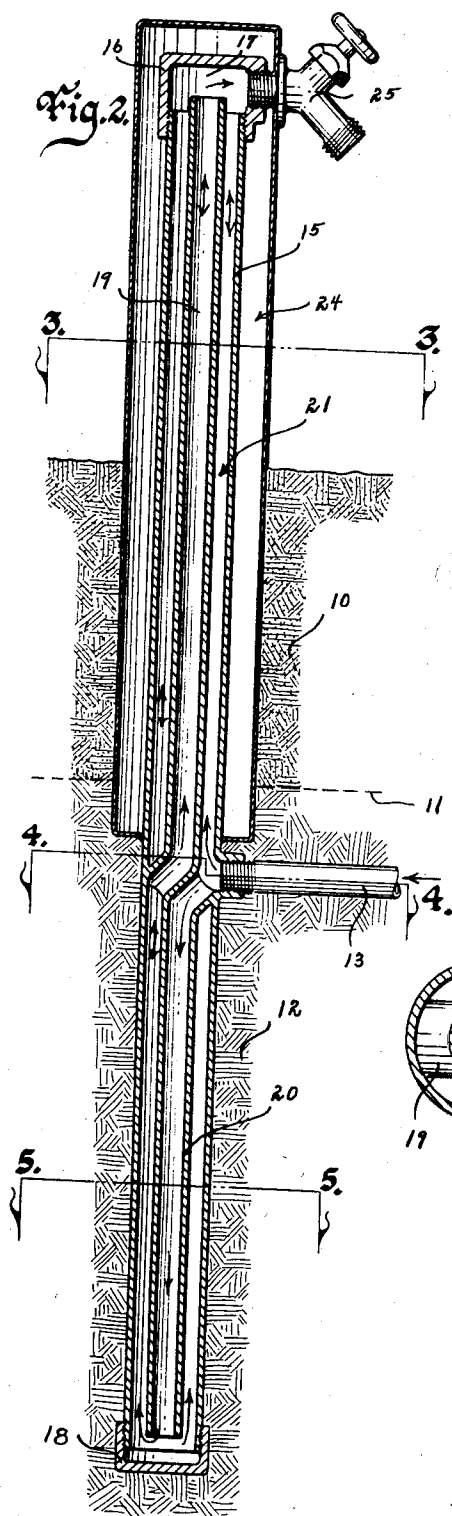
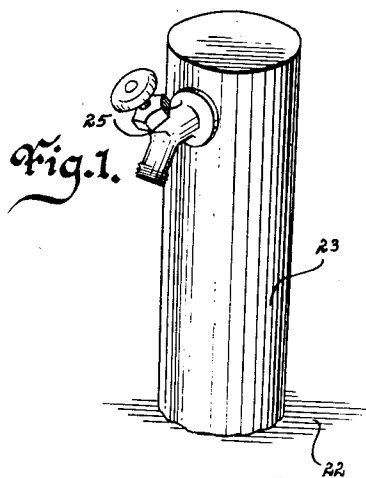
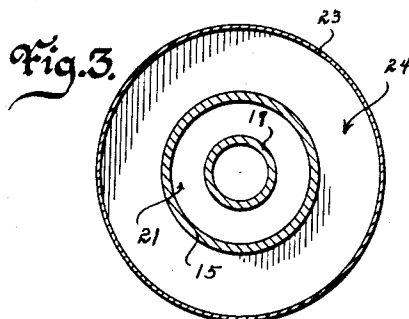
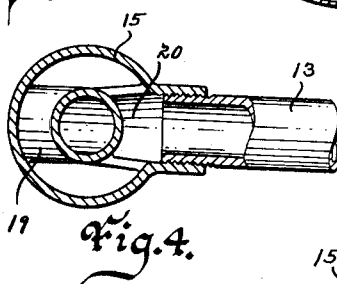
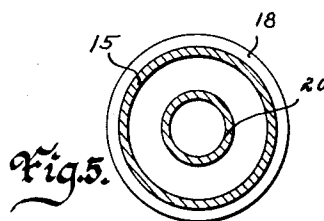


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ALL WEATHER WATER HYDRANT

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ALL WEATHER WATER HYDRANT

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5 Claims. (Cl. 137—339)

This invention relates to an all weather water hydrant and more particularly to a non-draining hydrant that is free of the danger of freezing up during the cold months of the year.

