Aug. 23, 1938. W. SIEGERT 2,128,059

FUSIBLE STOP FOR FAUCETS

Filed April 6, 1936

Fig. 1.

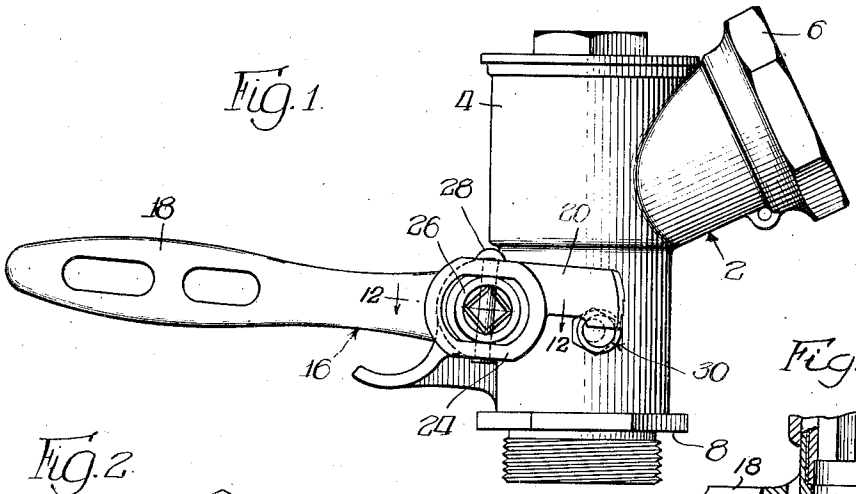


Fig. 12.

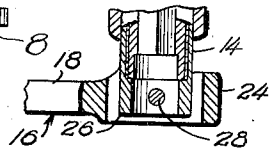


Fig. 2.

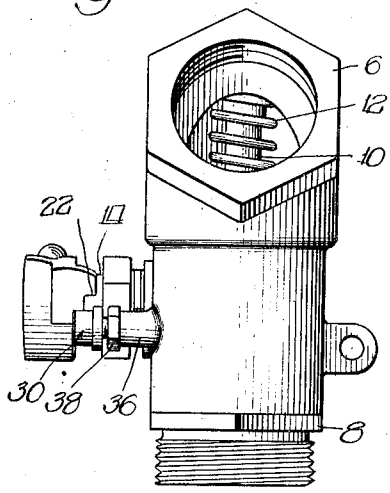


Fig. 3.

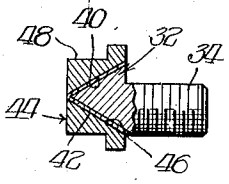


Fig. 4.

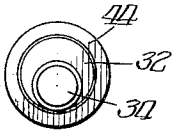


Fig. 7.

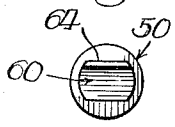


Fig. 5.

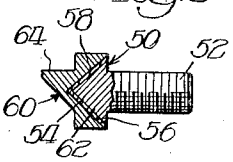


Fig. 9.

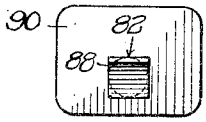


Fig. 8.

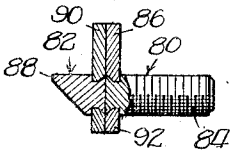


Fig. 6.

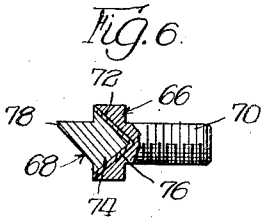


Fig. 11.

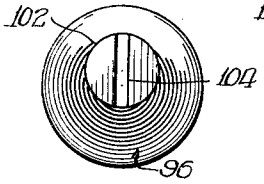
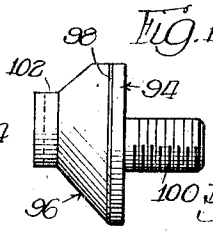


Fig. 10.



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UNITED STATES PATENT OFFICE

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FUSIBLE STOP FOR FAUCETS

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Application April 6, 1936, Serial No. 72,955

26 Claims. (Cl. 137—162)

The present invention relates to self closing faucets or similar valve mechanisms, and more in particular to novel operating means therefor.

