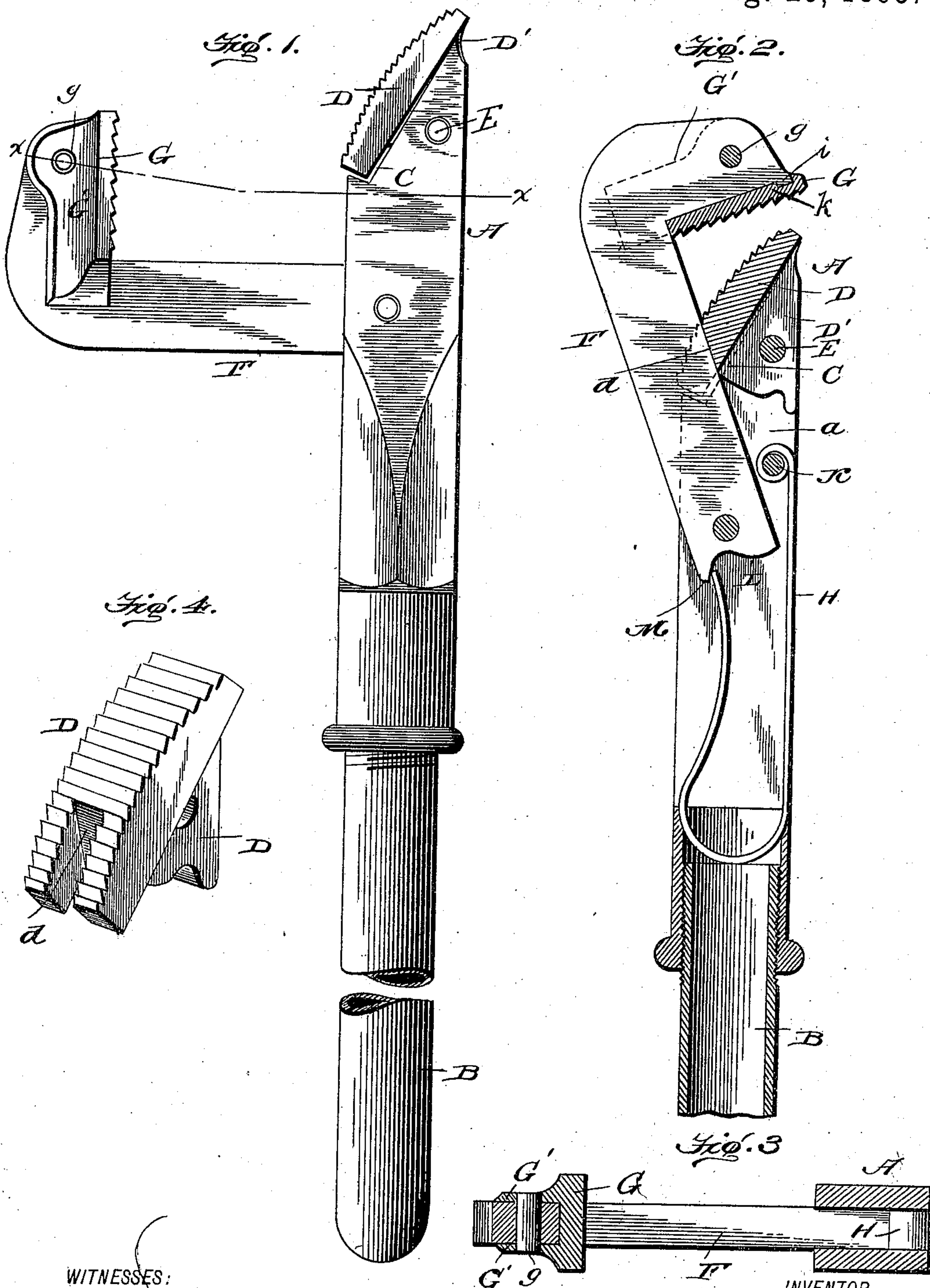


(No Model.)

G. McKERCHER.
WRENCH.

No. 504,232.

Patented Aug. 29, 1893.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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WRENCH.

SPECIFICATION forming part of Letters Patent No. 504,232, dated August 29, 1893.

Application filed January 7, 1893. Serial No. 457,602. (No model.)

To all whom it may concern:

Be it known that I, GEORGE MCKERCHER, a citizen of the United States, residing at Jonesville, in the county of Hillsdale and State of Michigan, have invented certain new and useful Improvements in Wrenches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in pipe or nut wrenches and the main object of the invention is to provide a wrench in which the bearing or face plates of the jaws are detachably secured in place so that, in case of injury thereto, they can be readily removed and replaced by new ones.

A further object of the invention is to provide a rocking bearing or face plate for the stationary jaw so that said plate can more readily adapt itself to the object which the wrench is employed to grasp.

With these ends in view my improved wrench consists of a bifurcated head provided at one end with means for attaching a suitable handle and at its other end with a rocking serrated bearing plate which forms the face of the stationary jaw of the wrench, a movable jaw pivoted within the head and provided at its outer end with a removable serrated bearing or face plate, and a spring secured within the head and bearing against the inner end or heel of the movable jaw.

My invention further consists in the peculiar construction and arrangement of parts as will be, hereinafter, more fully pointed out and claimed.

