

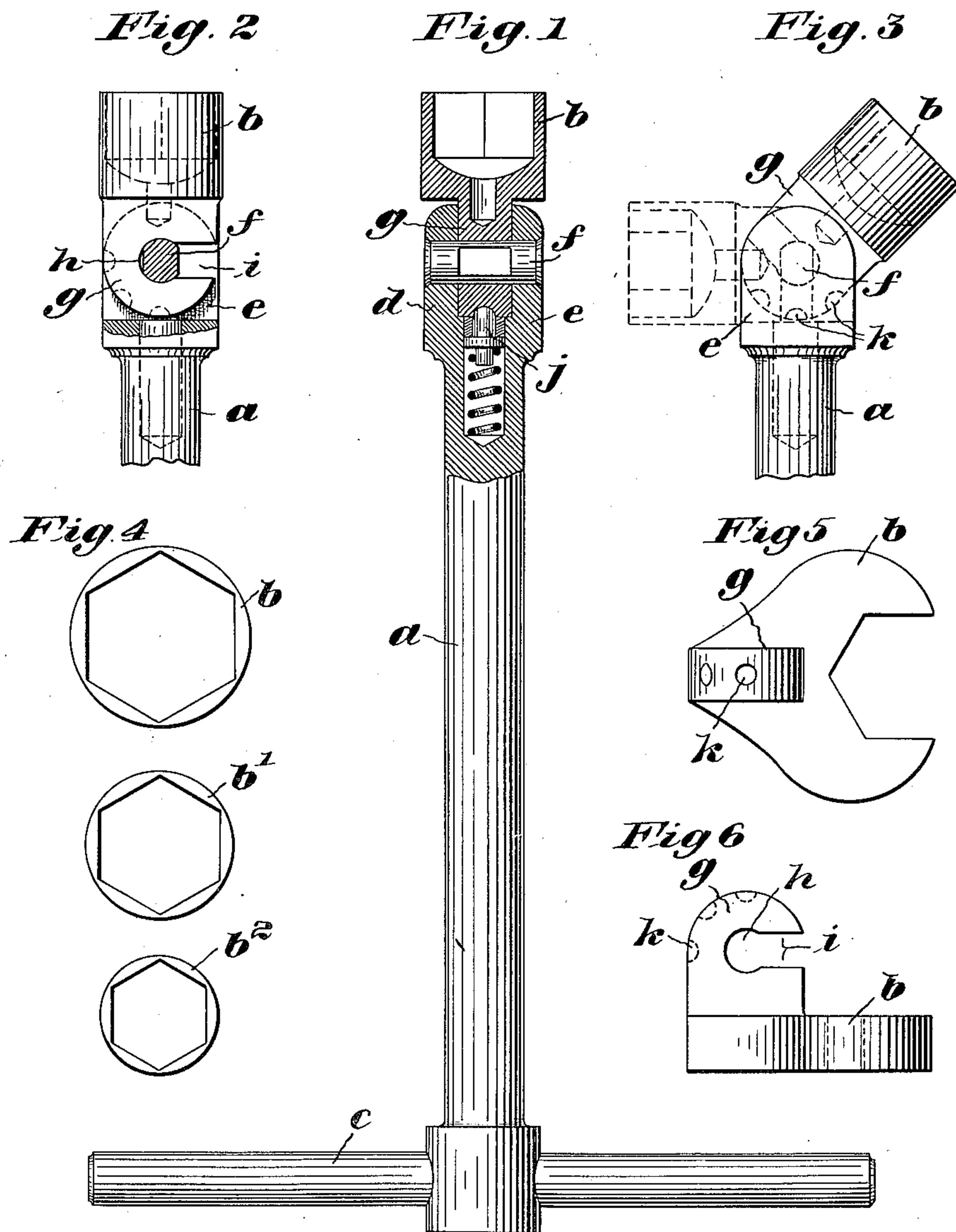
No. 820,185.

PATENTED MAY 8, 1906.