Faucets of the self closing type have a plurality of uses and are particularly adapted for use in discharging gasoline, fuel oils, and the like from vehicle tanks, reservoirs and other similar containers. This type of valve is normally closed by suitable mechanism which operates the valve to close the faucet. Discharge of liquid therethrough is usually effected by means of a removable wrench which operates to unseat the valve to permit the discharge of liquid therethrough. When this type of faucet is provided for discharging liquids from vehicle tanks and the like, it is intended that the driver should hold the faucet open until the desired quantity of liquid from the vehicle tank has been discharged. In practice, however, these instructions are not followed, and in order to be relieved of continuously holding the valve in open position, the driver secures the wrench or valve operating means in an open position by either propping or tying it up. This is a vicious practice inasmuch as the valve being secured in open position greatly increases the fire hazard, should a fire start, because even though the driver is able to drive the truck away from the fire, a stream of inflammable liquid would follow the truck tank with serious consequences.

It is therefore an object of the present invention to provide a novel operating means for holding the valve open in a faucet of the self closing type and which will be released in case a fire starts.

More particularly, the present invention includes as an object the idea of providing a novel operating means for the valve of a faucet of the self closing type which is adapted to be operated for holding the valve in open position under normal conditions and which means is released upon the application of heat in the event a fire starts in the vicinity of the faucet.

The present invention also contemplates the idea of providing novel stop means for a faucet of the self closing type adapted to cooperate with an operating handle or wrench for normally holding the wrench in an open position, which stop means is so formed as to release the handle upon the application of heat to the stop means.

Still another object of the present invention is to provide novel stop means for an operating wrench or handle of a faucet of the self closing type, which stop means comprises a plurality of parts suitably secured together by fusible material having a low melting point, which material is melted upon the application of heat to separate said parts and to permit release of the handle to close the valve of the faucet.

Other objects, features, capabilities and advantages are comprehended by the invention, as will later appear and as are inherently possessed thereby.

Referring to the drawing:

Figure 1 is a view in side elevation of a faucet of the self closing type, disclosing novel operating mechanism made in accordance with the present invention;

Figure 2 is an end view in elevation of the self closing faucet of Figure 1 of the drawing, disclosing also in end elevation the novel operating mechanism of Figure 1;

Figure 3 is a view in side elevation of novel stop means made in accordance with the present invention and having parts broken away to disclose the construction thereof more in detail;

Figure 4 is a view in end elevation of the stop means of Figure 3 of the drawing;

Figures 5 and 6 are views in side elevation of modified forms of stops, the same having parts broken away to disclose the construction thereof more in detail;

Figure 7 is a front end view of the stop means of Figures 5 and 6 of the drawing;

Figure 8 is a view in side elevation of still another form of stop means, with parts broken away to disclose the construction thereof more in detail;

Figure 9 is a front view in elevation of the stop means of Figure 8 of the drawing;

Figure 10 is a view in side elevation of still another form of stop means made in accordance with the present invention;

Figure 11 is a front view in elevation of the stop means of Figure 10 of the drawing; and

Figure 12 is a fragmentary view in cross-section taken in the plane represented by line 12—12 of Figure 1 of the drawing.

Referring now more in detail to the drawing, novel operating means made in accordance with the present invention is disclosed in association with a faucet 2 of the self closing type, this faucet including a housing 4 having a fitting 6 adapted to be connected to a tank reservoir or the like, and a discharge fitting 8 whereby liquid may be discharged from the tank and directed to any suitable receptacle. Disposed within the housing 4 and controlling the flow of liquid through the communicating passageways through the housing 4 is a valve (not disclosed) which is

provided with a stem 10 around which is disposed a coil spring 12 seating at one end with the valve and at the other end with the housing to normally urge the valve into closed position. The valve is normally operated to open the same by means of a rotatable spindle 14 which extends laterally of the housing 4 and which is provided with a non-circular end whereby the same may be rotated by suitable operating mechanism.

The operating mechanism disclosed in the present application comprises a wrench 16 having a handle portion 18 at one end which may be readily grasped by an operator and being provided with a locking lug portion 20 at the other end thereof which is formed with stepped locking lugs 22 on the inner face thereof. Intermediate the portions 18 and 20 of the wrench is an enlarged socket receiving portion 24 adapted to embrace the socket member 26, this socket 26 being formed with a non-circular opening adapted to embrace the non-circular end of the valve spindle 14 and also being pivotally or rotatably mounted in the socket receiving portion 24 as by means of a rivet or the like 28, said rivet 28 allows member 20 to swing downwardly and glide over cone 32 in case member 46 has fused.

