

Dec. 30, 1952

V. L. ANDREW  
WATER SYSTEM

2,623,467

Filed May 19, 1949

5 Sheets-Sheet 1

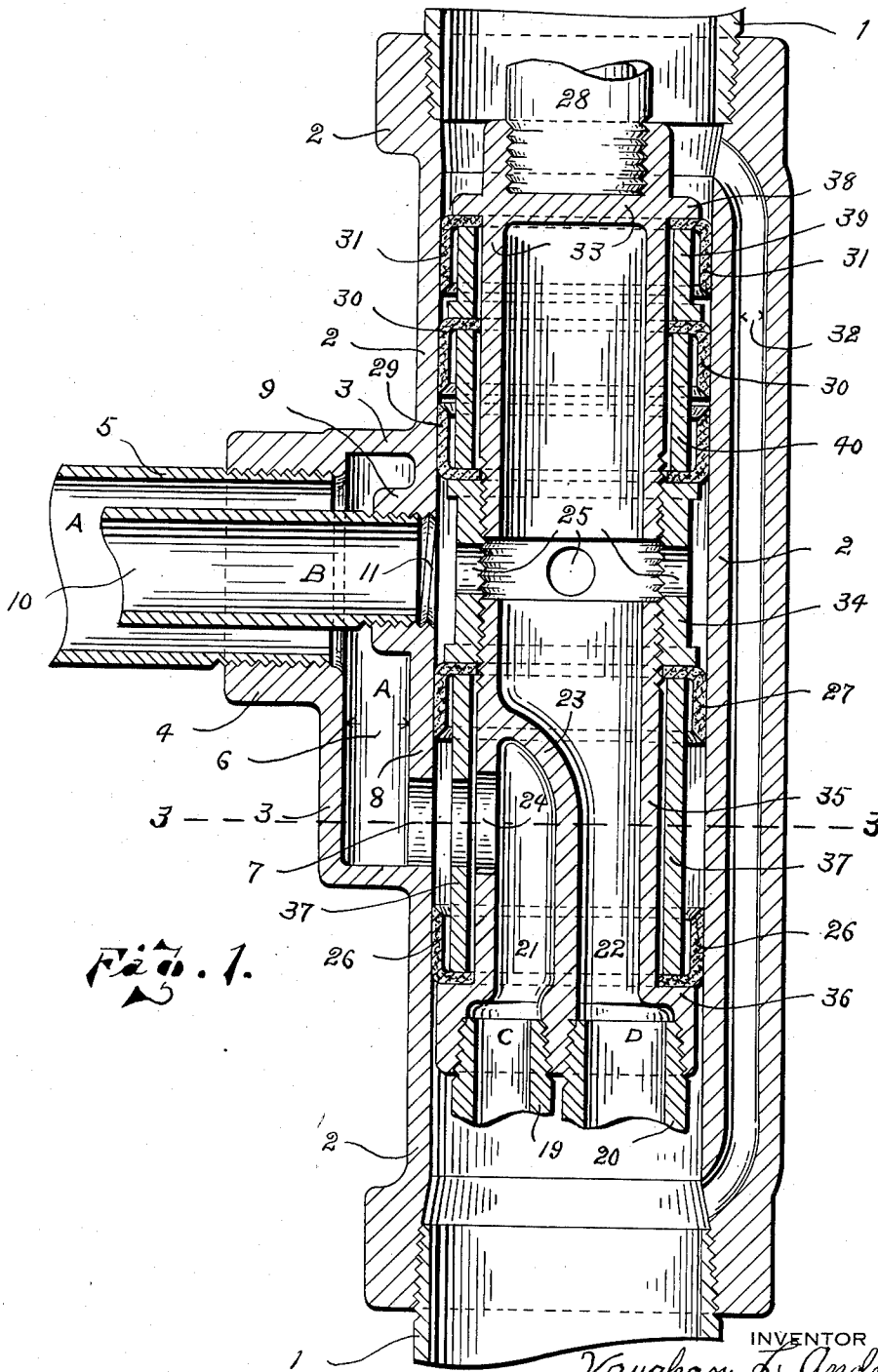


Fig. 1.

