W. C. ADAMS.

WRENCH.

APPLICATION FILED SEPT. 9, 1909.

1,040,092.

Patented Oct. 1, 1912.

Fig. 1.

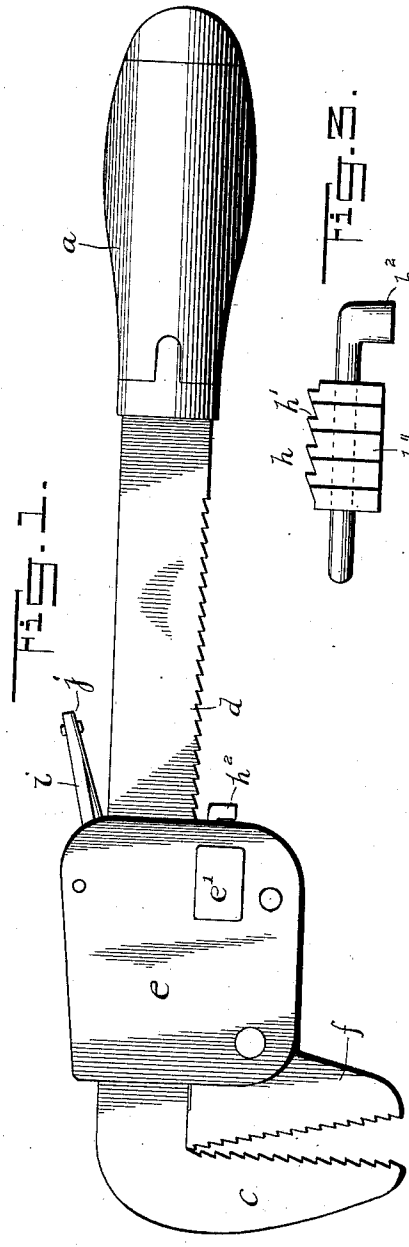


Fig. 3.

Fig. 4.

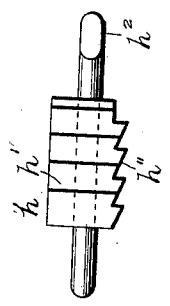


Fig. 5.

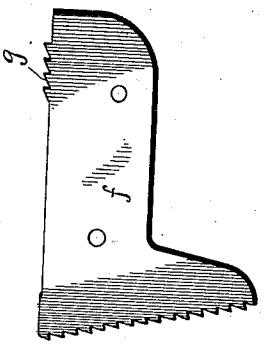
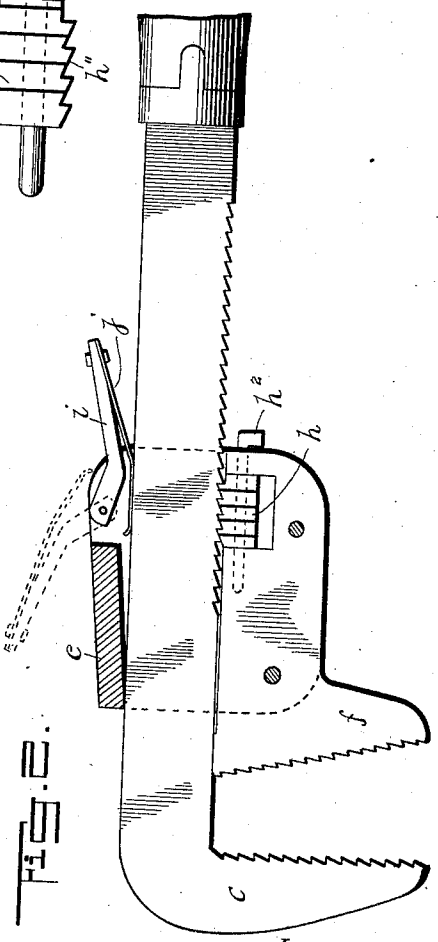


Fig. 2.



WITNESSES.

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INVENTOR

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BY

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UNITED STATES PATENT OFFICE.

WILLIAM CORYDON ADAMS, OF UPLAND, CALIFORNIA, ASSIGNOR OF ONE-THIRD TO THOMAS H. DAVIS AND ELIJAH PIERCE FULLER, BOTH OF UPLAND, CALIFORNIA.

