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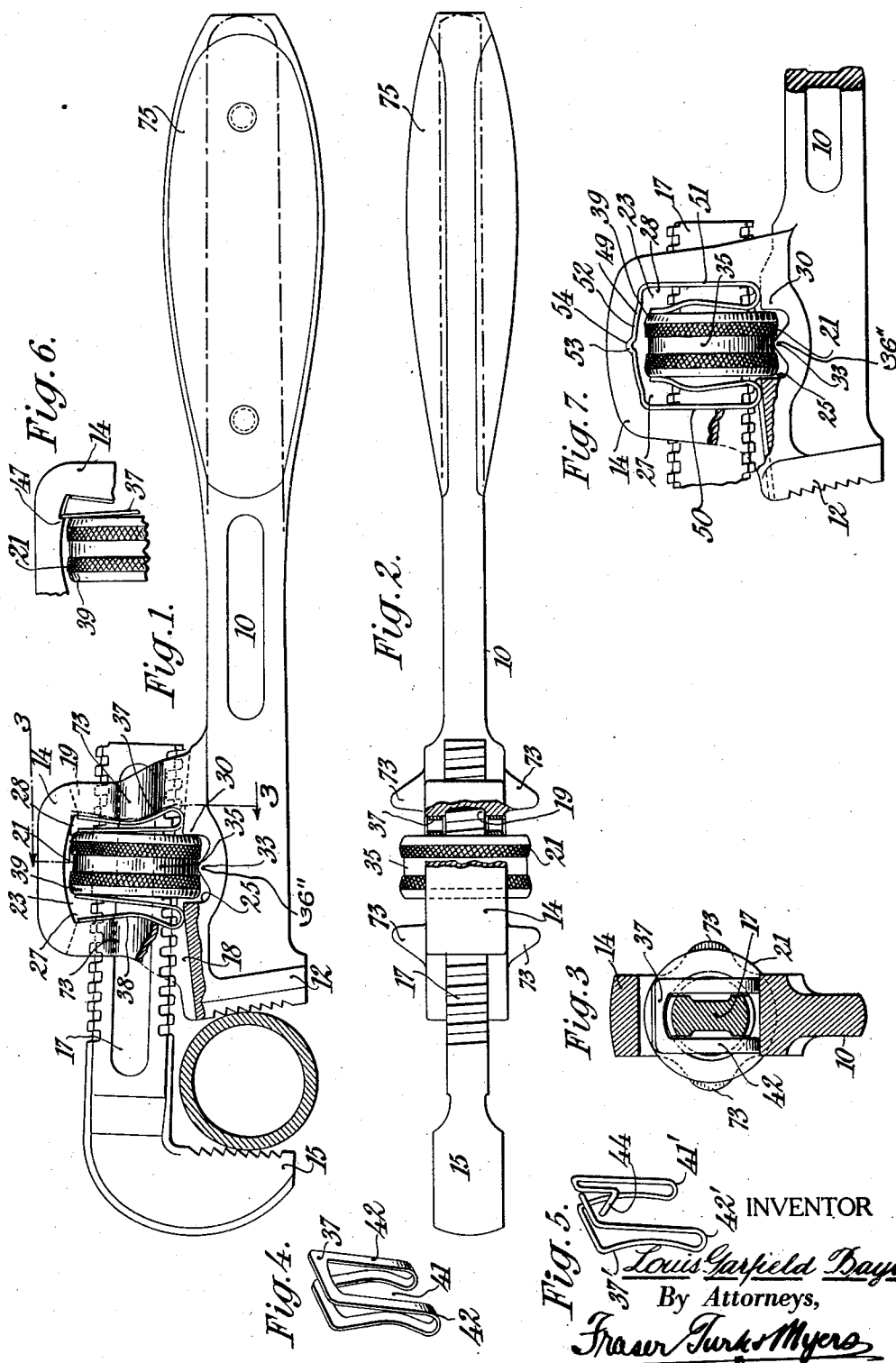
L. G. BAYRER

