March 30, 1965 K. D. KENNEDY 3,175,575

MIXING VALVE

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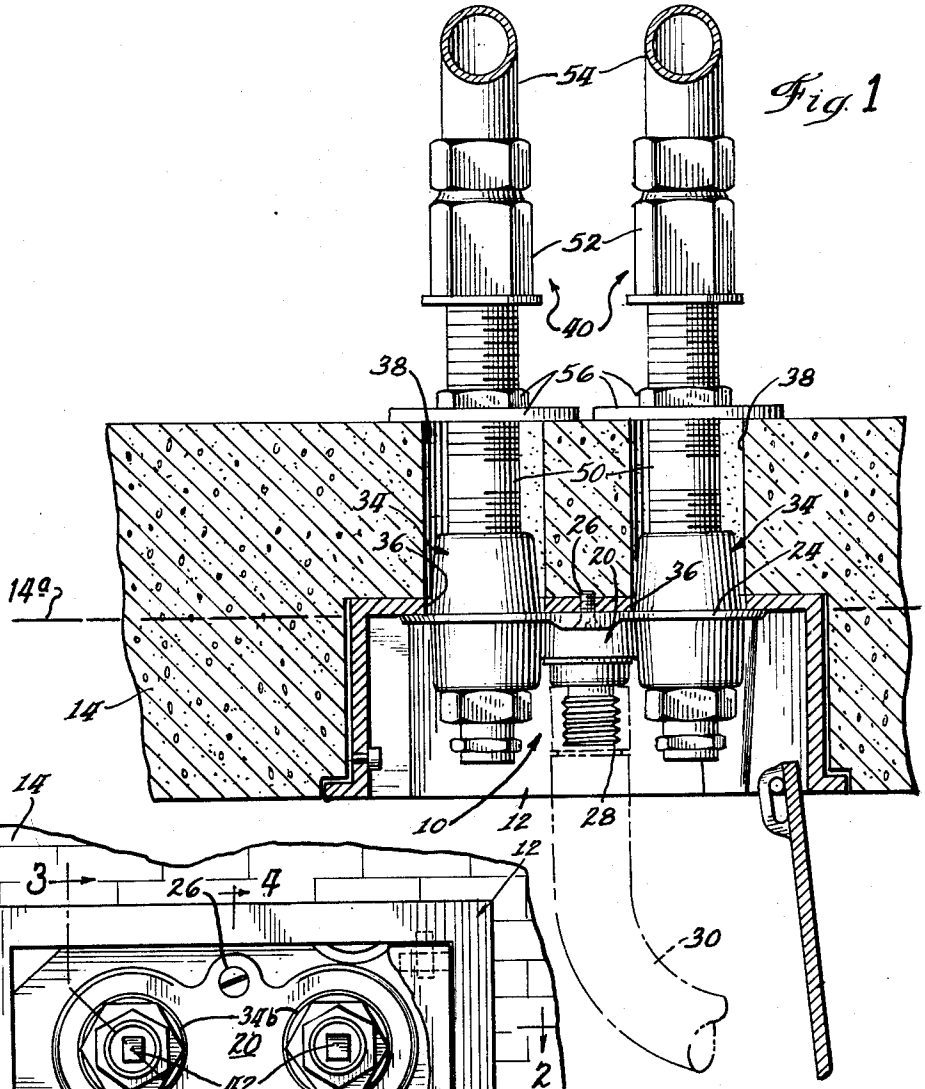