As heretofore pointed out, the present invention relates to novel operating means for faucets of the self closing type, which means includes a stop adapted to cooperate with the wrench 16 for holding the same in valve opening position under normal conditions, but also adapted to release the wrench to close the valve under abnormal conditions, as for example, should a fire start adjacent the faucet with the evolution of heat. In the present invention the stop means 30, disclosed in Figures 1 and 2 of the drawing and more clearly shown in detail in Figures 3 and 4 of the drawing, comprises a multi-part lug in which one of the parts 32 is provided with a threaded shank 34 which may be screwed into a threaded lug 36 projecting from the housing 4 of the faucet, a lock nut 38 being provided to positively secure the shank 34 within the lug 36. The part 32 is further provided with an oppositely disposed portion provided with a cone forming surface 40, which surface is adapted to cooperate with and seat on a complementary surface 42 defining a recess in another part 44 of the stop or lug assembly. Disposed between the surfaces 40 and 42 is fusible material 46 which serves to connect the parts 32 and 44 together. This fusible material may be of any suitable metal alloy, shellac or the like, the material being selected because of its low melting point and having the property of holding the parts 32 and 44 together until the application of heat, whereupon the same melts or fuses to permit release of the part 44 from the part 32. As shown in Figure 3 of the drawing, the part 44 is provided with a locking shoulder 48 adapted to be engaged by any one of the lugs 22 of the locking lug portion 20 of the wrench 16. It will be noted that the surfaces 40 and 42 are so formed as to provide truncated cone structures and that part 32 extends through and is flush with the face of part 44, although it will be appreciated that surfaces 40 and 42 may be formed to provide the same structure wherein the recess formed by surface 42 terminates in spaced relation to the outer face of part 44.

When it is desired to open the valve in the faucet 2, the wrench 16, which is normally removed from association with the faucet 2, is grasped by the operator and the socket 26 placed over the end of the spindle 14. Inasmuch as the socket 26 is pivoted to the wrench 16, the spindle 14 may be rotated without locking the part 20 of the wrench engaging the stop secured to the lug 36. After the spindle has been rotated sufficiently to open the valve against the action of coil spring 12, the wrench 16 may be rotated about rivet 28 with respect to the socket 26 whereby one of the lugs 22 engages shoulder 48 of the stop assembly. When the wrench is locked in its valve opening position, discharge of liquid through the faucet is continuous and does not necessitate the immediate and continued supervision of the operator. Should a fire start in the vicinity of the faucet 2 with the evolution of heat, such heat, in striking the stop assembly, would cause the fusible material to melt, permitting displacement of part 44 from part 32 of the stop means. Upon the fusing of the material 46, the part 44 would become disengaged from part 32, thereby releasing the handle 18 and permitting the closing of the valve under the action of coil spring 12.

It will be noted that the cooperating cone forming surfaces of parts 32 and 44 facilitate displacement of part 44 with respect to part 32 when the material 46 is fused. It will also be noted that the axes of the cone forming surfaces are offset with respect to the axis of the threaded shank 34, this eccentric relation of the surfaces in respect to the axis of the threaded shank being desirable because it is necessary to have some adjustment of the stop or lug to compensate for variations in measurements of the machined component parts of the faucet. Therefore, in order to get the maximum lift of the valve off of its seat, it is necessary in certain instances in assembling these faucets to raise or lower the stop point by adjustment of the stop or lug.

Figures 5 and 6 disclose in detail modified constructions for stop assemblies adapted for use in the mechanism disclosed in Figures 1 and 2 of the drawing. In Figure 5 the stop is of multi-part construction, the part 50 comprising a threaded shank 52 and a portion 54 formed with a cone forming surface 56, this portion 54 being received within a recess 58 of another part 60, the recess 58 being defined by a cone forming surface complementary to surface 56. Parts 50 and 60 are normally secured together by any suitable fusible material 62 and the threaded shank 52 of the stop mechanism is adapted to be received in a lug, such as lug 36 of Figures 1 and 2 of the drawing. Part 60 is further formed with a locking shoulder 64 engageable with any of the lugs 22 of the wrench 16.

The stop mechanism disclosed in Figure 6 of the drawing corresponds essentially to that of Figure 5 and is of multi-part construction comprising parts 66 and 68. Part 66 is formed with the threaded shank 70 and with a recess defined by the cone forming surface 72, which recess is adapted to receive portion 74 of part 68, which portion is provided with a cone forming surface complementary to the cone forming surface 72. As in the previous embodiments, parts 66 and 68 are normally secured together by fusible material 76 and part 68 is further provided with a locking shoulder 78.

