No. 749,503. PATENTED JAN. 12, 1904.

J. J. TOKHEIM.

NON-SIPHONING LIQUID TRAP.

APPLICATION FILED AUG. 21, 1903.

NO MODEL.

Fig. 1.

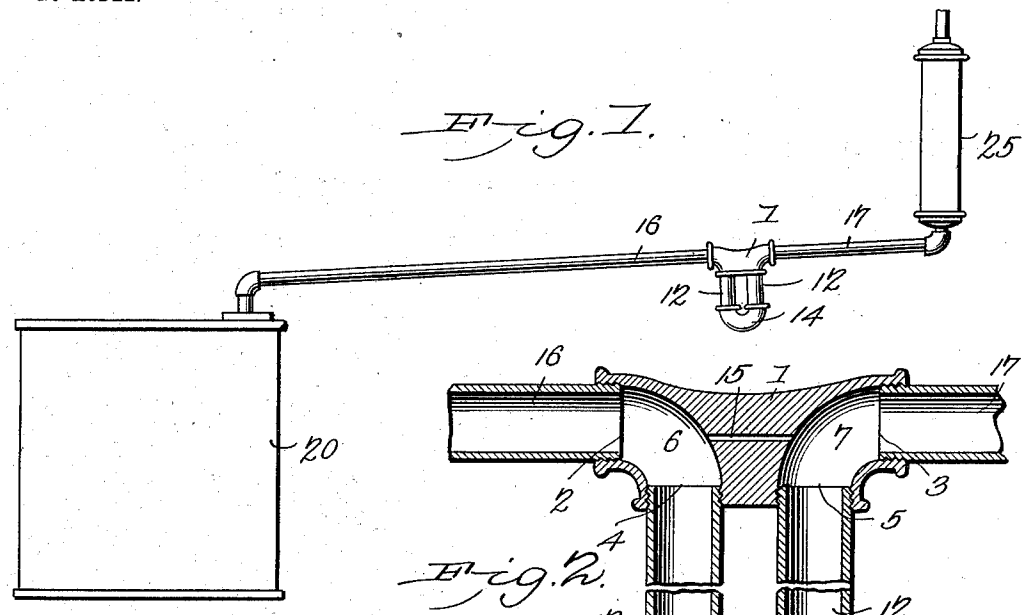


Fig. 2.

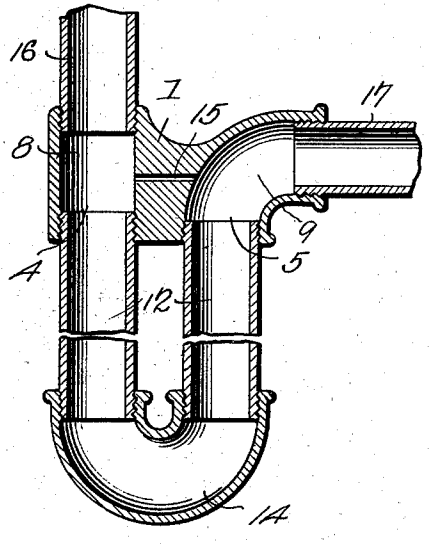
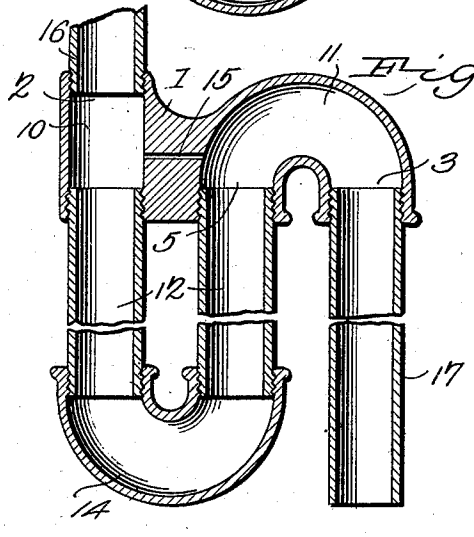


Fig. 3.

Fig. 4.



Witnesses
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 749,503. Patented January 12, 1904.

UNITED STATES PATENT OFFICE.

JOHN J. TOKHEIM, OF CEDAR RAPIDS, IOWA.

NON-SIPHONING LIQUID-TRAP.

SPECIFICATION forming part of Letters Patent No. 749,503, dated January 12, 1904.

Application filed August 21, 1903. Serial No. 170,366. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. TOKHEIM, a citizen of the United States, residing at Cedar Rapids, in the county of Linn and State of Iowa, have invented a new and useful Non-Siphoning Liquid-Trap, of which the following is a specification.

This invention relates to non-siphoning liquid-traps; and it has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency.

My invention consists, essentially, in a casting having inlet and exit openings, adapted to be connected with the pipes for the passage of liquid, said inlet and exit openings being also adapted for connection with the members constituting the U or trap, this casting being also provided with a bore, whereby said inlet and exit openings are connected and which serves as a vent or air-passage to prevent the contents of the trap from escaping through the siphoning action of liquid passing through the pipes.

My invention is especially adapted to be used in connection with pipes for the passage of liquid which may be pumped in one direction through said pipes and which when the pumping action ceases is permitted to drain back through the pipes to the source of supply.

My invention while capable of other uses is especially adapted to be used in connection with oil-pipes connecting a storage-tank constituting the source of supply with a pump constituting the dispensing medium, and it has been shown in this connection in the accompanying drawings, in which—

Figure 1 is a diagrammatic view showing a storage-tank, a dispensing-pump, and a connecting pipe-line equipped with my improved trap. Fig. 2 is a vertical sectional view illustrating one form of embodiment of my improved trap. Figs. 3 and 4 are vertical sectional views illustrating modified constructions of said trap.

