The present invention relates to valves and has more particular relation to a stuffing box gland and wrench assembly for valves of the type in which the valve member is operated by a valve actuator shaft extending outwardly through a stuffing box.

One object of the present invention is to provide a novel and improved stuffing box gland and wrench assembly for use in faucets and like valves, in which the valve member is operated by an actuator shaft extending through a stuffing box formed on the valve body, for holding the packing tight in the stuffing box and for opening the valve and locking it in any desired open position.

Another object of the present invention is to provide a stuffing box gland and wrench assembly, as characterized above, wherein cooperating means are provided on the gland and wrench for tightening the gland in the stuffing box.

Another object of the invention is to provide a stuffing box gland and wrench assembly which is simple and durable in construction and which is readily adapted to be operably mounted on most faucets currently employed on tank trucks for dispensing gasoline and other types of fluids.

Other objects and advantages of the invention will appear in the following specification when considered with the accompanying drawings, wherein:

Fig. 1 is a front elevational view of a self-closing faucet of the type commonly employed on tank trucks for dispensing gasoline, showing one embodiment of a stuffing box gland and wrench assembly, constructed in accordance with the present invention, operatively mounted thereon;

Fig. 2 is a side elevational view of the apparatus shown in Fig. 1, but with the wrench omitted;

Fig. 3 is a side elevational view of the stuffing box gland and wrench assembly shown in Fig. 1, with the gland and wrench assembled for operating valve actuator shaft of the faucet;

Fig. 4 is a view similar to that shown in Fig. 3, but showing the wrench and gland assembled for tightening the stuffing box gland in the stuffing box; and

Fig. 5 is a vertical longitudinal sectional view of the stuffing box gland shown in Figs. 3 and 4.

The present invention provides a novel and improved stuffing box gland and wrench assembly for use in faucets and like valves, in which the valve member is operated by an actuator shaft extending through a stuffing box formed on the valve body, for holding the packing tight in the stuffing box and for opening the valve and maintaining it in any desired open position.

While the stuffing box gland and wrench assembly is adapted for use in any faucet or valve of the type referred to above, it is particularly designed for use in self-closing faucets and like valves of this type commonly employed on tank cars and trucks for dispensing gasoline and like fluids, and for purpose of illustration, it has been shown and described as used in a self-closing faucet of this type. Referring now to the drawings, there is shown, in Fig. 1, a faucet 10 having a wrench and stuffing box gland assembly 11, constructed in accordance with the present invention, operatively mounted thereon.

The faucet 10 is of the self-closing type designed especially for dispensing gasoline or other liquids from a tank truck. As shown in Fig. 1, the faucet 10 is similar to the faucet shown in U. S. Patent No. 1,998,914, issued on April 23, 1935, to Abraham Wheaton for Safety Wrench for Faucets and Like Valves, and comprises a faucet body 12 having an interior chamber 13 into which leads an intake connection 14 and from which depends an outlet connection or conduit 15; a valve seat 16 formed intermediate the inlet and outlet connections; a housing 17 formed on the upper part of the faucet body and opening thereinto; a valve member 18 having a stem 19 which projects upwardly into the housing 17; a coiled spring 20 mounted within the housing 17 and surrounding said stem 19 resiliently urging the valve 18 onto its seat 16 to normally maintain the faucet closed; a laterally extending stuffing box 21 formed on the faucet body and provided with suitable bearings in which is journaled a valve actuating cam shaft 22, having a squared outer end adapted to receive a wrench for operating the shaft and the valve against the closing pressure of the spring 20, and carrying a lift cam 23 on its inner end which enters a slot in the valve stem, thereby operating, when the shaft 22 is properly turned, to lift the stem and valve member off its seat.

The stuffing box gland and wrench assembly 11 is shown as comprising a stuffing box gland 24 adapted to be threadedly secured in the stuffing box 21 of the faucet with the valve actuator shaft 22 extending through it; and a wrench 25 adapted to be detachably and reversibly mounted on the gland 24.

In the particular embodiment of the invention illustrated, the stuffing box gland 24 is shown as comprising a cylindrical member having an enlarged cylindrical head 26 formed on one end portion and with the other end portion 27 provided with external threads. The gland has an axial bore 28 extending therethrough with the portion of the bore 26 being enlarged to form a recess or socket 29. The enlarged cylindrical head 26 of the gland has a plurality of circumferentially spaced longitudinally extending slots 30 formed on its outer surface.

The gland 24 is adapted to be mounted on the valve with the threaded end portion 27 threadedly secured in the outer end of the stuffing box through which the valve actuator shaft extends in position to compress the packing in the stuffing box and with the valve actuator shaft extending through the gland.

The wrench 25 is shown as comprising an elongated member 31 generally flat and narrow, and having a pair of laterally extending integral bosses 32, 33 formed on one end portion, one on each side of the member and projecting outwardly therefrom in opposed directions. Each of the bosses is of a size and shape to be received in the recess or socket 29 which forms a socket in which either boss may be rotatably mounted.

The boss 32 is provided with an axial inwardly extending recess 34 in which the outer end of the valve actuator shaft is adapted to be received and engaged to permit the wrench to turn the shaft. The internal wall of the recess 32 is shaped to conform to the shape of the outer end of the valve actuator shaft, which usually is polygonal in cross section. As shown, the recess 32 is rectangular in cross section.

The boss 33 is provided with an axial inwardly extending recess 35 in which the outer end of the valve actuator shaft is received. The recess is generally cylindrical and has a diameter sufficiently large to permit the boss to be freely rotated about the end of the valve actuator shaft.
If desired, and as shown, the recesses 34 and 35 formed in the two bosses may open into each other to facilitate their being cleaned out in the event either recess becomes clogged up with foreign substances.

