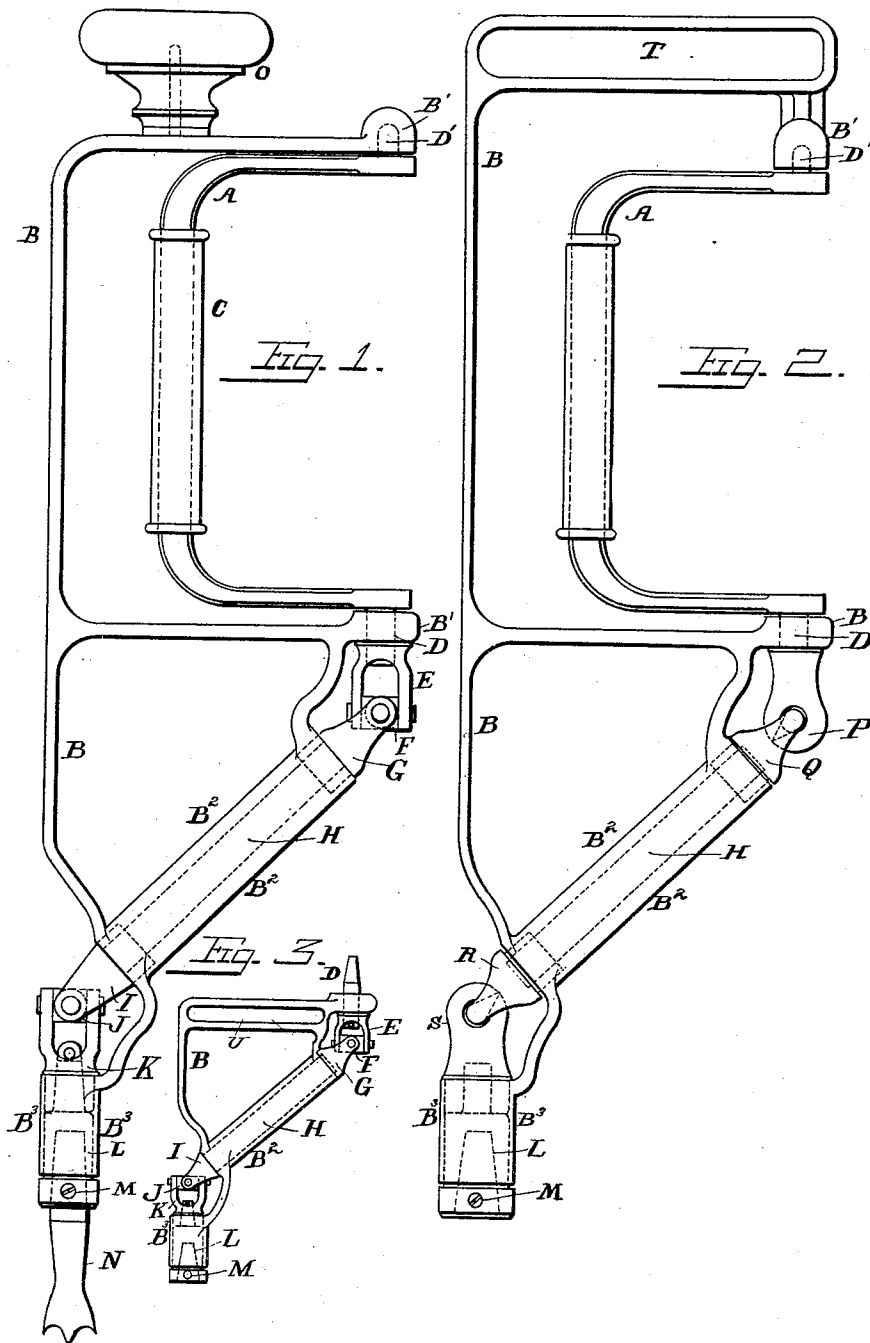


(No Model.)

A. C. DERLON.
UNIVERSAL JOINTED BRACE.

No. 481,526.