Corresponding parts in the several figures are indicated by similar numerals of reference.

As regards the construction of my improved trap, it may be stated that in all cases I employ a suitable casting 1, having an inlet 2, an outlet 3, an opening 4, directly communicating with the inlet, and an opening 5, directly communicating with the outlet. The shape of the casting may be varied. Thus in Fig. 2 the inlet 2 and the outlet 3 are disposed in longitudinal alinement with each other and are connected by means of curved passages 6 and 7, respectively, with the openings 4 and 5, disposed adjacent to each other in the lower part of the casting. In Fig. 3 a casting is shown having at one end a vertical perforation or passage 8, the upper end of which constitutes the inlet 2. At the other end of said casting is formed a curved passage 9, the horizontal branch of which communicates with the outlet 3. The lower ends of the passages 8 and 9 constitute the openings 4 and 5, which communicate, respectively, with the inlet 2 and the outlet 3. In Fig. 4 is illustrated still another form of casting having at one end a vertical perforation or passage 10, the upper end of which constitutes the inlet 2 and the lower end of which constitutes the opening 4. The opposite end of said casting has a gooseneck or U-shaped passage 11, the outer end of which constitutes the outlet 3, while the inner end of said passage constitutes the opening 5. The several inlets, outlets, and openings are interiorly screw-threaded in order that they may be readily connected with the pipes for the passage of liquid, as well as with the members constituting the traps. It will be observed that in each of the forms here illustrated the openings 4 and 5 are disposed adjacent to each other, and said openings are connected with the upper ends of pipes 12, the lower ends of which are connected by means of return-bends 14. In each case the body of of the casting 1 is provided with a channel or bore 15, connecting the inlet-opening with the outlet-passage of said casting. This bore or vent is in each instance of small diameter, only a small opening being necessary in order to admit a sufficiency of air to prevent siphoning.

16 and 17 represent the pipes for the passage of liquid, which are connected, respectively, with the inlet and the outlet 3 of the casting, which, in conjunction with the pipe members 12 and return-bend 14, constitutes the trap.

It will be observed that in the several figures of the drawings the principle involved is precisely the same, the only difference being that in Fig. 2 the casting is adapted to be mounted upon a straight pipe-line, in Fig. 3 the inlet-pipe is vertical and the outlet-pipe horizontal, while in Fig. 4 the inlet and outlet pipes are both disposed vertically. It is obvious that in each of the several forms the conducting-pipes may be bent or joined with other pipes leading in any desired direction.

In the diagrammatic view Fig. 1 I have illustrated the form of my improved trap (shown in detail in Fig. 2) disposed upon an approximately horizontal pipe-line, which connects a storage-tank 20 with a pump 25. It will be seen that when the pump is operated the contents of the trap, which is located at no great distance from the pump, will be started in the direction of the latter, thus forming a priming which will materially assist in the speedy working of the pump. At the same time suction takes place not only through the vent 15, but also through the body of the trap, thus starting the contents of the tank in the direction of the pump. When the operation of the pump ceases, the contents of the pipes will drain back into the storage-tank; but as soon as the vent 15 is uncovered the liquid contained in the trap will remain stationary, while the pipes may be perfectly drained, said pipes being obviously disposed in a slightly-slanting position in the direction of the storage-tank.

It is obvious that in cases where liquid, such as oil, is stored at a distance from the dispensing apparatus, which is strenuously insisted upon by fire underwriters, this trap is extremely useful for the purpose of starting the pump, which in the case of connecting-pipes of considerable length would require to be primed or operated for some time before the flow would be started. At the same time the return-flow of the oil to the storage-tank is in no wise impeded, and the contents of the trap are always at hand for the purpose of starting the pump, back siphoning being rendered impossible owing to the construction of the trap, as herein described.

It is obvious that the use of my improved non-siphoning trap is not confined to any particular purpose, but that it may be usefully employed under many conditions, which it is not necessary here to enumerate. I also desire it to be understood that I do not limit myself to the exact structural features herein shown and described, but reserve the right to any changes, alterations, and modifications which may be resorted to within the scope of my invention and without departing from the spirit or sacrificing the utility of the same.

Having thus described my invention, I claim—

1. In a device of the class described, a body consisting of a block or solid casting having an inlet and an outlet, openings disposed adjacent to each other communicating respectively with said inlet and outlet and a bore constituting a vent connecting said inlet and outlet in combination with suitable pipe connections to constitute a trap.

2. In a device of the class described, a body consisting of a block or solid casting having an inlet and an outlet, openings communicating respectively with said inlet and outlet, a return-bend connecting said openings, and a vent connecting the inlet and outlet passages.

3. In a device of the class described, a body consisting of a block or solid casting having openings disposed adjacent to each other, a return-bend connecting said openings, an inlet communicating with one and an outlet communicating with the other of said openings, and a bore in said body constituting a vent connecting the inlet with the outlet.

4. The combination of a source of supply, as a storage-tank, a dispensing means, as a pump, a pipe-line connecting the source of supply with the dispensing means, and a trap upon said pipe consisting of a block or solid casting having an inlet, an outlet, openings communicating respectively with said inlet and outlet, a return-bend connecting said openings, and a vent connecting the inlet-passage with the outlet-passage.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN J. TOKHEIM.

Witnesses:
R. T. FORBES,
F. BRENN.