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WATER SYSTEM

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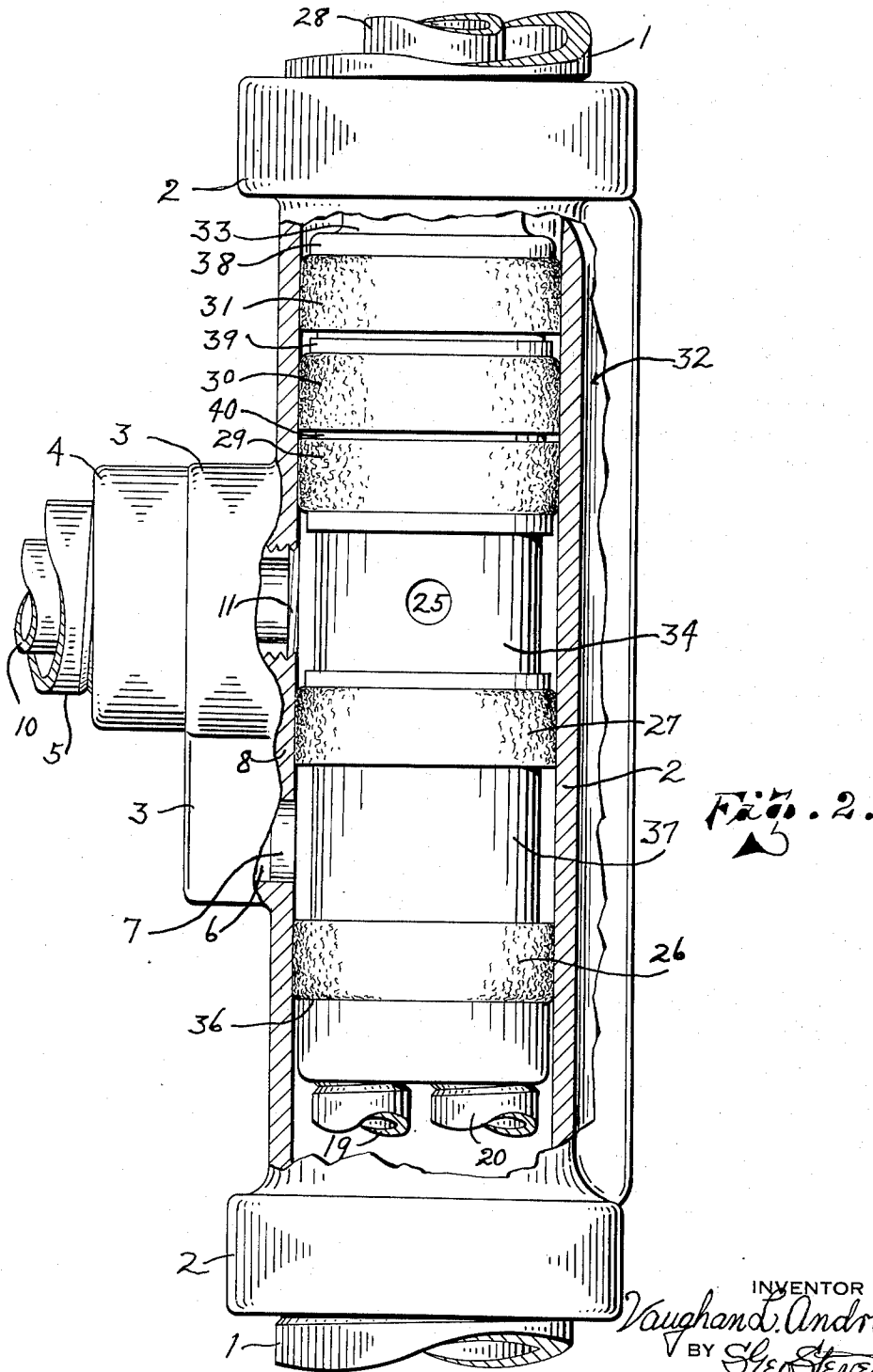


Fig. 2.

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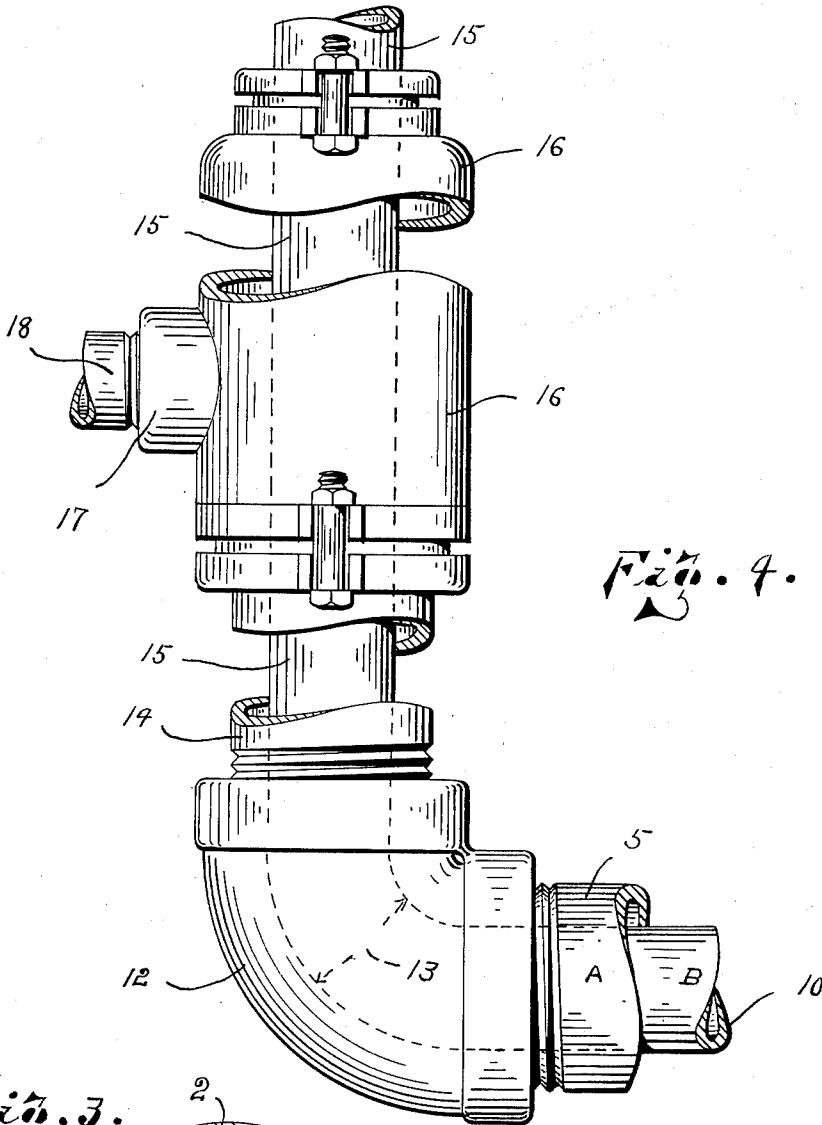
V. L. ANDREW