Fig. 1

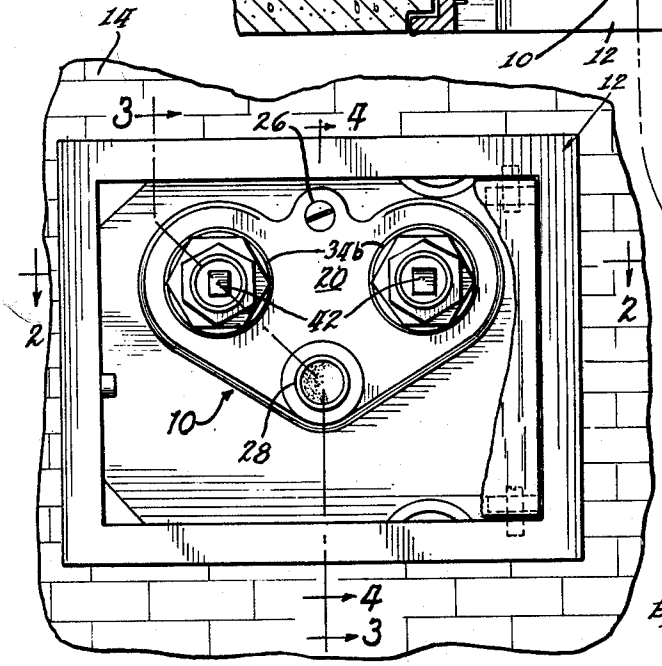

Fig. 2

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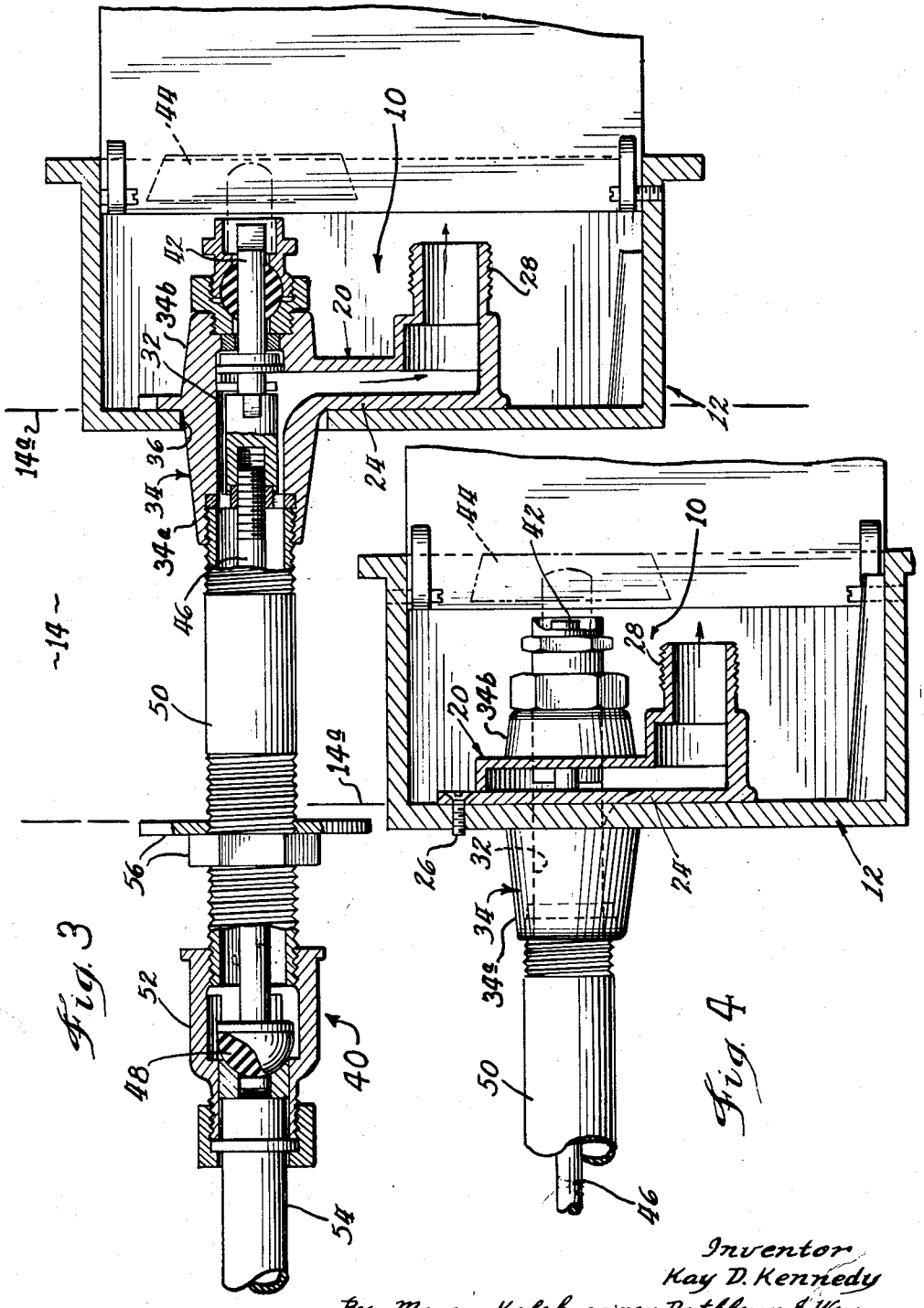

