said rod near the front end there-

of, a hook-shaped bolt passing through said offset and screw-threaded at its outer end, a milled-headed nut screwing onto said screw-threads, a slotted plate having a groove engaging said angular cap, and a clamp-screw on said rod adapted to clamp said slotted plate at the desired position relative to said cap, substantially as described.

5. A detachable breast-rest or handle for use with bit-braces or the like comprising a rod screw-threaded near its rear end and having an angular cap in rear of said screw-threads, means for securing the front end of said rod to the bit-brace frame, a slotted plate engaging said rod in front of said cap, and a milled-headed screw adapted to clamp said plate against said cap, substantially as described.

6. A bit-brace, consisting of a V-shaped guide-frame, with a journal-bearing in one end of said frame, an inclined arm with a journal-bearing therethrough near the other end of said frame, a journal and a shaft mounted in said journal-bearings, respectively, a universal joint connecting said journal and said shaft, a chuck carried by the journal, a hand-crank connected to said shaft, a handle having slotted arms to receive a breast-rest secured to said frame, and a breast-rest detachably connected to said frame, substantially as described.

7. A bit-brace, consisting of a V-shaped guide-frame, with a journal-bearing in one end of said frame, an inclined arm with a journal-bearing therethrough near the other end of said frame, a journal and a shaft mounted in said journal-bearings, respectively, a universal joint connecting said journal and said shaft, a chuck carried by the journal, a hand-crank connected to said shaft, a handle having arms provided with openings *h* a slot *h'* and a larger slot *h''* to receive a breast-rest, and a breast-rest detachably connected to said frame, substantially as described.

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

STEPHEN MCCLELLAN.

Witnesses:

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A. A. THOMAS.