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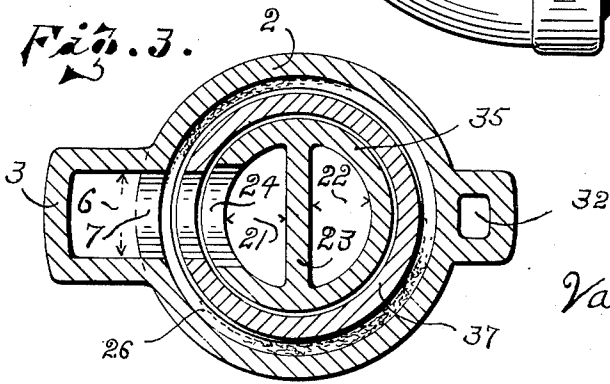
WATER SYSTEM

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*Fig. 4.*



*Fig. 3.*

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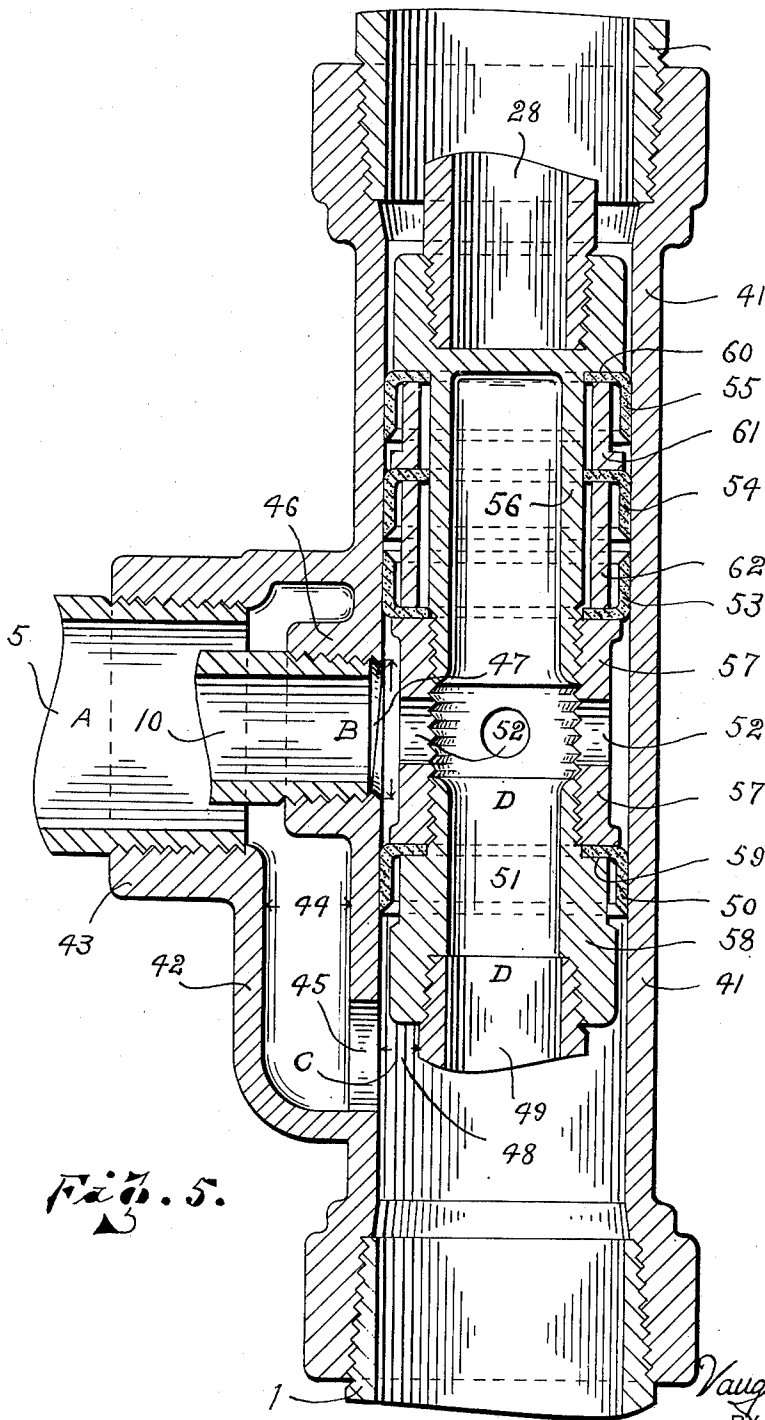


Fig. 5.

