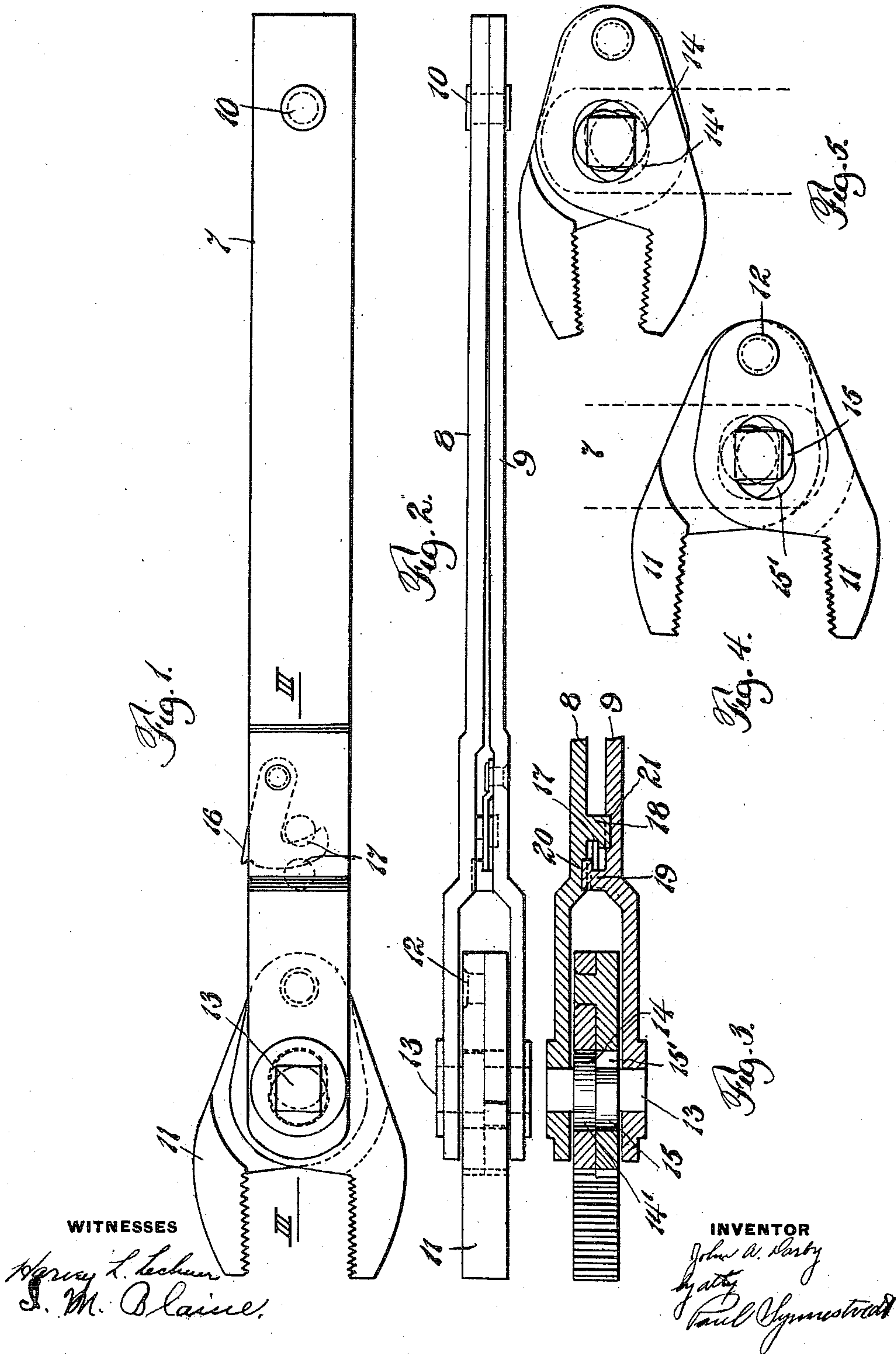


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WRENCH.

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JOHN A. DARBY, OF NEWPORT, INDIANA.

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To all whom it may concern:

Be it known that I, JOHN A. DARBY, a citizen of the United States, residing at Newport, in the county of Vermilion and State of Indiana, have invented certain new and useful Improvements in Wrenches, of which the following is a specification.

My invention has reference to wrenches and particularly to the type known as self-adjusting wrenches. It has for its primary objects; the provision of a wrench of the character herein specified, wherein the jaws are positively operated either when being closed or being opened; the provision of an improved wrench handle adapted to receive different kinds of jaws, adapting the wrench for various kinds of work; and in general the provision of an improved self-adjusting wrench which is simple, inexpensive and effective, and readily adaptable to the character of the work to be done. These and such other objects as may hereinafter appear, or are incidental to my invention, I accomplish by means of a construction illustrated in preferred form in the accompanying drawing, wherein

Figure 1 is a plan view of my improved wrench,

Figure 2 is an edge view of Figure 1,

Figure 3 is a section taken through Figure 1 on the line III—III,

Figure 4 is a view of the wrench jaws in extreme open position, and

Figure 5 is a similar view to that of Figure 4 with the jaws in closed position.

My invention in general is designed to provide a self-adjusting wrench in which the jaws will be positively operated either when being opened or closed. To this end I provide a handle 7 composed of two plates 8 and 9 pivoted together at 10 at one end, and having offset portions at the other end to receive the wrench jaws 11. These jaws are pivoted together at 12 and are secured or mounted on the handle by means of a pintle or cam piece 13, which is provided with squared ends fitting in similarly shaped openings formed in the plates 8 and 9. The cam piece 13 is preferably a single piece structure and has formed thereon two oppositely disposed cams or eccentrics 14 and 15 adapted to fit into runways or races 14' and 15' provided in the jaws 11. These cams are set at substantially 180° from one another, as indicated in the drawing, and when the handle 7 is moved upwardly the

cams will be turned thereby and will move in their respective races forcing the jaws apart as indicated in Fig. 4, which illustrates the jaws in extreme open position. When the handle is moved in the reverse direction the cams will operate to close the jaws, as indicated in Fig. 5. It will be thus seen that the jaws are at all times positively operated, thereby assuring effective and consistent action.

