

J. C. BURGESS.
WRENCH OR VISE.
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1,094,400.

Patented Apr. 21, 1914.

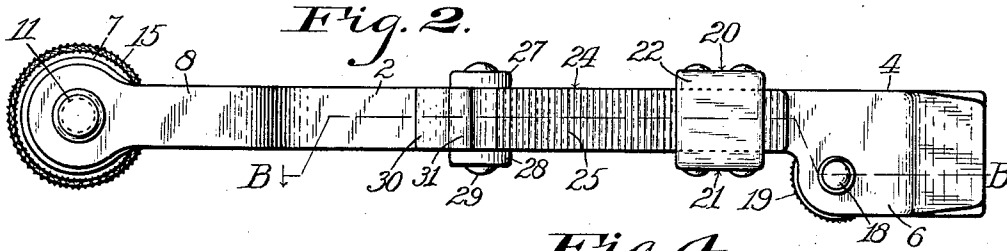
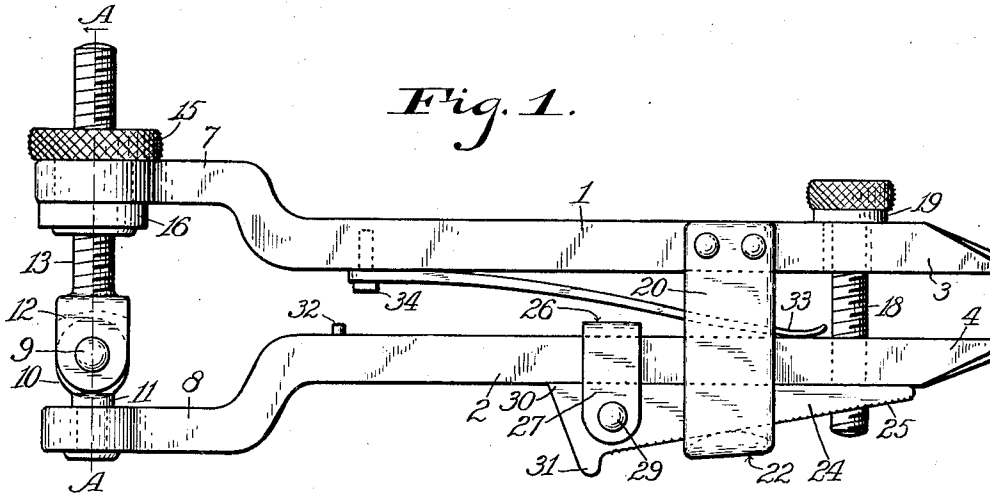
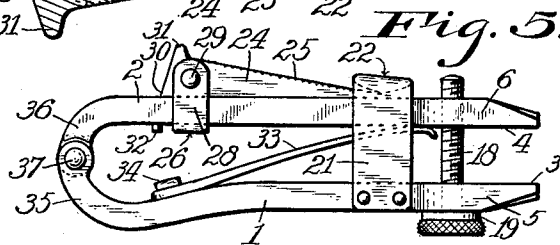
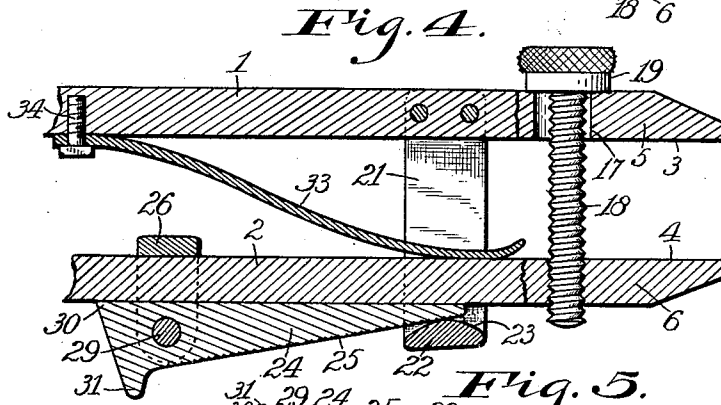
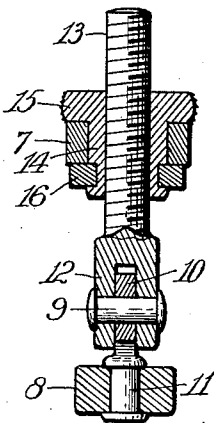


Fig. 3.



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WRENCH OR VISE.

1,094,400.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES C. BURGESS, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Wrench or Vise, of which the following is a specification, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon.