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WATER SYSTEM

2,623,467

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5 Sheets-Sheet 5

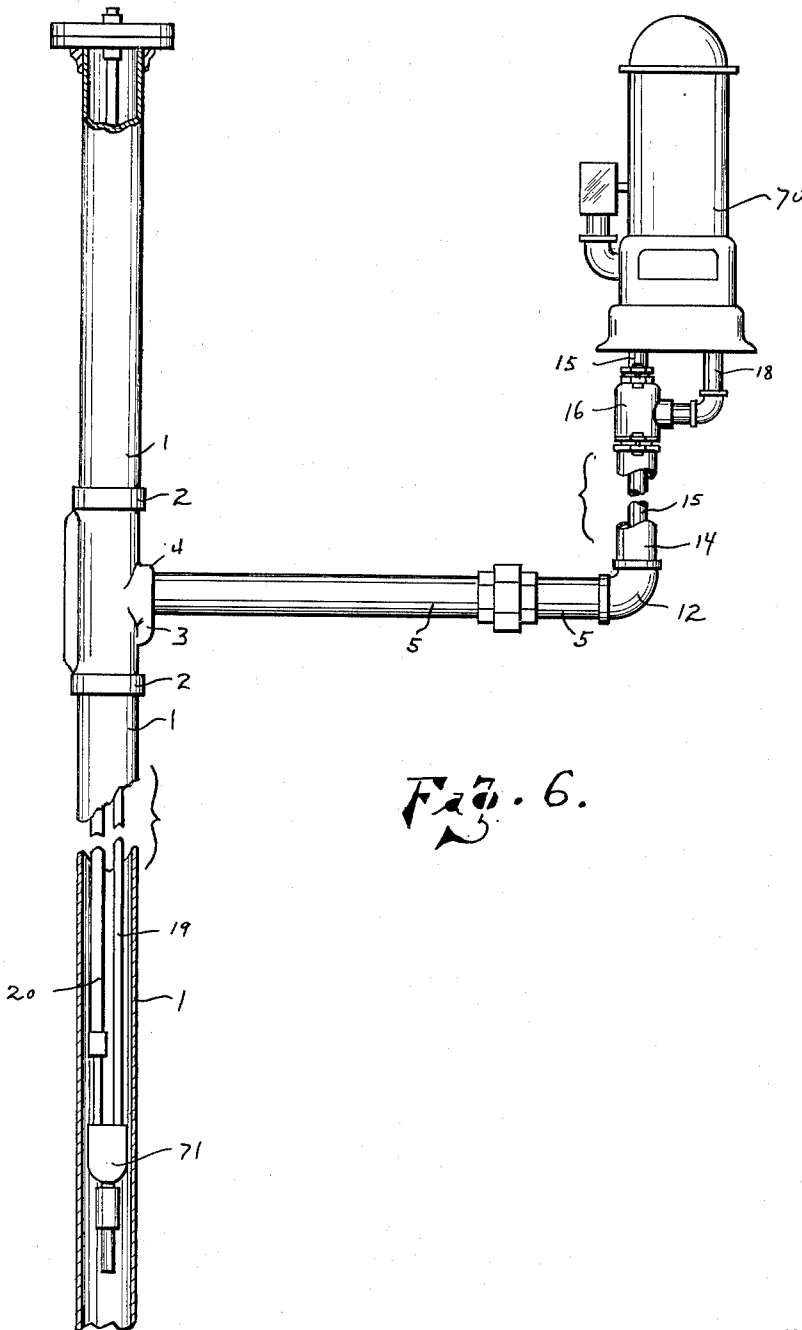


Fig. 6.

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# UNITED STATES PATENT OFFICE

2,623,467

## WATER SYSTEM

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Application May 19, 1949, Serial No. 94,211

9 Claims. (Cl. 103—5)

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This invention relates to water systems and has special reference to pump water systems using the so-called jet type pumps.

There has long been a need felt, on the part of people who depend on wells for their water supply, for a sanitary and efficient as well as an inexpensive water system which will give the country home the same convenience as the city home. However, many State boards of health, realizing the dangers of contamination of wells which are too close to buildings, have specified that no well shall be placed within a prescribed distance from a building. This one stipulation on the part of sanitation officials has caused a great difficulty to well users, as until comparatively recently, pumps had to be located directly over the well, and this required a special well or pump house to keep the pump from freezing, etc., and of course increased the cost of the water system, and still the water was not in the home. Various means were developed to bring the water from the well or pump house to the home and other buildings, but such means were not sanitary.

With the introduction of the so-called jet pump, means was developed whereby the pump could be placed in offset relation to the well, that is, in some other location other than directly over the well. Still, there were official objections to installing jet pumps in the house, as one of the lines of a jet system is a pressure line, while the other is a suction line, at least for certain periods during the operation of the pump, and an exposed suction line can easily be the cause of a contaminated water supply.

In addition, in order to install a jet pump in offset relation to a well and permit easy access to the well, a pit must be provided over the well so that all water lines will be below the frost line. This pit often causes contamination, especially if heavy rains fall, or in flood conditions.

A well water system which can meet the rigid requirements and be completely satisfactory has not heretofore been known.

It is my principal object to fulfill the long felt need for an efficient and convenient, sanitary well water system.

Another object is to provide a well water system wherein the pump may be placed in one's home and which, while providing the utmost in sanitation, is comparatively less expensive to install and less expensive to maintain than heretofore known systems.

Another object is to provide novel means for transferring water between the well casing and

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the pump so that there will be no danger of pollution.

Another object is to eliminate the need for a pump house, as well as the so-called "pit" used with the offset pump installation.

Another object is to provide a novel water distributor for directing water to and from the well casing.

Another object is to provide an underground discharge head which forms a part of the well casing, and which provides means, in conjunction with the water distributor, for transfer of water between external water lines and the casing of the well.

Another object is to provide means for sealing individual water lines from each other as they are transferred in closely adjacent position between a well casing and a pump which is placed in offset relation to the well casing.

Another object is to provide means for servicing the components of a well water system which are contained in the well casing without manually breaking any of the connections in the water system.

These and other objects and advantages will become more apparent as the description of the invention proceeds.

In the accompanying drawing forming a part of this application:

Fig. 1 is a vertical central sectional view of one form of my improved water distributor and discharge head.

Fig. 2 is a broken elevational view of the water distributor and discharge head.

Fig. 3 is a sectional view on the line 3—3 of Fig. 1.

Fig. 4 is a broken elevational view of the water lines which run between the well casing and the pump, illustrating the preferred arrangement thereof.

Fig. 5 is a vertical central sectional view of a water distributor in a discharge head as would be used for a single pipe or "packer type" jet installation.

Fig. 6 is a broken side elevational view of a double-pipe jet pump installed in accordance with my invention.

The common method of installing a jet type pump in offset relation to the well is to use a so-called "pit" which extends below the frost line, and then use common 90° elbows to connect the two horizontal lines to the vertical lines at the upper end of the casing. The pit is required to permit access to the well, and the elbow connections, in the event repairs must be made. At

present a pit is required if access is desired in either a single or a double pipe jet installation.