Figures 8 and 9 disclose in detail still another modified construction for the stop assembly, the same including parts 80 and 82. Part 80 comprises a threaded shank 84 to which at one end is secured a plate member 86. Part 82 is formed

with a locking shoulder 88 and has secured thereto a plate 90 corresponding essentially to plate 86. It will be noted that plates 86 and 90 are secured to parts 80 and 82 by the opposite abutting ends of said parts, and in accordance with the present invention the parts 80 and 82 are normally secured together by suitable fusible material 92 disposed between the plates and the abutting ends of the parts. As in the previously disclosed embodiments, melting of the fusible material permits displacement of part 82 with respect to part 80 to permit release of the wrench 16.

Figures 10 and 11 disclose still another modified construction for the stop assembly, the same comprising parts 94 and 96, which parts are provided with cooperating extending plane surfaces secured together as by means of fusible material 98. In this embodiment, part 94 is provided with the threaded shank 100 for securing the stop assembly to a lug, such as 36 of the faucet housing, and part 96 is provided with the locking shoulder 102 adapted to cooperate with the wrench 16 as hereinbefore described, this locking shoulder having the slot 104 for receiving a screw driver or other tool whereby the stop assembly may be screwed into seating relation with securing means, such as lug 36, and locking nut 38. It will be noted that part 96 is eccentrically arranged with respect to part 94 in a similar manner to the arrangement shown in Figures 3 and 4. The advantages of such a construction have been set forth hereinbefore in our description of the embodiment disclosed in such figures.

It is to be understood that the term "cone forming surface" or "cone forming surfaces" as used in the specification and claims is to be interpreted broadly to include those surfaces which form in part substantially the surface of a cone (truncated cone structure) or the entire surface of a cone.

While I have herein described and upon the drawing shown illustrative embodiments of the invention, it is to be understood that the invention is not limited thereto but may comprehend other constructions, arrangements of parts, details and features without departing from the spirit of the invention.

I claim:

1. In valve mechanism, the combination of a self closing faucet having a valve operating spindle, a wrench comprising a socket member attachable to said valve spindle and a handle for moving said socket member as a unit therewith for operating said valve operating spindle to open the valve, and means engageable by said wrench for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a lug assembly having at least two parts connected together by fusible material, the connected surfaces of said parts being disposed in a plane substantially parallel with respect to the normal direction of movement of said handle.

2. In valve mechanism, the combination of a self closing faucet having a valve operating spindle, a wrench comprising a socket member attachable to said valve spindle and a handle for moving said socket member as a unit therewith for operating said valve operating spindle to open the valve, and means engageable by said wrench for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a lug assembly having two parts provided with complementary cone forming surfaces, said surface on one of said parts circumferentially embracing the other of said surfaces, and fusible material between said surfaces for holding said parts together.

3. In valve mechanism, the combination of a self closing faucet having a valve operating spindle, a wrench comprising a socket member attachable to said valve spindle and a handle for moving said socket member as a unit therewith for operating said valve operating spindle to open the valve, and means engageable by said wrench for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a lug assembly having two parts, one of said parts being provided with a recess defined by a cone forming surface, the other of said parts having a projecting element defined by a cone forming surface fitting into said recess and being circumferentially embraced thereby, the fusible material between said surfaces for holding said parts together.

4. In valve mechanism, the combination of a self closing faucet provided with a housing and a valve operating spindle mounted therein, a wrench comprising a socket member attachable to said valve spindle and a handle pivotally connected to said member for movement normal to the axis of said spindle, said handle and socket member being movable as a unit for operating said valve operating spindle to open the valve, said handle having a locking lug extending beyond said socket member, and means mounted on said housing and cooperating with said locking lug for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a lug assembly having a plurality of parts wherein said parts are connected together by fusible material.

5. In valve mechanism, the combination of a self closing faucet provided with a housing and a valve operating spindle mounted therein, a wrench comprising a socket member attachable to said valve spindle and a handle pivotally connected to said member for movement normal to the axis of said spindle, said handle and socket member being movable as a unit for operating said valve operating spindle to open the valve, said handle having a locking lug extending beyond said socket member, and means mounted on said housing and cooperating with said locking lug for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a two-part lug assembly connected together by fusible material, one of said parts being secured to said housing and forming a support for the other of said parts, said other part normally cooperating with said locking lug.

