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B. B. PRESTON
THERMOSTATIC WAFER
Filed Dec. 8, 1926

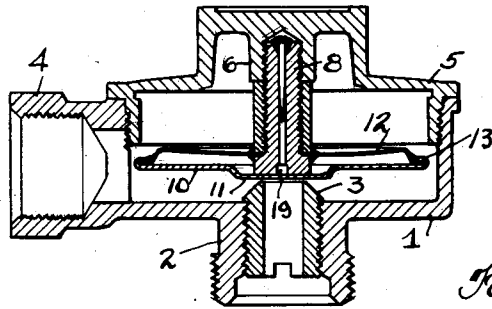


Fig. 1

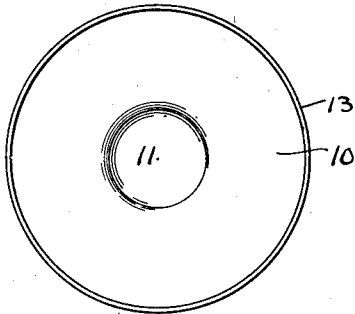


Fig. 2

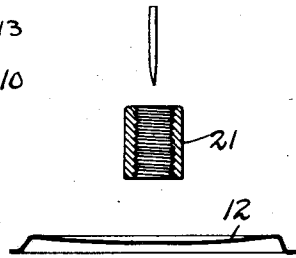
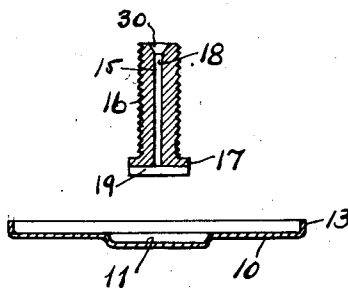


Fig. 3



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THERMOSTATIC WAFER.

Application filed December 8, 1926. Serial No. 153,370.

The present invention relates to thermostatic elements such as are particularly adapted for use in radiator traps and the like. More particularly the present thermostat is of the wafer type and the particular features are the use of a rigid element for one side of the wafer and the construction of the joint between the wafer members. Other features are the formation of an integral valve portion on the rigid member and the construction of the filling and mounting member and its joint with the flexible side of the wafer.

To the accomplishment of the foregoing and related ends, said invention, then consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a central vertical section through a trap showing the thermostatic valve mounted in operating position; Fig. 2 is a plan view of the rigid disk; Fig. 3 is a diagrammatic view showing the parts of the completed wafer in their nonassembled positions;

The present thermostat is shown with a radiator trap in which there is provided a trap casing 1 having an inlet pipe 2 terminating in a raised valve seat 3. The casing has an outlet pipe 4 and a removable threaded cover 5 provided with an interiorly threaded boss 6 in which the mounting stem 8 of the thermostatic wafer is adapted to be threaded.

The thermostatic wafer element consists of a heavy rigid disk 10 having a depressed central portion 11 forming the valve proper and adapted to seat against the valve seat 3 of the casing to close the line. The rigid disk thus takes the valve wear and also is the portion of the wafer exposed to the direct action of the steam air and water in the line. As this disk is not flexible, it may be made of non-corrosive material such as bronze or the like which forms an excellent valve as well.

Attached to this rigid disk is a thin flexible disk 12 preferably of tempered metal such as monel and this disk is secured by roll-

ing the turned flange 13 of the rigid disk over the edge of the thin disk 12 and then by sweating the seam to form a leak-proof joint. A mounting and filling plug is attached to the flexible disk which has a centrally located aperture 15. This plug is a bolt 16, having a flat head 17, which is mounted on the inside of the disk 12. The bolt is provided with a filling aperture 18 and a saw slot 19 is formed in the head of the bolt and communicates with the aperture 18, thus preventing the head from seating against the inner face of the rigid disk and sealing the aperture against the inflow of thermostatic liquid. The head 17 normally seats in the depression 11 on the inside of the rigid member, thus allowing the two disks to form a very thin wafer in their normal unexpanded position.

