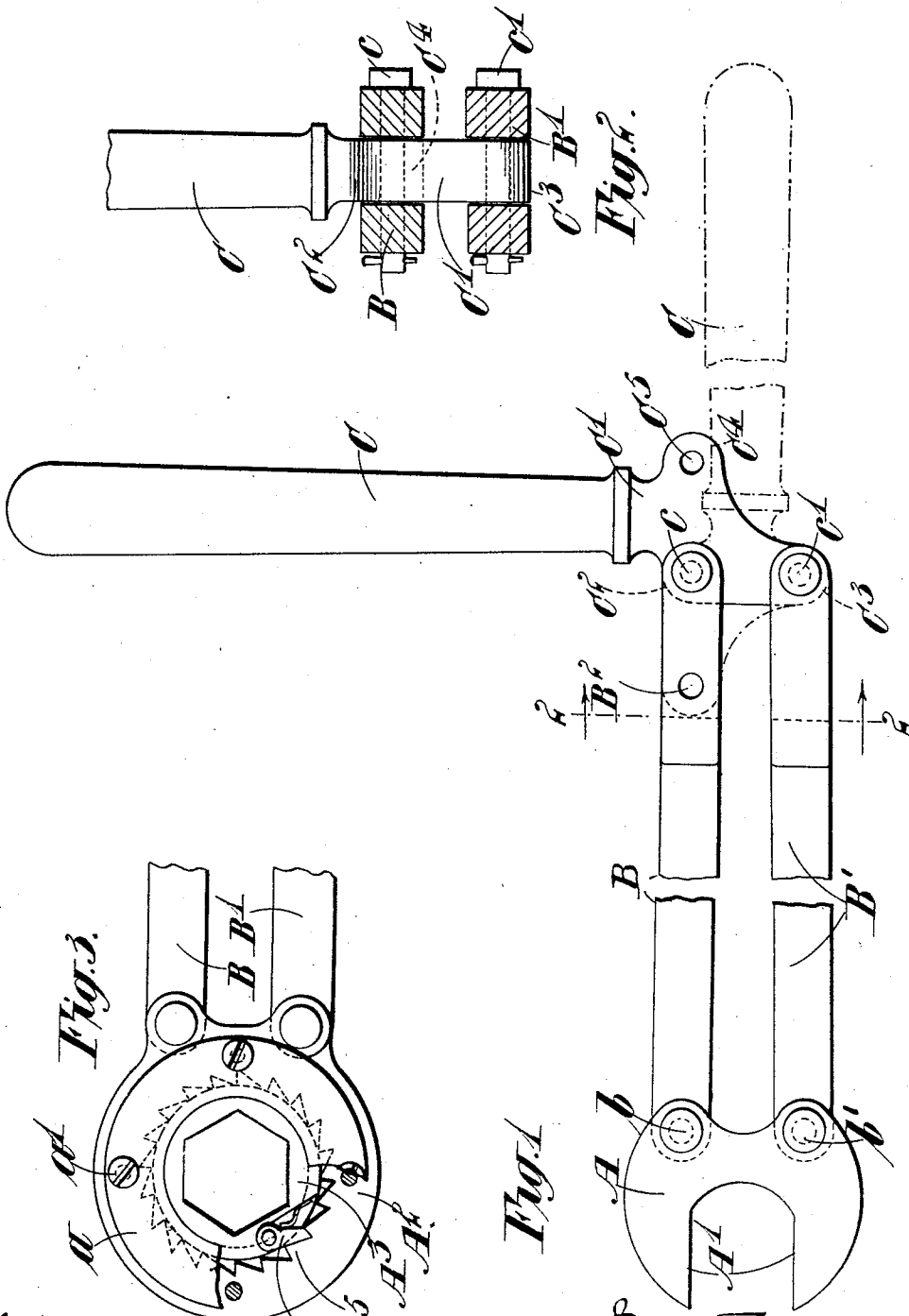




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No. 805,328.

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TOOL.

APPLICATION FILED DEC. 5, 1904.

2 SHEETS—SHEET 2.

Fig. 4.