Referring now more particularly to Figs. 1, 2 and 3 it will be seen that the plates 8 and 9 constituting the handle are secured or locked together adjacent the jaws by means of a hook member 16 pivoted to the plate 9 and adapted to engage recesses 17 formed in the lugs 18 and 19, formed respectively on the plates 8 and 9. These lugs (preferably integral with the plates 8 and 9) are adapted to fit into recesses 20 and 21 formed in the plates 8 and 9, and are spring held in such position, it being necessary to spring the plates 8 and 9 slightly apart in order to swing or position the plates into proper position with respect to each other. This spring locking action together with the hook 16 locking into the upstanding lugs 18 and 19 forms a very effective means for securing and holding the plates constituting the handle, in fixed position.

It will be seen that by this construction I provide a wrench which can be readily taken apart and as readily re-assembled. If, owing to the character of the work, a different set of jaws should be needed, the hook 16 is swung out of engagement with the lugs 18 and 19 and the plates 8 and 9 sprung apart, when the cam piece 13 and the jaws 11 can be removed and a new set inserted in place thereof. It is, of course, understood that the cam piece 13 can be used with a number of different sets of jaws. Should the work be inaccessible for a wrench of the character shown in Fig. 1, the axis of the cam 13 can be turned through 90° and the jaws placed thereon. This change provides a wrench of the type commonly known as the S wrench, the jaws in normal position lying substantially at right angles to the normal position as shown in Fig. 1.

Having thus described my invention and illustrated its use what I claim as new and desire to secure by Letters Patent is the following:—

1. A self-adjusting wrench comprising in combination a pair of jaws pivoted together,

an operating cam adapted to positively open the jaws when moved in one direction and to positively close the jaws when moved in the opposite direction, and a handle having
 5 a divided end, one part of which engages the cam non-rotatively on one side of the jaws and the other of which engages the cam non-rotatively on the other side of the jaws.

10 2. A self-adjusting wrench comprising in combination, a divided wrench handle, a pair of jaws pivoted together and lying between the parts of the handle, and an operating cam member mounted in the handle
 15 and carrying the jaws, said cam member operating to positively open the jaws when moved in one direction and to positively close the jaws when moved in the opposite direction.

20 3. A self-adjusting wrench comprising in combination, a single handle having a divided end, an operating cam member mounted between the parts of the end, a pair of jaws carried by the cam member and pivoted to
 25 gether at the rear of the said cam member, said cam member operating to open the jaws when moved in one direction and to close the jaws when moved in the opposite direction.

30 4. A self-adjusting wrench comprising in combination, a handle, a double cam positioned against rotation thereon and a pair of jaws each having a race fitting one portion of the double cam and pivoted together
 35 at the rear of said cam, said double cam operating to open the jaws when the handle is moved in one direction and to close the jaws when the handle is moved in the opposite direction.

40 5. In combination in a wrench, a pair of opposing spring handles secured together at one end and perforated at their other ends, a cam member mounted in the perforations and removable by springing the handles
 45 apart, and a pair of jaws mounted on and operable by the cam and pivoted together to the rear of such cam.

50 6. In combination in a wrench, a pair of opposing spring handles secured together at one end and perforated at their other ends, a cam member mounted in the perforations and removable by springing the handles
 55 apart, means intermediate the ends of the handles for releasably locking the handles together and a pair of jaws mounted on and operable by the cam and pivoted together to the rear of such cam.

7. A wrench comprising in combination a handle comprising opposing plates lying

against each other with their front ends 60 spaced apart and secured together for movement toward and from each other at such front ends, a pair of jaws removably mounted in the front ends of said plates, and means to the rear of the spaced portions of the 65 handles for locking the plates together.

8. In combination in a wrench, a handle comprising a pair of opposing plates secured together at one end and movable toward and from each other at the other end, a pair 70 of relatively movable wrench jaws lying between the movable ends of the plates constituting the handle and releasable from the plates when they are spread apart, and a latch located between the plates for holding 75 them together.

9. A wrench comprising in combination, a pair of jaws pivoted together and provided with a pintle, a double operating cam on the pintle, runways in the jaws for said 80 double cam, and a handle comprising opposing plates releasably secured together for movement toward and from each other for detachably holding the ends of the pintle.

10. In combination in a wrench, a handle 85 comprising a pair of opposing plates secured together at one end and movable toward and from each other at the other end, a pair of relatively movable wrench jaws lying between the movable ends of the plates con- 90 stituting the handle, and releasable from the plates when they are spread apart, an engaging member on the inner face of one of the plates, and a latch on the inner face of the opposite plate, the said latch being 95 adapted to engage the said member and prevent the two plates from moving away from each other.

11. In combination in a wrench, a handle comprising a pair of opposing spring plates 100 pivoted together at their rear ends on an axis transverse to the plane of the plates, and removable operating means at the front end of the handle having interlocking engagement therewith so that the plates are 105 held against relative pivotal movement upon the said axis and the operating means is held in the plates until such plates are sprung apart to release such means, and means for releasably locking the front ends 110 of the plates against springing apart.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

JOHN A. DARBY.

Witnesses:

BARTON S. AIKMAN,
 BERT. C. NICHOLS.