J. W. EDMANDS.

TOOL.

APPLICATION FILED AUG. 4, 1904.



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UNITED STATES PATENT OFFICE.

JOHN W. EDMANDS, OF NEWTON CENTER, MASSACHUSETTS.

TOOL.

No. 820,185.

Specification of Letters Patent.

Patented May 8, 1906.

Application filed August 4, 1904. Serial No. 219,573.

To all whom it may concern:

Be it known that I, JOHN W. EDMANDS, a citizen of the United States, residing at Newton Center, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Tools, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention consists in improvements in tools or implements, being more particularly though not exclusively concerned with such tools as wrenches or the like.

I have herein illustrated one embodiment of my invention and have for the purposes of illustration shown the same as applied to a novel construction of socket-wrench, wherein there is employed a holding member provided with an adjustable and removable socket member.

My invention will be best understood by reference to the following specification when taken in connection with the accompanying illustration of one selected embodiment thereof, while its scope will be more particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a longitudinal sectional view of the illustrated embodiment of my invention. Fig. 2 is a plan view of the wrench shown in Fig. 1 with one of the holder-ears and the wrench-handle broken away. Fig. 3 is a view similar to Fig. 2 without the removal of the holder-ear and with the wrench member shown adjusted to a different position. Fig. 4 shows in end view a series of replaceable socket members, and Figs. 5 and 6 are details of a fork wrench member which may be applied to the holder shown in Fig. 1.

Referring to the drawings and to the illustrated embodiment of my invention therein, I have shown a tool or implement, herein a socket-wrench, consisting of the holding member or handle *a* and the removable and adjustable wrench-head or socket member *b*. The shank of the handle is provided with a pin *c*, which permits the tool to be readily turned or twisted when grasped by the hand. The tip of the handle is provided with a pair of ears *d* and *e*, between which extends the pin *f*, rigidly secured thereto.

The socket member *b* has a hook-shaped lug *g*, which fits between the holder-ears, the

said lug being provided with a circular eye *h*, having a narrowed mouth *i* extending to the edge of the lug upon one side of its axial center. The sides of the pin *f* are slabbed off lengthwise the handle to fit the mouth *i* of the lug *g*, so that by holding the socket member at substantially right angles to the handle upon one side of its axial center, as shown by dotted lines, Fig. 3, the mouth of the lug may be slipped over the slabbed-off portion of the pin and the socket member then turned about the pin, being retained by the same between the ears of the holder in the other positions to which it may be turned.

The socket member is held for use in any selected position of adjustment upon the holding member by means of the spring-pressed pin *j*, located in the shank of the holding member between the said ears and adapted to engage with any one of a series of holes *k*, arranged from its axial center toward the nut-engaging portion in the opposing edge of the lug *g*. When in use, the wrench head or member may be set to any desired angular position upon one side of its axial center relatively to the handle—such, for example, as that shown either in Fig. 2 or 3—and there retained by the pin *j*. The latter, if desired, may be proportioned to act as a latch to hold the wrench-head in its selected position of adjustment and require manual or other positive withdrawal, such as might be effected by a lug projecting on the pin through a slot in the handle to effect an unlatching of the head for removal or adjustment to a new position. In the wrench illustrated, however, the holes *k* are shown as comparatively shallow, and the tip of the pin is rounded, permitting the wrench-head to be readily snapped from one position to another by manual pressure only, which acts to force the pin out of its hole in the lug.

It will be observed that the axis of the wrench-head—that is, the axis about which the same is turned when in use—is substantially parallel with the planes of the engaging faces upon the holder-ears *d* and *e* and lug *g*. These faces, therefore, receive substantially all the torsional strain arising from the use of the wrench, and the pin *j*, which receives substantially no strain from this cause, may be made small and light, acting effectively as a locating means for the head,

while permitting the maintenance of all necessary strength and rigidity in the connections between the handle and head.