6. In valve mechanism, the combination of a self closing faucet provided with a housing and a valve operating spindle mounted therein, a wrench comprising a socket member attachable to said valve spindle and a handle pivotally connected to said member for movement normal to the axis of said spindle, said handle and socket member being movable as a unit for operating

said valve operating spindle to open the valve, said handle having a locking lug extending beyond said socket member, and means mounted on said housing and cooperating with said locking lug for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a lug assembly having at least two parts connected together by fusible material, the connected surfaces of said parts being disposed in a plane inclined with respect to the normal direction of movement of said handle.

7. In valve mechanism, the combination of a self closing faucet provided with a housing and a valve operating spindle mounted therein, a wrench comprising a socket member attachable to said valve spindle and a handle pivotally connected to said member for movement normal to the axis of said spindle, said handle and socket member being movable as a unit for operating said valve operating spindle to open the valve, said handle having a locking lug extending beyond said socket member, and means mounted on said housing and cooperating with said locking lug for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a lug assembly having at least two parts connected together by fusible material, the connected surfaces of said parts being disposed in a plane substantially parallel with respect to the normal direction of movement of said handle.

8. In valve mechanism, the combination of a self closing faucet provided with a housing and a valve operating spindle mounted therein, a wrench comprising a socket member attachable to said valve spindle and a handle pivotally connected to said member for movement normal to the axis of said spindle, said handle and socket member being movable as a unit for operating said valve operating spindle to open the valve, said handle having a locking lug extending beyond said socket member, and means mounted on said housing and cooperating with said locking lug for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a lug assembly having two parts provided with cone forming surfaces, and fusible material between said surfaces for holding said parts together.

9. In valve mechanism, the combination of a self closing faucet provided with a housing and a valve operating spindle mounted therein, a wrench comprising a socket member attachable to said valve spindle and a handle pivotally connected to said member for movement normal to the axis of said spindle, said handle and socket member being movable as a unit for operating said valve operating spindle to open the valve, said handle having a locking lug extending beyond said socket member, and means mounted on said housing and cooperating with said locking lug for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a lug assembly having two parts, one of said parts being provided with a recess defined by a cone forming surface, the other of said parts having a projecting element defined by a cone forming surface fitting into said recess, and fusible material between said surfaces for holding said parts together.

10. In a valve mechanism, the combination of a self closing faucet provided with a housing and a valve operating spindle mounted therein, a wrench comprising a socket member attachable to said valve spindle and a handle pivotally connected to said member for movement normal to the axis of said spindle, said handle and socket member being movable as a unit for operating said valve operating spindle to open the valve, said handle having a locking lug extending beyond said socket member, and means mounted on said housing and cooperating with said locking lug for holding said handle and socket in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a two-part lug assembly having complementary plane surfaces connected together by fusible material.

11. A lug assembly comprising a plurality of parts, one of said parts having securing means and another of said parts having a locking shoulder, said parts having complementary abutting surfaces and one of said parts being circumferentially embraced by the other, and fusible material between said surfaces for holding said parts together.

12. A lug assembly comprising a plurality of parts, one of said parts having securing means and the other of said parts having a locking shoulder, said parts having complementary inclined abutting surfaces and one of said parts being circumferentially embraced by the other, and fusible material between said surfaces for holding said parts together.

13. A lug assembly comprising a plurality of parts, one of said parts having securing means and the other of said parts having a locking shoulder extending in a plane substantially parallel to the axis of said securing means, said parts having complementary plane surfaces substantially normal to said locking shoulder and the axis of said securing means, and fusible material between said surfaces for holding said parts together.

14. A lug assembly comprising a plurality of parts, one of said parts having securing means and the other of said parts having a locking shoulder, said parts being provided with complementary cone forming surfaces, one of said surfaces circumferentially embracing the other of said surfaces, and fusible material between said surfaces for holding said parts together.

15. A lug assembly comprising a plurality of parts, one of said parts having securing means and an oppositely disposed portion provided with a cone forming surface, the other of said parts being provided with a locking shoulder and a recess defined by a cone forming surface adapted to cooperate with and circumferentially embrace said first-named surface, and fusible material between said surfaces for holding said parts together.

16. A lug assembly comprising a plurality of parts, one of said parts having securing means and an oppositely disposed recess defined by a cone forming surface, the other of said parts being provided with a locking shoulder and a portion provided with a cone forming surface adapted to cooperate with and circumferentially embrace said first-named surface, and fusible material between said surfaces for holding said parts together.

