

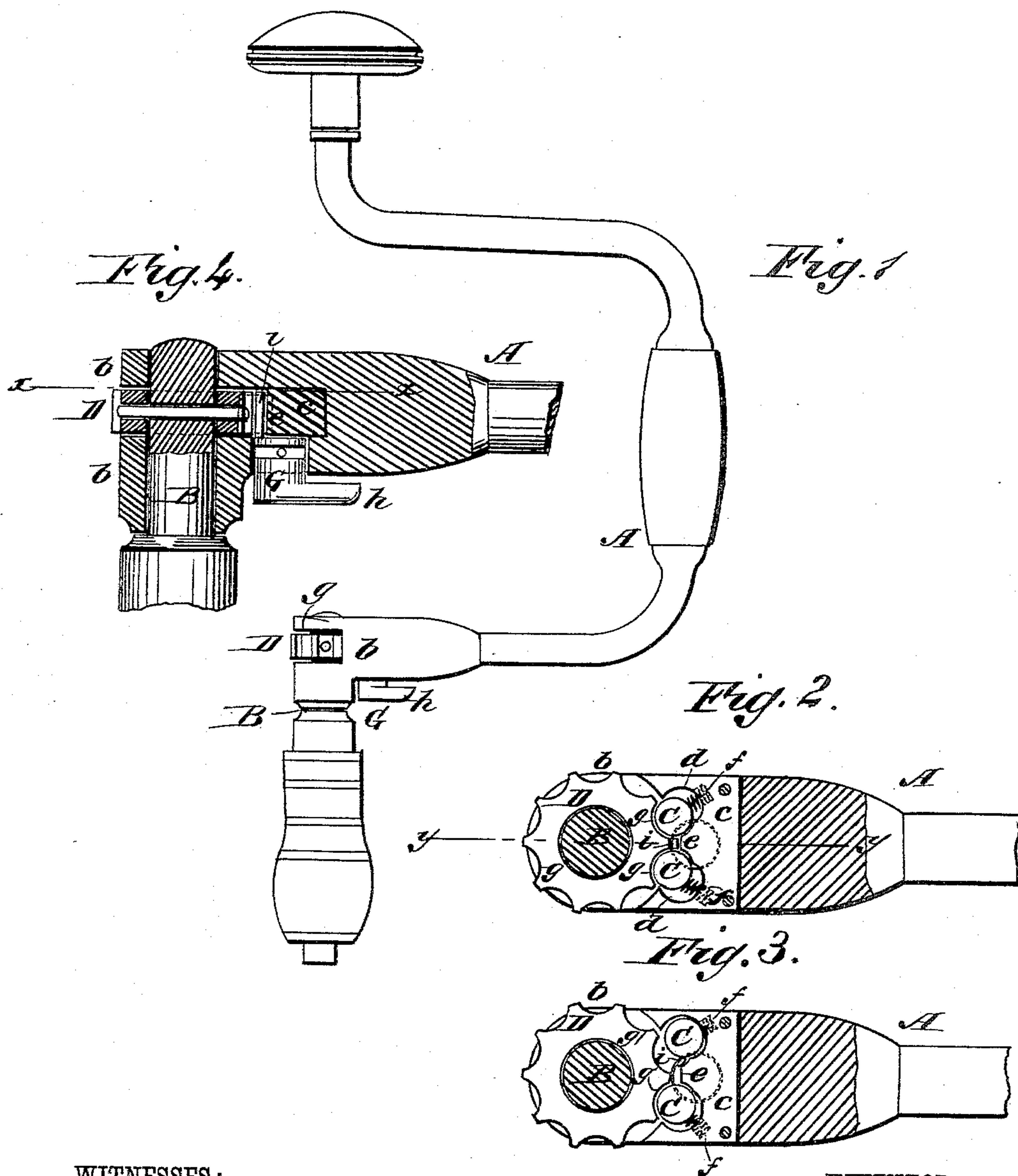
(No Model.)

E. H. WHITNEY.

RATCHET BRACE.

No. 319,159.

Patented June 2, 1885.



WITNESSES:

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EDGAR H. WHITNEY, OF WINCHENDON, MASSACHUSETTS.

RATCHET-BRACE.

SPECIFICATION forming part of Letters Patent No. 319,159, dated June 2, 1885.

Application filed March 16, 1885. (No model.)

To all whom it may concern:

Be it known that I, EDGAR H. WHITNEY, of Winchendon, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Ratchet-Braces, of which the following is a full, clear, and exact description.