Fig. 3

Fig. 4

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MIXING VALVE

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The present invention relates to mixing valves and the like and has for a primary object the provision of a new and improved non-freeze, mixing type wall valve.

Another object of the present invention is the provision of a new and improved mixing type wall valve having a pair of individually controlled inlets in communication with a mixing chamber having a single outlet whereby each of the inlets can be regulated to provide the desired amount of liquid flow to the chamber wherein the liquid is intermixed and flows out through the outlet.

Another object of the present invention is the provision of a mixing type wall valve of the type described wherein valve means for controlling the liquid flow through the inlets to the chamber are positioned rearwardly of the chamber to prevent freezing thereof but are controllable from the front of the chamber adjacent the front outlet.

Yet another object of the present invention is the provision of a mixing type wall valve of the type described wherein liquid in the inlets and chamber will automatically drain through the outlet when the valve means are shut off.

Still another object of the present invention is the provision of a wall valve of the type described which can be easily and rapidly installed and connected in a wall housing mounted in the wall whereby the outlet and control means for the valves are readily accessible from the interior of the housing.

Briefly, the foregoing and other objects and advantages of the present invention are accomplished by the provision of a new and improved non-freeze, mixing type wall valve having a mixing chamber provided with a pair of rearwardly extending inlets adapted for connection to liquid supply means and a single frontal outlet. Valve means for individually controlling the liquid flow through the inlets are positioned remotely rearward of the chamber to prevent freezing and they are provided with control means readily accessible from the front of the chamber adjacent the outlet. The valve is readily adaptable for mounting on an exterior wall or within a housing mounted in the wall so that access to the outlet and control means is readily available from the interior of the housing.

The foregoing and other objects and advantages of the present invention will become apparent from the following detailed description and claims forming this specification when taken in conjunction with the drawings, in which:

FIG. 1 is a top plan view of a mixing type wall valve constructed in accordance with the present invention illustrating the valve as it is installed in a housing mounted in a wall;

FIG. 2 is a front elevational view of the wall valve of FIG. 1 with the access door of the housing partially broken away;

FIG. 3 is a sectional view taken substantially along the line 3—3 of FIG. 2; and

FIG. 4 is a sectional view taken substantially along the line 4—4 of FIG. 2.

Referring now to the drawings, there is illustrated a mixing type wall valve **10** constructed in accordance with the present invention and illustrated as it is typically installed in a wall housing **12** mounted in a wall **14**. In numerous installations the wall valve **10** simply is

mounted on an exterior wall surface represented by the line **14***a* and the housing **12** is not used.

The valve **10** comprises a mixing chamber **20** having a generally flat back surface **24** adapted to abut the exterior wall surface **14***a* or the rear wall of the housing **12**, if used. Means such as the screw bolt **26** are provided for securing the chamber to the wall surface or rear wall of the housing.

The chamber **20** is provided with a single threaded outlet **28** on the front thereof to which a hose **30** or other pipe, shown in phantom in FIG. 1, can be threadedly connected. The outlet is positioned at the lowest portion of the chamber so that liquid in the chamber will readily drain through the outlet and will not collect to freeze.

