No. 757,315. PATENTED APR. 12, 1904.

C. F. KEABLES.

BALANCE WEIGHT FOR BRACES.

APPLICATION FILED OCT. 8, 1903.

NO MODEL.

Fig. 1.

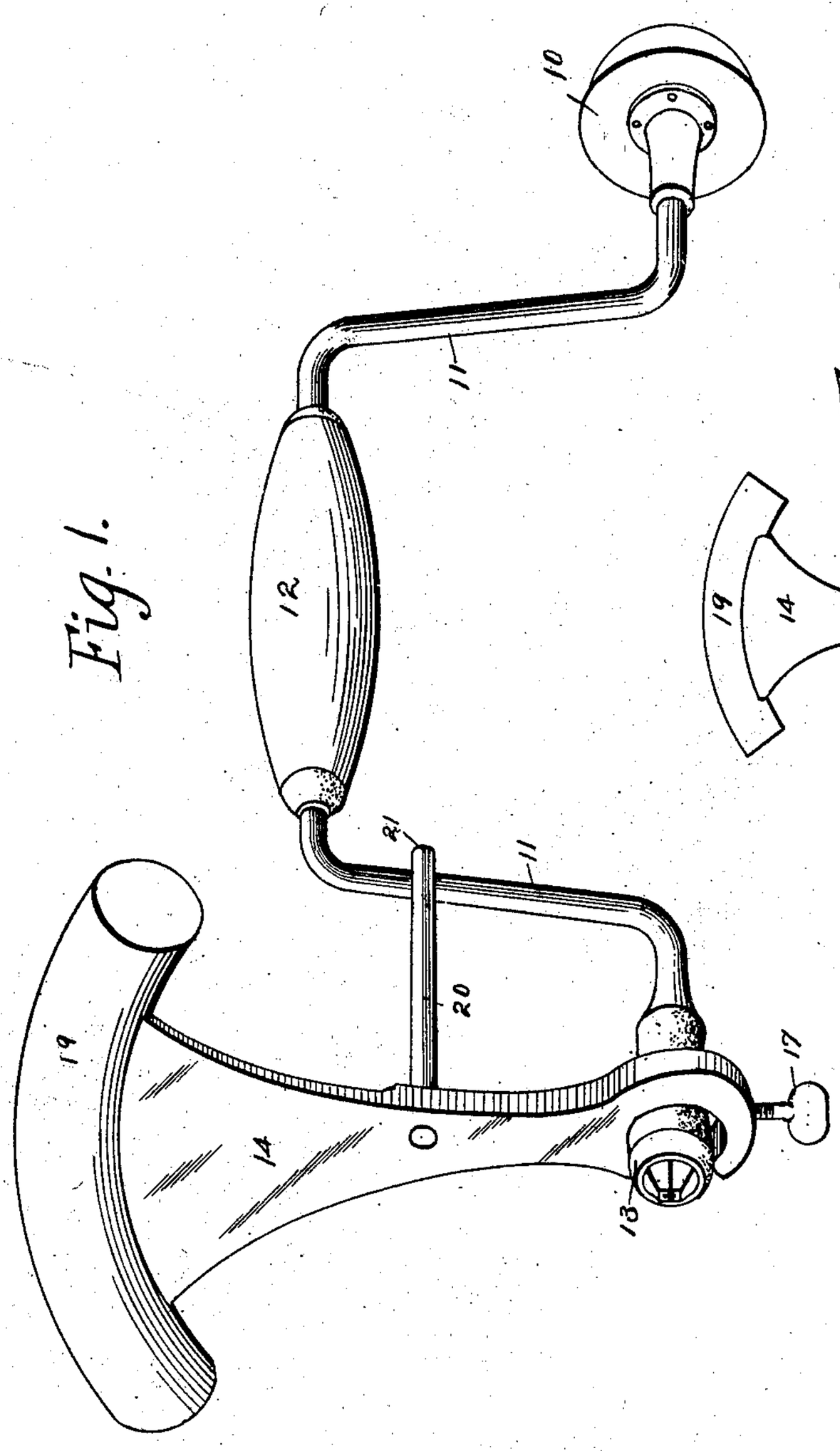


Fig. 2.

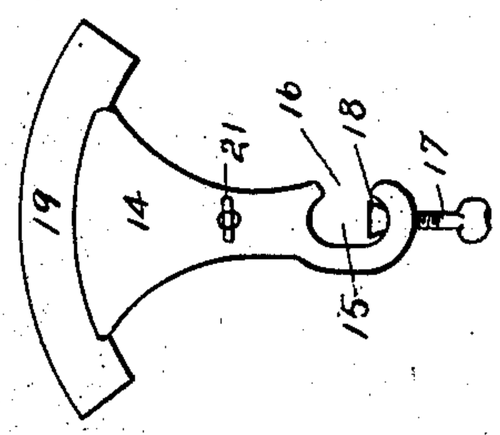
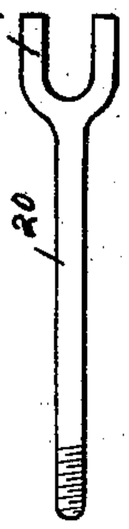


Fig. 3.



