

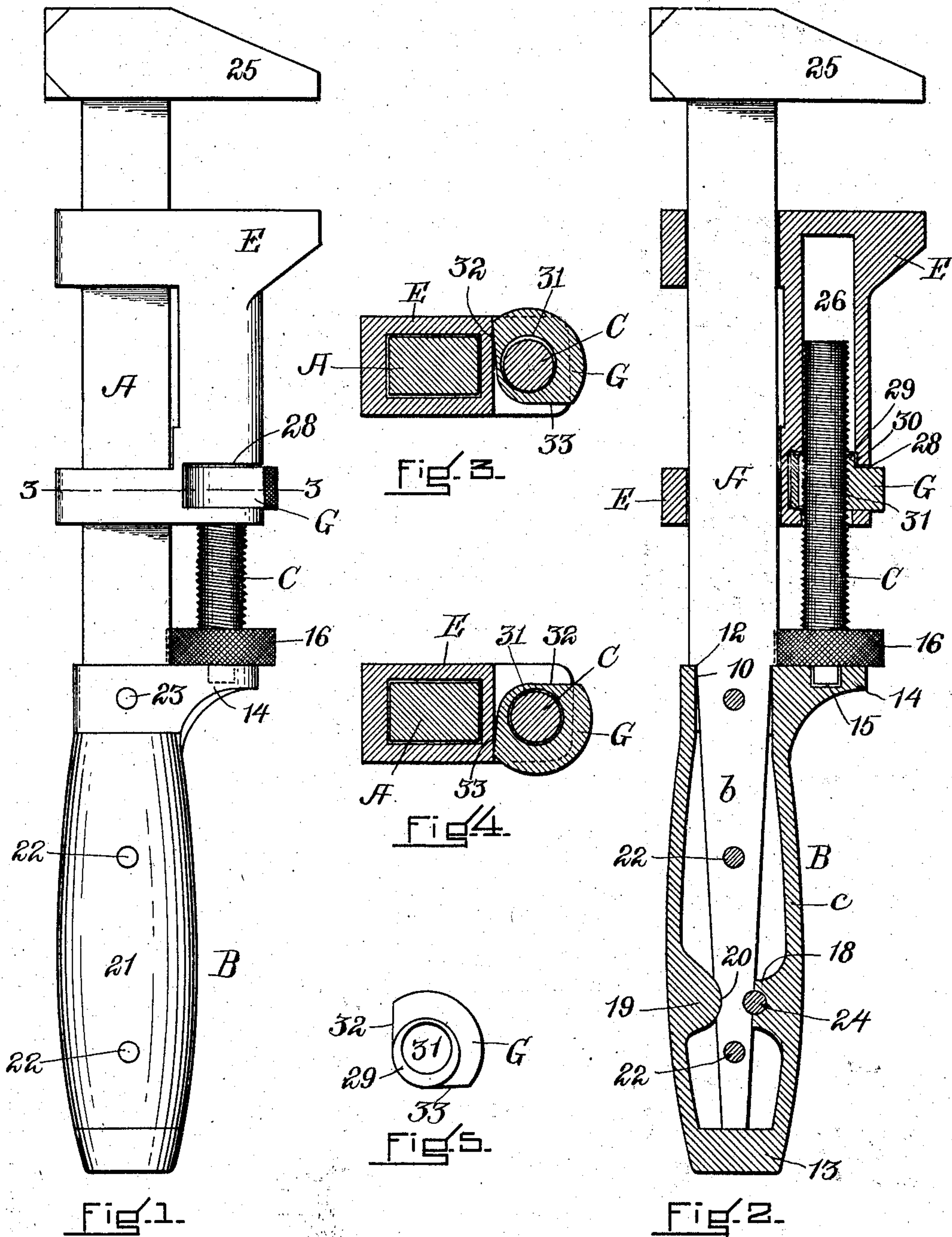
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WRENCH.

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# UNITED STATES PATENT OFFICE.

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## WRENCH.

SPECIFICATION forming part of Letters Patent No. 791,263, dated May 30, 1905.