A thumb operated locking lever 36 is pivotally mounted on the side face of the wrench below the boss 32. The lever has its pivot intermediate its ends and has one end portion 37 provided with a tooth-like edge 38 adapted to engage in the slots 30 formed on the head 26 of the stuffing box gland 24 when the wrench is mounted on the gland with the boss 32 received in the socket 29 of the gland. The other end portion 39 extends upwardly and has a lateral flange 40 formed thereon. A coiled spring 41 having one end mounted in a recess 42 formed in an edge of the wrench and its other end mounted in a recess 43 formed in the bottom surface of the flange 40, normally maintains the tooth-like edge of the lever pressed against the outer surface of the boss 32 or in one of the slots 30 in the head of the gland, when the wrench is moved on the gland for turning the valve actuator shaft.

A ridge-like protuberance 44 is formed on the face of the wrench below the boss 33. The ridge 44 is of a size and shape to fit into the slots 30 formed on the head of the gland when the wrench is moved on the gland with the boss 33 received in the recess or socket 29 formed in the head of the gland so that the gland can be tightened in the stuffing box by turning the wrench.

The portion of the member 31 below the ridge 44 forms a handle 45 for turning the wrench when it is mounted on the stuffing box gland.

The manner in which the stuffing box gland and wrench assembly is mounted on the faucet and operated is believed apparent.

As shown in Figs. 1 and 2, the stuffing box gland 24 is placed over the outer end of the valve actuator shaft 22 and screwed into the outer internally threaded end of the stuffing box 21. Then the wrench 25 is mounted on the gland with the boss 33 fitted into the socket 29 of the gland and the outer end of the actuator shaft 22 received in the recess 35 of the boss. In this position, the ridge 44 of the wrench is received in one of the slots 30 on the gland head and, by turning the wrench in a clockwise direction, or to the right as viewed in Fig. 2, the gland can be tightened in the stuffing box, compressing the packing therein until there is no leakage of fluid around the valve actuator shaft.

A stuffing box gland has been sufficiently tightened so that there is no leakage of fluid around the valve actuator shaft, the wrench is reversed on the gland so that the boss 32 is mounted within the socket 29 of the gland, with the square outer end of the valve actuator shaft engaged in the recess 34 of the boss 32. In this position, the end portion 37 of the thumb operated latching lever or pawl extends over the head of the gland with the tooth 38 of the lever positioned to be received in any one of the slots 30 formed on the head of the gland as the wrench is turned. Then, by turning the wrench counter-clockwise, or to the left as viewed in Fig. 2, the valve actuator shaft will be turned to open the faucet valve 18 against the pressure of the spring 20. As the wrench is turned to open the valve the tooth 38 of the locking lever 36 will successively engage in the slots 30 in locking pawl-like action and be resiliently held therein by the action of the spring 41, thereby preventing the valve actuator from being turned in a direction to close the valve, and permitting the valve to be locked in any desired position as determined by the spacing of the slots 30. The number and lateral spacing of the slots 30 are such that the valve can be locked in a 100% open position and in open position of lesser degree.

When it is desired to close the valve, the toothed end of the locking lever is raised out of engagement with the slot 30 by pressing down on the flange 40 of the lever. The flange 40 being so positioned as to be readily engaged by the thumb of the attendant operating the wrench.

While the wrench may be detached from the stuffing box gland when it is not to be used, it is contemplated that the wrench will be left in mounted position on the gland at all times as it will not readily become detached therefrom.

From the foregoing, it readily will be seen that there has been provided a novel and improved stuffing box gland and wrench assembly for use in faucets and like valves, in which the valve member is operated by an actuator shaft extending through a stuffing box formed on the valve body, for holding the packing tight in the stuffing box and for opening the valve; an assembly which provides means for readily tightening the packing around the valve actuator shaft; and means for locking the valve in full open position or any desired lesser open position.

Obviously, the invention is not restricted to the particular embodiment thereof herein shown and described.

What is claimed is:

1. For use in a self-closing faucet for dispensing gasoline and the like of the class wherein the valve is normally maintained in a closed position means and is moved to open position by an actuating shaft extending through a stuffing box formed on the valve body; the combination with said stuffing box of means for rotating said actuating shaft in a direction to open said valve and hold the shaft in the position to which it has been rotated including a gland mounted in said stuffing box with said actuation shaft projecting therethrough, said gland having an enlarged cylindrical head formed on its outer end and having the portion of its bore within said head enlarged to form a socket; an elongated wrench having a laterally projecting boss provided with an axial recess formed on one end portion, said boss being rotatably mounted within said socket with the outer end of said actuating shaft received in said recess to permit said wrench to turn said actuating shaft in a direction to open said valve; and cooperating locking means carried by said gland and said wrench for holding said actuating shaft in the position to which it has been turned by said wrench.

2. Apparatus as set forth in claim 1, wherein said cooperating locking means includes a locking member movably mounted on said wrench and having a tooth-like end portion positioned to engage the cylindrical head of said gland, said head having a plurality of circumferentially spaced recesses formed in its outer surface; and resilient means normally holding said locking member in engagement with said head so that the tooth-like end portion of said locking member will be urged into said recesses in a locking pawl-like action as said wrench is turned to open said valve, whereby said valve may be locked full open and in any one of a lesser open position as determined by the spacing of said recesses.

3. Apparatus as set forth in claim 2, wherein said locking member is in the form of a lever pivotally mounted intermediate its ends on the side of said wrench below said boss.