The removable socket-head permits the use of a series of sockets of different sizes, such as is shown by way of illustration in Fig. 4, thus permitting an entire kit of wrenches adapted for all sizes of nuts and all conditions of use to be employed with but a single handle. The reduction in bulk of a kit of socket-wrenches which follows from the use of this invention is often of great importance—as, for example, when used in connection with an automobile, where the storage-space is limited and the space demanded by a full kit of socket or other wrenches of usual construction precludes the extensive use of this tool.

The adjustability of the wrench-head on the holding member permits the wrench-head to be used either with its axis parallel with that of the holding member or inclined thereto in any one of a variety of positions,

Nuts and bolts upon which the use of a socket-wrench would be desirable are often very difficult of access or if accessible are so located as to limit the movement of the wrench. The adjustable wrench-head, however, permits the application of the wrench to a nut or bolt with any desired inclination of the handle relatively to the head, and therefore to many nuts or bolts usually inaccessible. Moreover, an otherwise-limited wrench movement may often be completed by a fresh adjustment of the head upon the handle to accommodate the wrench to the obstructions met in its movement.

My invention in its application to wrenches is not limited to socket-wrenches alone, and in Figs. 5 and 6 I have shown a forked wrench-head which may be employed in place of the socket wrench-head in Figs. 1 to 3, the same being provided with a lug *g*, similar to the lug upon the socket member, whereby the forked wrench-head may be applied to and withdrawn from the holding member in substantially the same manner, the axis of the wrench-head, however, being also herein substantially parallel with the engaging faces between the holder and the head, so that torsional strain comes chiefly between the lug and the ears, which can of course be made close fitting and of any desired strength. These or other wrench-heads may be employed by themselves or in conjunction with each other to complete a kit. Thus a nut inaccessible to a socket-wrench at any angle of the head may be perhaps started by a fork-wrench having its head inclined, if necessary, and its movement perhaps completed by a suitably-adjusted socket-head.

It will readily be understood that the detail construction of the connecting and en-

gaging surfaces between the tool member and the holding member are to a large extent immaterial; that while I have shown the ears upon the holding member and the lug upon the tool member their positions might be reverse and various other changes in details made.

Obviously my invention may be applied to other tools and implements than those herein described and also to wrenches having shapes and constructions varying widely from those which are herein illustrated.

It is also to be understood that my invention is not limited to the details or relative arrangement of parts herein disclosed and that many and wide departures therefrom may be made without departing from the spirit of my invention.

I claim—

1. A wrench comprising a holding member provided with means for twisting or turning it axially, a head or socket member provided with a nut-engaging portion, and means for connecting said holding member and head or socket member, comprising a pair of ears connected to one of said members, a lug connected to the other of said members and adapted to fit between the ears of the other member, a pivot-pin secured to one of said members, and an open-sided eye formed in the other member and adapted to detachably engage said pivot-pin, to thereby pivotally connect said holding member and socket member, whereby said socket member may be rotated axially in any of a plurality of selected positions by the twisting or turning of the holding member, and the socket member readily detached from the holding member.

2. A wrench comprising a holding member provided at one end with holding-ears, a spring-pin projecting between said ears, and a pivot-pin rigidly secured in said ears, a head or socket member having a nut-engaging portion and a lug projecting from the back of said nut-engaging portion and provided with an eye open to one edge of said lug and adapted to removably engage the pivot-pin of said holding member, and a series of holes in the opposite edge of said lug adapted to engage the spring-pin of said holding member, whereby said head or socket member may be adjusted to different operative positions upon one side of its axial center and be removed from the holding member by movement to the opposite side of its axial center.

3. As a new article of manufacture, a wrench-head having a nut-engaging portion and a lug projecting from the back of said nut-engaging portion and provided with an eye open to one edge of said lug and a series of holes upon the opposite edge of said lug, whereby said wrench-head may readily be

secured to an axially-rotatable holding member having a pivot-pin to engage the open eye, and capable of adjustment to different operative positions upon one side of its axial center and of removal from the holding member by movement to the other side of its axial center.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN W. EDMANDS.

Witnesses:

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