The chamber is provided with a pair of spaced apart inlets **32** which are in communication with the interior of the chamber and are formed by bosses **34** having forwardly extending portions **34***a* and rearwardly extending portions **34***b*. These bosses are positioned adjacent the upper portion of the chamber on either side of the outlet **28** and the rearwardly extending portions project through suitable openings **36** provided in the rear wall of the housing, if used, and openings **38** in the wall **14**.

Water or other liquid is supplied to the chamber **20** for mixing and discharge through the outlet **28** under the control of a pair of inlet valves of preferably identical construction, each indicated by the numeral **40**. These valves may be of known construction and are positioned remotely rearward from the mixing chamber interiorly of the wall **14** to preclude freezing during cold weather.

The valves **40** will not be described in detail since they are of conventional construction. They do include a valve operating rod **46** that is axially movable to control the opening and closing movements of a valve element **48**. The valve rod extends within a conduit **50** connected at one end to the boss **34***a* and the other end to a valve housing and coupling element **52** which is adapted to be connected to a liquid inlet pipe **54**—one of the latter may constitute a hot water supply and the other a cold water supply. If desired, the conduits **50** may be threaded to receive collars **56** which aid in securing the valve within the wall **14**.

In order to individually control the valves, there are provided, in the forwardly extended portions **34***b* of the bosses, control means including operating stems **42** which are drivingly connected to reciprocally move the valve rods **46** when the stems are rotated and thus open or close the valves **40**. Suitable means operable from the front of the mixing chamber **20**, such as removable keys **44** or handles (not shown), are utilized for rotating the stems in order to operate the valves individually as aforementioned.

It should be noted from FIG. 3 that the valve **10** is installed in the wall with the central axes of the valves **40**, conduit **50** and bosses **34** sloping downwardly toward the forward end of the valve in order that any liquid in the conduit and bosses will flow into the chamber **20** and out of the outlet **28** when the valves are shut off, thus preventing breakage of these parts should liquid freezing temperatures be encountered therein.

When it is desired to use the valve **10**, the hose **30** or other pipe is connected to the outlet **28** of the mixing chamber **20** and the valves **40** are opened until the desired amount of flow is obtained. By adjusting either or both of the valves the temperature of the water liquid flowing from the outlet can be regulated as desired in addition to the rate of flow.

After use, the valves are shut off and the hose is disconnected, any remaining liquid in the pipes **50**, bosses **34** and mixing chamber **20** automatically drains from

the outlet 28. When used in conjunction with the housing 12 the door of the housing can be kept closed when the valve 10 is not in use, thus providing for a neat appearance as well as preventing inadvertent operation of the valve.

While the present invention has been described in connection with the details of a preferred embodiment thereof, it should be understood that such details are not intended to be limitative of the invention except insofar as set forth in the accompanying claims.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. The combination including a housing having a rear wall with a pair of spaced apart openings and a front access door, a valve comprising structure defining a mixing chamber mounted inside said housing and having a back surface abutting against said rear wall, means accessible through the door of said housing for securing said back surface in abutting relationship with said rear wall, said structure having a pair of inlets to said chamber at the upper end of said chamber and extending through said spaced apart openings in said rear wall rearwardly from said back plate and a single outlet communicating with the lower end of said mixing chamber, and valve means for regulating flow to said mixing chamber, said valve means positioned rearwardly remote from said back surface and including structure extending through each of said inlets forwardly of said structure into said housing comprising individual operating means

for individually controlling flow through said inlets into said mixing chamber.

2. A mixing type valve for mounting on a wall surface comprising a mixing chamber having a rear face adapted to abut said wall surface, said chamber including outlet means adjacent the lower forward portion thereof and a pair of inlets disposed above said outlet means and extending rearwardly from the rear face of said chamber, valve means in each of said inlets rearwardly remote from said rear face for controlling flow through said inlets to said mixing chamber, and operator means for controlling each of said valve means, said operator means each including rod means extending forwardly from and axially aligned with its respective inlet and through said mixing chamber forwardly outward therefrom for access by an operator.

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