United States Patent

[11] 3,623,498

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[21] Appl. No. **40,007**
[22] Filed **May 25, 1970**
[45] Patented **Nov. 30, 1971**
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[54] **HYDRANT GUARD**
9 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **137/296,** 137/382
[51] **Int. Cl.** **F16k 35/12**
[50] **Field of Search** 137/272, 294, 296, 382–384

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ABSTRACT: The present invention relates to a tamperproof hydrant assembly comprising a hydrant having a barrel; a bonnet attached to the barrel and having a hollow top portion extending above and about the operating nut of the hydrant, a skirt portion extending about the bottom thereof and spaced from the barrel, and a groove on the exterior of the bonnet; and locking means comprising strap means seated in the bonnet groove and extending downwardly from the hollow top portion of the bonnet and clamp means removably attached to said strap means and adapted to interlock with the bonnet skirt.

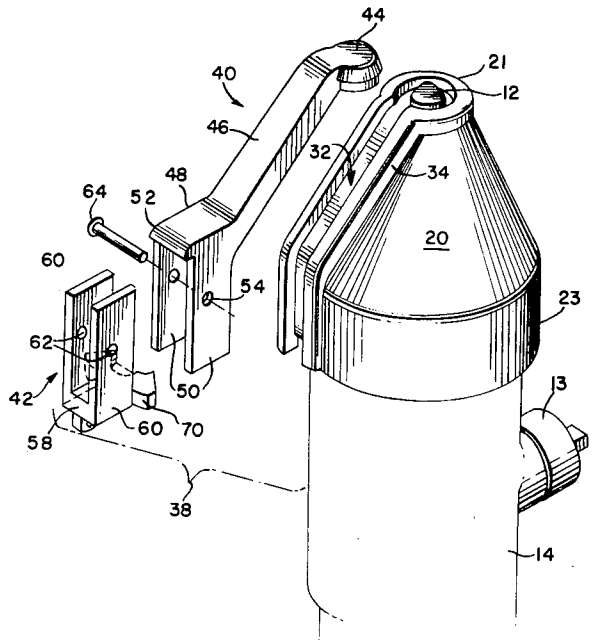


FIG. 2.