1,778,748

WRENCH

Filed April 14, 1923

3 Sheets-Sheet 1



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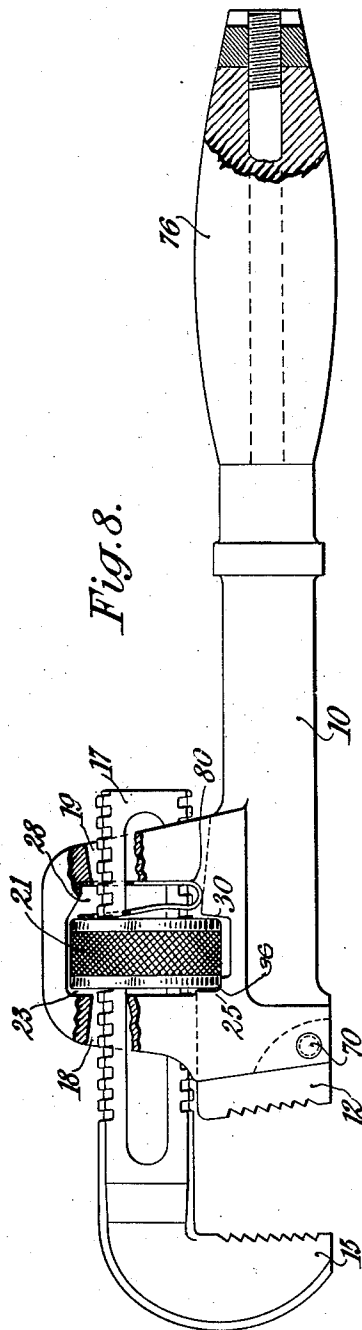
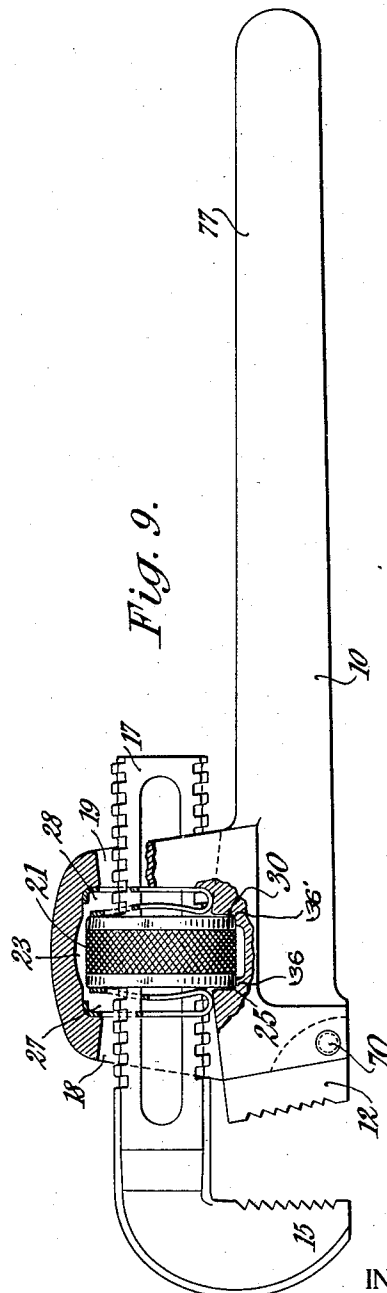
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Fig. 10.

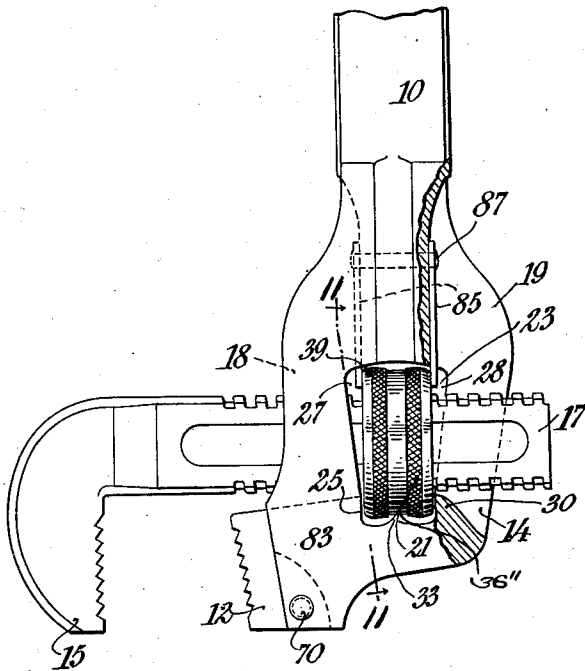
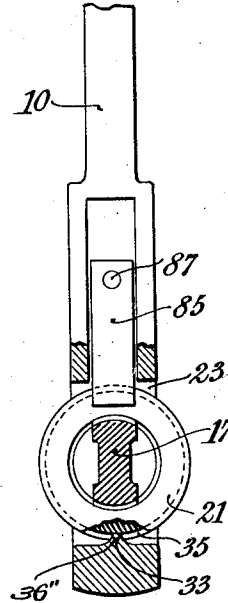
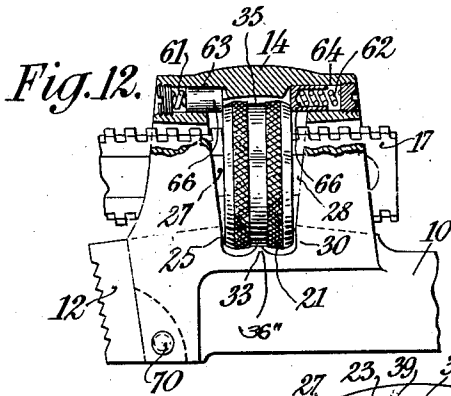
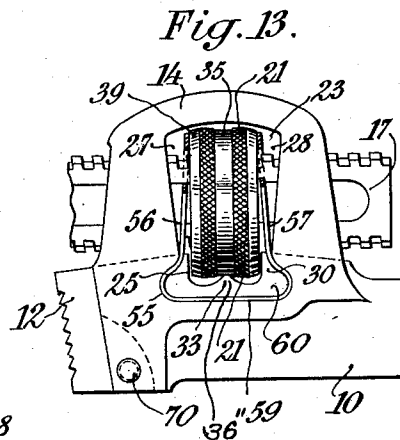
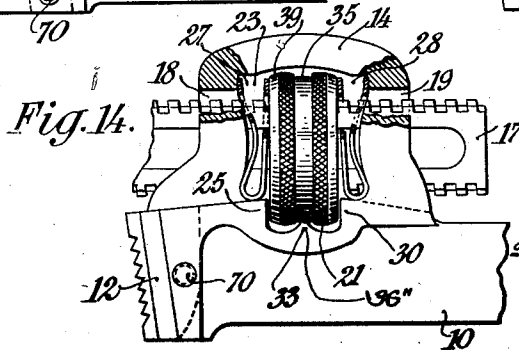


