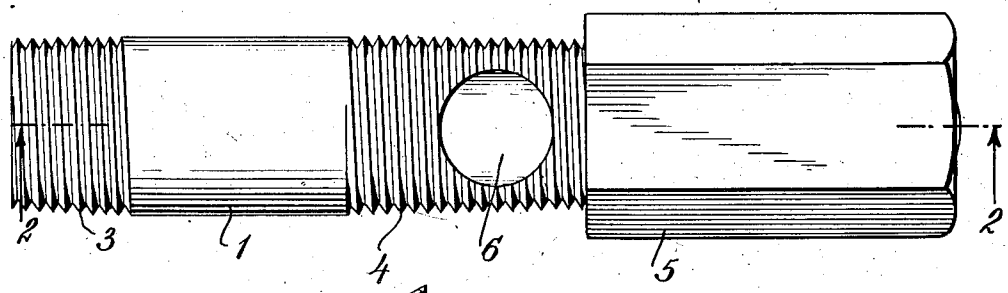
Feb. 15, 1927. 1,617,333

J. L. HUTCHINGS

DRAIN DEVICE

Filed June 6. 1925

Fig. 1.



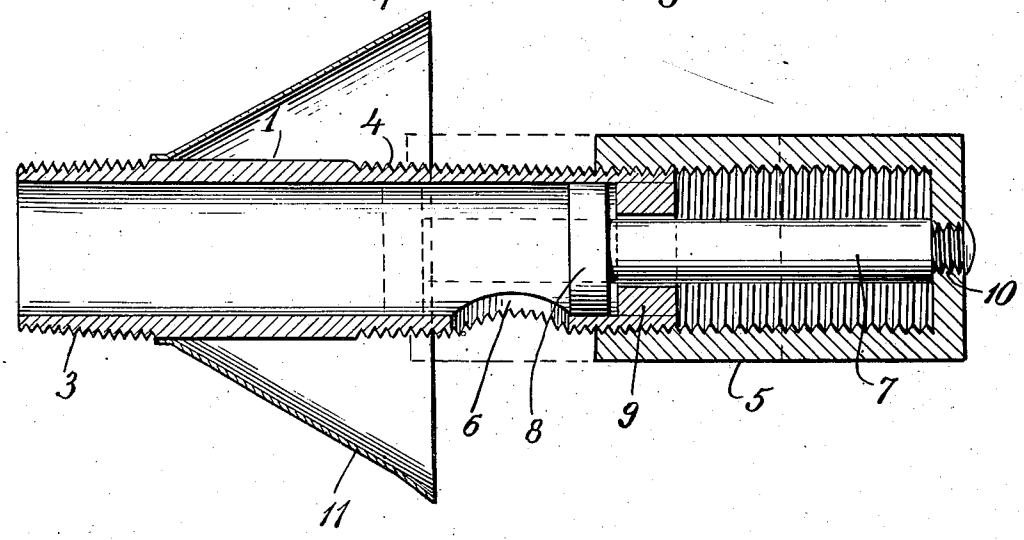




Fig. 2.

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# UNITED STATES PATENT OFFICE.

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## DRAIN DEVICE.

Application filed June 6, 1925. Serial No. 35,499.

This invention relates to an improved faucet or drain device of simple and inexpensive construction.

A variety of drain devices are now available but most of them are composed of a multiplicity of expensive parts. Thus, many drains have a cone or a ground joint shut-off, or a packing of some kind which very quickly wears out. On the other hand, the simpler devices are usually ill-fitted for quick control of the draining operation. Nipples with threaded caps are used, but the liquid or gas can escape through the end of nipple only when the cap is removed entirely. It is often a difficult and messy job to remove and replace the cap, particularly when the container is under pressure.

It is the object of the invention to provide a drain comprising a minimum number of inexpensive parts and easily operable to facilitate the withdrawal of gases or liquids from containers.

In the preferred form of the invention, the improved drain is composed of an ordinary pipe nipple threaded at both ends, one end of the nipple is designed to fit into an appropriately sized and shaped threaded hole in the container. The nipple can be drawn tightly into the container in such way as to avoid leaks. The other end of the nipple is threaded to receive a cap. A vent is provided in the side of the nipple near the cap end. This vent may be of any size equal to or smaller than the diameter of the pipe nipple itself. The threaded outer end of the nipple is tapered so that the cap can be drawn very tightly over the nipple when the valve is closed to produce a non-leakable joint. The cap can be made of metal and shaped to fit a wrench or even to be operated by hand.