Patented Aug. 23, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

ARTHUR CHARLES DERLON, OF PARIS, FRANCE, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE NATIONAL MANUFACTURING COMPANY, OF PENNSYLVANIA.

UNIVERSAL-JOINTED BRACE.

SPECIFICATION forming part of Letters Patent No. 481,526, dated August 23, 1892.

Application filed January 18, 1892. Serial No. 418,520. (No model.) Patented in France February 1, 1890, No. 203,484; in Belgium June 30, 1890, No. 91,085, and in England September 20, 1889, No. 14,833.

To all whom it may concern:

Be it known that I, ARTHUR CHARLES DERLON, a citizen of France, residing in Paris, 75 Rue Pernety, have invented new and useful Improvements in a Universal-Jointed Brace for boring holes close to wash-boards, in door- cheeks, corners, and similar places, (for which I have obtained, first, a patent in France, No. 203,484, bearing date February 1, 1890, granted on the 23d of April, 1890; second, a patent in Belgium, No. 91,085, bearing date June 30, 1890, granted on the 15th of July, 1890, and issued to R. Van Langenhove, engineer, of Haren, Province of Brabant, Kingdom of Belgium, by virtue of an agreement given to him by me and dated June 3, 1890; third, a patent in Great Britain, No. 14,833, of 20th of September, A. D. 1889, issued to Arthur Albert Tattersall, formerly of Stoke-upon-Trent, Kingdom of Great Britain, now of 31 Dixon Avenue, Crosshill, Glasgow, Kingdom of Great Britain, by virtue of an agreement given to him by me or my legal representatives,) of which the following is a specification.

My invention relates to a universal-jointed brace for boring holes close to wash-boards, in floors, door-cheeks, corners, and similar places close to the wall where an ordinary brace would not turn round; and it consists in certain novel features in the construction and arrangement of the parts, which will hereinafter be fully described, and particularly pointed out in the claims; and in order that my said invention may be properly understood I have hereunto appended an explanatory sheet of drawings, whereon—

Figure 1 shows in front elevation one arrangement of my improved universal-jointed brace. Fig. 2 shows in front elevation a modified arrangement of the invention. Fig. 3 shows another modification of the invention on a reduced scale.

Referring to the drawings, whereon the same reference-letters, wherever repeated, indicate similar or like parts, A is an ordinary revolving crank-handle, which is mounted to turn in a framework B and has for the hand a loose ferrule C. The cranked handle A has spindles or pivots D D', (shown dotted,) one

at each end, which are free to revolve in bearings B' in the frame B, whereby the axis of the crank-handle is held vertical. There is fitted on the lower spindle D a semicircular or other shaped arm E, working in connection with a cross F and another semicircular or other shaped arm G. The arm G in its turn works a spindle H, (shown dotted,) contained in a bearing B², preferably made in one piece with the frame B. The spindle H works a semicircular or other shaped arm I, into which works the cross J, which latter turns another semicircular or other shaped arm K. This arm K is fitted to and turns another vertical spindle L, contained in the bearing B³, which is preferably made in one piece with the frame B. The spindle L contains a bit or drill socket-head, into which may be secured by means of a set-screw M or other suitable fixture the bit N.

It will be seen that the handle A, pivots D D', and joints E F G, spindle H, joints I J K, and spindle L all work and are contained in the framework B, which may be made of malleable iron or any other suitable material. On top of this framework B is fixed a stationary handle or breast-plate O to allow of the pressure being put on the framework and thence on the bit.

In the drawings, Figs. 1 and 2, I have shown an open frame B, having the barrels B² and B³, made in one piece with and virtually constituting a part of the frame. This construction insures both lightness and strength. The frame may, however, be made in any other suitable manner, so long as it carries the handle A and spindles H and L in their proper and relative positions. The semicircular or other shaped arms E G and I K, with their crosses F and J, whose axes of rotation meet in a point and transmit motion from one axis to another arranged at a certain angle, are called "universal" or "gimbal" joints.

