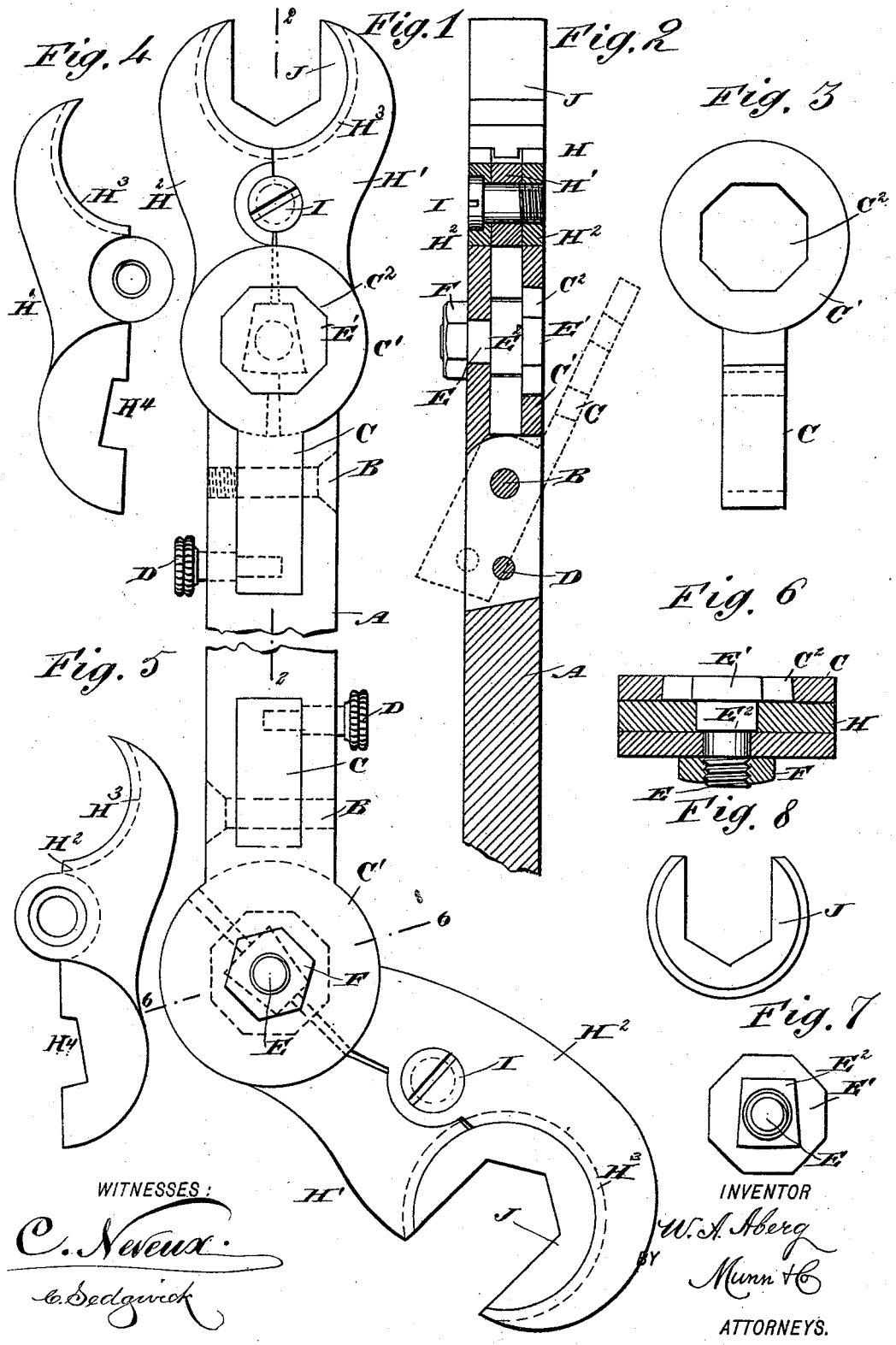
(No Model.)

# W. A. ABERG.

## WRENCH.

No. 493,051. Patented Mar. 7, 1893.



# UNITED STATES PATENT OFFICE.

WALFRID A. ABERG, OF NEW WESTMINSTER, CANADA, ASSIGNOR TO HIMSELF AND HENRY F. HEIMERLE, OF SAME PLACE.

## WRENCH.

SPECIFICATION forming part of Letters Patent No. 493,051, dated March 7, 1893.

Application filed May 16, 1892. Serial No. 433,232. (No model.)