Fig. 11.



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UNITED STATES PATENT OFFICE

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WRENCH

Application filed April 14, 1923. Serial No. 632,062.

This invention relates to pipe wrenches having a Stillson or other action permitting a rocking of the movable jaw, and aims to provide improvements therein.

ing a double-acting single spring in place of the two springs shown in Fig. 1;

Fig. 8 is a view similar to Fig. 1, showing a second embodiment of wrench, the adjusting nut being shown as having a different fulcrum from that in Fig. 1;

Fig. 9 is a view similar to Fig. 8, showing a third embodiment, the wrench being shown as having the Stillson action and the nut as having a different fulcrum from that in Figs. 1 and 8;

Fig. 10 is a side view of a further embodiment of the invention;

Fig. 11 is a sectional view taken on the line 11—11 of Fig. 10; and

Figs. 12, 13, and 14 are views of parts of a wrench, and showing modified forms of spring arrangement.

Referring to said drawings, numeral 10 designates the handle of the wrench, having a stationary jaw 12 and a solid frame 14 thereon, and numeral 15 designates a movable jaw, guided in said frame 14. The movable jaw has a threaded shank 17 and the frame 14 is provided with corresponding openings 18, 19 for the passage of said shank 17.

The shank 17 of the movable jaw 15 has an adjusting nut 21 thereon, by which the movable jaw 15 may be moved or adjusted toward and from the fixed jaw 12, to fit pipes of various sizes, and the frame 14 is provided with an eye or opening 23 in which said nut 21 is located and through which it projects in a manner to be manipulated by the fingers of the user. The handle 10 has a solid abutment 25 against which the adjusting nut 21 is adapted to bear and on which the strains transmitted by the movable jaw 15 to the nut 21 are sustained. The handle 10 and frame 14 being solid provide a wide abutment 25, whereby a broad bearing surface is provided between the nut and abutment and a longer life of said abutment and the corner of the nut 21 obtained.

The shank 17 of the jaw 15 has a rocking action in said frame 14, so that the space between the jaws 12 and 15 is slightly increased or diminished by the rocking of said shank to admit of the fitting of the wrench to a pipe

5 The invention provides a wrench of maximum simplicity and strength, and embodying in combination many desirable features as regards the construction and use of the wrench.

10 The invention further provides a wrench which consists essentially of three parts, not counting the springs, the simple addition of a single acting spring being all that is required for obtaining a single rocking spring action, and a double acting spring (or two springs) being all that is required for obtaining a true Stillson spring action; and the construction of this wrench is such as to be readily susceptible to changes of the spring action, or the elimination of the spring action, to suit the preferences of users.

25 The invention further provides a wrench in which the play of the adjustment nut in the frame or guide is quite limited so as to reduce the amount of loose movement of the jaws toward and from one another, and in which turning of the adjusting nut while the wrench is lying around is prevented, thereby facilitating the use of the wrench.