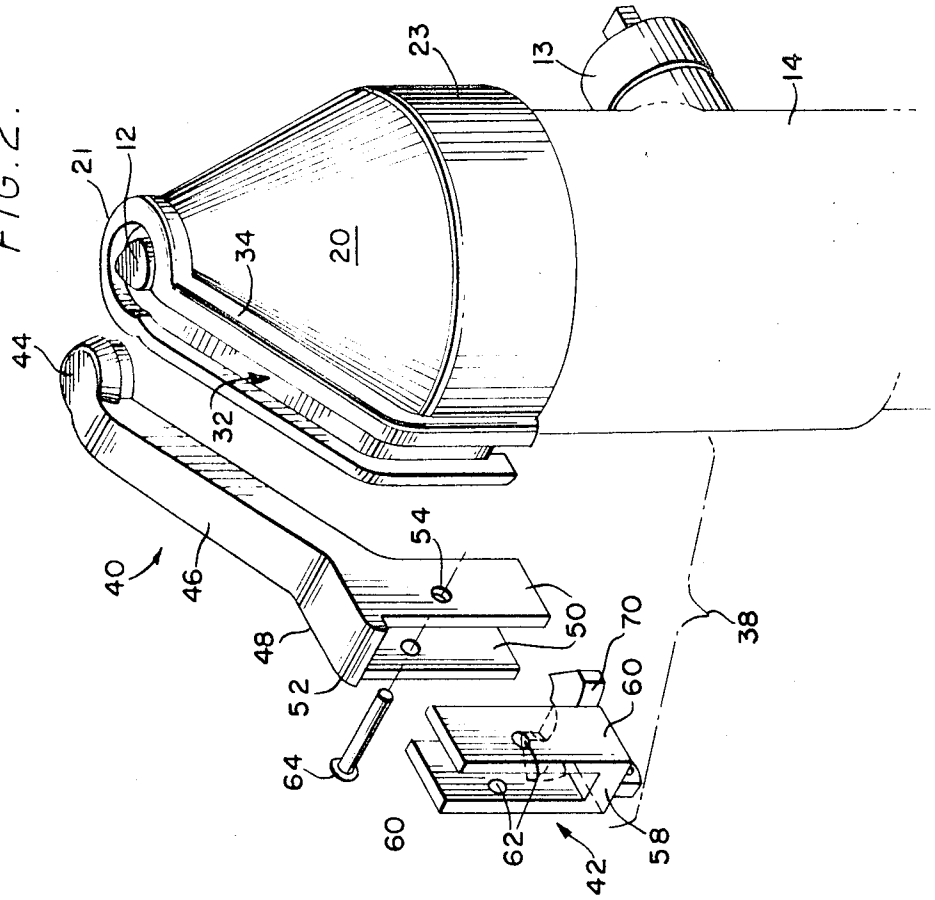
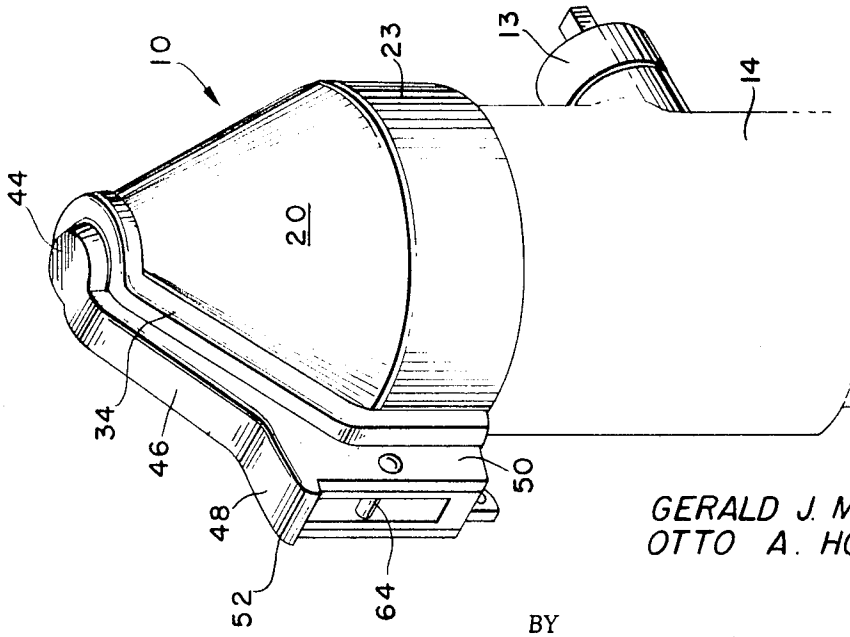


FIG. 1.



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FIG. 3.