*To all whom it may concern:*

Be it known that I, WALFRID A. ABERG, of New Westminster, in the Province of British Columbia and Dominion of Canada, have invented a new and Improved Wrench, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved wrench, which is simple and durable in construction, very effective in operation, and arranged to permit of moving the jaws into any desired angle relative to the handle, so as to turn nuts in close quarters.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement. Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1. Fig. 3 is a face view of the pivoted arm on the handle. Figs. 4 and 5 are side elevations of the two members of the wrench head. Fig. 6 is a transverse section of the improvement on the line 6—6 of Fig. 1. Fig. 7 is an end view of the bolt for connecting the wrench head with the pivoted arm; and Fig. 8 is a face view of the jaw for the wrench head.

A is the wrench handle having an adjustable head H at one or both ends. The end of the handle is provided at one side with a locking arm C pivoted between its ends at B in a transverse slot and provided in its outer end C′ with a polygonal aperture $C^2$; said arm normally lying flush with the surface of the handle and adapted to be swung outward on its pivot B away from the handle as shown in dotted lines Fig. 2 when its lower end is released by operating a set screw D. The end of the handle is cut away at the inner face of the upper end of the locking arm, thus forming a recess to receive the wrench head H.

The wrench head H is formed of two members H′ $H^2$ pivoted together at the middle portions of their inner abutting edges by a pivot bolt I and between the outer ends of these members H′ $H^2$ is formed an open circular socket in which is placed the jaw J, the outer edge of which has a peripheral rib fitting in the groove $H^3$ formed in the wall of the said socket. Below the pivot I the inner adjacent edges of the two members H′ $H^2$ diverge as shown in dotted lines in Fig. 1, so that when the lower ends of the two members are forced apart their outer socketed ends will grasp the jaw J and hold it against displacement as the opening leading from the jaw socket in said ends will be narrower than the diameter of the jaw J, and when the lower ends of the members H′ $H^2$ are forced together their outer socketed ends will separate sufficiently to permit the removal of a jaw J and the insertion of another. The inner edges of the members below the pivot I are formed with irregular shaped or polygonal registering recesses $H^4$.

E is the pivot bolt of the wrench head H and is mounted in the cut away portion of the handle and provided with a nut F at one end engaging the outer face of the handle and at its opposite end with a polygonal head shaped to fit the polygonal recess $C^2$ in the locking arm C when said arm is in the position shown in full lines in the drawings and thus the bolt E will be locked against rotation.

$E^2$ is an offset on bolt E and is so shaped as to fit the recesses $H^4$ in the two members H′ $H^2$ and force their lower ends apart.

To assemble the parts the locking arm is swung out as in dotted lines and a jaw J is placed in position in its socket between the outer ends of the members H′ $H^2$ of the head H and the lower ends of said members are placed on the cut away part of the handle; the bolt E is now inserted with its offset $E^2$ entering the recesses $H^4$ and the nut F applied. The wrench head H as an entirety may now be turned to any desired position and owing to the shape of the offset $E^2$ and the recesses $H^4$ the bolt will also turn with the head. The locking arm C will now be swung into its closed position and its polygonal opening will receive the polygonal head E′ of the bolt and lock it and the wrench head against movement in either direction.

The wrench head may be adjusted at any time by swinging the locking arm outward, then turning the wrench head to the desired position and then swinging the locking arm

back again, but before the jaw J can be removed the bolt E must be removed so as to disengage its offset $E^2$ from the recesses $H^4$.

In order that the bolt head E′ may readily enter the opening $C^2$ its walls are beveled as shown in Fig. 6.

The wrench head may have its opening either at the end or side, both forms being shown in Fig. 1.

Having thus described my invention, what I claim is—

1. A wrench having a swinging head provided at its axis with a polygonal head and a locking arm pivoted to the handle to swing outwardly from the side of the handle in a plane at right angles to that of the wrench head and engaging said polygonal head to lock it and the wrench head in any desired position, substantially as set forth.

2. A wrench provided with a swinging head having a polygonal head at its axis, an outwardly swinging locking arm pivoted to the handle at right angles to the axis of the wrench head and having a polygonal opening at one end to receive the said polygonal head and lock it, and means for locking the swinging arm in place, substantially as set forth.

3. A wrench, comprising a head formed of two members pivoted together at the middle portions of their inner edges, formed with an open socket between the inner edges of their outer ends and diverging at their inner edges below their pivot, registering polygonal recesses in said diverging edges, a jaw seated in said socket, and a handle provided with an adjustable pivot bolt having a polygonal offset fitting in the said recesses, substantially as set forth.

4. A wrench, comprising a handle provided with a laterally swinging locking arm having a polygonal opening; a pivot bolt having a polygonal head fitting said opening and a polygonal offset at the inner side of the said head, and a wrench head formed of two members pivoted together between their ends and recessed on their inner diverging ends below the pivot to fit said offset and having a grooved open socket between their outer ends, and an externally ribbed jaw held removably in said socket, substantially as set forth.

WALFRID A. ABERG.

Witnesses:

JOSEPH ED. GAYNOR,

WM. HADDON.