17. A lug assembly comprising a plurality of

parts, one of said parts having securing means and a plate fitted thereto, said plate having a surface disposed in substantially flush relation with the end of said part, the other of said parts having a locking shoulder and an adjacently disposed plate having a surface disposed in substantially flush relation with the end of said part, and fusible material between said surfaces for holding said parts together.

18. A lug assembly comprising a plurality of parts, one of said parts having securing means and the other of said parts having a locking shoulder, said parts being provided with complementary cone forming surfaces, fusible material between said surfaces for holding said parts together, said locking shoulder being offset with respect to said securing means, and means for adjustment of the securing means about its axis whereby the effective position of the locking shoulder can be adjusted.

19. A lug assembly comprising a plurality of parts, one of said parts having securing means and the other of said parts having a locking shoulder, said parts being provided with complementary cone forming surfaces, fusible material between said surfaces for holding said parts together, said locking shoulder being eccentrically disposed with respect to the axis of said securing means, and means for adjustment of the securing means about its axis whereby the effective position of the locking shoulder can be adjusted.

20. A lug assembly comprising a plurality of parts, one of said parts having a threaded shank adjacent one end of the assembly and the other of said parts having a locking shoulder adjacent the other end of the assembly and disposed to lie in a plane substantially parallel to the axis of said assembly, said parts being provided with complementary cone forming surfaces, one of said parts circumferentially embracing the other, and fusible material between said surfaces for holding said parts together.

21. A lug assembly comprising a plurality of parts, one of said parts having securing means and the other of said parts having a locking shoulder the portions thereof being eccentrically disposed with respect to the axis of said securing means, and means for adjustment of the securing means about its axis whereby the effective position of the locking shoulder can be adjusted, said parts being provided with complementary cone forming surfaces and fusible material between said surfaces for holding said parts together.

22. A lug assembly comprising a plurality of parts one of said parts having a threaded shank and the other of said parts having a locking shoulder the portions thereof being eccentrically disposed with respect to the axis of said shank, and means for adjustment of the securing means about its axis whereby the effective position of the locking shoulder can be adjusted, said parts being provided with complementary cone forming surfaces, and fusible material between said surfaces for holding said parts together.

23. In valve mechanism, the combination of a self closing faucet having a valve operating spindle, a wrench comprising a socket member attachable to said valve spindle and a handle for moving said socket member as a unit therewith for operating said valve operating spindle to open the valve, and means for holding said wrench in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a multi-part lug assembly wherein said parts are connected together by fusible material, one of said parts having securing means and another of said parts having a locking shoulder eccentrically disposed in respect to said securing means, and means for adjustment of the securing means about its axis whereby the effective position of the locking shoulder can be adjusted.

24. In valve mechanism, the combination of a self closing faucet having a valve operating spindle, a wrench comprising a socket member attachable to said valve spindle and a handle for moving said socket member as a unit therewith for operating said valve operating spindle to open the valve, and means engageable with said wrench for holding the same in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a multi-part lug assembly wherein said parts have cooperating complementary cone forming surfaces, one of said surfaces circumferentially embracing the other and said surfaces being connected together by fusible material, and one of said parts having means having seating relation with said wrench.

25. In valve mechanism, the combination of a self closing faucet having a valve operating spindle, a wrench comprising a socket member attachable to said valve spindle and a handle for moving said socket member as a unit therewith for operating said valve operating spindle to open the valve, and means for holding said wrench in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a multi-part lug assembly wherein said parts have cooperating complementary cone forming surfaces, one of said surfaces circumferentially embracing the other and said surfaces being connected together by fusible material, one of said parts having securing means and another of said parts having a locking shoulder eccentrically disposed in respect to said securing means, and means for adjustment of the securing means about its axis whereby the effective position of the locking shoulder can be adjusted.

26. In valve mechanism, the combination of a self closing faucet having a valve operating spindle, a wrench comprising a socket member attachable to said valve spindle and a handle for moving said socket member as a unit therewith for operating said valve operating spindle to open the valve, and means for holding said wrench in valve opening position under normal operating conditions and to release the same for movement to valve closing position upon application of heat, said means comprising a multi-part lug assembly wherein said parts have cooperating complementary surfaces disposed at an angle to the movement of said wrench and said surfaces being connected together by fusible material, one of said parts having securing means and another of said parts having a locking shoulder eccentrically disposed in respect to said securing means, and means for adjustment of the securing means about its axis whereby the effective position of the locking shoulder can be adjusted.

WALTER SIEGERT.