In the drawing, the reference numeral 1 indicates sections of a well casing, usually iron pipe of suitable diameter, and obviously, the casing will extend above the surface of the earth for sanitary reasons.

In order to omit the usual "pit" which is used in installing jet type pumps in offset relation to a well, I have provided a discharge head 2 which is installed between two sections of the well casing just below the frost line and forms a part thereof, the discharge head 2 having a bore of substantially the same size as the casing. The head 2 has a lateral projection 3 thereon which provides a connection 4 for the water pipe 5, and also provides a passage 6 for water to pass from the pipe 5 into the casing through the hole 7 in the wall 8 of the discharge head 2, the hole 7 preferably being in off-set relation to the connection 4 as shown.

On the inner wall 8 of the head 2 a boss or connection 9 is provided, preferably axially of the connection 4 as shown, to which the water pipe 10 is attached, there being a hole 11 through the wall 8 of the head 2 to permit the flow of water between the pipe 10 and the inside of the well casing, and the pipe 10 being carried within the pipe 5.

Jet type pumps require two separate water lines, thus the pipes 5 and 10 are provided. The respective connections of the pipes 5 and 10 to the casing of the well are permanent in my improved water system, and no "pit" need be provided to permit access to same, the pipes, once installed, may be buried and forgotten as they will last as long as the well casing without need of attention.

The two water lines of a jet type pump may be referred to as a pressure line and a delivery line, and in the operation of a jet type pump 70, the latter forces water from the pump through the pressure line down into the well and discharges it upwardly from a jet nozzle in the jet fitting 71 into the delivery line. This jet discharge causes a suction and draws additional water from the well into the delivery line and back to the pump where some of the water is taken off into a storage tank while the remainder is pumped back through the pressure line and through the jet nozzle to draw up more water from the well. This operation, of course, is well known to those skilled in the art.

Of the two lines I have thus far mentioned, the pipe 5 is a part of the pressure line, and the pipe 10 is a part of the delivery line. As means to connect the lines 5 and 10 to the pump, which is located at a laterally remote location from the well casing, the lines 5 and 10 may be extended to the desired point away from the well, for example, into one's basement, and an elbow, 12 and 13 respectively (see Fig. 4), is provided to direct each of the lines 5 and 10 upwardly to a suitable level for the pump, which, according to most regulations, must be above ground level. Vertical pipes 14 and 15 respectively are provided to extend the pressure and delivery lines to the desired vertical level for the pump, and any suitable adapter, such as the one 16, may be provided to seal the end of the pipe 14, provide a connection 17 for the pipe 13 which is connected to the pressure line of the pump, and to permit the pipe 15 to extend from the pipe 14 so that it may be connected to the delivery line of the pump.

Thus far, we have a pressure line, which we will designate as the line A, leading between the pump and the well casing, and a delivery line, designated B, leading between the pump and the well casing, both lines having an opening into the interior of the casing.

Within the casing two separate lines are maintained, by means of the pipes 19 and 20, the pipes being also marked C and D respectively to denote the pressure and delivery lines respectively within the casing. The pipes 19 and 20 extend down through the casing and into the well water, and the usual jet fitting is connected to the lower end of the pipes, as will be apparent to one skilled in the art.

In order to connect the water lines A and B with the lines C and D respectively, I have provided a water distributor which is removably carried in the well casing and is shown installed within the bore of the discharge head opposite the openings 7 and 11 which form a part of the lines A and B respectively. The water distributor provides means for connecting the pressure line A to the pressure line C; and the delivery line B to the delivery line D without mixing the water of the pressure and delivery lines.

The water distributor has longitudinal internal water passages 21 and 22 to which the pipes 19 and 20 respectively are connected, the passages being separated by a wall 23, preferably as shown. An opening 24 is provided through the water distributor from the passage 21 into the well casing, preferably opposite the opening 7 in the discharge head, and a second opening 25 is provided through the distributor from the passage 22 into the well casing, preferably opposite the opening 11 in the discharge head. (More than one opening 25 is shown here as more than one may be employed if desired, and of course the same is true of the hole 24.)

In order to seal the water of the pressure line A—C from the delivery line B—D, and to prevent loss of water into the well casing as it travels in the pressure and delivery lines, I employ a plurality of seals carried on the outer face of the distributor and preferably of leather whereby water will swell them and provide a better seal. The seals 26 and 27 are carried on the distributor on opposite sides of the opening 24 through the distributor, and are of cup-like form with the free edges thereof facing towards each other, and, of course, towards the pressure of the water in the line A—C.

The water distributor is suspended in the well casing so that the seals 26 and 27 are disposed on opposite sides of the opening 7 in the casing through the wall 8 of the discharge head. Thus, it will be seen, that water, traveling in the pressure line A—C from the pump down into the well to the jet nozzle, will enter the casing through the hole 7, and the seals 26 and 27 will prevent the water from going anywhere but through the hole 24 and into the water distributor passage 21, which forms a part of the pressure line A—C, and down through the pipe 19 to the jet nozzle in the well.

The preferred means for supporting the water distributor so that the seals 26 and 27 are disposed on each side of the opening 7 in the casing, is similar to that illustrated in my U. S. Patent No. 2,230,856 of February 4, 1941 wherein the well casing is shown extending above the ground level and the cap-like member (18 in the patent) is carried on the upper end of the casing and has attached thereto a suspending pipe section

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28 (5 in the patent) which in turn is attached to the water distributor, the length of the pipe 28 determining the position or depth at which the water distributor is held in the well casing. Any suitable flat plate with a rubber seal may be secured on the upper face of the cap-like member shown in the patent to seal the upper end of the casing and thus prevent contamination of the well.