This invention relates to a combination hand tool or implement that is designed to be used either as an adjustable wrench or a hand vise, the invention having reference more particularly to the various parts thereof that affect the adjustability and operation of the principal elements of the tool or implement.

An object of the invention is to provide an improved combination tool or implement that shall be so constructed as to be adaptable for performing the functions either of a wrench or a hand vise.

Another object of the invention is to provide a wrench or vise that may be conveniently used for various purposes and designed so as to be simple and inexpensive, which tool shall be adapted to be tightly connected to relatively small nuts and capable of turning the nuts without spreading and slipping off of them in various relative positions.

With the above mentioned and other objects in view, the invention consists in a combination tool comprising jaws, improved means for quickly adjusting the jaws to approximate degrees, means for adjusting the jaws to a relatively finer degree, and means for forcibly moving the jaws each toward the other.

The invention consists also in the parts and combination and arrangement of parts as hereinafter particularly described and further defined in the accompanying claims.

Referring to the drawings, Figure 1 is a plan or side view of the improved tool or implement; Fig. 2, a top view of Fig. 1; Fig. 3, a section on the line A A in Fig. 1; Fig. 4, a section approximately on the line B B in Fig. 2; and Fig. 5 a plan or side view of the tool or implement slightly modified.

Similar reference characters in the various figures of the drawings indicate corresponding elements or features of construction herein referred to.

As preferably constructed, the invention comprises two straight wrench bars, 1 and 2, having jaw portions 3 and 4 on one end thereof respectively, the jaw portions having lateral extensions 5 and 6 thereon respectively, so that the jaw portions are broader than the bars that comprise the lever portions of the wrench or the main bars of the vise. The jaw extensions permit a nut to be engaged when close to a relatively large article while the bars 1 and 2 may be moved at a distance from the article in the hand of the operator. Preferably the opposite end portions 7 and 8 are suitably offset so as to stand apart relatively farther than the jaw portions and are provided with a connecting pivot 9, the pivot preferably being directly connected to a hinging ear 10, provided with a shank 11 that is fixedly secured to the offset portion of one of the bars, a jaw 12 embracing the ear and being connected to the pivot, the jaw having an adjusting screw 13 thereon that extends through and engages an adjusting nut which comprises a cylindrical main portion 14 that is rotatably arranged or swiveled in a suitable opening in the offset portion of the companion wrench bar, the wrench bars being oppositely arranged, and the nut has a head 15 on one end thereof engaging one side of the offset portion, and a collar 16 on the opposite end thereof engaging the opposite side of the offset portion, so that when the nut is rotated on the screw in one direction the offset portions are forced apart, and when rotated in the opposite direction are forced each toward the other.

The extension 5 of the jaw portion 3 has an aperture 17 through which an adjusting screw 18 extends, the screw having a head 19 thereon that is normally in contact with the jaw portion and its extensions at the outer end of the aperture, the screw being screwed into a suitable hole in the opposite extension 6, for closely adjusting the jaw portions each relatively to the other. A yoke is provided which permits a limited amount of movement of the bars each relatively to the other and comprises two plates 20 and 21 fixedly secured at one end to opposite sides of the bar, and adjacent to the jaw portion thereof, a cross-bar 22 being fixedly connected to the opposite ends of the plates and extending opposite to the outer side of the companion bar 2, the latter ex-

tending between the two plates of the yoke, and the cross-bar has a convex face 23 presented toward the outer side of bar 2.

In order to quickly adjust the wrench to different sizes of nuts or work, a suitably tapered wedge 24 is provided which is fitted so as to slide along the outer side of the bar 2 and through the yoke, the outer relatively inclined face of the wedge preferably having small and closely graduated transverse serrations 25 for engaging the convex face 23 so as to prevent accidental movement of the wedge, the larger portion of the wedge being provided with a suitable retaining guide strap comprising a cross-bar 26 slidably arranged on the inner side of the bar 2 and having side plates 27 and 28 extending to opposite sides respectively of the wedge to which they are fixedly secured by means of a rivet 29 which is located near to, but at some distance from the larger end of the wedge so that a heel 30 is provided for preventing the wedge from tilting away from the bar 2 when retracted, the outer side of the larger end portion of the wedge being provided with a thumb-knob 31 for easily shifting the wedge, it being clear that when the smaller end of the wedge is pushed through the yoke the two bars must move each toward each other, and the bars obviously may be moved apart when the wedge is retracted. The inner side of the bar 2 is provided with a stop device 32 to be engaged by the guide strap for limiting the movement of the wedge and preventing its withdrawal from the yoke. In order to automatically force the bars apart a plate spring 33 is provided which is secured at one end to the inner side of the bar and in proximity to the offset portion thereof, by means of a suitable device such as a screw 34, the opposite end portion of the spring extending between the plates 20 and 21 of the yoke and into contact with the inner side of the companion bar 2, so that the spring may be guided by the yoke.

