Feb. 13, 1923. 1,445,280

J. JORDAN

WRENCH

Filed Nov. 16, 1921

Fig. 1.

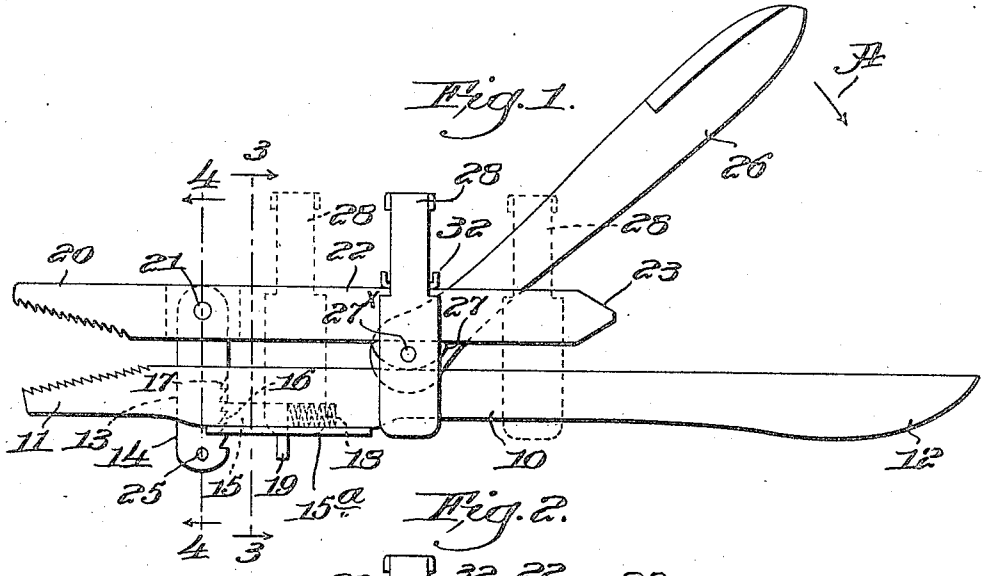


Fig. 2.

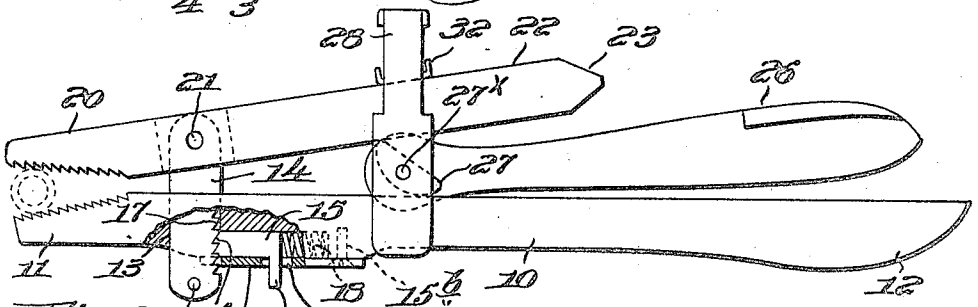


Fig. 3.

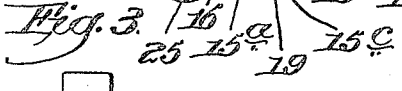
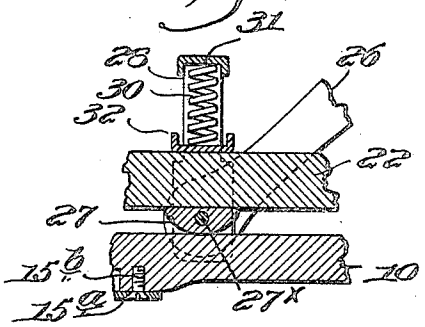


Fig. 5.



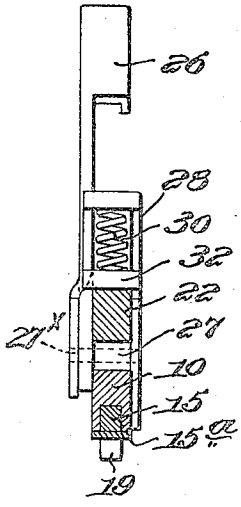
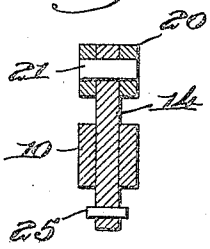


Fig. 4.