WRENCH.

1,040,092. Specification of Letters Patent. Patented Oct. 1, 1912.

Application filed September 9, 1909. Serial No. 516,987.

To all whom it may concern:

Be it known that I, WILLIAM CORYDON ADAMS, a citizen of the United States of America, and a resident of Upland, in the county of San Bernardino and State of California, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates, primarily, to the type of wrench in which one of the jaws is adjustable along and secured in place upon a rack which is engaged by a suitable coacting detent, and which in turn is held in place against the rack by means of a spring adapted for ready release.

My invention further contemplates the provision of simple means for securing close or accurate adjustment of said jaw upon or along the rack.

The object which I have in view is to simplify my improved wrench by eliminating unnecessary parts and springs, so that it may be cheaply constructed although of thoroughly durable form and admitting of ready repair should any parts become broken.

Accordingly, my invention preferably is embodied in a wrench wherein the outer jaw is integral with the serrated shank and the inner jaw is adjustable along the latter. Preferably there is provided in association with the inner jaw a detent-member having two or more serrated engaging faces which are staggered or relatively displaced and which may be alternatively turned to bring the same into engagement with the serrated shank for securing close adjustment. A pivoted spring-controlled lever bears upon the back of the shank and normally retains the detent in engagement with the teeth thereon, whereby the adjustable jaw is securely held against displacement, although readily released by the lever and normally admitting of a sliding adjustment toward the fixed jaw.

Further details will appear by making reference to the accompanying drawings wherein:

Figure 1 is a view in side elevation of a wrench embodying my invention; Fig. 2 is a partial longitudinal section thereof with the jaws somewhat open or separated from each other; Figs. 3 and 4, respectively, are views illustrating the detent-member in one position, and turned one-quarter around, and Fig. 5 is a detail of my improved wrench embodying a solid or non-rotatable detent-member.

Throughout the several figures of the drawings I have employed the same character of reference to indicate similar parts.

Suitably mounted in the handle *a* there is provided a shank having the fixed jaw *c* extending substantially at right angles from the end thereof. Along the inner side of the shank is provided the rack *d* comprising relatively large teeth of ratchet-form, *i. e.* teeth cut the full width of the shank and affording faces respectively at right angles thereto, facing the fixed jaw and sloping toward the handle. A casing *e*, preferably stamped from sheet metal embraces the shank wherein is riveted the inner or adjustable jaw-member *f*, as best shown in Fig. 2. The jaws are illustrated with suitable serrated faces and that of the inner jaw forms a slightly acute angle with the face of the outer jaw, so that the wrench may be used either upon nuts or for pipes or rods, for example. The said jaws, moreover, preferably are elongated and tapered so that parts may be reached which are relatively inaccessible with the ordinary wrench.

Rearwardly positioned upon the adjustable jaw member is provided a suitable detent. This may comprise either the short rack section *g* or the rotatable detent *h* bearing rack sections *h'*, *h''*, the racks thereof being displaced or staggered the distance of one-half tooth in the particular form shown. A plurality of racks which may be staggered, as desired, obviously may be provided upon said member *h*, which being rotatably mounted, may alternatively be turned into position for engagement with the rack *d* by means of the finger piece h^2.

The casing *e* is provided upon either side with a boss or expanded portion *e'* adapted to accommodate the rotatable detent-member *h*. Pivoted within the upper portion of said casing is the lever *i* carrying the bent spring *j*, which parts are shown by full lines in their locking position, but these parts are adapted to be turned into the dotted line position (Fig. 2). With the lever and spring in the elevated position indicated, the casing, together with the adjustable jaw and detent-member, are released from the rack *d* and may be freely moved along the shank as desired.