The water distributor also is provided with seals 29, 30, and 31 above the hole 25 which leads through the distributor into the passage 22, the seals being similar in construction to those previously described. However, the seal 29 has its free edge disposed away from the hole 25. The reason for this is that at times, at least, during the operation of a jet type pump, there is suction present in the delivery line B—D, and at such times as suction is present, the seal 29, and of course the seal 27 on the lower side of the hole 25, prevent the suction pressure from operating anywhere but on the delivery line B—D as the seals 27 and 29 are drawn inwardly toward the hole 25 and this augments the seal of the delivery line.

It will be noted that the seal 27 is acted on by the pressure in the line A—C as well as by the suction which may be present in the line B—D, and that the seal 27 will effectively insure separate flowage of water in the pressure and delivery lines.

At times during the operation of a jet type pump there also may be pressure in the delivery line, and the seals 30 and 31 are provided to prevent any loss of water into the casing above the distributor from the delivery line, the free edge of the seals being faced toward the hole 25 so that any water under pressure trying to pass into the casing above the distributor may well pass the seal 29, but will merely force the seals 30 and 31 into more firm engagement with the walls of the casing and no appreciable amount of water will get above the seals 30 and 31. Any water getting above the seals 30 and 31 will be drained back into the well by means of the drain 32 provided in the discharge head.

The pressure which may develop in the delivery line of a jet type water system obviously will not be as high as that in the pressure line as the latter is the drive line of the system, and thus the seal 27 will be kept tightly against the wall of the casing and the pressure and delivery lines will be effectively sealed from each other. It is deemed apparent that more or duplicate seals may be provided on the water distributor if desired, however, they are not deemed necessary.

The water distributor as here shown comprises a body portion having three main sections, an upper section 33 to which the pipe 28 for suspending the distributor is attached, a central joining section 34 connected to the upper section, and a lower section 35 carried by the joining section and to which the pipes 19 and 20 are secured for suspension in the well casing.

The lower section 35 has its outer end enlarged somewhat to provide ample room for connections for the pipes 19 and 20, and also to provide a radial shoulder or seat 36 for the seal 26. A spacer sleeve 37 is installed on the lower section to space the seal 27 from the seal 26 so that the seals straddle the hole 7 in the casing, there being an opening in the spacer sleeve to correspond with the hole 24 in the distributor and permit the passage of water into the passage 21. The

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seal 27 is carried on the upper end of the sleeve 37 and the joining section 34 is screwthreadedly installed on the lower section to hold the seals 26 and 27 and the sleeve 37 in place.

The upper section 33 has a threaded socket at its upper end into which the pipe 28 is screwed to support the distributor, and a radial flange 38 which forms a seat for the seal 31. A relatively short spacer ring 39 separates the seals 30 and 31, and a longer spacer sleeve 40 separates the seals 30 and 29. As shown, the upper section 33 is screwed into the joining section 34 to complete the distributor and hold the seals 29, 30, and 31 in place as well as their spacers.

It will be noted that the structure above described will permit safe and sanitary installation of a jet type pump in almost any location as the danger of contaminating the water system due to any defects in installation are, for all practical purposes, eliminated, to wit:

There is no danger of contamination during floods or heavy rains as the well casing extends above the ground, and in addition is sealed tightly by means of a cap, not shown but described in the above, so that no surface water can get into the well casing. There is no "pit" to collect surface water.

There is no danger of contamination in the water lines leading between the casing and the pump as the outside line, which is exposed and would be the one to receive any foreign substance that might cause contamination, is a pressure line, that is, water in the line is under constant pressure, and should a leak develop in the pipe, water would be forced out of the line rather than anything being able to enter the line.

The internal line, which at times is a suction line, is carried within the pressure line and if any leak develops in the inside pipe, the only thing that could enter same is good well water from the pressure line and there would be no danger of contamination therefrom.

The place where the pump is connected to the pressure and delivery lines is above ground level where there is no chance of contamination from outside due to foreign matter engaging the pipe lines.

A further convenience provided by my above described water system is that in the event that anything goes wrong with the parts in the well casing, for example, if the jet nozzle should become worn or plugged, the entire mechanism can be lifted up from the upper end of the casing and removed from the casing without disturbing the pump or the water lines between the pump and the casing, and any repairs may be made. The entire mechanism may be put back into the casing, also, without disturbing the pump or water lines between the pump and the casing. By having a predetermined length for the pipe 28, the water distributor will be located in its proper setting so that the seals thereon separate the water of the pressure and delivery lines as above set forth.

It is deemed apparent from the foregoing description that the water flowing from the pump in the pressure pipe 5 will pass into the passage 6, through the hole 7, and into the casing. The water will surround the water distributor within the well casing intermediate of the seals 26 and 37, and the latter will prevent any loss or leakage of water or pressure. There being an opening 24 into the distributor, the water can only pass through the opening and down into the well through the passage 21 and pipe 19.



Similarly, water coming out of the well in the delivery line will enter the passage 22 in the distributor from the pipe 20, and pass through the hole, or holes 25 into the space between the casing and the distributor. The seals, 27, 29, 30 and 31 prevent any loss of water in the delivery line at this point, and water can only pass through the hole 11 into the pipe 10 and go back to the pump.

In Fig. 5 I have shown a modified form of discharge head and a water distributor installed therein for use with a so-called single pipe or "packer type" jet pump installation. The single pipe installation is used in small size well casings from about three inches and under in diameter, and in this system, the space between the inner wall of the well casing and the outer wall of the single pipe within the casing is used as one of the water lines.