30 Several embodiments of the invention are illustrated in the accompanying drawings, in which

35 Figure 1 is a longitudinal side view of a wrench according to one embodiment of said invention;

Fig. 2 is a top view of the wrench shown in Fig. 1, and

40 Fig. 3 is a cross-sectional view, in the line 3—3 of Fig. 1;

Fig. 4 is a detail perspective view of the spring shown in Fig. 1;

45 Fig. 5 is a detail perspective view of a wire spring which may be substituted for the flat form shown in Fig. 4;

Fig. 6 is a detail view of a part of the jaw frame and a spring, showing a slight modification of the construction shown in Fig. 1;

50 Fig. 7 is a side view of part of a wrench, similar to the construction of Fig. 1, show-

and of the gripping of the latter by the wrench, and the said frame 14 is provided with a space or spaces 27, 28 on one or both sides of the upper part of the nut 21 (according to whether the wrench has a single spring or a true Stillson action) to admit of the nut 21 rocking with the shank 17. The handle 10 is also preferably provided with an abutment 30 opposite the abutment 25, which limits the longitudinal play of the nut 21 in the frame, and hence limits the longitudinal movement of the shank (independent of its adjustment by turning of the nut 21). The variation of the distance apart of the two jaws 12 and 15 for any particular adjustment effected by the nut 21, is thereby very small and the repeated use of the wrench on pipes of the same size is much facilitated.

The adjusting nut 21, the shank 17 on which it is threaded, and the jaw 15 may be arranged to rock or fulcrum on a point 36 on the abutment 25 (Fig. 8), or on points 36, 36' on the abutments 25 and 30 (Fig. 9), or upon a point 36'' on a projection 33 (Figs. 1, 7, 10, 12, 13, 14) arranged preferably about the middle of the eye 23 so as to engage the middle of the nut 21. Where a central projection 33 is provided the nut 21 is conveniently provided with a groove 35 into which said projection 33 projects.

In Stillson and similar type wrenches the movable jaw is ordinarily held in a certain position with respect to the fulcrum around which it rocks, by means of springs acting against the pivoting frame in which the jaw works. In the present invention to obtain a similar result a spring or springs may be provided adapted to bear on one or both sides of the nut 21. As shown in Figs. 1-3, two separate springs 37, 38 may be provided, these springs being fitted into the spaces 27, 28 in the frame 14 on each side of the nut 21, and adapted to bear on said frame and on the part of said nut 21 opposite its fulcrum, as indicated at 39. These springs may be formed of sheet metal stamped out and bent so as to have the form shown in Fig. 4 with a central space 41 and legs 42 on each side thereof, so that when in position in said frame 14, the legs 42 straddle the shank 17, and are thereby held against lateral displacement while the shank is in place. The single springs indicated by numeral 37' may also be made of wire, as shown in Fig. 5. The springs 37' may have legs 41', 42' similar to the legs 41, 42 of spring 37 in Fig. 4, and may have in addition a projecting end 44 adapted to fit in the space between the inner side of the nut 21 and the side of the shank 17. This projection 44 serves to lock the nut and spring together and retards the slipping of the nut out of place in the eye 23 when the shank 17 is removed. In order to hold the springs 37, 38 in place in the frame 14, when both the shank 17 and nut 21 are re-

moved, the frame may be provided with a small shoulder 47 (Fig. 6) against which the leaf of the spring which ordinarily bears against the nut 21, is adapted to bear when the nut is removed. Instead of two springs 37, 38, a single spring 49 (Fig. 7) having parts 50, 51 on each side of the nut 21, may be provided. The parts 50, 51, may each be of substantially the form of the two springs 37, 38. The part 52 joining the parts 50, 51 may have a small projection or teat 53 adapted to fit a corresponding recess 54 in the frame 14. Another form of one-piece double-acting spring is shown at 55, Fig. 13, the parts 56, 57 on each side of the nut 21 being joined by two parts 59 passing under the nut at each side of the handle 10 and fitting in recess 60 in the sides of said handle. In Fig. 12 two spiral springs 61, 62 may be employed, these springs being housed in holes 63, 64 drilled in the upper part of the frame 14, these springs preferably bearing indirectly on the sides of the nut 21 through cylindrical shoes 66.

The fixed jaw 12 may be formed integrally on the handle 10, as shown in Figs. 1 and 7, or it may be formed separately and attached to the handle by a mortise, tenon and pin joint, as indicated by numeral 70, Figs. 8, 9, 10, 12, 13, and 14.

The springs 37, 38 (or any of the other springs or spring used) may be arranged to press on the adjusting nut 21 in the neutral or passive position of the shank 17, in such manner as to bear frictionally on said nut and retard its movement, so that when the wrench is put down and pushed around incidental to its use, the adjustment of the movable jaw 12 will not be disturbed.