There are now many types of equipment for bringing water above ground from underground water supply lines. Such equipment takes the form of yard hydrants, fire hydrants, stock watering means, drinking fountains and the like. While these devices successfully operate during the warmer months of the year, they often freeze up and become inoperative or broken by the water freezing therein during the colder months of the year. Some effort has been made to solve this problem by providing for the water in the riser pipe to drain out into a pit or like in the ground after the valve has been closed. There are many objections to this solution, i.e., a certain amount of the water is wasted and this waste water creates an insanitary condition around the hydrant. Also this waste water and other foreign matter may well become contaminated and will find its way back into the hydrant and into the fresh water flowing through the original drain hole. A still further objection to the present non-freezing hydrant is that there is a considerable time lapse after the valve has been turned on and before the water flows through the nozzle of the hydrant. Therefore one of the principal objects of my invention is to provide a freezeless, non-draining and sanitary means for making water from a supply line under ground available for use above the ground in all temperatures including freezing temperatures.

More specifically the object of this invention is to provide a hydrant or like that utilizes ground temperatures for preventing the freezing of water in the hydrant or like during the colder months of the year.

A still further object of this invention is to provide a hydrant or like for use in all climate conditions that wastes no water for the prevention of the freezing of the water when subjected to cold temperatures.

A still further object of this invention is to provide a non-freezing hydrant or like that has a supply of water available immediately upon the opening of the valve.

A still further object of my invention is to provide a non-draining, non-freezing hydrant or like that is economical in manufacture and durable in use.

These and other objects will be apparent to those skilled in the art.

My invention consists in the construction, arrangements, and combination, of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in my claims, and illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of my hydrant means installed and ready for use;

Fig. 2 is a longitudinal sectional view of my device connected to water supply line and more fully illustrating its internal construction;

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Fig. 3 is an enlarged cross-sectional view of my device taken on line 3—3 of Fig. 2;

Fig. 4 is an enlarged cross-sectional view of my hydrant means taken on line 4—4 of Fig. 2; and

Fig. 5 is an enlarged cross-sectional view of the lower end portion of the hydrant taken on line 5—5 of Fig. 2.

As before indicated my method of preventing the freezing of water is adaptable for use in yard hydrants, fire hydrants, water fountains and like. However, in the drawings I show the device for use as an ordinary hydrant. In these drawings I have used the numeral 10 to designate that part of the ground that is above the normal frost line 11 of a given climate and the numeral 12 to designate that part of the ground that is below the frost line and therefore at a temperature less than freezing. The numeral 13 designates an ordinary water line supply pipe communicating with a source of water under pressure and obviously located below the frost line. The numeral 15 designates the elongated tubular pipe of my device. The numeral 16 designates a cap housing threaded onto the upper end of the pipe 15 and providing a compartment 17 directly above the upper end of the pipe 13. The numeral 18 designates a cap threaded onto and closing the lower end of the pipe 15 as shown in Fig. 2. The numeral 19 designates a pipe having an outside diameter less than the inside diameter of the pipe 15. This pipe 19 is positioned and centered within the upper portion of the pipe 15 with its upper end above the upper end of the pipe 15 and terminating inside the compartment 17. The lower end portion of this pipe 19 however is bent to extend downwardly, outwardly and to the left and terminates near the center length of the pipe 15. When the device is installed the lower end of the pipe 19 which terminates inside the pipe 15 will be below the frost line and in the vicinity of the water supply pipe 13 as shown in Fig. 4. The numeral 20 designates a tubular elongated pipe having an outside diameter substantially less than the inside diameter of the pipe 15. This pipe 20 is centered within the lower portion of the pipe 15 and has its lower open end terminating inside the pipe 15 and above the lower end of the pipe 15. The upper end portion of the pipe 20 is bent upwardly and outwardly and to the right as shown in Fig. 4. This upper bent portion of the pipe 20 is adjacent to and complements the lower bent portion of the pipe 19. The pipe 20 has its upper end terminating inside the pipe 15 below the frost line and adjacent the water supply pipe 13. When the device is installed the water supply pipe 13 is threaded into the side of pipe 15 and its outlet end communicates with the open upper end of the pipe 20 and also the space 21 around the pipe 19 in the upper end portion of the pipe 15 as shown in Fig. 2. When the device is installed to a supply pipe 13 the major portion of the length of the device will be imbedded in the ground 10 and 12. The depth the device is imbedded in the ground will of course depend upon climatic conditions but in general the lower end of the pipe 19 and the upper end of the pipe 20 will be below the normal frost line 11. The extreme upper portion of the hydrant will of course be above the ground level 22 as shown in Fig. 1. The numeral 23 designates an enclosed housing embracing the upper portion of the pipe 15 and loosely embracing the cap 16. The inside diameter of this housing 23 is substantially greater than that of the outside diameter of the pipe 15 in order to provide an enclosed air space 24. The lower end of this pipe housing 23 extends below the frost line 11. The numeral 25 designates an ordinary manually operated hydrant valve having its exit end communicating with the outside atmosphere and its entrance end extending through the upper portion of the housing 23 and threaded into the cap 16 for communication with the inside of the cap 16. When the device is installed in the ground as