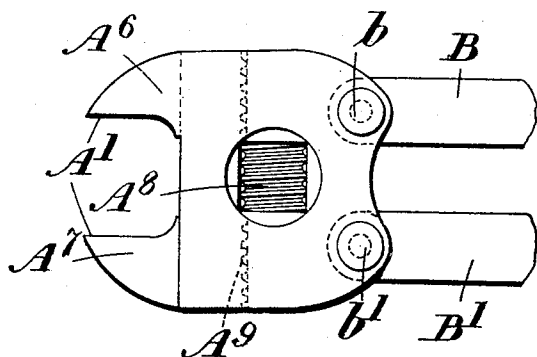
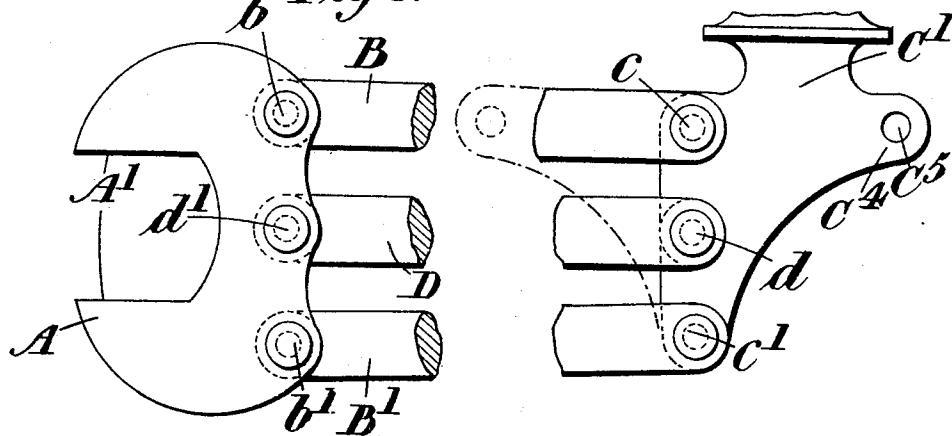


Fig. 5.



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TOOL.

No. 805,323.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, PERCY GEORGE TACCHI, residing at Acton, and ALFRED JAMES JUNG, residing at Finchley, London, England, subjects of the King of England, have invented certain new and useful Improvements in or Relating to Tools, of which the following is a specification.

This invention relates to tools—such, for example, as spanners, wrenches, or other tools having a head or operative part to which it is desired to give a rotary step-by-step or an oscillatory movement from a handle—and has for its chief object to so connect the handle to the operative head that the tool can readily be employed in places or situations where it is inconvenient or impracticable to employ a tool where the handle turns or oscillates on the same axis or center as the head of the tool.

According to this invention the head or operative part of the tool is geared to a handle, the handle and head rotating on axes situated eccentrically to each other and preferably oscillating round parallel axes.

Referring to the drawings, Figure 1 is a plan of a convenient arrangement where the jaws are fixed. Fig. 2 is a section on the line 2 2 of Fig. 1, and Fig. 3 is a plan of a modified embodiment of the invention as applied to a box-spanner. Fig. 4 is a plan of a spanner-head or wrench having movable jaws, and Fig. 5 is a plan of another modification wherein a central or additional rod is employed, connecting the head and the operating-lever.

Like letters indicate like parts throughout the drawings.

Referring more particularly to the construction shown in Figs. 1 and 2, the head A is provided with an opening A' for engaging a nut, and to the opposite side of the block A are pivotally attached rods or bars B B'. These rods are connected to the head by pivots b b', respectively, arranged eccentrically to the axis of rotation of the head A, which when in operation will rotate around the axis of the nut or the like on which it is employed. The operating-handle C is provided with a portion C', having lugs C², C³, and C⁴. The pivot-pins c c' connect the lugs C² and C³ to the ends of the rods B B', respectively. When, therefore, the operating-handle C is rotated, the angular motion will be transmit-

ted to the head A by the rods B B', which do not take part in the rotative movement of the head A, and the handle C will rotate on an axis eccentric to the axis of rotation of the head, thus enabling a nut to be turned without necessitating the rods B B' being oscillated around the same center as the head A, as is the case with an ordinary spanner. The rods may be of any convenient length, so that a nut or the like may be got at and operated by the spanner in a position where it would be impracticable to employ the ordinary rigid spanner and also without necessitating the removal of parts of mechanism to permit of the insertion of the tool. As above stated, the spanner may be employed as an ordinary spanner, and for this purpose one of the rods is provided with an opening B², and an additional opening C⁵ is made in the end C' of the operating-lever. When it is desired to convert the tool into a rigid spanner, the pivoted pin c' is removed and the handle rotated on the pivot c until the opening in the lug C³ coincides with the opening B², when the pin can be inserted. At the same time the opening C⁵ will now coincide with the opening in the end of the rod B', so that by the insertion of another pin the handle will be rigidly locked to the rods at the points c c' and B².