Inventor:
James Jordan,
by Edward G. Allen
his Attorney.

Patented Feb. 13, 1923. 1,445,280

UNITED STATES PATENT OFFICE.

JAMES JORDAN, OF LOWELL, MASSACHUSETTS.

WRENCH.

Application filed November 16, 1921. Serial No. 515,667.

To all whom it may concern:

Be it known that I, JAMES JORDAN, a subject of the King of Great Britain, and a resident of Lowell, in the county of Middlesex and Commonwealth of Massachusetts, and whose post-office address is #228 Moody St., have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

This invention relates to a wrench which, while capable of use as a monkey wrench, is particularly adapted for use as a pipe wrench, or in place of pliers.

An object of the invention is to produce a wrench of this class that partakes somewhat of the form of pliers and is of especial utility in connection with wagon body or automobile work, where oftentimes the nut or pipe to be operated upon is located in an almost inaccessible position which could not be reached by the ordinary wrench.

A further object of the invention is to produce a wrench the jaws of which may be adjusted to approximately the opening required, and preferably slightly more, for the device to be operated upon, and thereafter one of the jaws may be moved toward the other in a positive manner to grip the device.

Another object being to provide a wrench that does not require jaw adjustment for each size pipe or nut, but which is capable of operating on several sizes for each adjustment.

It is also an object of this invention to provide a wrench which is so arranged as to afford the greatest amount of jaw closing leverage, and consequently power, when large nuts or pipes are to be operated upon.

It is a further object of this invention to so arrange the adjustment of the jaw closing leverage that if required the greatest leverage and consequently power may be applied to the smallest or intermediate sized nuts or pipes, or jaw adjustment may be made, so that the device may be held from rotation between the jaws without crushing tendency being applied thereto.

It is an object of the invention to provide a wrench having the above characteristics, which is simple in construction, powerful in effect, and as readily manipulated as pliers.

To the attainment of the above objects the invention consists in certain novel features of construction and arrangement of parts which will be fully understood from a description of the drawings and the claims hereinafter given.

Of the drawings:

Figure 1 represents in side elevation the improved wrench as it would appear when about to be applied to a pipe or nut.

Figure 2 a view similar to Figure 1 but showing the wrench as applied to a pipe shown by dotted lines.

Figure 3 a section on the line 3—3 Figure 1.

Figure 4 a section on the line 4—4 Figure 1.

Figure 5 a vertical longitudinal section through a portion of the wrench as shown in Figure 1.

Like characters represent like parts throughout the several figures of the drawings.

Referring to the drawings:

The shank 10 has at one end thereof a jaw 11 and at the other end a hand grip 12. Adjacent the jaw 11 the shank is broached as at 13 to receive slidingly therein a link 14 adapted to be held relatively to the shank by means of the bolt like member 15 having the toothed end 16 adapted to engage teeth 17 of the link 14. The bolt 15 may be held in place by a plate 15^a secured by a screw 15^b to the shank 10, said plate being forked to straddle the link 14 and slotted as at 15^c to allow movement of the finger piece 19. The said bolt being normally held in engagement with said link by means of the spring 18 and disengaged therefrom by means of the finger piece 19. At its upper end the link has a jaw 20 pivoted thereto at 21, said jaw having a tail like extension 22 with a slightly pointed end 23. The jaws 11 and 20 while shown as toothed and the gripping portion converging toward the handle 12, may be plain or serrated surfaces and parallel instead of converging to suit the occasion of use or the desires of the user.

The arrangement of the link 14 above described enables the jaw 20 to be bodily moved toward and from the jaw 11 for the purpose of accommodating them for use on large or small nuts or pipes. The engaging toothed portions of the link and bolt effectively acting as a locking means to maintain a given adjustment of the said link, and to prevent the accidental separation of the

said jaws 11 and 20 a pin 25 is provided at the lower end of said link so that it cannot be drawn through the slot 13. The jaw closing means herein employed is one capable of exerting great power which may be increased or decreased according to the position it is made to assume respecting the jaws or the pivot 21.

This means consists of a lever 26 having a cam 27 fast therewith pivoted at $27^{\times}$ to a carriage 28 adapted to slide longitudinally of the shank 10 and tail 22 as indicated in two positions by dotted lines Figure 1. The carriage 28 is generally of inverted U shape, straddling the said tail and shank, the cam 27 occupying a position between the two in such manner as to cause jaw 20 to swing on pivot 21 upon movement of the lever 26 in the direction of arrow A Figure 1.