In the accompanying drawings:—Figure 1 is a side elevation of my improved wrench showing the movable jaw at its greatest distance from the stationary jaw. Fig. 2 is a longitudinal sectional view showing the position of parts when the wrench is not in use or is adapted to grasp very small objects. Fig. 3 is a sectional view on the line $x x$ of Fig. 1. Fig. 4 is a detail view of the bearing or face plate of the stationary jaw.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

A designates the head of my improved

wrench which head is centrally bifurcated by a longitudinal slot, a , and is provided at one end with an internally threaded socket designed to receive the threaded end of a handle, B, which may be of any desired length. A handle of any desired length, in view of the work designed to be accomplished by the wrench, can be readily attached to the head, A. The outer free ends of the members of the head, A, are cut away or recessed to form seats, C, on which rests the bearing or face plate, D, of the stationary jaw of the wrench. The outer end of the bearing or face plate, D, is preferably made slightly convex and serrated; and the under side thereof is inclined and provided with a triangular shaped arm, D', which extends into the slot, a , and is pivotally connected to the sides of the head of the wrench by a pivot pin, E. The underside or surface of the plate, D, is inclined at a different angle from the faces of the longer walls or sides of the seats, C, against which it rests so that said plate has a limited rocking motion which enables it to more readily adapt itself to the surface of the article introduced between the jaws of the wrench.

Within the slot, a , in the head of my improved wrench is pivoted the movable jaw, F, to the short arm of which is detachably connected a bearing or face plate, G, which extends at right angles to the length of the long arm of the jaw and the outer face of said plate is serrated in a manner similar to the corresponding plate of the stationary jaw. The outer end of the short arm of the movable jaw is provided with a short projecting lug i which, when the plate, G, is placed in position, contacts with a raised portion or lug k formed on the smooth rear face of said plate between parallel flanges, G', which extend on opposite sides of and are detachably connected to the short arm of the movable bar by a pin or bolt, g . The flanges, G', are preferably made longer than the body of the plate, G, so that they extend on opposite sides of the longer arm of the movable jaw which arm thus bears against the body of the plate G and prevents the same from moving longitudinally in that direction, the lug on the short arm of the movable jaw serving to prevent longitudinal movement of said plate in

that direction. It will thus be seen that the bearing plates of both jaws of the wrench are held firmly in place and yet, if said plates are damaged, they can be easily removed and replaced by new ones without changing or affecting the other parts of the wrench.

Within the slot *a*, in the head of the wrench is also secured a spring, *H*, by which the movable jaw is forced closely against an object introduced between the jaws. As will be seen, by reference to Fig. 2 of the drawings, the spring, *H*, is formed from a single piece of spring metal one end of which is bent around and firmly attached to a pin, *K*, arranged within and extending transversely across the slot, *a*. The spring, *H*, extends from the pin, *K*, in almost a straight line to a point near the rear end of the slot, *a*, and is then bent upon itself and has its free end extending forwardly and outwardly, as shown, and said free end bears against the inner end or heel of the movable jaw. The inner end or heel of the movable jaw is, preferably, cut away to form a curving surface, *L*, and a short inclined surface, *M*. The free end of the spring *H*, fits in the recess or notch formed in the heel of the movable jaw and, when said jaw is thrown into the position shown in Fig. 1, the short inclined surface bears squarely against said spring and the jaw is held firmly in its open position.

The bearing or face plate of the stationary jaw of the wrench is provided with a short slot, *d*, which opens through the lower or inner end of said plate and aligns with the slot *a* in the head of the wrench; and when the movable jaw is brought close to the stationary jaw, as shown in Fig. 2 of the drawings, the longer arm thereof fits in said slot, *d*. By this construction the jaws can be brought much closer together and the wrench adapted to grasp smaller objects than is possible with wrenches of this class as ordinarily constructed.

I am aware that changes in the form and proportion of parts and details of construction of the embodiment of my invention herein shown and described can be made without departing from the spirit or sacrificing the advantages thereof and I therefore reserve the right to make such changes and alterations as fairly fall within the scope of my invention.

Having thus described my improvements,

what I claim as new, and desire to secure by Letters Patent, is—

1. A wrench consisting of a handle, a head attached to the handle and having its outer end inclined, a rocking bearing plate, *D*, pivoted to the head and contacting with the inclined end thereof, and a movable jaw pivoted to the head, substantially as described.

2. In a wrench, the combination with a head, forming the stationary jaw, and a handle attached to the head, of a movable jaw having one arm pivotally connected to the head and having a bearing plate, *G*, which is provided with a lug, *k*, adapted to contact with a lug, *i*, on the other arm of said jaw, and has its sides, *G'*, extending on opposite sides of the arm that is pivoted to the head, substantially as described.

3. In a wrench, the combination with a bifurcated head and a handle attached to said head, of a serrated bearing plate secured within the bifurcation in the head and provided with a slot, *d*, and a movable jaw having one arm pivoted within the head between the handle and the serrated bearing plate and adapted to fit in the slot in said plate, substantially as described.

4. A wrench consisting of a handle, a bifurcated head attached to the handle, a serrated bearing plate arranged at the free end of the head and provided with an arm which is pivoted within the bifurcation in the head, and a movable jaw pivoted within the head, substantially as described.

5. In a wrench, the combination of a bifurcated head having seats, *C*, formed therein, a bearing plate having an arm extending into the bifurcation in the head and pivotally connected to the walls thereof, the lower face of said plate being inclined at a different angle from the face of the adjacent seats, *C*, in the head, and a movable jaw having an arm pivoted within the head of the wrench and adapted to extend into the slot in the head and an aligned slot or recess formed in the bearing plate on the head, substantially as described.

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

GEORGE MCKERCHER.

Witnesses:

C. V. BURNETT,
WESLEY BURNETT.