A convenient arrangement of box-spanner constructed in accordance with this invention is shown in Fig. 3, where the rods B B' are pivoted to a circular block A², within an opening in which rests a block A³, having the opening to engage with a nut. The opening in the drawing is shown of hexagonal form; but obviously a square opening may be employed. The block A³ is conveniently prevented from falling out by annular plates a, arranged on the opposite faces of the blocks A² and A³ and secured by screws a' or the like passing through plates and into the block A². Around the inner periphery of the block A² are formed a series of teeth A⁵ with which one or more pawls A⁴ or other one-way-acting clutches or detents, carried by the block A³, engage, so that when the rods are operated by the lever C the block A² is oscillated, imparting a step-by-step motion to the block A³, which rotates in one direction only. In order to obtain a rotation of the block A³ in the opposite direction, it will only be necessary to reverse the tool. The operating-handle may be adjustable, as above described—that is to say, it may

be capable of being locked rigidly to the rods in the manner already described, so that the tool can be used as an ordinary spanner.

In the construction shown in Fig. 4 the head 5 is provided with two jaws $A^6 A^7$, between which is the space A' for engagement with the nut or the like, and this space can be increased or decreased to engage with nuts of different sizes by rotating a worm A^8 , the thread on 10 which engages teeth A^9 on the base of the movable jaw A^7 . Thus by rotating the worm in one or other direction the jaw A^7 can be made to approach or recede from the jaw A^6 .

In the modification shown in Fig. 5 an additional rod D is pivoted to the head A at d' 15 and to the operating-lever at d . This rod is the same length as the rods B B' and is arranged equidistant therefrom. When it is desired to lock the handle rigidly to the rods, 20 as above described, the pins d and d' can both be removed and the lever locked in the manner already described.

Although the invention has been described as applied to spanners or wrenches, it is to be 25 understood that it can be applied to other tools wherein an oscillatory or rotative movement is required to be given to a head or operative part of the tool and where it is inconvenient to employ a handle rigidly connected 30 to the head, so that it requires to be oscillated around the same center as that part.

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

1. In a tool, the combination with a rotatable or oscillating head adapted to turn around 35 the axis of the work and means connected to the head for engaging with the work, of a lever rotatable around an axis eccentric of the axis of rotation of the head, and means connected to the lever and to the head eccentric 40 of their axes of rotation to transmit to the head the angular movement of the lever.

2. In a tool, the combination with a rotatable or oscillating head, of an operating-handle 45 turning on an axis eccentric of the axis of rotation of the head, and rods engaging with the head and lever eccentric of their axes of rotation for the purpose described.

3. In a tool, the combination with a rotatable or oscillating head and means connected 50 thereto for engaging with the work, of an operating-handle turning on an axis eccentric of and parallel to the axis of rotation of the head, and links operatively connecting the 55 head and handle together to transmit to the head the angular movement of the handle.

4. In a tool, the combination with a rotatable or oscillating head and means for engaging 60 with the work, of a lever having its axis of rotation situated at a point distant from the axis of rotation of the head and parallel

to that axis, and links connected to the lever and engaging with the head to transmit thereto the rotative movement of the lever.

5. In a tool, the combination with a head 65 adapted to rotate around the axis of the work, and means whereby the head engages with the work, of a lever rotatable around an axis distant from the axis of rotation of the head, and links engaging the head eccentric of its 70 axis of rotation to transmit thereto the angular movement of the lever.

6. In a tool, the combination with a head having means for engaging with the work and rotatable around the axis of the work, of a lever rotatable around an axis parallel to and 75 eccentric of the axis of rotation of the head, and two links pivoted to the head eccentric of its axis of rotation and pivoted also at their other ends to the lever eccentric of its axis of 80 rotation.

7. In a tool, the combination with a rotatable or oscillating head, of a lever normally rotatable upon an axis situated at a point distant to the axis of rotation of the head, means 85 connecting the lever to the head to transmit thereto the angular movement of the lever and means for connecting the handle to the head whereby both handle and head turn around the same axis substantially as and for 90 the purpose described.

8. In a tool, the combination with a rotatable or oscillating head adapted to engage with the work, of two links pivoted to the head eccentric of its axis of rotation, a lever pivoted 95 to the links at points eccentric of its axis of rotation and means whereby the lever can be locked to the links so that both head and lever rotate around the axis of rotation of the former. 100

9. In a tool, the combination with a rotatable head having means for engaging with the work, of a block surrounding the head, a one-way-acting clutch between the head and the block, two links pivoted to the block eccentric 105 of the axis of rotation of the head, an operating-lever adapted to turn upon an axis eccentric of the axis of rotation of the head, lugs on the lever, pivot-pins detachably connecting the links to the lugs and an additional 110 lug for locking the lever to the links whereby the lever and the head will rotate around the axis of rotation of the latter.

In testimony whereof we have signed our names to this specification in the presence of 115 two subscribing witnesses.

PERCY GEORGE TACCHI.
ALFRED JAMES JUNG.

Witnesses:

RICHARD WESTACOTT,
ALFRED NUTTING.