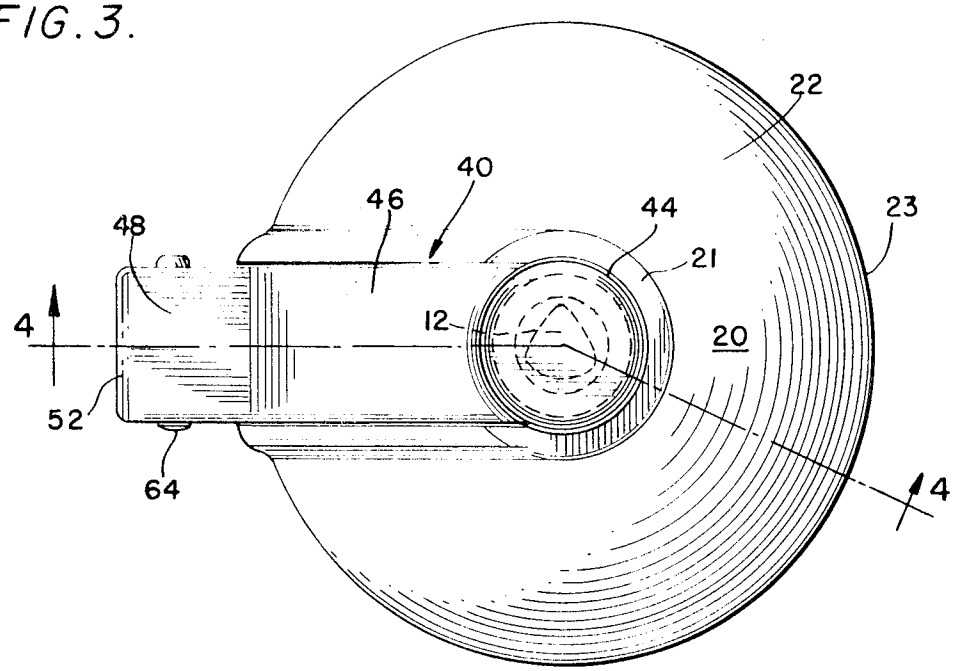
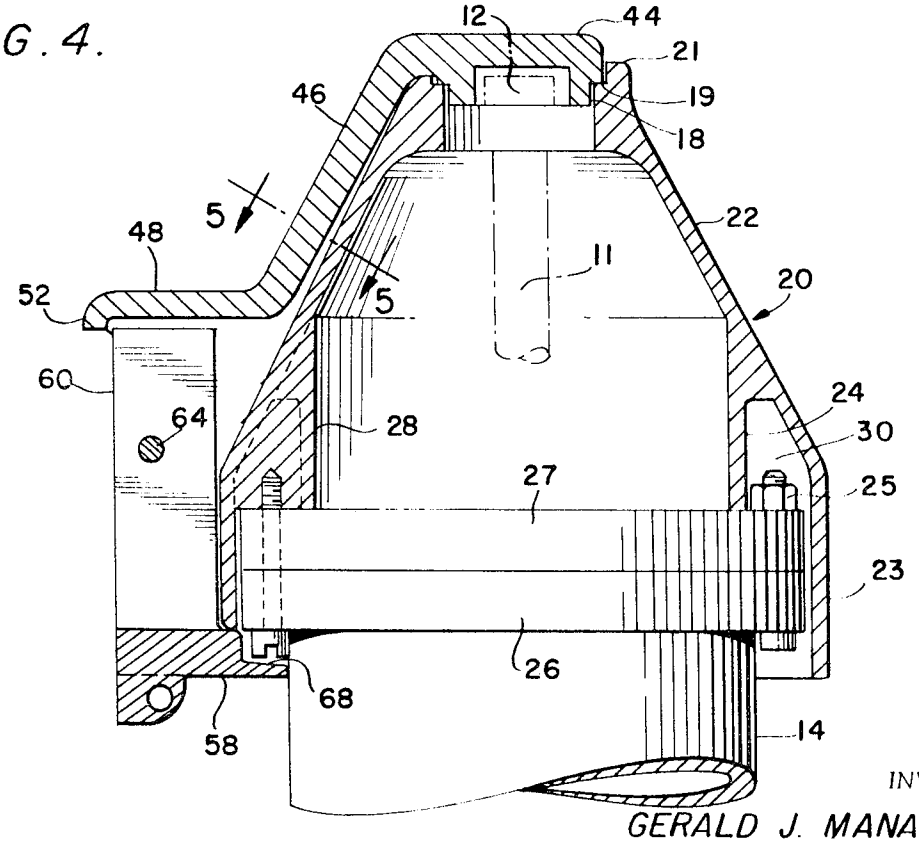


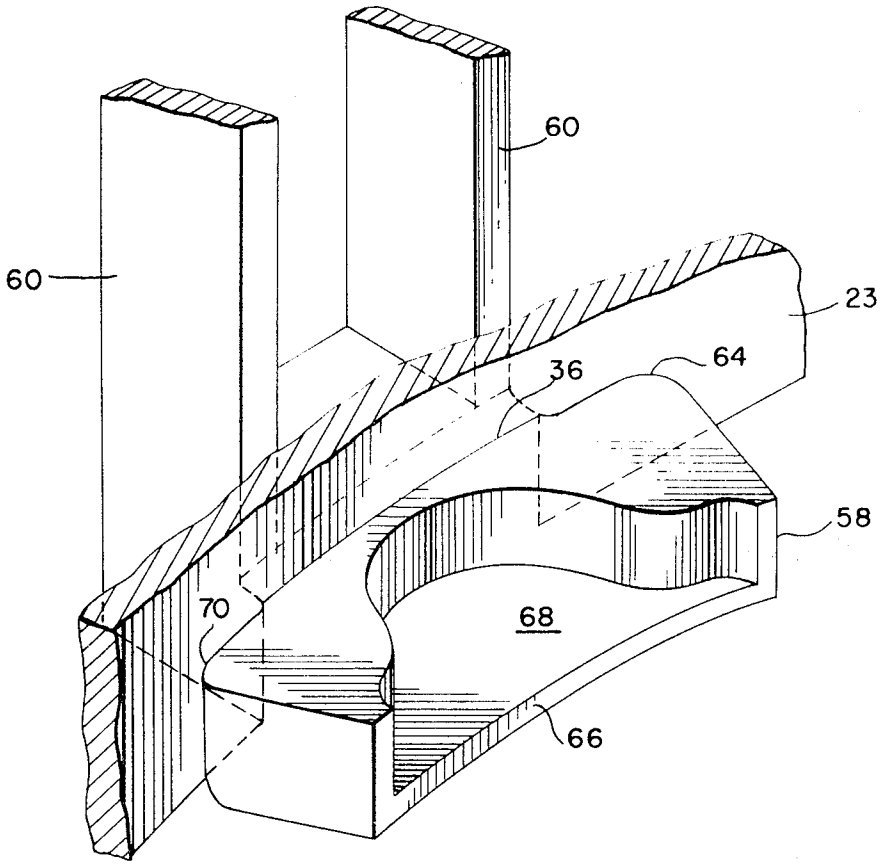
FIG. 4.



