



US007874311B1

(12) **United States Patent**
Bustamante

(10) **Patent No.:** **US 7,874,311 B1**
(45) **Date of Patent:** **Jan. 25, 2011**

(54) **WATER VALVE LOCKING DEVICE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 814 days.

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(21) Appl. No.: **11/781,076**

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(22) Filed: **Jul. 20, 2007**

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Related U.S. Application Data

(60) Provisional application No. 60/869,179, filed on Dec. 8, 2006.

(57) **ABSTRACT**

(51) **Int. Cl.**
F16K 35/00 (2006.01)

(52) **U.S. Cl.** **137/382; 137/383**

(58) **Field of Classification Search** **137/382, 137/383, 385**

See application file for complete search history.

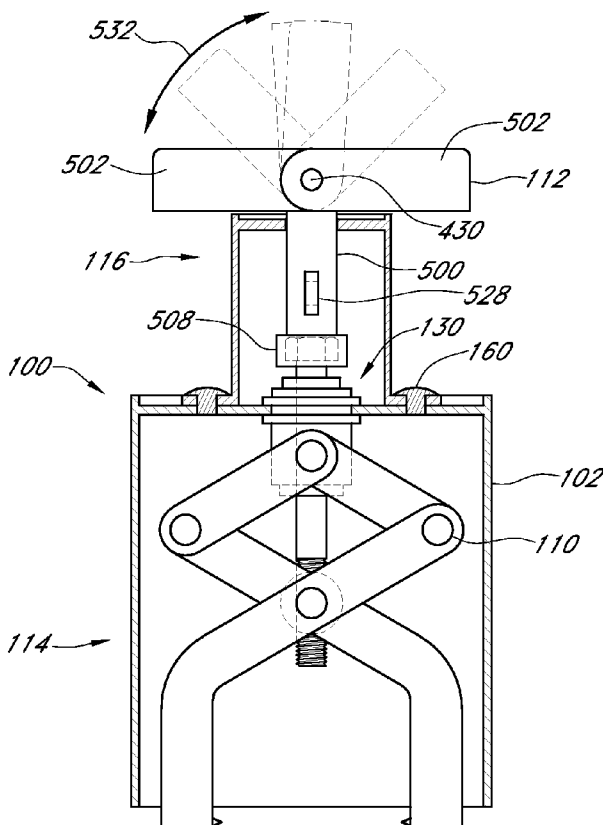
A locking device for water valves having an actuation mechanism that couples to the water valve nut to secure the water valve. The actuation mechanism is contained within a container to limit access. The actuation mechanism is activated by a member that can be positioned in engagement with the actuation mechanism or out of engagement with the actuation mechanism. When position out of engagement with the actuation mechanism, the member can be secured to inhibit unauthorized access to the water valve nut.