Application filed August 1, 1904. Serial No. 219,115.

*To all whom it may concern:*

Be it known that we, ROBERT A. HAMMOND, of Sandwich, in the county of Barnstable, and FREDERICK E. WALDEN, of Worcester, in the county of Worcester, State of Massachusetts, citizens of the United States, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

Our invention relates to that class of wrenches in which the movable jaw is adjustable in a straight line with relation to the fixed jaw by means of a screw-shaft provided with a thumb-wheel; and our invention has for its object to provide a wrench of this description of simple construction and in which the movable jaw can either be operated in the usual manner by means of the screw-shaft or instantly released from the screw-shaft to enable it to slide freely on the shank, whereby it can be quickly adjusted from one extreme position to another and again locked to the screw-shaft, when it can, if desired, be further adjusted to any degree of nicety by means of said shaft.

With these ends in view our invention consists in certain novel features and parts and combinations of the same, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a wrench constructed in accordance with our invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a transverse section of the same on the line 3 3 of Fig. 1, showing the position of the thumb-piece when the movable jaw is connected with the screw-shaft, so as to be operable thereby. Fig. 4 is a similar section showing the position of the eccentric thumb-piece when the movable jaw is disconnected from the screw-shaft and free to slide on the shank. Fig. 5 is a plan view of the eccentric thumb-piece.

In the said drawings, A represents the shank

or stem of the wrench, the tapering tang *b* of which is fitted to a hollow handle B, which consists of metallic shell *c*, preferably formed of a single piece of malleable iron shaped to be conveniently grasped by the hand. This shell is provided at its top with an aperture 10 for the insertion of the tang *b*, the shoulder 12 of the shank resting squarely on the top of the handle and the lower end of the tang butting firmly against the solid bottom 13 of the shell, as shown in Fig. 2. The shell is also provided with a lateral projection 14, in which is formed a step-bearing 15 for the lower end of the screw-shaft C, to which is secured a thumb-wheel or rosette 16. Within the shell *c*, on one side thereof, is formed a lug or projection 18, which fits against and forms a support for one side of the tang *b*, while on the opposite side of the interior of the shell is formed a rounded lug or projection 19, which is adapted to spring into a curved notch or recess 20, formed in the side of the tang *b*, as shown in Fig. 2, when said tang is driven into the handle, the thin sides of the metallic shell springing apart sufficiently to permit of the entrance of the projection 19 into the recess, after which they will return to their normal positions, whereby the tang is held securely and immovably in place within the handle, being supported at the top by the walls of the aperture 10, at the bottom by the solid end 13 of the shell, and on the sides by the projections 18 and 19. The handle is completed by securing to the opposite sides of the hollow shell covering-plates 21, preferably composed of wood, through suitable holes in which and the tang *b* pass fastening bolts or rivets 22, by which said covering-plates are held in place. Another pin or bolt, 23, is preferably driven through the upper end of the shell and tang *b*, and a pin or key 24 is inserted in a hole formed in the adjoining surfaces of the projection 18 and said tang.

The shank A carries at its upper end an integral fixed jaw 25, and upon this shank slides



the movable jaw E, which is provided with a longitudinal bore 26 for the reception of the screw-shaft C, which slides freely therein as the jaw E is moved toward and from the fixed jaw 25. Within an open slot 28 at the lower end of the movable jaw E is placed a sector-shaped oscillating thumb-piece G, having a circular projection or boss 29, which is fitted to turn within a bearing 30, formed by enlarging the lower end of the bore 26 of said jaw E. The thumb-piece is provided with a screw-threaded aperture 31, which is eccentric to the axis of the boss 29 and bearing 30, in which it turns, and is of slightly greater diameter than the screw-shaft C, so that said shaft can slide freely through the thumb-piece when the latter is turned into the position shown in Fig. 4, which brings the axis of the aperture 31 in line with the axis of the screw-shaft C, and when in this position the jaw E will be free to be moved up or down on the shank A to bring it quickly into the desired position with relation to the fixed jaw 25, after which by turning the thumb-piece G a quarter-revolution its threaded aperture will be brought into a position eccentric to the axis about which said thumb-piece turns in its bearing, causing its threads to engage the threads of the screw-shaft C on one side thereof, as shown in Fig. 3, thus connecting the movable jaw with the said shaft, and thereby securely locking it in place, when it may be further adjusted to any degree of nicety by turning the screw-shaft in the proper direction. The threads of the aperture 31 are preferably cut away on the inner side, as shown in Fig. 2, to facilitate the sliding movement of the jaw E when disconnected from the screw-shaft C.