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FIG. 5.



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HYDRANT GUARD

BACKGROUND OF THE INVENTION

Hydrants used to supply water for sanitation purposes and to fight fires are located in areas where they are readily accessible for use. Conventionally, the hydrants comprise a barrel having one or more water outlets, which outlets are usually threaded so that hoses can be connected thereto, a bonnet or hood attached to the top of the barrel, and an operating nut at the top of the bonnet which can be turned to open and shut the valve supplying water from the main to the hydrant water outlet or outlets.

Unfortunately, the ready accessibility of such hydrants results in their unauthorized use. In addition to the water wasted by such use, there is often damage done to the hydrant by virtue of the tools used to turn the operating nut to open the water supply valve. Often the damage done is severe enough to render the hydrant inoperative. The seriousness and magnitude of this problem of unauthorized used and damage has resulted in attempts to render hydrants tamperproof.

Heretofore such attempts have not been successful either because they involved extensive changes in presently existing and in-use hydrants or because the means used to safeguard the hydrant are easily removed by anyone with readily available tools or so difficult to remove that unsuitable delays are encountered when it is desired to utilize the hydrant when fighting a fire.

SUMMARY OF THE INVENTION

A guard assembly has now been found for hydrants which prevents the unauthorized use of hydrants, which guard assembly cannot be removed except by special tools, and which guard assembly is readily removable when the hydrant is required to be used by authorized personnel.

The invention comprises a hydrant having a barrel with a valve stem extending therethrough and having an operating nut at its upper end; a bonnet attached to said barrel and having a hollow top portion extending above and about the operating nut, a skirt portion extending about the bottom thereof and spaced from the barrel, and a groove on the exterior of the bonnet extending from said top portion to the bottom of the bonnet; and locking means comprising strap means seated in the groove and extending downwardly from the hollow top portion of the bonnet and clamp means removably attached to said strap means and adapted to interlock with the bonnet skirt.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a hydrant embodying the invention;

FIG. 2 is a partially exploded perspective view of the hydrant shown in FIG. 1;

FIG. 3 is a plan view of a hydrant as shown in FIG. 1;

FIG. 4 is a sectional view taken along line 4—4 of FIG. 3; and

FIG. 5 is a fragmentary perspective detail view showing the interlocking of the clamp means with the bonnet skirt.

DETAILED DESCRIPTION

The invention will be described in connection with the drawings wherein there is shown generally at **10** a hydrant of the conventional type; that is, a water hydrant or a fire hydrant wherein the main valve is opened or closed by means of a valve stem **11** which is turned to open or close the valve by means of an operating nut **12** at the top of the hydrant. The hydrant is provided also with an outlet nozzle **13** or nozzles in the barrel **14** to which a hose is attached when it is desired, for example, to fight a fire. The operating nut, barrel, outlet nozzle, valve stem and other elements of the hydrant are those conventionally used and form no part of the instant invention. It is the combination therewith of the bonnet and locking means discussed below with the conventional elements of the hydrant that form the tamperproof assembly of the instant invention.