The length of the nipple, the location of the vent, and the size of the cap are all so designed that the vent may be fully opened without entirely removing the cap from the nipple. The threaded arrangement of these parts thus makes it very easy to turn the cap back over the vent no matter how much pressure is exerted on the escaping liquid or gas.

It may be desirable to have the drain constructed so that it is impossible to completely separate the cap from the nipple. This feature is particularly desirable where the drain device is to be used in connection with liquid or gaseous containers under high pressures, for example, a high pressure steam line; or where the drain is to be substantially foolproof. This is also desirable if the drain cock is to be used where it is accessible to children. The means for preventing the complete separation of the cap from the nipple may comprise a stem attached to the cap and extending into the end of the nipple with a head which bears against a suitable shoulder when the cap is withdrawn to uncover the vent. The head may fit closely within the nipple when the vent is opened and rest snugly against the restraining shoulder within the nipple. If the shoulder is properly positioned with respect to the head of the stem when the vent is completely opened, the head serves to deflect the escaping liquid or gas directly through the vent and to prevent liquid or gas from entering the disengaged portion of the cap. Cutting or deterioration of the threads within the cap is thus avoided. This feature is improved by so designing the shoulder with the nipple and the stem so that the stem itself will fit very snugly in the shoulder.

The preferred forms of the invention are illustrated in the accompanying drawing in which—

Fig. 1 is a side elevation of the drain device.

Fig. 2 is a sectional view on the line 2—2 of Fig. 1 illustrating the means to prevent the removal of the cap, and also illustrating a modification in which deflecting means may be employed.

Referring to the drawing, 1 indicates the body of the drain. An ordinary metal pipe nipple with an axial passage will serve very well for this purpose. The end 3 is preferably provided with a tapered pipe thread to fit into the liquid or gas container. The other end 4 of the nipple is likewise preferably provided with a tapered thread to fit the cap 5. The end 4 contains the vent 6, which may be of any diameter equal to or less than, the inside diameter of the nipple. This vent is situated with reference to the extreme end of the nipple so that the cap 5 may be unscrewed far enough to completely open the vent and yet have sufficient threads on the nipple end to prevent disengagement. The cap 5 may be of any desirable construction, either to be operated by hand or by the use of a suitable tool. Preferably, it is hexagonally shaped to facilitate the use of a wrench.

As illustrated in Fig. 2, the cap 5 is equipped with a stem 7 having a head 8 at the end thereof which fits very snugly in the nipple 1. The nipple 1 also has a shoulder 9 at the end 4. This shoulder is fitted into the nipple end in any suitable manner, preferably by welding. It has a hole through its center into which, and through which, the stem 7 may snugly fit as the cap 5 is moved. The length of the stem 7 may be designed in connection with the nipple, the shoulder, and the head 8, so that when the vent 6 is completely opened, the head 8 will fit snugly upon the shoulder 9, to deflect the liquid or gas through the vent and, at the same time, to prevent the movement of any of the gas or liquid into the disengaged portion of cap 5. Stem 7 can be screwed into the end of the cap as shown at 10. That portion of the stem extending beyond the cap may be upset upon the cap 5 to firmly rivet the stem and cap together, and thus make a non-leakable joint.

Fig. 2 also illustrates the use of means 11 adjacent to vent 6 for deflecting any liquid which has a tendency to squirt to the side of the vent 6 as the cap 5 is unscrewed. Such escaping liquid is thereby deflected toward the spot where the liquid escaping through the vent would normally fall when the vent is completely opened.

Various changes can be made in the details of construction of the drain as described without departing from the invention or sacrificing any of the advantages thereof.

I claim:

1. A drain comprising a nipple having an axial passage and a lateral vent near one end thereof, a cap embracing that end of the nipple and movable relatively thereto to open and close the vent, and means for preventing complete withdrawal of the cap from the nipple including a stem extending through the cap, a shoulder on the nipple and a head on the stem adapted to engage the shoulder.

2. A drain comprising a nipple having an axial passage and a lateral vent near one end thereof, a cap embracing that end of the nipple and movable relatively thereto to open and close the vent, and a deflector secured to the nipple adjacent to the vent.

In testimony whereof I affix my signature.

JOSEPH L. HUTCHINGS.