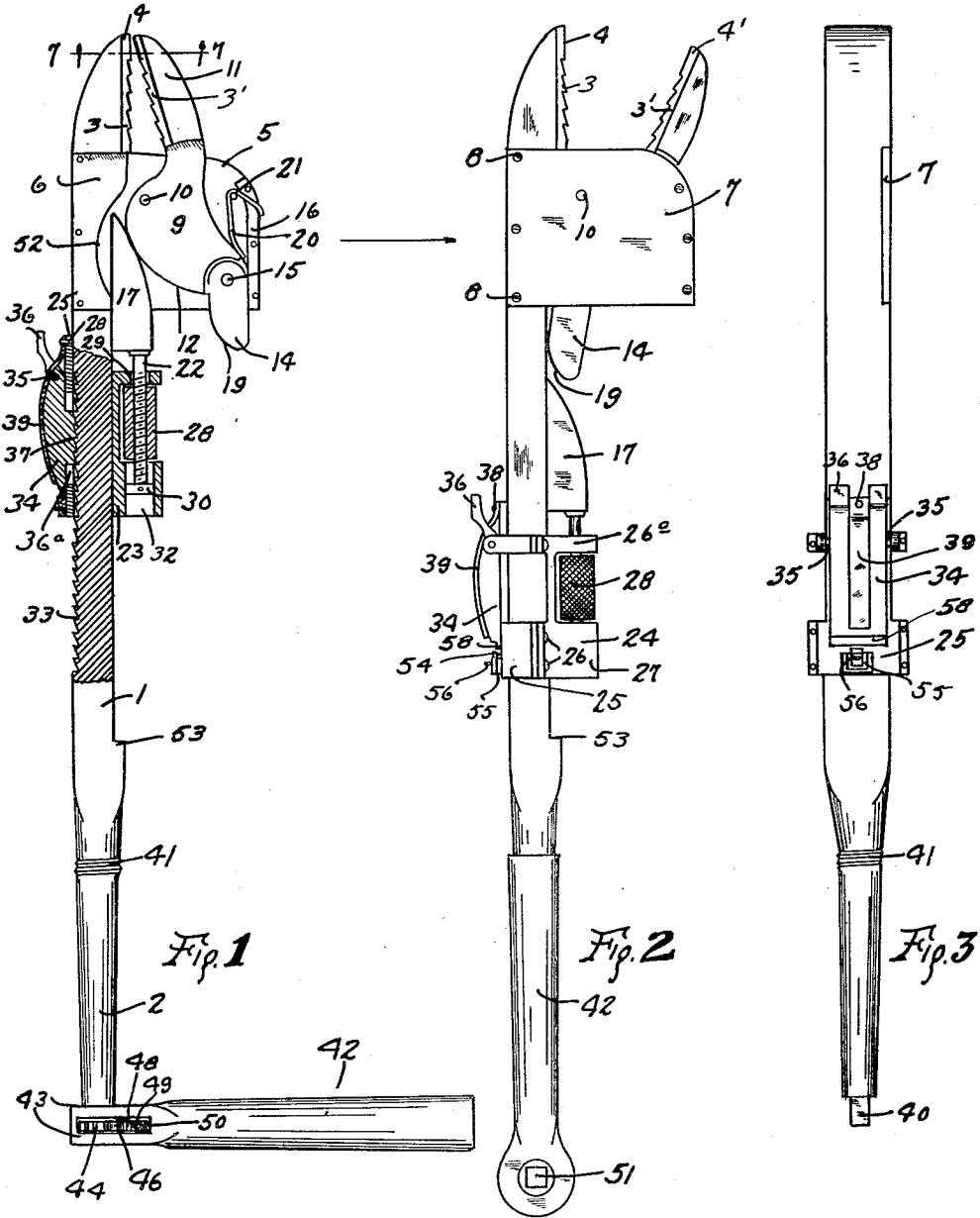


B. V. APFELD.
WRENCH.
APPLICATION FILED SEPT. 13, 1913.

1,126,678.

Patented Feb. 2, 1915.