The bonnet **20** is preferably a unitary structure comprising a hollow top portion **21** about the operating nut **12** and having a height sufficient so that the top thereof is above the top of the operating nut. The hollow top has an inner recessed circumferential shoulder **29** adapted to receive a portion of the locking means as hereinafter described. A downwardly sloping sidewall **22** extends from the top portion to a skirt **23** about the entire periphery of the bonnet. The bonnet **20** is structured so that the skirt **23** is spaced from the barrel **14** of the hydrant. The bonnet has a depending circular-shaped flange **24** with two tapped integral bosses in the interior thereof. In the embodiment shown, means for fastening the bonnet to the barrel of the hydrant are located beneath the skirt, and as shown in FIG. 4 of the drawings, comprise two socket head capscrews **25** passing through openings in the barrel flange **26** and the flange of the seal plate **27** which openings are spaced 180° apart, and being in threaded engagement with respective bosses **28**. Each boss is of sufficient width to provide the necessary strength. The remainder of the peripheral bonnet portion defined by flange **24** and skirt **23** is left open, as shown at **30**, to receive the seal plate fasteners referred to below. Location of the fastening means **25** underneath the skirt makes it difficult to tamper with the fasteners. As added protection, the heads of socket head capscrews **25** can be made of special configuration to preclude use of a conventional tool for disassembly. Also, the clearance between the head of the socket screws and the adjacent wall surfaces of skirt **23** and barrel **14** may be kept at a minimum as another means of assuring that conventional tools cannot be used for disassembly.

The seal plate **27** is secured to the barrel **14** by conventional means, namely nutted bolts sufficiently spaced around and passing through the respective flanges as shown, in part, in FIG. 4.

The bonnet **20** also has a groove **32** extending from the hollow top portion **21** along the side **22** of the bonnet to the bottom of the skirt **23**. The groove is formed by downwardly extending flanges **34**. The skirt is also provided with a notched portion **36** between the flanges which functions to help lock the bonnet as hereinafter described.

Cooperating with the bonnet are locking means **38** shown in exploded perspective view in FIG. 2. The locking means comprise a strap means **40** and clamp means **42**. The strap means comprises a head or cap portion **44** tightly seated in the hollow top portion of the bonnet.

Depending from the cap **44** is an annular stepped flange **18** which is seated on the recessed shoulder **19** of the hollow top portion of the bonnet. The cap is made to snugly fit in the hollow top portion to prevent insertion of any tool between the cap and the bonnet, and thus preclude the prying of locking means **38** from the bonnet **20**. Formed integrally therewith and depending therefrom is a neck portion **46** which is adapted to extend along the bonnet sidewall **22** in the groove **32**. Extending outwardly from the bottom of neck **46** is a shoulder **48** from which depend two spaced-apart arms **50**, the arm also adapted to fit into the groove **32**. The width of the neck **46** and spacing between the arms **50** is such that the sides of the neck and arms preferably abut the sides of the groove **32**. This prevents the insertion of any tool between the strap means **40** and the groove **32** to separate the locking means from the bonnet. The strap shoulder **48** is provided with a downwardly turned lip **52** which extends over the uppermost portion of arms **50**. The arms also have aligned openings **54**.

The clamp means **42** comprise a base **58** and upwardly extending legs **60** formed integrally therewith. The legs fit between arms **50** and are provided with openings **62** which align with openings **54** in the arms **50**. Fastening means such as a bolt **64** are passed through openings **54** and **62** to fasten together the strap means **40** and clamp means **42**. The end of bolt **64** is preferably peened over or hammered or recessed to prevent removal of the bolt except as described below.

The base **58** extends through the notched portion **36** of the skirt **23** to the exterior of the barrel **14**. The edge **66** of the base **58** abutting the barrel is shaped to conform to the shape of the barrel. As in the case of the other elements of the guard of the instant invention, as tight a fit as possible is desired in order to prevent insertion of any devices for tampering with the hydrant.

In the preferred embodiments illustrated, and with particular reference to FIG. **5**, the base **58** is provided with a recess **68** for reception of the head of socket head capscrew **25** used to attach the bonnet **20** to the barrel **14**. This is a further protective feature to prevent unauthorized use of the hydrant by eliminating access to this fastening means.

Interlocking of the clamp means **42** with the skirt **23** is accomplished by outwardly extending shoulders **70** for that portion of the base **58** behind the bonnet **20**.