The discharge head 41 differs from the discharge head 2 only in that the drain passage 32 is omitted. There is a lateral projection 42 similar to the one 3 with a connection 43 for the pipe 5, and a passage 44 and a hole 45 to correspond with those of the head 2. There is also a boss 46 and a hole 47 in which the pipe 10 is connected as previously described. As in the two pipe system, the pipe 5 forms a part of the pressure line A, as does the passage 44 and opening 45.

The water distributor for the single pipe system provides for separate passage of water in the pressure and delivery lines. In this instance, the pressure line is the same as in the two pipe system through the point where the water enters the casing, and the space 48 within the casing around the pipe 49 forms the continuation of the pressure line down into the well. The single pipe jet fitting which is carried at the lower end of the pipe 49 has seals which engage the walls of the casing and prevent water from going directly into the well and insure its being directed through the jet nozzle and into the delivery line 49, as is well known in the art.

The water distributor has a seal 50 at the lower end thereof which corresponds to the seal 27 shown in Fig. 1, and which insures the water traveling down the pressure line below the seal. The pipe 49 of the delivery line is connected to the lower end of the water distributor and connects with the interior passage 51 thereof. Openings 52 are provided through the walls of the distributor to permit water to flow intermediate the distributor body and the casing opposite the opening 47 in the casing in which the pipe 10 is connected. Thus the pressure line A—C and delivery line B—D are operatively connected. Seals 53, 54, and 55, corresponding to seals 29, 30 and 31, are provided on the distributor above the opening 47 and operate as in the two pipe system.

The seals 50 and 53 are disposed on opposite sides of the opening 47 in the casing to seal the delivery line from the pressure line as in the two pipe system.

The drain 32 is omitted in the single pipe system in order to insure the seal of the water within the space 48, it being deemed obvious that were a drain provided water would be forced upwardly therethrough and into the casing above the distributor, which would not be desirable as the water above the distributor would be above the frost line and would probably freeze during cold weather and cause damage. The seals provided on the distributor are sufficient to prevent any water from getting above the distributor.

The water distributor for the single pipe system comprises a body portion having an upper section 56 which connects to the pipe 28 for suspending the distributor, pipe 49, and jet fitting in the casing; a joining member or section 57 carried at the lower end of the upper section, and a lower section 58 carried by the joining section, and to which the pipe 49 is connected, preferably as shown.

A seat 59 is provided for the seal 50 on the section 58, and the joining section 57 holds the seal 50 in place. The upper section, which is connected to the pipe 28, provides a seat 60 for the seal 55, and spacer sleeves 61 and 62 separate the seals 54 and 53. The joining section holds the seals 53, 54, and 55, as well as their spacer rings, in place when the upper section is threadedly installed therein as shown.

The single pipe system just described has all the desirable attributes of the double pipe system previously described, and it is deemed apparent that my invention will provide a sanitary and efficient, modern water system for those who depend upon wells for their water supply.

It is deemed apparent that the distributor in all cases provides a wall to maintain the separation of the pressure line from the delivery line.

While I have here shown and described the presently preferred forms of my invention, it is deemed apparent that other modifications may be made which are within the scope of the appended claims.

Having thus described my invention, what I claim is:

1. A well water system comprising a well casing, a pump installed in offset relation to said casing, a pressure line and a delivery line connected between said pump and said casing to transfer water between said pump and said casing, said pressure and delivery lines being connected to said pump at its discharge and inlet respectively, said casing having spaced openings therein to provide separate passage of water between said lines and said casing, one of said openings providing a connection to said casing for said delivery line, a housing projecting laterally from said casing and surrounding both of said spaced openings, said housing having an opening therethrough in axial alinement with said one of said openings and providing a connection for said pressure line to said casing whereby said delivery line is contained within said pressure line, said housing providing a passage for water from said pressure line to the other one of said spaced openings, a water distributor within said casing opposite the connection of said lines to said casing, means supporting said distributor in said casing, sealing means on the outer surface of said distributor to engage said casing and seal the water of said lines from intermixing, said distributor providing for separate passage of the water of said external lines in said casing, separate pressure and delivery lines within said casing and connected to their corresponding external line by said distributor, and a jet nozzle within said casing and connected to the lower ends of said internal pressure and delivery lines.

2. A well type water system comprising a pump, a well casing, separate external pressure and delivery lines connected intermediate said pump and said casing, said pressure and delivery lines being connected to said pump at its discharge and inlet respectively, said casing having spaced openings therein whereby water may pass therebetween, corresponding internal lines within

said casing, one of said openings providing a connection to said casing for said delivery line, a housing projecting laterally from said casing and surrounding both of said spaced openings, said housing having an opening therethrough in axial alinement with said one of said openings and providing a connection for said pressure line to said casing whereby said delivery line is contained within said pressure line, said housing providing a passage for water from said pressure line to the other one of said spaced openings, and means to transfer water between said external and internal lines comprising a distributor installed within said casing opposite the connection of said external lines thereto, said distributor comprising a body portion having a separate pressure passage and a separate delivery passage therethrough, said internal lines being connected to said body portion at their respective ones of said passages, sealing means on said body portion, said sealing means being spaced apart so as to engage said casing on both sides of each of the connections of said external lines to said casing to separate said pressure and delivery lines, and said passages being arranged in conjunction with said sealing means so that said pressure passage opens intermediate said sealing means in substantial alinement with said other one of said openings through said casing to connect said pressure passage with said external pressure line, and said delivery passage opens intermediate said sealing means in substantial alinement with said one of said openings through said casing to connect said delivery passage with said external delivery line.

