

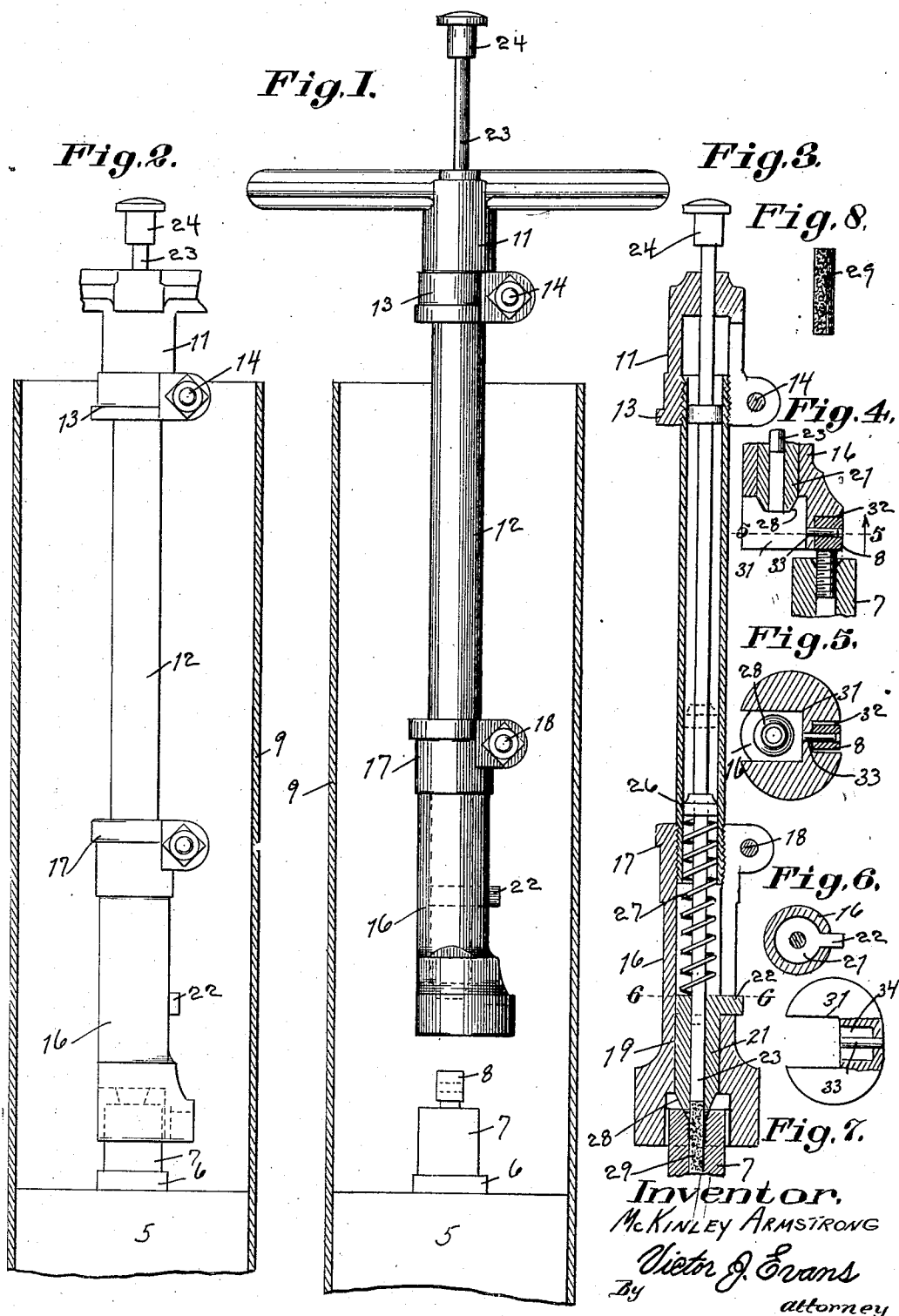
July 21, 1931.

McKINLEY ARMSTRONG

1,815,755

WRENCH

Filed Dec. 29, 1926



## UNITED STATES PATENT OFFICE

MCKINLEY ARMSTRONG, OF SAN PEDRO, CALIFORNIA

## WRENCH

Application filed December 29, 1926. Serial No. 157,847.

This invention relates to improvements in wrenches, and has particular reference to a wrench for use with merco valves, which valves are customarily placed a considerable distance under the ground.

The principal object of this invention is to provide simple means for inserting the lubricant in the valve stem and to afterwards return the parts to their normal position.

Another object of this invention is to produce a tool of this character which is simple in construction and therefore economical to manufacture.