2 SHEETS—SHEET 1.



Inventor
Bernard Valentine Apfeld

Witnesses
Harold Scantlebury
Edna Broyles

By *Arthur E. Smith*
Attorney

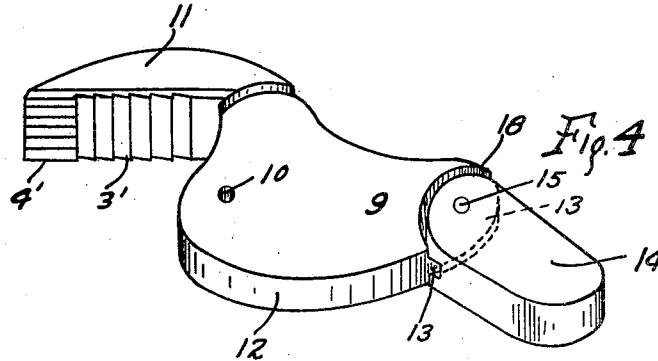
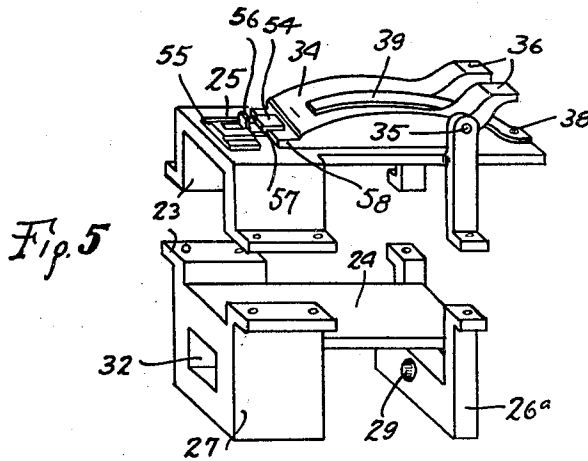
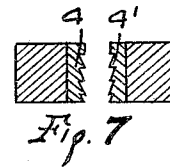
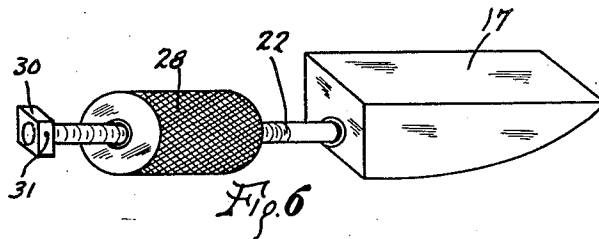
B. V. APFELD.
WRENCH.

APPLICATION FILED SEPT. 13, 1913.

1,126,678.

Patented Feb. 2, 1915.

2 SHEETS-SHEET 2.



Inventor
Bernard Valentine Apfeld

Witnesses
Harold Scantlebury
Edna Broyles

By

Herbert E. Smith
Attorney

UNITED STATES PATENT OFFICE.

BERNARD VALENTINE APFELD, OF SPOKANE, WASHINGTON.

WRENCH.

1,126,678.

Specification of Letters Patent.

Patented Feb. 2, 1915.

Application filed September 13, 1913. Serial No. 789,662.

To all whom it may concern:

Be it known that I, BERNARD VALENTINE APFELD, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented new and useful Improvements in Wrenches, of which the following is a specification.

My invention relates to an improved wrench and has as its principal object the provision of a wrench which may be used equally as well as a pipe wrench or as an end wrench.

A second object of my invention is to provide means for the very rapid and convenient adjustment of the jaws of the wrench.

A final object of my invention resides in the particular arrangement and combination of parts hereinafter described.

Referring more particularly to the drawing:—Figure 1 is a side elevation of my improved wrench, partly in section, having the jaws closed, and also showing the ratchet handle in operative position. Fig. 2 is a view similar to Fig. 1 except that none of the parts are broken away or are in section, and that the jaws are open and the ratchet handle is screwed onto the handle of the wrench. Fig. 3 is an elevational view taken at right angles to Fig. 2, the ratchet handle being removed from the handle of the wrench. Fig. 4 is a detail perspective view showing the movable jaw of my improved wrench and illustrating the arrangement of the teeth on said jaw as well as the arrangement of the cam surface and pivoted member used in adjusting the same. Fig. 5 is a view with parts separated and in perspective of the slide or member adjustable on the shank of the wrench. Fig. 6 is a detail view in perspective of the wedge member carried by the slide shown in Fig. 5. Fig. 7 is a cross sectional view taken on the line 7—7 of Fig. 1.