Witnesses
A. G. Hague
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Inventor. C. F. Keables.
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No. 757,315. Patented April 12, 1904.

UNITED STATES PATENT OFFICE.

CHARLES F. KEABLES, OF INDIANOLA, IOWA.

BALANCE-WEIGHT FOR BRACES.

SPECIFICATION forming part of Letters Patent No. 757,315, dated April 12, 1904.

Application filed October 8, 1903. Serial No. 176,211. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. KEABLES, a citizen of the United States, residing at Indianola, in the county of Warren and State of Iowa, have invented a certain new and useful Balance-Weight for Braces, of which the following is a specification.

The objects of my invention are to provide a device of simple, durable, and inexpensive construction designed to be used in the nature of an attachment to be applied to a brace of the kind ordinarily used in connection with a bit for boring holes or forming spoke-tenons, &c., said device when attached forming a balance-weight to aid in overcoming sudden resistance to the progress of the bit and also to aid in carrying the brace over any portion of its movement where the operator cannot conveniently apply the power to the brace.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the device whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows in perspective the complete device applied to an ordinary brace as in practical use. Fig. 2 shows a plan view of the attachment, and Fig. 3 shows a detail view of the arm for connecting the balance-weight with the crank-arm of the brace.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the brace-handle, 11 the crank-arm of the brace, 12 the grip attached to the crank-arm, and 13 the bit-holder at the end of the brace. This brace is of ordinary construction, and hence a detailed description is unnecessary.

My attachment for the brace comprises an arm 14, preferably of cast metal, having at one end an elongated opening 15 and a slot 16, leading from the opening to the edge of the arm. This slot 16 is of a size to admit the bit-holder 13 of braces of any ordinary size, so that the said bit-holder may be passed through the slot 16 into the elongated opening 15. I have provided means for securely holding the bit-holder in this opening 15, as follows: The reference-numeral 17 indicates a thumb-screw seated in the end of the arm 14 and having an enlarged head 18 in the interior of the opening 15, so that by manipulating the thumb-screw 17 the head 18 will be made to engage the bit-holder and firmly clamp it against the arm 14 at the opposite end of the opening 15. Formed on or fixed to the outer end of the arm 14 is a segmental weight 19. The said arm 14 and weight 19 may well be cast complete in one piece.

I have provided means for preventing the weight and arm from rotating relative to the bit-holder as follows: The reference-numeral 20 indicates a screw-threaded rod having a forked end 21. This rod is seated near the central portion of the arm 14, and the forked end projects toward the crank-arm 11 of the brace, and the forked end 21 thereof has the said crank-arm admitted in its fork. It is not necessary to provide for any longitudinal adjustment of the rod 20, because the arm 14 may be secured to the bit-holder 13 at a point where the fork 21 will engage the crank-arm 11 of the brace. In this way the weight 19 is made to always stand on the same side of the bit-holder as the crank-arm of the brace.

In practical use I have discovered that when using a brace of this class, especially when used in connection with a bit of large diameter or when used in connection with a spoke-tenoning bit, the rotation of the brace is frequently stopped when the bit encounters a knot or a hard piece of wood. This frequently occurs when the handle 12 on the crank-arm is disposed at an angle where the operator cannot conveniently exert sufficient pressure upon the handle 12 to turn the brace further, and my invention is particularly designed to overcome this objectionable feature in the use of an ordinary brace. When the brace is to be used for work where it is liable to stick and to require considerable power to keep it in operation, I then place the attachment on the brace, as shown in Fig. 1, and turn the thumb-screw 17 until it firmly clamps against the bit-holder, while the crank of the brace rests in the forked end of the rod 20. I then use the brace in the ordinary way, and the momentum of the weight is sufficient to carry the brace around with it throughout those

portions of the movement of the handle 12 in which the operator cannot apply power to the said handle to good advantage, and during that portion of the stroke where power can be most conveniently applied the operator accelerates the speed of the brace, and then the weight carries the brace over the remainder of its stroke. Furthermore, when the bit strikes a knot or other obstruction the momentum of the weight will carry the brace around with it, and thus the operator will be enabled to use the brace to better advantage in certain kinds of work.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. The combination with a brace, of a weight detachably secured to a portion of the brace, and a rod connected with the weight and also with the crank-arm of the brace, for the purposes stated.

2. The combination with a brace, of an arm having a weight at one end, means at the other end of the arm for detachably securing it to the bit-holder of the brace, and means for connecting the arm with the crank-arm of the brace.

3. The combination with a brace, of an arm having an opening at one end to receive the bit-holder of the brace, a thumb-screw seated in the arm to engage the bit-holder and clamp it between the thumb-screw and the portion of the arm opposite from the thumb-screw, a weight on the other end of the arm, and a rod seated in the arm and having a forked end overlapping the adjacent portion of the crank-arm of the brace, substantially as and for the purposes stated.

CHARLES F. KEABLES.

Witnesses:
L. B. PRITCHARD,
F. P. HENDERSON.