Fig. 2 is a modification of the invention wherein the universal joints P Q and R S are made hook-and-eye joints—viz., one hook put through an eye or two eyes, one put through the other—working in the same framework B and in the same manner as Fig. 1, except that

the breast-plate T is shown as a double bridge of metal, or it may be a single bridge, to which is secured a semicircular or other shaped piece of wood for the hand to hold while the brace is being worked.

Fig. 3 is another modification (on a reduced scale) of the invention wherein the upper part of the frame is dispensed with and the lower triangular part has a handle U, made of a double bridge of metal, or it may be a single bridge of same, with a semicircular or other shaped piece of wood secured to it. In this arrangement the revolving handle A is separate from the rest of the brace and can be fitted on the spindle D when the brace is to be used.

The handles T U can be made in any suitable manner to allow a firm grip of the framework. The drill or bit N is secured to the drill or bit head by a screw M or by any suitable well-known means.

The object of this invention is to make a brace that will bore holes close to the walls, in corners, and similar places and that can with ease be held firmly and steadily at its work and in which pressure can be transmitted above and in the line of the boring tool or bit.

From the foregoing description it will be seen that in all the forms the stationary or holding handle is substantially over the boring-tool, so that pressure may be applied in substantially the line of the axis of the bit. It will also be seen that the driving-spindle D in every case, though located at an offset in the frame, in order to permit the rotation of the crank-handle, has its axis of rotation parallel with the axis of the spindle which has the socket for the bit-head. It will further be seen that the frame holding all the working parts is rigid and the lateral arms form rigid supports for opposite spindles of the crank-handle, so that not only is pressure transmitted directly to the bit-spindle through the rigid frame from the holding and bearing handle T or U, located at the extreme end of the tool, but the crank-handle thus rigidly supported can be worked free of any pressure brought to bear upon the tool-bit. Therefore, while the tool is especially well adapted for working by a continuous rotation close into parts perpendicular to the surface to be bored, no disadvantage in the operation results from the construction, as do those tools where the crank-axis is at an angle to the bit and necessary pressure is brought to bear from other directions. The handle A of the brace, turning on its frame B, works the universal joint E F G or P Q. This universal joint works the spindle H, which in its turn works at any convenient angle the second

universal joint I J K or R S, working the spindle L, with the bit or drill head.

By continuously turning the handle A, which works joints E F G, I J K, or P Q and R S, with bit N, all contained in the framework B, holes can be bored close to the wall or any corner. The brace works continuously and does away with the slow system of the ratchet-brace or the unsteady movement of the one universal joint in its movable or immovable stock.

Having now particularly described my invention, what I claim is—

1. A brace consisting of a frame having a suitable holding and bearing handle, a continuously-revoluble crank-handle mounted in an offset in said frame, a spindle mounted at an angle in said frame and connected by means of a universal joint with said crank-handle, and the bit or drill receiving spindle mounted beneath the holding and bearing handle, with its axis parallel to that of the crank-handle and connected by a universal joint with the other end of the angularly-arranged spindle, substantially as hereinbefore described.

2. The combination, with a suitable frame having at one end a revoluble spindle adapted by a suitable socket to receive a bit or tool and at the other end a stationary holding and bearing handle, of an offset on the frame, a driving-spindle having means for rotating it mounted on said offset, with its axis parallel with the axis of the bit-spindle, and the angularly-arranged spindle located between the driving and bit spindles and having universal-joint connection therewith, substantially as and for the purpose set forth.

3. In a brace, the combination of a frame consisting of a longitudinal back, arms extending laterally from said back, a handle on one end of the frame, a longitudinal bit-spindle bearing on the other end of said frame, and an obliquely-arranged bearing supported by one end of the frame and the adjacent lateral arm, a crank-handle journaled in the respective ends of the lateral arms, a bit-spindle journaled in the bearing in the end of the frame, and a spindle in the obliquely-arranged bearing, having universal-joint connection at its respective ends with the crank-handle and the bit-spindle, all substantially as shown and described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR CHARLES DERLON.

Witnesses:

ROGER VAN LANGENHOVE,
WILSON P. BOYD.