In the separate views, the same part is designated by the same reference character.

Referring more particularly to the drawing, 1 is a shank or bar of iron which is provided at one end with a handle such as 2 and at the other end is provided with two sets of teeth designated as 3 and 4, respectively. Integral with the shank 1 near the teeth 3 is a laterally projecting plate 5. The side of the shank 1 opposite the plate 5 is recessed as indicated at 6 to receive a plate 7 which is of the same shape as the plate 5 and extends parallel thereto. Plate 7 is

normally attached to the shank 1 by suitable screws or other means such as 8—8. 9 is a combined jaw and cam member pivoted between the plates 5 and 7 at the point 10. The member 9 is illustrated in detail in Fig. 4 and it will be seen that the jaw portion 11 of said member is provided with teeth 3' and 4' corresponding to the teeth 3 and 4 on the member 1, the teeth 3 and 3' being set transverse to the length of member 1 and the teeth 4 and 4' being set longitudinally thereof, when the jaws are in the positions shown in Figs. 1 and 2. The member 9 is provided with a cam surface 12 by which the jaw portion 11 is held in adjusted position as illustrated in Fig. 1. Near the end opposite the jaw 11 the member 9 is cut away on two opposite sides to form a flange 13 indicated in dotted lines in Fig. 4, and a finger piece 14 is pivotally connected to flange 13 at the point 15. The finger 14 is pivoted to the member 9 so as not to interfere with the upstanding ledge 16 on the inner face of the plate 5 whereby plate 5 may be attached to the plate 7. At the same time, it will be understood that the member 14 should act rigidly with the member 9 when the two are in the position shown in Fig. 2 so that the jaw portion 11 will be positively operated by the wedge 17 when so desired. In order to accomplish this the member 9 is provided with a projecting end or tip 18 which is adapted to engage the edge of the member 14 when the latter is swung a certain distance around its pivot 15 from left to right as shown in Figs. 1 and 2. It will be noted also that the end of the member 14 removed from its pivot is beveled as shown at 19 in Figs. 1 and 2, so as to permit of easy entrance of the end of the wedge 17 under the member 14 when the latter is in the position shown in Fig. 2. A spring 20 is provided which is bent around the pin 21 between the plates 5 and 7 and which has one end bearing against the member 9 near the tip 18 thereof and which has the other end attached to the flange 16 so that the jaw 9 will normally be thrown into the position shown in Fig. 2 unless restrained by the wedge 17.

The wedge 17 is rigid with a stem 22 and is carried by an adjustable carriage which I shall designate as 23 as a whole. The slide or carriage 23 comprises two parts 24 and 25 which are grooved so as to engage the shank 1 and which may be held together by

suitable keys or rivets such as 26. The portion 24 is provided with two outstanding flanges or lugs 26^a and 27 between which is mounted a threaded nut 28 carried by the stem 22 which is suitably threaded to receive the same. The stem 22 is extended through a circular aperture 29 in the part 26^a and is guided by said aperture, while the end of the stem 22 is provided with a square member 30 which is secured to the stem 22 by a stem 31 and the member 30 has a sliding fit with an aperture 32 in the flange or ledge 27, the latter aperture being square so as to prevent the turning of the stem 22 when the nut 28 is adjusted.

The slide or carriage 23 can be quickly adjusted on the shank, since said slide has a more or less loose engagement with said shank. However, I provide means whereby said slide may be held accurately in an adjusted position. As clearly shown in Fig. 1, the shank 1 is provided with teeth 33. The slide 24 carries a member 34 which is pivoted thereto at the point 35, said member 34 being provided with two outstanding finger pieces 36—36, while the member 25 is cut away as shown at 36^a in Fig. 1 so that a toothed projection 37 on the inner face of the member 34 may engage the teeth 33 of the shank 1. Moreover, the member 25 has attached thereto at the point 38 a spring 39 by which the projection 37 is normally drawn into engagement with the teeth 33 so as to hold the slide 23 in fixed position with relation to the shank 1. However, it will be seen that by pressing on the finger pieces 36 the member 34 may be lifted so as to disengage the part 37 from the teeth 33 whereupon the slide 23 may be easily and quickly adjusted.

