O. D. RYAN.

SEWER TRAP.

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1,128,528. Patented Feb. 16, 1915.

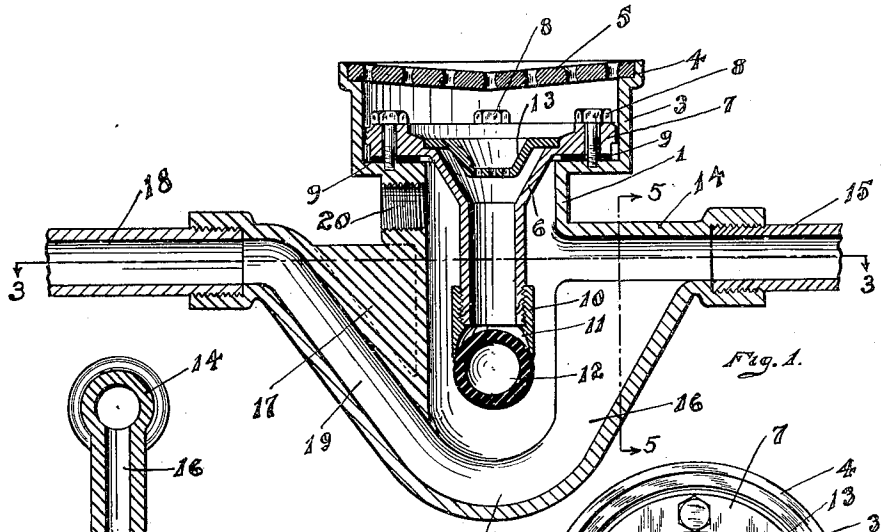


Fig. 1.

Fig. 5.

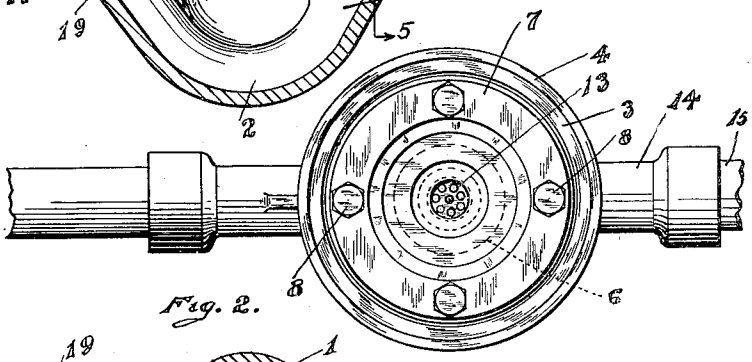


Fig. 2.

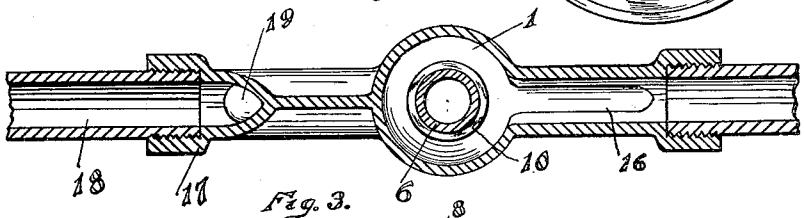


Fig. 3.

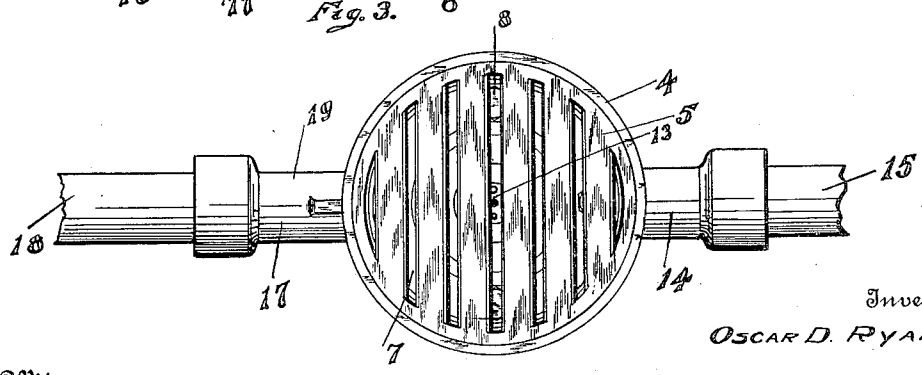


Fig. 4.

Witnesses

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SEWER-TRAP.

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To all whom it may concern:

Be it known that I, OSCAR D. RYAN, a citizen of the United States, residing at New Lexington, in the county of Perry and State of Ohio, have invented certain new and useful Improvements in Sewer-Traps, of which the following is a specification.