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6 Claims, 9 Drawing Sheets



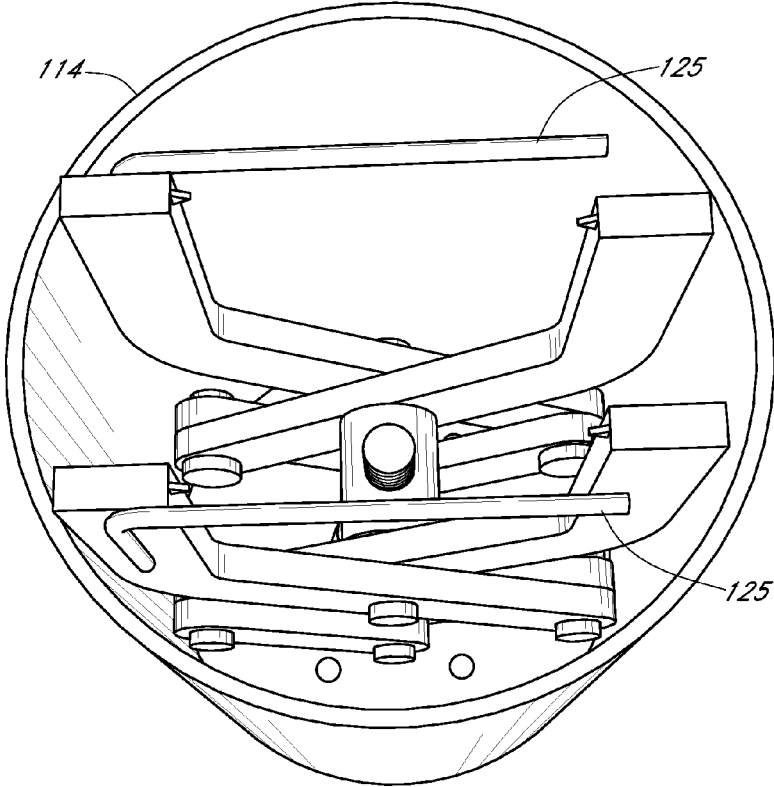


FIG. 2C

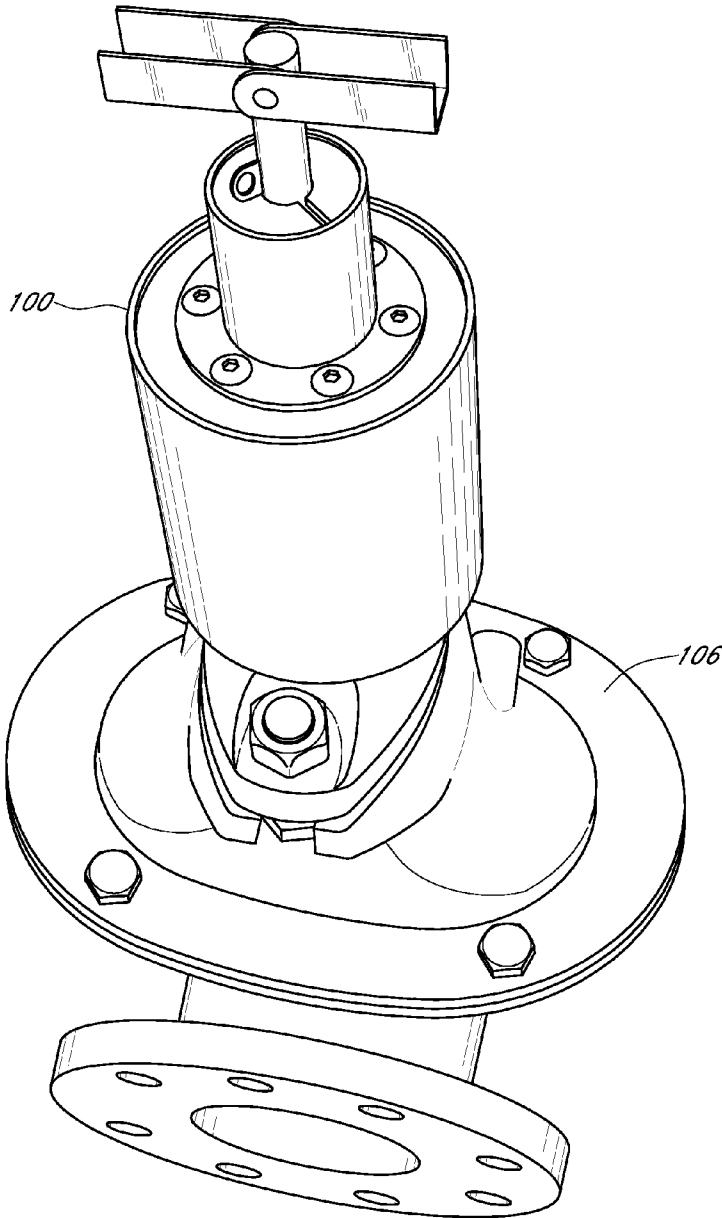


FIG. 6

WATER VALVE LOCKING DEVICE

RELATED APPLICATIONS

This application is a non-provisional of and claims the benefit of U.S. Provisional Patent Application No. 60/869, 179, filed Dec. 8, 2006, which is hereby incorporated by reference in its entirety herein.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The embodiments of the present invention relate to valves and, in particular a device which may be used to secure underground valves, such as water valves, from unauthorized use.