3. A well type water system comprising a pump, a well casing, and a separate external pressure and delivery line intermediate of said pump and said casing, said pressure and delivery lines being connected to the discharge and inlet of said pump respectively, corresponding internal lines within said casing, connections for said external lines to said casing and to said pump whereby water may pass therebetween, a distributor installed within said casing opposite said connections, sealing means carried by said distributor on both sides of each of said connections and engaging said casing to separate said pressure and delivery lines from each other, and separate passages through said distributor intermediate of said sealing means to connect the corresponding external and internal pressure and delivery lines, said internal lines being connected to said distributor at their respective passages, said connections of said external lines to said casing comprising a housing projecting from said casing, said casing having spaced openings therethrough surrounded by said housing, one of said openings providing a connection for said external delivery line to said casing, said housing having an opening therethrough in alinement with and larger than said one of said openings, said opening in said housing providing a connection for said external pressure line to said casing and providing a connection between said external pressure line and the other one of said spaced openings through said casing whereby said delivery line is surrounded by said pressure line.

4. A well water system comprising a well casing, a pump installed in offset relation to said casing, a pressure line and a delivery line connected between said pump and said casing to transfer water between said pump and said casing, said pressure and delivery lines being connected to said pump at its discharge and inlet

respectively, said casing having spaced openings therein to provide separate passage of water between said lines and said casing, one of said openings providing a connection to said casing for said delivery line, a housing projecting laterally from said casing and surrounding both of said spaced openings, said housing having an opening therethrough in axial alinement with said one of said openings and providing a connection for said pressure line to said casing whereby said delivery line is contained within said pressure line, said housing providing a passage for water from said pressure line to the other one of said spaced openings, a water distributor within said casing opposite the connection of said lines to said casing, sealing means on the outer surface of said distributor to seal the water of said lines from intermixing, said distributor providing for separate passage of the water of said external lines in said casing, separate pressure and delivery lines within said casing and connected to their corresponding external line by said distributor, and a jet nozzle within said casing and connected to the lower ends of said internal pressure and delivery lines and said external delivery line being contained within said external pressure line, and said casing having a lateral projection thereon to provide a connection for said pressure line and a passage to the opening in said casing for said pressure line, and said delivery line being connected to the other one of the said openings in said casing for said delivery line.

5. A well system comprising a well casing having a pair of spaced openings therethrough, a first line, a second line, and means for connecting said first and said second lines to said well casing in a sanitary manner to permit water to pass between said lines and said casing, said means comprising a connection around one of said openings to which said second line is attached, a housing projecting laterally from said casing over both said openings and connection, a connection on said housing to which said first line is attached, said first line connection being in substantial axial alinement with said first connection so that said second line is disposed within said first line, and said housing providing a passage to connect said first line with the second one of said openings in said casing.

6. A well system comprising a casing having a pair of spaced openings through which water may pass, a first line, a second line, a housing on said casing around said openings, a connection on said housing to which said first line is attached, a connection on said casing within said housing around one of said openings to which said second line is attached, said second connection being of smaller size than said first connection and being surrounded by said first connection whereby said second line is carried within said first line, and said housing providing a passage from said first line to the second one of said openings.

7. A single jet pump water system comprising a pump, a well casing, separate external pressure and delivery lines intermediate said casing and said pump, connections for said external lines to said casing, said pressure and delivery lines being connected respectively to the discharge and inlet of said pump, a single delivery line within said casing, said delivery line creating a passage between itself and said casing to act as a pressure passage, a water distributor installed within said casing opposite the connection of said delivery line thereto, said casing having a delivery open-

ing therethrough at said connection of said delivery line thereto to permit water to pass from said casing into said delivery line, said casing having a pressure opening therethrough in spaced relation to said delivery opening, sealing means on said distributor to separate said pressure and delivery openings from each other, a passage through said distributor to connect said external and internal delivery lines, said pressure opening being below said sealing means whereby water from said pressure line passes into casing in said pressure passage formed intermediate said casing and said delivery line, said connections of said external lines to said casing comprising a housing projecting from said casing, said delivery opening providing a connection for said external delivery line to said casing, said housing surrounding said openings in said casing and having an opening therethrough in alignment with and larger than said delivery opening, said opening in said housing providing a connection for said external pressure line to said casing and providing a connection between said external pressure line and the pressure opening through said casing whereby said delivery line is surrounded by said pressure line.

8. A well water system comprising a well casing, a pump installed in offset relation to said casing, a pressure line and a delivery line connected between said pump and said casing to transfer water between said pump and said casing, said pressure and delivery lines being connected to said pump at its discharge and inlet respectively, said casing having spaced openings therein to provide separate passage of water between said lines and said casing, one of said openings providing a connection to said casing for said delivery line, a housing projecting laterally from said casing and surrounding both of said spaced openings, said housing having an opening therethrough in axial alignment with said one of said openings and providing a connection for said pressure line to said casing whereby said delivery line is contained within said pressure line, said housing providing a passage for water from said pressure line to the other one of said spaced openings, a water dis-

tributor within said casing opposite the connection of said lines to said casing, means supporting said distributor in said casing, sealing means on the outer surface of said distributor to engage said casing and seal the water of said lines from intermixing, said distributor providing for separate passage of the water of said external lines into said casing, and means within said casing connected with said water distributor to provide for the movement of water in said casing in two separate passages.

9. A section of well casing comprising a cylindrical member having a bore longitudinally therethrough, connecting means at each end of said member, a housing projecting laterally from said member, said member having spaced openings therethrough surrounded by said housing, one of said openings providing a connection for a pipe, said housing having an opening therethrough larger than and in axial alignment with said one of said openings, said opening in said housing providing a connection for a second pipe whereby a pipe connected to said one of said openings will be contained axially within a pipe carried by said opening in said housing, said housing providing a passage between said opening in said housing and the other one of said openings in said member.

VAUGHAN L. ANDREW.

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