My invention relates to that description of ratchet-braces which may either be used as if the drill-stock were a fixture to the handle, so as to turn continuously with it in both or opposite directions of rotation, or which may be used to rotate the drill-stock in either direction by only partially turning the handle—that is, by moving it to the right or to the left, and whereby an intermittent rotation of the drill-stock in either one direction or the other may be kept up.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a side view or elevation of a brace with attached drill stock or holder embodying my invention. Figs. 2 and 3 are sectional views, in part, on the line *xx* in Fig. 4, mainly in illustration of the clutch mechanism and its shifting device; and Fig. 4, a further partial section in direction of the longitudinal axis of the drill-stock on the line *yy* in Fig. 2.

A indicates the cranked handle of the brace, and *b* its end socket, which is fitted to turn freely about the shank of the drill stock or holder B, and which, on the handle side of the axis of rotation, is either separately fitted or it might be integrally constructed with a fixed cam piece or portion, *e*, having two reversely-inclined chambers or pockets, *d d*, on opposite sides of a suitably-constructed wedge-like part, *e*, for reception of the loose rollers C C and their springs *f f*, for the purpose of engaging either one or both of said rollers with the disk or wheel D, having a series of flutes or circular grooves, *g*, in its perimeter and parallel with its axis, and which wheel is fast on the shank of the drill or tool holder B, within the socketed portion *b* of the handle that is slotted to receive it.

The springs *f f* exert a constant tendency to throw the loose rollers C C outward into the

grooves *g* of the disk or wheel, and when both rollers are thus projected, as shown in Fig. 2, the drill-stock B may be turned in common with the handle A any number of complete revolutions in either direction, both rollers engaging with the wheel D, and the side of the wedge part *e*, which occupies an advance position in the direction of rotation, then serving to jam the one roller against said wheel or propelling side of the groove *g*, in which it fits. When, however, it is desired to give a ratchet-like motion to the drill-stocks in either direction—as, for instance, when the cranked handle of the brace can only be operated through the portion of a circle in either direction—then it becomes necessary to force back the one roller into its pocket *d* against the pressure of its spring *f*, and to hold it there, so that only the other roller will engage with the wheel and be jammed by the side of the wedge part *e* next to it against said wheel or propelling side of the groove *g*, in which such roller fits, to turn the drill-stock in the required direction, said roller in the back-turning motion of the handle being forced by contact with the wheel back into its pocket as the roller passes from groove to groove, which prevents any back motion of the drill-stock, and the other roller being forced or held out of action exerts no tendency either way. Either the right or left hand roller C C is thus held back in its pocket, according to the direction in which it is required to intermittently rotate the drill-stock. The means I employ for doing this are both simple and convenient. Thus fitted within the lower or inner arm or socket portion of the handle is the hub or fulcrum portion of what I term a “lever-eccentric,” G, the same having a lever or handle, *h*, at right angles to its axis on the outside of the lower arm of the handle of the brace, and an eccentrically-arranged pin or projection, *i*, which passes up into the space between the rollers C C in front of the wedge part *e*, between said part and the disk or wheel D.

The lever or handle *h* and pin *i*, although at right angles to each other or thereabouts, are in the same plane with one another, and when the lever *h* is set in line with the lower arm of the handle of the brace, the pin *i* will be out of contact with or pressure on either roller,

as shown in Fig. 2, thus allowing of both rollers engaging with the wheel. Accordingly, however, as the lever *h*, which also forms an index-hand, is turned to the right or to the left, the pin *i* will be made to force and hold either roller in its pocket out of engagement with the wheel, as shown for the one roller in Fig. 3.

I am aware that ratchet-braces have been made with spring-clutches for turning the bit in either direction, and have had a lever for throwing such clutches out of gear. My invention is an improvement thereon. The rollers *C C*, fitting smoothly the grooves *g*, only bind when jamming against the wedge *e*. In the other direction they allow the handle to turn easily about the stock.

What I claim is—

The combination of the stock *B*, the wheel *D*, secured thereon and having the circular grooves *g*, the cranked handle having the recess or socket *b*, the cam-piece *c*, located in such socket and having the pockets *d d* and wedge *e* between them, the springs *f f*, located in such pockets, and the rollers *C C*, placed in such pockets and fitting the grooves *g*, as set forth.

EDGAR H. WHITNEY.

Witnesses:

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