The movement of the thumb-piece when turned in opposite directions to lock or release the movable jaw is limited by the contact of the angular sides 32 33 of said thumb-piece with the end wall of the slot 28 of the jaw E.

By the above-described construction we are enabled to provide a convenient wrench of exceedingly simple construction in which the movable jaw can be operated in the ordinary manner by means of the screw-shaft or, when desired, can be quickly adjusted independently of said shaft from one extreme position to another, thus avoiding the inconvenience and delay incident to wrenches in which the movable jaw can only be operated by the screw-shaft.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a wrench, the combination of a shank carrying a fixed jaw, a movable jaw adapted to slide on said shank and having a longitudinal bore, a screw-threaded shaft extending up within said bore and supported at its lower

end in a step or bearing and provided with a thumb-wheel, and an oscillating thumb-piece mounted in a bearing in the movable jaw and having a threaded aperture eccentric to the axis about which it turns and which is of such diameter as to permit the screw-shaft to slide freely therethrough, whereby as said thumb-piece is oscillated in opposite directions the movable jaw will be connected with and disconnected from said screw-shaft.

2. A wrench comprising a shank having a handle and a fixed jaw, a movable jaw sliding on said shank and having a longitudinal bore, a screw-shaft supported at its lower end in a bearing and provided with a thumb-wheel, said shaft extending into the bore of the movable jaw and being free to slide therein, and an oscillating thumb-piece mounted in a bearing in the movable jaw and having a screw-threaded aperture for the passage of the screw-shaft, said aperture being eccentric to the axis about which said thumb-piece turns and being of such diameter as to permit the screw-shaft to slide freely therethrough, whereby when said thumb-piece is moved to one position the movable jaw will be connected with the screw-shaft so as to be operable thereby, and when moved in the opposite direction will disconnect said screw-shaft from the movable jaw to enable the latter to be quickly adjusted toward and from the fixed jaw.

3. In a wrench, the combination of a shank carrying a fixed jaw, a movable jaw adapted to slide on said shank and having a longitudinal bore, a screw-shaft supported at its lower end in a step or bearing and provided with a thumb-wheel, said shaft extending into the bore of the movable jaw and being free to slide therein, an oscillating thumb-piece mounted in a slot in the movable jaw and having a boss seated in a bearing formed by an enlargement of the lower end of the bore of the movable jaw and having a screw-threaded aperture for the passage of the screw-shaft, said aperture being eccentric to the axis about which said thumb-piece turns and being of slightly greater diameter than the screw-shaft so that the latter may freely slide therethrough, whereby when said thumb-piece is moved into one position the movable jaw will be connected with the screw-shaft so as to be operable thereby, and when moved into another position will disconnect said screw-shaft from the movable jaw, and means for limiting the movement of the thumb-piece in either direction.

4. In a wrench, the combination with the shank having a tang provided with a notch or recess on one side, of a hollow handle composed of a metal shell having at its upper end an opening for the insertion of the tang and a lateral external projection forming a step for supporting the screw-shaft, an internal projection adapted to bear against and sup-

port the tang on one side, said projection and tang having registering recesses a second internal projection on the opposite side adapted to spring into the notch of the tang when the latter is forced into the handle, a pin 24 in said registering recesses and covering-pieces secured to opposite sides of the metallic handle-shell to complete the handle.

Witness our hands this 20th day of July,  
A. D. 1904.

ROBERT A. HAMMOND.  
FREDERICK E. WALDEN.

In presence of—

P. E. TESCHEMACHER,  
HENRY H. SULLIVAN.