To retain the carriage in a given position and to cause the jaws to open upon release of handle 26 a spring 30 is interposed between the carriage at 31 and a shoe 32 which is thereby held frictionally against the tail 22 causing pressure on the cam 27 which in turn is transmitted to the shank 10.

It will be readily seen that the carriage is thus held quite firmly but not immovably as, if desired, it may be slid along the tail to occupy various positions such, for instance, as illustrated by dotted lines Figure 1.

When operating on a nut or pipe of small diameter and it is necessary to have the jaws come close together, the link 14 will first be adjusted to approximately the right position and if necessary the carriage 28 moved toward or from the pivot 21, and thereafter the handle 26 may be operated to grip the article.

If excessive power is required the initial adjustment of the link 14 will be made as before and the carriage 28 moved away from the pivot 21, thereby greatly increasing the leverage on tail 22 and consequently power at the jaw thereof.

Increase or decrease of jaw closing leverage and consequently power may be obtained by sliding the carriage away from or toward the pivot 21 and for use on larger nuts and pipes it may be advisable or even necessary to slide the carriage to the right to obtain the necessary jaw opening as well as the additional leverage thus obtained. It will be understood that the wrench may be made in various sizes if so desired in which case the adjustable link 14 may be dispensed with and a support erected from the shank 10 to receive the pivot 21.

It is not known that a wrench of this class has ever been in use, wherein the jaw closing devices were shiftable to obtain variations of leverage to increase power or to cause wider opening of the jaws to receive larger objects and therefore it is not the intention to limit this invention to the precise construction and arrangement shown herein.

It is obvious that various changes might be made in the construction and arrangement of the invention without departing from the spirit and scope thereof.

Having described the invention I claim:

1. In a wrench of the class described, a pair of relatively movable jaws; a pivot for one of said jaws; and jaw actuating means comprising a pivoted hand grip lever movable longitudinally of said jaws toward and from said jaw pivot whereby the jaw closing leverage varies with the longitudinal position of said lever.

2. In a wrench of the class described, a stationary jaw; a movable jaw pivotally mounted thereon; means to adjust said jaws whereby they may be made adaptable to large or small objects; a shiftable carriage guided by said jaws; means mounted on said carriage to forcibly close said jaws; and means to normally retain said jaws in open position.

3. In a wrench of the class described, a stationary jaw; a movable jaw pivoted thereon; means to bodily adjust said jaws whereby they may be made adaptable to large or small objects; means to lock said jaws in bodily adjusted position; a shiftable carriage guided by said jaws; means mounted on said carriage to forcibly close said jaws; and means to retain said carriage in shifted position.

4. In a wrench of the class described, a stationary jaw; a movable jaw pivotally mounted thereon; a link connection between said jaws upon which said movable jaw is pivoted; a locking means carried by said stationary jaw adapted to coact with said link whereby said movable jaw may be bodily adjusted toward and from said stationary jaw and held in adjusted position; a shiftable carriage guided by said jaws; and means mounted on said carriage to forcibly close said jaws.

5. In a wrench of the class described, a pair of relatively movable jaws; means to bodily adjust said jaws towards and from each other and retain them in adjusted position; a shiftable carriage guided by said jaws; a lever pivotally mounted on said carriage; a cam fast with said lever; and means to retain said carriage in shifted position.

6. In a wrench of the class described, a pair of relatively movable jaws; means to bodily adjust said jaws toward and from each other, and retain them in adjusted position; a shiftable carriage guided by said jaws; a lever pivotally mounted on said carriage; a cam fast with said lever; and a spring coacting with said carriage adapted to retain said carriage in shifted position and cause said jaws to assume their normal open position.

7. In a wrench of the class described, a stationary jaw; a movable jaw; a link connection between said jaws upon which said movable jaw is pivoted, said link being guided by said stationary jaw, and having teeth thereon; a locking member carried by said stationary jaw adapted to engage said teeth; means to cause said engagement; a shiftable carriage guided by said jaws; and means mounted on said carriage to forcibly close said jaws.

Signed by me at Boston, Mass., this 12th day of November, 1921.

JAMES JORDAN.