The legs **60** are of sufficient length to extend up to the bottom of the shoulder and underneath the lip **52**. By this means, insertion of a prying tool between the strap **40** and clamp **42** at this point is prevented. Also, the space between the arms **50** and legs **60** is kept to a minimum to prevent insertion of a tool therebetween.

Removal of the locking means to enable access to the operating nut of the hydrant is accomplished by means of bolt cutters which act to cut the bolt **64**, thereby permitting the clamp means **42** to drop or to be easily removed from the strap means **40** and the strap to be lifted from its position in the groove **32** of the bonnet. The operating nut is then exposed and the hydrant opened for use. The bolt is preferably made of a material that can only be cut by bolt cutters that are not readily available to the public, but which are carried on municipal vehicles such as fire apparatus and sanitation equipment.

After the hydrant is closed, the guard is reassembled by simply replacing the strap **40** in the hollow top **21** and groove **32** of the bonnet **20**, interlocking the clamp means **42** about skirt **23** with legs **60** between arms **50**, and inserting a new bolt through openings **54** and **62** to fasten the strap and clamp together.

Materials of construction are not part of this invention but for protection against tampering it is preferred that the bonnet and locking means be made of ductile iron. The bolt **64** should be made of a material too hard to hacksaw, yet suitable to be cut with the bolt cutter.

It will be understood that it is intended to cover all changes and modifications of the invention herein chosen for the purpose of illustration which do not constitute departures from the spirit and scope of the invention.

What is claimed is:

1. A hydrant assembly comprising a barrel with a valve stem extending therethrough having an operating nut at its upper end; a bonnet fastened to said barrel and having a hollow top portion extending above and about the operating nut and an access opening for said operating nut, a skirt nut and about the bottom thereof spaced from the barrel, and a groove on the exterior of the bonnet extending downwardly from said top portion; and locking means comprising strap means overlying said access opening and seated in said bonnet groove and clamp means removably attached to said strap means adapted to interlock with said skirt portion.

2. The hydrant assembly of claim **1** including means for fastening said bonnet to said barrel located in the space between said barrel and said skirt.

3. The hydrant assembly of claim **2** wherein a portion of said clamp means underlies a portion of the means for fastening said bonnet to said barrel.

4. A hydrant assembly comprising a barrel with a valve stem extending therethrough having an operating nut at its upper end; a bonnet fastened to said barrel and having a hollow top portion extending above and about the operating nut and an access opening for said operating nut, an internal recessed shoulder extending about the periphery of said access opening, a sidewall extending downwardly from said hollow top portion, a circumferential skirt depending from said wall and spaced from said barrel, and a groove on the exterior of the bonnet extending from said hollow top portion to the bottom of said skirt; and locking means comprising unitary strap means and unitary clamp means removably attached to said strap means; said strap means comprising a cap seated in said access opening, said cap including a downwardly extending stepped flange with the outermost portion of said stepped flange being seated upon said recessed shoulder and the innermost portion of said stepped flange extending downwardly in said access opening past said recessed shoulder, a neck extending downwardly from said cap and seated in said groove, a shoulder at the lower portion of said neck extending outwardly from said bonnet, and at least two spaced-apart downwardly extending arms depending from said shoulder; and said clamp means comprising upwardly extending legs positioned between said arms and a base portion interlocked with said skirt.

5. The hydrant assembly of claim **4** wherein the portion of the skirt in said groove is notched and said base portion extends through said notch to the barrel.

6. The hydrant assembly of claim **5** wherein said base portion includes outwardly extending shoulders which abut with the interior surface of said skirt and a recessed area between said shoulders.

7. In combination, a hydrant bonnet having a hollow top portion and an access opening, a skirt portion about the bottom thereof, and a groove on the exterior thereof extending downwardly from said top portion; and locking means comprising strap means seated in said bonnet groove and overlying said access opening and clamp means removably attached to said strap means adapted to interlock with said skirt portion.

8. The combination of claim **7**, wherein the portion of the skirt in said groove is notched and said clamp means comprises a base portion extending through said notch.

9. The combination of claim **8**, wherein said base portion includes outwardly extending shoulders which abut with the interior surface of said bonnet skirt to form an interlocking relationship with said bonnet skirt.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,623,498 Dated 11/30/71

Inventor(s) Gerald J. Manahan and Otto A. Hoeckel

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In line 5 of claim 1 delete the words "nut and" and substitute therefore the word--portion--.

Signed and sealed this 16th day of May 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents

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