Moreover the frame 14 may be provided with lateral projections 73, (Figs. 1-3) extending slightly beyond the rim of the nut 21, to prevent the nut from contacting with a flat surface, such as a floor, when laid down and pushed around, and thereby prevent the nut from turning and changing the adjustment of the jaws 12 and 15.

The handle 10 may be provided with any suitable hand-grip, such as the "knife handle" type 75 shown in Figs. 1 and 2, the conventional Stillson type 76 shown in Fig. 8, or the plain type 77 shown in Fig. 9.

The wrench in Fig. 8 has its shank 17 adapted to rock to only one side of its position of rest, and the spring 80 (which may be similar to the spring 37 in Fig. 5) acts on only one side of the adjusting nut 21. The bearing shoulder 25 on the handle 10 also serves as the fulcrum on which the nut turns.

The wrench in Fig. 9 has the Stillson action, differing from the construction of Figs. 1 and 2 principally in that the nut 21 fulcrums on the two shoulders 25, 30.

The wrench in Figs. 10 and 11 has the Stillson action, the frame 14 being formed as

a part of the handle 10, the handle 10 being extended at an angle of 90° to the shank 17 of the movable jaw 15, and the fixed jaw 12 being located on one end of the frame, as indicated at 83. The spring or springs 85 may be attached directly to the handle or stock, as indicated at 87.

The wrenches are used similarly to the ordinary Stillson or other types of rockable jaw wrenches. If a workman does not desire one or both spring actions, he has simply to remove the spring or springs, to suit his preference.

The inventive ideas herein set forth may receive other embodiments than those herein specifically illustrated and described.

What I claim is:—

1. A pipe wrench comprising a movable rockable jaw, a handle having an integral frame for said jaw, a nut for adjusting said jaw, the jaw and nut being capable of a rocking movement in said frame, and spring means bearing on said nut near the top thereof for resisting rocking movement of said jaw in two directions.

2. A pipe wrench comprising a movable rockable jaw, a handle having a frame for said jaw, a nut for adjusting said jaw, there being an eye in said frame for said nut, said eye having a space permitting rocking movement of the nut and jaw, and spring means in said space adapted to bear on opposite faces of said nut for resisting rocking movement of the nut and jaw and to hold said parts in a neutral position.

3. A pipe wrench comprising a movable rockable jaw, a handle having an integral frame for said jaw, a nut for adjusting said jaw, there being an eye in said frame for said nut, said eye having a space permitting rocking movement of the nut and jaw, and a spring in said space adapted to bear on said nut near the top thereof for resisting rocking movement of the nut and jaw, an abutment on which said nut rocks, and means opposite said abutment for limiting the movement of said nut away from said abutment.

4. A pipe wrench comprising a movable rockable jaw, a handle having an integral frame for said jaw, a nut for adjusting said jaw, there being an eye in said frame for said nut, said eye having a space permitting rocking movement of the nut and jaw, and a spring in said space adapted to bear on said nut for resisting rocking movement of the nut and jaw, an abutment on which said nut rocks, and said eye being restricted opposite said abutment to confine the said nut against displacement from said abutment.

5. A pipe wrench comprising a movable rockable jaw, a handle having an integral frame for said jaw, a nut for adjusting said jaw, there being an eye in said frame for said nut, said eye having a space permitting rocking movement of the nut and jaw in two di-

rections, and a spring in said space adapted to bear on said nut for resisting rocking movement of the nut and jaw and to hold said parts in a neutral position, said spring having means thereon for engaging said nut to prevent accidental turning thereof.

6. A pipe wrench comprising a movable rockable jaw, a handle having an integral frame for said jaw, a nut for adjusting said jaw, there being an eye in said frame for said nut, said eye having a space permitting rocking movement of the nut and jaw, and a spring in said space adapted to bear on said nut near the top thereof for resisting rocking movement of the nut and jaw, said spring having means thereon for engaging said nut to prevent accidental turning thereof, said spring fitting into said space, and means for preventing displacement of said spring.

7. A pipe wrench comprising a movable rockable jaw, a handle having a frame for said jaw, a nut for adjusting said jaw, there being an eye in said frame for said nut, said eye having a space at each side of said nut permitting rocking movement of the nut and jaw, and a spring in said eye adapted to bear on said nut for resisting rocking movement of the nut and jaw, said spring extending into the space at each side of said nut and bearing on two sides of said nut.

In witness whereof, I have hereunto signed my name.

LOUIS GARFIELD BAYRER.