The operation of my improved wrench, either with nuts or pipes, or the like, will now be readily understood. If the jaws are not sufficiently separated the lever *i* will first be turned to release the adjustable jaw so that it may be moved toward the handle, after which, said lever is thrown into its locking position and the adjustable jaw may then be slid into close engagement with the object to be operated upon. In the construction shown, the connected lever and spring are freely movable into the locking and releasing positions, so that they may be actuated by the fingers of one hand when the movable jaw is engaging the pipe or nut; the resilience of the spring permitting it to slip easily into or out of place. By using the sheet-metal casing for mounting the movable jaw and associated parts upon the shank, the construction is rendered lighter, stronger and cheaper than when said jaw and retaining portion are integral. The shape of the teeth upon the detent and rack readily permits this, against the tension only of spring *j*. If, however, a closer adjustment is desired, the detent *h* may be turned to engage one or the other of its racks *h' h''* with the rack *d*. By this means it will be seen that while large and strong teeth are provided, a fine or close adjustment, according to the number of staggered racks upon the detent-member, is obtained for the adjustable jaw. Moreover, as the detent members provide not only a plurality of relatively large ratchet teeth, but a corresponding number of teeth in the rack *d* are engaged thereby along the entire width of their rectangular faces, my improved construction, although offering every practical and necessary adjustment, is simple, strong and not liable to get out of order.

The rack *d*, in addition, is advantageously positioned immediately beneath the adjustable jaw member where it is best adapted to undergo the strains thereof. The use of none but a single substantial spring is required in my improved wrench, and all of the parts are designed and adapted for constant and severe use.

Having now explained the preferred embodiment of my invention, I claim as new and desire to secure by Letters Patent the following:

1. In a wrench of the class described, the combination with an integral shank and jaw-member of a ratchet toothed rack cut along the inner side of said shank, an adjustable jaw positioned upon the shank, a rotatable detent mounted thereon having a plurality of staggered ratchet-toothed rack-faces adapted alternatively to be engaged with the opposing rack; the said racks having engaging teeth substantially of the full width of the shank, and means for releasing the adjustable jaw and its detent, substantially as set forth.

2. In a wrench of the class described, the combination with a fixed and an adjustable jaw, of a ratchet-toothed rack, a detent-member rotatably mounted upon the adjustable jaw and provided with a plurality of staggered ratchet-toothed rack-faces adapted alternatively to be rotated into position for engagement with said rack, and means for releasing said detent from the engaging rack, substantially as set forth.

3. In a wrench of the class described, the combination with a fixed jaw and an integral shank, of a ratchet-toothed rack provided along the inner edge of said shank, an adjustable jaw, a ratchet-toothed rack-faced detent-member associated therewith, a casing embracing the same and said shank, a lever-member and an associated spring pivotally mounted in said casing in position to be engaged with and disengaged from the outer edge of said shank, whereby the detent and jaw may be adjustably secured in place upon or released from the rack, substantially as set forth.

4. In a wrench of the class described, the combination with an integral jaw and shank, of a rack positioned along the inner edge of said shank, an adjustable jaw, a detent-member associated therewith having a plurality of staggered rack-faces adapted alternatively to be engaged with said rack, a casing embracing said shank and the adjustable jaw and detent, a lever pivoted within the casing, and a spring thereon adapted to be brought into engagement with the outer edge of the shank, whereby the parts may be released or engaged, substantially as set forth.

5. In a wrench of the class described, the combination with an integral shank and jaw-member, of a rack having teeth with rectangular faces presented toward said jaw and inclined faces in the opposite direction, cut transversely of said shank, an adjustable jaw-member upon said shank, an engaging detent thereon having a plurality of teeth similar to said rack reversely positioned or faced, and a connected lever and spring pivotally mounted on said adjustable jaw-member, adapted readily to lock it against movement in one direction only or release it, substantially as set forth.

Executed at Upland, California, this 25th day of August, A. D., 1909, in the presence of two subscribing witnesses.

WILLIAM CORYDON ADAMS.

Witnesses:
E. P. FULLER,
G. K. DAVIS.

Correction in Letters Patent No. 1,040,092.

It is hereby certified that Letters Patent No. 1,040,092, granted October 1, 1912, upon the application of William Corydon Adams, of Upland, California, for an improvement in "Wrenches," was erroneously issued to the inventor, said Adams and Thomas H. Davis and Elijah Pierce Fuller as assignees of one-third interest, jointly, whereas it should have been issued to *the inventor, said Adams, and the assignees, Davis and Fuller, as owners of one-third interest each;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22d day of October, A. D., 1912.

[SEAL.]

C. C. BILLINGS,

Acting Commissioner of Patents.