

Brace-Drills.

Patented March 18, 1873.

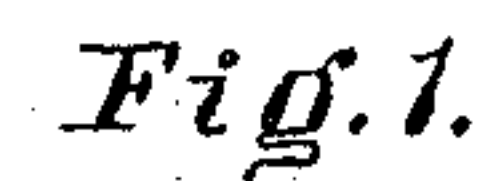


Fig. 2.

George Gibbs
by Job Abbott
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UNITED STATES PATENT OFFICE.

GEORGE GIBBS, OF CANTON, OHIO.

IMPROVEMENT IN BRACE-DRILLS.

Specification forming part of Letters Patent No. 136,820, dated March 18, 1873.

To all whom it may concern:

Be it known that I, GEORGE GIBBS, of Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Brace-Drills; and that the following is a full, clear, and exact specification thereof, which will enable others skilled in the art to make and use the said invention.

It is well known to persons skilled in the art of boring wood and metals that the drill used for metal-boring requires to be driven with much greater speed than the auger used for wood-boring, in order to produce the best results from a given application of power, and that a much greater end pressure is required on the metal-drill to give it proper "feed" than is required on the wood bit or auger, which usually has a screw end by which it is drawn into the wood. For these reasons mechanics who work in both wood and metal require two classes of bit-braces for boring, one of these being the ordinary bit-brace without gearing, which is used for boring wood, and the other being the geared brace, commonly known as the "breast-drill," which is used for boring metal, and which is arranged to produce a high speed of the boring-tool with the same number of hand revolutions as are applied to the ordinary bit-brace first mentioned.

My invention consists of a portable attachment which is readily applied to the ordinary brace, and which serves to produce the high speed of boring-tool with the requisite end pressure required to adapt the ordinary brace to metal-drilling; by which means I adapt the ordinary brace to both wood and metal boring, and dispense with the use of the breast-drill entirely. Said attachment consists of a frame, provided with a handle, having arranged therein two shafts placed in the same line, and connected by suitable gearing, the upper shaft having a tapering spindle projecting into and forming a journal for the lower shaft, and having a shank which fits into the ordinary brace; and the lower shaft having a head fitted for the reception of the ordinary metal-drill, the whole being so constructed as to be readily applied to and used with the ordinary brace for the purpose of metal-boring, without interfering with the

utility of said brace for its ordinary application to wood-boring.

In the accompanying drawing, Figure 1 is a plan of my invention; Fig. 2, a view of an ordinary brace to which my attachment can be applied, or in connection with which it can be used.

A A' is the brace-shaft, at the upper end of which is the stem to be inserted in the socket P of the brace, Fig. 2. B is the main propelling or master gear-wheel, rigidly attached to the shaft A, which terminates in the tapering spindle A'. C, D, and E are gear-wheels, so constructed and arranged as to increase or multiply the speed of wheel B, drill-shaft F, and drill or bit G over the rate of speed of master-wheel B. F is the drill-shaft placed loosely over the spindle A', shown in dotted line in drawing. The spindle A' and shaft F revolve in the same direction.

In my gearing shown, the speed of wheel E and shaft F is increased eight times over that of master-wheel B and spindle A'. The spindle A', therefore, in revolving in the same direction as shaft F, relieves the shaft F of the friction of one revolution in every eight. The spindle A' gradually tapers from the frame I to its point, so that as it wears the wear can be taken up, and it can be made to fit up closely by having the shaft F drawn further up toward the frame I. The hollow drill-shaft F is rigidly attached to the small gear-wheel E, and holds in its other end the bit or drill G, and is secured from sliding off the spindle A' by the hook or bent finger H, which is secured to frame I by screw K. The inside shaft or spindle A' is held in place and prevented from slipping out by screw L, which passes through the hollow bar I' of the frame I, and enters into an annular groove, M, cut in and around shaft or spindle A'. O is the handle. P, Fig. 2, is the socket of the brace, into which the point or stem A, Fig. 1, is placed to attach the two parts together. When the brace, Fig. 2, is attached, it will be seen that the axis A, on which the brace revolves, is on a direct line with the axis A' of the pinion-wheels B and E, and with the bit or drill G, thus allowing all pressure applied to the brace to act directly on the bit or drill G.

I do not claim, broadly, the use of a portable geared attachment by which the bit-brace may be adapted to metal-boring; nor the mounting of the drill-shaft on a tapering spindle, as these features have been before shown; but, confining myself to the combination and arrangement of parts herein described,

What I claim as new, and desire to secure by Letters Patent, is—

The herein-described attachment for a bit-brace, consisting of frame I I' with handle O,

brace-shaft A with tapering spindle A', hollow drill-shaft F, and gear-train B C D E, the several parts being constructed and arranged substantially as and for the purpose specified.

As evidence of the foregoing witness my hand this 2d day of August, A. D. 1872.

GEO. GIBBS.

Witnesses:

GEORGE E. BUCKLEY,
JENNIE M. GRANT.