In some cases when it is desired to simplify the construction of the tool so as to serve only as a wrench, the bars 1 and 2 have inwardly curved portions 35 and 36 respectively that are suitably fitted together and connected by means of a pivot 37.

In practical use as a wrench the jaw portions may be adjusted by turning the screw 18 and may be drawn thereby closely to the nut or the article embraced if desired, and the wedge may be then advanced; or in case the adjustment required is considerable so that the jaws must be moved closer together, they may be moved together by hand to the required extent, the screw 18 passing through the aperture 17, and the wedge may be advanced and hold the jaws in adjusted position. If, however, it is required to draw the jaws slightly closer this may

be accomplished by means of the screw 18. The tool obviously may be used either as a side wrench or as a socket wrench. If used on a relatively small hexagonal nut and the jaw portions adjusted thereto do not happen to be in parallel arrangement, they may be readjusted by means of the screw 13 and the adjusting nut thereon to bring the jaws into parallel arrangement, and when the tool is used as a hand vise similar results are secured in a like manner, and the jaws are forced tightly to the work grasped by them, by means of the screw 13 and adjusting nut thereon, the yoke serving as a lever fulcrum, and after the work is tightly held in the jaws the screw 18 may be drawn up tightly so as to serve as a reinforcement and firmly hold the jaws to the work.

Having thus described the invention, what is claimed as new is—

1. A wrench or vise including two oppositely arranged wrench bars having each a jaw portion on one end thereof, pivotal means connecting the opposite ends of the two bars together, a wedge slidably arranged on the outer side of one of the bars and having a strap fixed relatively near to but at a distance from the larger end thereof, the strap extending about the bar in sliding contact therewith, and a yoke extending about the wedge and secured to the remaining one of the wrench bars.

2. A wrench or vise including two bars pivotally connected together at one end, each bar having a jaw portion that has a lateral extension thereon, one of the extensions having an aperture therein, an adjusting screw extending through the aperture and having a head normally seated on the extension at the outer end of the aperture, the screw being screwed into the remaining jaw extension, a yoke extending about one of the bars and fixedly secured to the remaining bar, and a wedge movable between the yoke and the bar about which the yoke extends, the wedge being movable also along one side of the screw.

3. A wrench or vise including a wrench bar having a jaw portion on one end thereof, two plates fixed to opposite sides respectively of the bar and a cross-bar fixed to the plates and having a convex face presented opposite to the wrench bar, a plate spring secured to the wrench bar and extending between the plates, a second wrench bar pivotally connected to the opposite end of the first described wrench bar and extending between the convex face and the spring and having a jaw portion thereon opposite to the first-described jaw portion, and a wedge slidably guided on the second wrench bar between the bar and the convex face of the cross bar.

4. In a wrench or vise, the combination of a wrench bar having a jaw portion on one

end provided with a lateral extension having an aperture, said bar having an opposite offset end portion, a nut rotatably mounted in the offset portion and in contact with opposite sides of said portion, a yoke fixedly secured to said bar between said jaw portion and said offset portion and provided with a cross-bar having a convex face presented toward said wrench bar, a plate spring secured to said wrench bar in proximity to said offset portion and extending opposite to said convex face, a companion wrench bar having a jaw portion on one end provided with a lateral extension, said bar extending between said spring and said convex face and having an opposite offset end portion provided with a pivot, an adjusting screw connected to said pivot and extending into said nut in engagement therewith, an adjusting screw in the said aperture having

a head in contact with the outer side of the extension, the screw being screwed into the opposite extension, a wedge movable on said companion bar between it and said convex face, the outer side of said wedge being serrated, the larger end of said wedge having a thumb-knob on the outer side thereof, a guide strap slidably embracing said companion bar and fixedly secured to said wedge at a distance from but relatively near to the larger end thereof, and a stop device fixed on said companion bar in proximity to the offset portion thereof to stop said wedge.

In testimony whereof, I affix my signature in presence of two witnesses.

JAMES C. BURGESS.

Witnesses:

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M. E. SPARROW.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."