A further object is to produce a tool which may be used by an unskilled workman.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification, and in which like numerals are employed to designate like parts throughout the same,

Figure 1 is a vertical cross-section of a casing, the upper extremity of which corresponds to the ground level, within which my wrench is shown,

Figure 2 is a view similar to Figure 1 showing the wrench upon the valve,

Figure 3 is a vertical cross-section of my wrench,

Figure 4 is a fragmentary detail view showing the lower extremity of my wrench,

Figure 5 is a cross-section taken on the line 5-5 of Figure 4,

Figure 6 is a cross-section taken on the line 6-6 of Figure 3,

Figure 7 is a modified form of the valve engaging portion of my wrench, and

Figure 8 is a side elevation of a grease slug.

Many large valves which are located in pipe lines require lubrication in order to facilitate their easy operation. It often occurs that it is impractical to install a manhole in order to permit easy access to these valves.

It therefore happens that a six inch casing is placed over the valve, the upper end of the casing being even with the surface of the ground, and after installation it is generally a difficult matter to reach down in this casing to remove the screw in the top of the valve to

then insert the grease slug, and to thereafter return the screw to the top of the valve.

In order to overcome these difficulties I have provided a special type of wrench as shown in the accompanying drawings wherein it will be noted that the numeral 5 designates the top of a pipe line having a valve 6 positioned therein, which valve has a stem 7 and a screw plug 8. The numeral 9 designates the customary casing above referred to.

My wrench consists of a T-shaped head 11 threaded upon a pipe 12 and held in engagement therewith by a contractable collar 13 having a tightening screw 14. To the lower extremity of the pipe 12 I secure a foot piece 16 having a contractable collar 17 which is contracted through the medium of a bolt 18. This foot piece 16 is provided with a bore 19 within which is slidably mounted a slug carrier 21 having a lug 22 formed integral therewith. This slug carrier is hollow and adapted to receive the lower extremity of a pusher rod 23, which rod extends upwardly through the pipe 12 and through the head 11, and has formed upon its upper extremity a button 24.

A collar 26 is carried upon the rod 23 and contacts a spring 27, the lower end of which spring rests upon the upper end of the slug carrier as illustrated in Figure 3.

It will be noted that the lower end of the slug carrier is tapered as shown at 28 so that the same will make better register with the opening out of which the screw 8 is taken.

At 29, in Figure 8, I have shown a grease slug the use of which will be later seen.

The foot piece 16 has formed in its lower extremity two substantially rectangular recesses as shown at 31 and 32 (see Figure 5). The recess 32 is substantially the same size as the head of the screw 8 and has a pin 33 extending into the recess. The size of the recess 31 is substantially the same as that of the valve stem 7.

In Figure 7, I have shown a modified form of the invention wherein the recess 34 corresponds to the recess 32 and is in communication with the recess 31. This makes a slightly more compact structure and is a necessity in working with large valves positioned within

a six inch casing. The operation of both forms is identical.

The manner of using my wrench is as follows:—

5 Assuming that it is desired to lubricate a valve, the wrench is placed within the casing so that the foot piece overlies the stem 7 in such a manner that the recess 31 engages the stem. By now rotating the wrench through  
10 the medium of the T-shaped head 11, the stem 7 may be rotated and the valve shut off. By now slightly lifting the wrench and re-engaging the same so that the head of the screw 8 lies within the recess 32, the pin 33 extending through a hole provided in the top of the  
15 screw, the same may be now rotated until it is freed from the stem 7, after which the wrench as a whole may be lifted from the casing and the screw will be then supported  
20 in the wrench and hanging upon the pin 33.

A slug of grease is now inserted in the slug carrier and the entire wrench again inserted through the valve as indicated in Figure 3.

By now pressing upon the button 24 motion  
25 may be transmitted through the rod 23 against the tension of the spring 27 with the result that the slug of grease will be ejected from the slug carrier into the passage out of which the screw 8 was taken.

30 As soon as this has been accomplished the wrench is again withdrawn from the casing, the screw 8 placed upon the pin 33 and replaced in the valve in the same manner in which it was removed.

35 It will thus be seen that with this wrench, it is possible to effectively grease valves of this type with a minimum amount of effort and with the assurance that the screw will not be dropped in the process of removing the  
40 same and replacing, which is quite a factor to consider.

It is to be understood that the forms of my invention herewith shown and described are  
45 to be taken as preferred examples of the same, and that various changes relative to the shape, size, material, and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the sub-  
50 joined claim.

Having thus described my invention, I claim:—

55 In a wrench of the character described having a foot piece, said foot piece having a recess formed therein, said recess being in axial alignment with the vertical axis of said tool, means for rotating said tool about the vertical axis, a second recess formed in said foot piece, said second mentioned recess being offset with  
60 respect to the vertical axis of said tool, and a pin positioned in said second mentioned recess, said pin being horizontally disposed with relation to the vertical axis of said tool.

In testimony whereof I affix my signature.

65 **McKINLEY ARMSTRONG.**