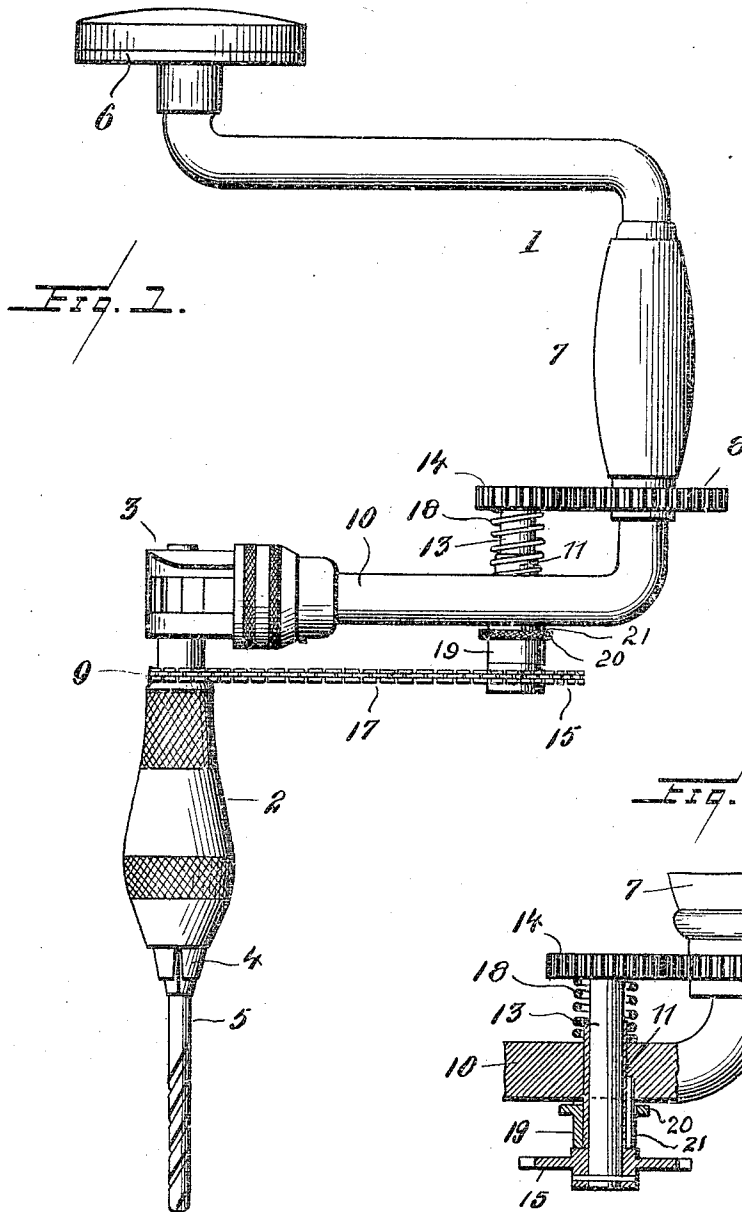


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 DRILL BRACE.
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959,824.

Patented May 31, 1910.



WITNESSES:

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CHARLES WARMHOLTZ, OF CHICAGO, ILLINOIS.

DRILL-BRACE.

959,824.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CHARLES WARMHOLTZ, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Drill-Braces, of which the following is a specification.

This invention relates to new and useful improvements in drill braces and it has particular reference to that type of drill braces in which a transmission gearing is provided between the operating handle and the rotatable bit chuck, for multiplying the speed of the latter.

The invention aims as a primary object to provide in a drill brace of this character, novel means for engaging and disengaging the proper elements of the transmission gearing, with the rotatable part of the operating handle.

The detailed construction will appear in the course of the following description in which reference is had to the accompanying drawings forming a part of this specification, like characters of reference designating like parts throughout the several views, wherein—

Figure 1 is a side elevation of a drill brace constructed in accordance with my invention, and Fig. 2 is an enlarged longitudinal fragmentary section of a movable part of the transmission gearing.

The drill brace constituted in the present invention comprises a U shaped handle 1, a rotatable chuck 2 carried thereby and a reversible pawl and ratchet mechanism 3 of conventional form interposed between said handle and said chuck. The chuck 2 actuates gripping jaws 4 which hold the bit 5. The handle 1 at its upper end, has a rotatable grip 6 and on its vertical portion has a rotatable grip 7, the latter having reduced extremities 7^a. The lower extremity 7^a of said grip 7 is provided with a horizontal pinion 8, and the stationary element of the chuck 2, which of course, is rigidly connected with the ratchet wheel of the pawl and ratchet mechanism 3, as will be readily understood, carries adjacent its upper end a sprocket 9. The lower horizontal arm 10 of the handle 1 is apertured to receive a stationary sleeve 11 therethrough. An axially movable shaft 13 is projected through the sleeve 11, the shaft 13 carrying at its upper end a pinion 14, meshing with the pinion 8 and at its lower end a sprocket

wheel 15. The sprockets 9 and 15 are operatively connected by a chain 17. For the purpose of maintaining the pinion 14 in engagement with the pinion 8, I employ an expansive coil spring 18, surrounding the shaft 13 and with its free ends bearing against said pinion 14 and the arm 10.

It will be noted in Fig. 2, that a sleeve 19 loosely surrounds the shaft 13. The sleeve 19 is formed with a knurled outwardly extending flange 20, and is recessed longitudinally to engage in one position a depending pin 21 fixed to the arm 10.

In effecting an adjustment of the parts, the shaft 13 is depressed manually against the tension of the spring 18, so that the pinion 14 is disengaged from the pinion 8 and the sleeve 19 is likewise moved so that it becomes disengaged from the pin 21. Said sleeve is then partially rotated, whereby the pin 21 will bear against the flange 20 and maintain the sleeve 18 in its lowermost position, in which position said sleeve serves to prevent the shaft 13 from being moved upwardly by the spring 18. This disengagement of the pinions 14 and 8 is necessary when a large size bit is employed, to prevent the strain between the parts which would arise if the multiplying gear were used with bits of large size.

From the above, it is clear that when it is desired to increase the speed of the rotation of chuck 2, the above operation is reversed and the pinion 14 will mesh with pinion 8. Since pinion 8 is rigidly secured upon the grip 7 and said grip 7 being held in the hand and prevented from having rotation upon its longitudinal axis, the pinion 14 will be rotated by the pinion 8, as, during one rotation of the brace, it will make one revolution with reference to the pinion 8, which is held in a fixed position when the brace is driven in the usual manner.

While the elements herein shown and described are well adapted to serve the functions set forth, it is obvious that various minor changes may be made in the proportions, shape and arrangement of the several parts without departing from the spirit and scope of the invention as defined in the appended claim.

Having fully described my invention I claim:

The combination with a frame comprising a pair of crank arms connected by a shank, of a bearing head rotatably mounted upon

one of said crank arms, a tool holder rotatably mounted upon the other of said crank arms, a rotatable and longitudinally stationary grip provided with a pinion rigidly and permanently secured thereto, a pinion 5 rotatably mounted upon said second named crank arm and engaging said first named pinion, means for sliding said second named pinion on its longitudinal axis into and out 10 of engagement with said first named pinion and means for maintaining said slidable pinion in either extreme position, means connecting said tool holder and said last named pinion for imparting rotation to the former

from the latter, and the whole being actuated by the swinging of the grip and the pinion rigidly secured thereto in a circle about the said bearing head without letting the same rotate upon their central axis or with relation to the body of the operator, 20 substantially as described.

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

CHARLES WARMHOLTZ.

Witnesses:

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TIMOTHY C. KELLEY.