My invention relates to sewer traps and has particular application to that type of trap known as a drain. In addition to providing a drain trap, I have also so constructed the device to accommodate a backwater valve operable to prevent sewage, flood or tide water from backing in from the main sewer.

One of the most essential features of my invention resides in the provision of means whereby all flowing material, etc., which may be placed in the drain water may not interfere in any manner with the operation of the trap. In other words, I so place the mouth of the drain inlet portion at a point some distance below the mouth of the outlet or soil pipe. In this manner, all light or buoyant material rises to the surface of the water and a subsequent flow will cause this floating material to pass away into the soil pipe. A further feature of novelty resulting from placing the mouth of the drain inlet at a point below the mouth of the outlet is that an efficient water seal is always provided. In order that this water may not siphon itself, I have also provided a vent opening at a point above the outlet of the soil pipe.

A still further object of my invention resides in the provision of a structure for automatically cleaning the trap of all sedimentary waste. This I accomplish by providing each trap with a supplemental waste water inlet leading from any source, from which a quantity of water may be continuously or intermittently fed. This supplemental waste water inlet and the normal outlet portion to the soil pipe, are so arranged relatively that the incoming waste water acts as a flush to carry away all of the heavy deposited waste.

Other objects resulting from the structure which I have adopted, will be apparent from a further description of the accompanying drawings, in which similar characters of reference designate corresponding parts, and in which:

Figure 1 is a central vertical section of my sewer trap, Fig. 2 is a top plan view of the structure shown in Fig. 1, with the upper strainer removed, Fig. 3 is a section taken on line 3—3 of Fig. 1 and looking in the direction of the arrows, Fig. 4 is a top plan view of the structure shown in Fig. 1, and, Fig. 5 is a section taken on line 5—5 of Fig. 1 and looking in the direction of the arrows.

My invention is applicable generally to carry away all surface or waste water and may be slightly modified as concerns its structural characteristics to adapt itself for various applications. However, the structure shown in the accompanying drawings is particularly adaptable for cellar use and this showing is sufficient to illustrate the novel features. In these drawings, the trap is shown as comprising a hollow body member 1 of substantially cylindrical formation and having a concave lower inner wall 2. The upper portion of this body member is left open and preferably provided with an enlarged seat portion 3 presenting an annular shoulder 4 at its upper edge to accommodate the top strainer shown at 5. This top strainer is preferably removably mounted as is shown, to permit a ready inspection of the inner portion of the trap. The enlarged portion 3 also serves as a seat for a funnel member 6 carrying a shoulder 7 at its upper end, this shoulder being suitably apertured to receive bolts or other attaching means 8 to securely attach the funnel to the body member, the joint between these two portions being made water and air tight by the provision of any type of washer, such as is shown at 9. An inspection of Fig. 1, discloses the fact that the funnel member 6 extends downwardly to some considerable extent into the base portion of the hollow body member and also that its lower end is provided with a bushing 10. This bushing 10 is preferably of a rust proof and non-corrosive material and has its lower portion constructed to form a valve seat 11 adapted to coöperate with a check valve structure shown in the nature of a ball 12. This ball may be of rubber or light metal, as may be desired, it being only necessary that it be of such a nature that its tendency is to rise to the surface of any water confined within the trap. The upper portion of the funnel 6 is also provided with a second removal strainer shown at 13, the purpose of this sec-

ond strainer being to catch all waste matter that may possibly escape through the upper strainer 5.

In order that an efficient water seal may always be had and further, in order that all floating material which may pass into the trap structure may readily pass out through the soil pipe, I have given the body portion 1 a formation such as is shown at 14, this formation being adapted to be connected to the outlet or soil pipe 15 and may itself be interpreted as forming a portion of this soil pipe. It will be noted that this soil pipe communicates with the interior of the hollow body member 1 at a point near its top, or, in other words, at a point above the level of the outlet portion of the funnel member 6. In this manner, an efficient water seal is had and to prevent the siphoning of the water forming this seal, I have provided a vent opening 20 above the level of the mouth of the outlet. It is to be understood that this vent opening 20 may be plugged in a suitable manner to permit only sufficient air to be drawn into the interior of the body member 1 to break any siphoning action that may occur. I have further so formed this body member that a channel shaped spout 16 leads on an incline from the concaved lower wall up to the outlet portion of the soil pipe. It will be apparent that all sedimentary waste will collect in the bottom of the trap and a subsequent heavy inflow of water will force this heavy material up the incline and out through the soil pipe. To insure the removal of this heavy material, and also to make its removal automatic, I have provided the body member 1 with a supplemental waste water inlet formation designated generally as 17. This formation communicates with a waste pipe shown at 18 and the formation itself preferably comprises an inclined conduit portion 19 leading downwardly to the base portion of the body member. The supplemental waste water inlet formation and the outlet formation are preferably placed at points diametrically opposite each other, so that either the intermittent or continual flow of waste water through the pipe 18, will force the heavy material up the inclined wall of the channel-shaped spout 16 and out through the outlet or soil pipe 15. In this manner, the base of the trap is always kept clear of heavy material such as might interfere with the operation of the ball valve 12 and also such as might collect and decay at this point.