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shown in Fig. 2, the supply water in the unit will not freeze and no draining is necessary even in the coldest months of the year. Several factors combine to make this desired result possible. Firstly, most of the incoming water through the supply pipe 13 will be directed into the bent receiving upper end of the pipe 20. This portion of the water which is of a temperature substantially above freezing temperature moves downwardly through the pipe 20 and thence upwardly through the space between the pipe 20 and lower portion of the pipe 15. Both the pipe 20 and the lower portion of the pipe 15 are substantially below the frost line and the water picks up heat units whereby the water moving upwardly through the pipe 19 and through the space 21 will be of a temperature higher than that of the water entering the unit from the supply pipe 13. In case a considerable volume of water is being withdrawn from the faucet valve 25, some of the water from the pipe 13 will pass directly upwardly through the space 21, however, water initially at a temperature above freezing will not later freeze while in flowing motion. The case 23 and air space 24 around the upper portion of the pipe 15 act to insulate the pipe 15 against cold temperatures. Furthermore, the air space 24 is earth heated by extending below the frost line. The device successfully works even if water is seldom drawn from the faucet. One reason for this is that if an elongated column of enclosed still water has its lower portion maintained above freezing temperatures, its upper area will not freeze. The reason for this is that the water itself circulates. The cold water particles move downwardly and are replaced by the upwardly moving warm water particles. Most of the moving water particles will be in the space around the pipe 19, because the top of the pipe 19 is above the top of the pipe 15, and also the water in the space 21 will be closer to the outside cold atmosphere than the inside of the pipe 19.

My device is not only successful against freezing but is of long trouble free life.

Some changes may be made in the construction and arrangement of my all weather water hydrant without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claims, any modified forms of structure or use of mechanical equivalents which may be reasonably included within their scope.

I claim:

1. In a hydrant, an elongated tubular member closed at both ends and having a lower below frost line portion and an upper above frost line portion, a supply pipe communicating with the inside upper area of the lower portion of said tubular member, a centrally located pipe in the lower portion of said tubular member having its upper open end bent toward said supply pipe and of an outside diameter substantially less than the inside diameter of said tubular member, a centrally located pipe in the upper portion of said tubular member, having its lower end bent away from said supply pipe and of an outside diameter substantially less than the inside of said tubular member, and a valve controlled outlet in the upper portion of said tubular member.

2. In a hydrant, an elongated tubular member closed at both ends and having a lower below frost line por-

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tion and an upper above frost line portion, a supply pipe communicating with the inside upper area of the lower portion of said tubular member, a pipe in the lower portion of said tubular member having its upper open end bent toward said supply pipe and of an outside diameter substantially less than the inside diameter of said tubular member, a pipe in the upper portion of said tubular member, having its lower end bent away from said supply pipe and of an outside diameter substantially less than the inside of said tubular member, and a valve controlled outlet in the upper portion of said tubular member.

3. In a hydrant, an elongated tubular member closed at both ends and having a lower below frost line portion and an upper above frost line portion, a supply pipe communicating with the inside upper area of the lower portion of said tubular member, a centrally located pipe in the lower portion of said tubular member having its upper open end bent toward said supply pipe and of an outside diameter substantially less than the inside diameter of said tubular member, a centrally located pipe in the upper portion of said tubular member, having its lower end bent away from said supply pipe and of an outside diameter substantially less than the inside of said tubular member, and a valve controlled outlet in the upper portion of said tubular member; said first mentioned pipe terminating prior to the lower end of said tubular member and said second mentioned pipe terminating prior to the upper end of said tubular member.

4. In a hydrant, an elongated tubular member closed at both ends and having a lower below frost line portion and an upper above frost line portion, a supply pipe communicating with the inside upper area of the lower portion of said tubular member, a pipe in the lower portion of said tubular member of an outside diameter substantially less than the inside diameter of said tubular member, a pipe in the upper portion of said tubular member of an outside diameter substantially less than the inside of said tubular member, and a valve controlled outlet in the upper portion of said tubular member.

5. In a hydrant, an elongated tubular member closed at both ends and having a lower below frost line portion and an upper above frost line portion, a supply pipe communicating with the inside upper area of the lower portion of said tubular member, a pipe in the lower portion of said tubular member of an outside diameter substantially less than the inside diameter of said tubular member, a pipe in the upper portion of said tubular member of an outside diameter substantially less than the inside of said tubular member, a valve controlled outlet in the upper portion of said tubular member, and a tubular housing of an inside diameter substantially greater than that of the outside diameter of said tubular member embracing the upper portion of said tubular member.

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