2. Description of the Related Art

Underground valves are commonly installed throughout cities and towns to provide access to sources of water for various tasks. These valves control the delivery of water to dwellings and businesses and are also used for a variety of different tasks. In one example, firefighters may use underground valves to obtain water for extinguishing a fire or municipal services, such as street sweepers and sewer maintenance trucks, often use underground valves to fill their water tanks while in the field. These valves are also used to control access of water to different locations. For example, valves are used to control water flow into specific buildings, groups of buildings and the like.

Unauthorized use and/or vandalism of underground valves, however, is common. One particular problem of unauthorized access occurs when builders access the water system. Often builders of houses, buildings and the like will connect to the water line before getting permission from the water utility so as to provide a source of water to the building or groups of buildings under construction. This can result in the loss of revenue for the water utility and can also result in contamination of the water system due to improper connection procedures.

Contamination can occur when dirt and debris in the new water system is allowed to circulate back into the existing system. Generally, newly added water systems are cleaned before allowed access to the existing system. However, when the access is unauthorized, the water utility generally is not available to ensure that the newly added system is purged. Other problems associated with unauthorized access can include a loss of overall water pressure, a loss of revenue and the like.

To inhibit unauthorized use, underground valves are commonly designed with an actuator nut. The nut is typically recessed below ground level, requiring a special tool to access the nut. In one common design, a square headed nut is used. Thus, a specially designed wrench is employed in order to engage the head of the actuator nut and open the valve of the underground valve to begin the flow of water. This design is problematic, however. The special shaped wrench or other appropriate tools are not hard to obtain. Thus, a determined individual may still open the underground valve, even if not authorized, with the attendant problems.

From the foregoing, then, it may be understood that there is a need for an improved device for securing underground water valves from unauthorized access.

SUMMARY OF THE INVENTION

The embodiments of the present disclosure provide a water valve locking device for securing an underground valve from unauthorized access. The water valve locking device comprises a generally tubular enclosure having a first end and a second end defining an interior cavity, where the cavity may be accessed from the first end. The water valve locking device further comprises a pincer mechanism positioned at least partially within the cavity adjacent to the first end of the assembly. The pincer mechanism is configured to move between a deployed position so as to grasp at least a portion of an object positioned adjacent the pincer mechanism and a retracted position so as to release an object grasped by the pincer mechanism. The water valve locking device additionally comprises a handle assembly, where the handle assembly is configured to move between an engaged position and a disengaged position, where the handle assembly may move the pincer mechanism in the engaged position and may not move the pincer mechanism in the disengaged position. The handle assembly is also reversibly lockable in the retracted position so as to inhibit actuation of the pincer mechanism.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGS. 1A-1B present front and side views of one embodiment of a water valve locking device;

FIG. 1C presents one embodiment of an underground valve for use with embodiments of the water valve locking device of FIG. 1;

FIG. 2A presents side and top views of one embodiment of the cover assembly of the water valve locking device of FIG. 1;

FIG. 2B presents a view of the second end of one embodiment of the cover assembly of the water valve locking device of FIG. 1, illustrating the alignment rods;

FIG. 2C presents a top view of the cover assembly of the water valve locking device of FIG. 1;

FIGS. 3A and 3B present side and top views, respectively, of one embodiment of the top cap assembly of the water valve locking device of FIG. 1;

FIG. 4A presents a side view of one embodiment of the pincer mechanism of the water valve locking device of FIG. 1;

FIGS. 4B-4C present side and top views of the first and third pivots, respectively, of the water valve locking device of FIG. 1;

FIGS. 5A-B present side views of embodiments of the handle assembly (FIG. 5A) and handle grips (FIG. 5B) of the water valve locking device of FIG. 1;

FIG. 6 presents the water valve locking device of FIG. 1 in use with an underground valve.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Embodiments of the present disclosure present a water valve locking device for securing underground valves. While specific geometries and dimensions of the device are discussed below, it may be understood that the exact configuration and dimensions of the device may be varied without departing from the spirit or scope of the present invention.