If desired, I may provide a means for preventing the member 34 from being accidentally raised after the slide has been properly positioned, thus causing the adjustment of the wrench to be changed. In applying such means to my improved wrench I slot the member 25 as indicated at 53 in Fig. 5. The slot 55 is undercut along its edges for a portion of its length so that it may retain and afford a sliding seat for a clutch member 54, the edges of which project into the undercut portions of the slot. It will be seen also that the member 54 is bent as shown at 57 so as to provide a lip or finger adapted to fit over the reduced end 58 of the member 34 so as to hold the same and prevent its turning about its pivot. The member 54 likewise has upstanding finger lugs 56 by which it may be readily moved in the slot 55 whenever desired. Consequently, when the desired position of the slide 23 has been reached and 37 meshes with 33, 54 is pushed to the right, as in Fig. 5 by means of the lugs 56. Consequently the member 34 is held down by engagement

between the parts 57 and 28 and disengagement of the teeth 37 from 33 is prevented.

It will be noted, upon referring again to Fig. 1, that the shank 1 is provided with a recess 52 which is adapted to receive the surface 12 of the pivoted member 9 when the jaw 11 is in the wide open position. It will be seen also that the shank 1 is provided with a shoulder 53 which serves as a stop for the slide 23 at one end of its travel.

It is to be understood that in using my improved wrench, if it is intended to be used as a pipe wrench or as an end wrench, the member 34 is lifted by the finger pieces 36 and the slide 23 adjusted readily and rapidly so that the wedge 17 will throw the movable jaw 11 into position to engage the member being worked on, whether a nut or pipe, and thereupon the wedge 17 is adjusted by means of the nut 28 so as to bring the jaw 11 into close engagement with the work. It will be understood also that when using the wrench as an end or monkey wrench, the lever 42 is used in the position shown in Fig. 1, and the teeth 4 and 4' are so arranged as shown in Fig. 7 that the wrench may be used to screw a nut either on or off, the position of the wrench being inverted according as the nut is to be turned in one direction or the other.

It will be seen that the shape of the member 14 at the point 19 is such as to render the insertion of the wedge 17 thereunder an easy matter. Moreover the surface 12 of the member 9 is such that when the wedge 17 engages it, the jaw 11 is positively moved around the pivot 10 toward a closing position, the initial movement of the jaw 11 having been caused by the engagement between the finger 14 and the wedge 17.

It will be understood that while I have shown the plate 7 as separable from the shank 1, if so desired these parts may be cast integral. It will be seen also that while I have shown a flat spring for holding the jaw 11 normally in opened position, any other spring means may be substituted for the spring 20. In general, it will be understood that while I have shown and described the preferred form of my invention, I do not limit myself to the forms shown and described but contemplate all such modifications as are mechanically equivalent to the arrangement shown and described.

Having thus described my invention, what I claim is:—

1. A wrench comprising in combination, a shank, a fixed jaw in alignment with said shank, a movable jaw pivotally supported on said shank, a finger pivoted to said movable jaw, said movable jaw having a projection adapted to be engaged by said finger when turned in one direction around

its pivot whereby said finger is rendered rigid with said jaw when moved in one direction, and a wedge for insertion between said shank and said finger.

5 2. A wrench comprising in combination, a shank, a movable member pivoted to said shank provided with a jaw portion and having a cam actuated surface, a finger pivoted to said member, said member having a projection adapted to be engaged by said finger 10 when turned in one direction around its pivot, and a slide mounted on said shank, said slide being provided with means whereby it may be held in adjusted position 15 and also with a wedge portion adapted to contact with said finger and then with said cam surface for actuating said member.

20 3. A wrench comprising in combination, a shank, a movable member pivotally supported on said shank provided with a jaw portion and having a cam-like actuating

surface, a finger pivoted to said member, said member being provided with a projecting portion adapted to contact with said finger when the latter is moved in one direction about its pivot, a slide carried by said shank provided with means for holding itself in adjusted position on said shank, a wedge carried by said slide, means on said slide for adjusting said wedge, said wedge 25 being adapted to contact with said finger when the movable jaws are in wide open position and to contact with said cam surface after said jaw has been moved somewhat toward its closed position. 30 35

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

BERNARD VALENTINE APFELD.

Witnesses:

HAROLD SCANTLEBURG,
EDNA BROYLES.

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