From the foregoing description, it will be apparent that I have provided a type of sewer trap to which all parts are readily accessible and also one in which all collected materials of whatever nature, may be easily and automatically removed. By extending the funnel member 6 downwardly within the hollow cylindrical body 1 to a point below the mouth of the outlet pipe, an efficient water seal may always be had. However, this is not the only advantage resulting from this structure, for, as previously related, the floating material such as matches, etc., will collect at the water level, this water level being above the lower outlet portion of the funnel and in this manner cannot possibly interefere to either choke up the funnel or to prevent the operation of the check valve structure shown at 12. Any subsequent inflow of water will cause the floating material to be carried away through the outlet soil pipe. In addition to this, I have so arranged the structure that all sedimentary materials may also be removed through the soil pipe. The removal of this sedimentary material is insured by tapping a supplemental waste water pipe such as 18, into the trap. This waste pipe is preferably located at a point diametrically opposite the outlet pipe and the outlet portion is further provided with an inclined channel spout 16 so that this heavy material may be more easily removed. It is to be understood that the inlet 18 may be connected in any manner so that either a continual or an intermittent flow of water is had. In dwellings, it is customary to connect this pipe with a bath tub, but it is also apparent that the service pipe may be connected thereto and the control of water into the trap be regulated by a faucet, which faucet may be used whenever it is thought this heavy material is collected.

What I claim, is:

1. A sewer trap comprising a hollow body having a top opening, an outlet pipe in communication with the upper portion of said body, a funnel leading downwardly from the top opening of said body to a point approximately midway between the base of said body and its outlet pipe opening, and a check valve structure arranged to coöperate with the lower open end of said funnel.

2. A sewer trap comprising a hollow body having a top opening, an outlet pipe in communication with the upper portion of said body, a funnel member removably mounted in the open top of said body and extending downwardly to a point approximately midway between the base of said body and its outlet pipe opening, a valve seat on the lower open end of said funnel, and a ball float arranged to coöperate with said valve seat.

3. A sewer trap comprising a hollow body having a top opening, an outlet pipe in communication with the upper portion of said body, said body being shaped to form an upwardly inclined channel-shaped spout leading from the base portion of said body into said outlet, a funnel leading downwardly from the top opening of said body

to a point approximately midway between the base of said body and its outlet pipe opening, and a check valve structure arranged to coöperate with the lower open end of said funnel, the passageway from said structure through said outlet being wholly unobstructed.

4. A sewer trap comprising a hollow body having a top opening, an outlet pipe in communication with the upper portion of said body, said body being shaped to form an upwardly inclined channel-shaped spout leading from the base portion of said body into said outlet, a funnel leading downwardly from the top opening of said body to a point below the mouth of said outlet opening, a check valve structure carried by the lower end of said funnel entirely submerged at normal low water level, the passageway between said structure and said outlet opening being wholly unobstructed, and a waste water inlet formation leading into the base portion of said body below the outlet of said funnel.

5. A sewer trap comprising a hollow body having a top opening, an outlet pipe in communication with the upper portion of said body, a funnel leading downwardly from the top opening of said body to a point below the mouth of said outlet opening, a check valve structure carried by the lower end of said funnel entirely submerged at normal low water level, the passageway from said structure through said outlet opening being wholly unobstructed, and a waste water inlet pipe communicating with the base portion of said body below the outlet of said funnel.

6. A sewer trap comprising a hollow body having a top opening and a concave base wall, an outlet pipe in communication with the upper portion of said body, said body being shaped to form an upwardly inclined channel shaped spout narrower than said outlet pipe leading from said concave base wall of said body into said outlet, a funnel leading downwardly from the top opening of said body to a point below the mouth of said outlet opening, and a waste water inlet formation leading on an incline into the base portion of said body below the outlet of said funnel.

In testimony whereof I affix my signature in presence of two witnesses.

OSCAR D. RYAN.

Witnesses:
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L. E. BUTT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."