The bolt 16 is threaded and on the outside of the disk 12 a nut 21 is mounted to draw the head of the bolt tightly against the inner side of the disk. The head of the bolt is sweated to the disk to form a gas tight seal, and the nut is also sweated on so as to lock the nut in position as well as to make a tighter and more lasting joint. The threaded end of the bolt extends beyond the nut and is the mounting 8 for the wafer, this end being threaded into the boss 6 of the cover.

The wafer is filled through the aperture 18 which is enlarged at the top to form a cup 30 and the wafer is sealed by driving a metal plug into the aperture, such plug having its upper end below the top of the bolt and the cup 30 or enlarged upper portion of the aperture is then filled with solder or the like to finally seal the wafer.

The present type of thermostatic element is easy to manufacture as the rigid member does not need to be of tempered metal and may thus be readily rolled to form the joint with the flexible disk. This rigid member also provides an integral valve portion and is directly exposed to the steam etc. The mounting and filling lug or stem is securely attached and the danger of leakages is materially reduced.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In a thermostat wafer, the combination of a rigid nonexpanding disk, having an integrally formed valve portion, a flexible disk attached to said rigid disk to form the wafer, and a mounting and filling plug attached to said flexible member.
2. In a thermostat wafer, the combination of a rigid nonexpanding disk, having a depressed central valve portion, a flexible disk member sealed to said rigid member to form the wafer, and a mounting and filling plug attached to said flexible member.
3. In a thermostat wafer, the combination of a rigid nonexpanding disk, having a depressed central valve portion, a flexible disk member sealed to said rigid member to form the wafer, and a mounting and filling plug attached to said flexible member, said plug consisting of an apertured bolt extending through said flexible member and sealed thereto and having the bolt head normally filling into the depression in said rigid member.
4. In a thermostat wafer, the combination of a rigid nonexpanding disk, having a depressed central valve portion, a flexible disk member sealed to said rigid member to form the wafer, a threaded bolt mounted through said flexible member and having its head on the inner side and adapted to fit into the depression in said rigid member, a nut on said bolt on the outside of said flexible member, said bolt extending beyond said nut to form a threaded mounting stem.
5. In a thermostat wafer, the combination of a rigid nonexpanding disk, having a depressed central valve portion, a flexible disk member sealed to said rigid member to form the wafer, a threaded bolt mounted through said flexible member and having its head on the inner side and adapted to fit into the depression in said rigid member, a nut on said bolt on the outside of said flexible member, said bolt extending beyond said nut to form a threaded mounting stem, said bolt having a central filling aperture, and the head of said bolt being slotted to prevent sealing of said aperture against said rigid member.
6. In a thermostat wafer, the combination of a rigid nonexpanding disk, having a depressed central valve portion, a flexible disk member sealed to said rigid member to form the wafer, a threaded bolt mounted through said flexible member and having its head on the inner side and adapted to fit into the depression in said rigid member, a nut on said bolt on the outside of said flexible member, said bolt extending beyond said nut to form a threaded mounting stem, said bolt head being sweated to said flexible disk, and said nut being sweated to the other side of said disk to lock the nut in position.
7. In a thermostat wafer, the combination of a rigid nonexpanding disk, having a depressed central valve portion, a flexible disk member sealed to said rigid member to form the wafer, a threaded bolt mounted through said flexible member and having its head on the inner side and adapted to fit into the depression in said rigid member, a nut on said bolt on the outside of said flexible member, said bolt extending beyond said nut to form a threaded mounting stem, said bolt head being sweated to said flexible disk, and said nut being sweated to the other side of said disk to lock the nut in position, said bolt having a central filling aperture, and the head of said bolt being slotted to prevent sealing of said aperture against said rigid member.

Signed by me this 30th day of November, 1926.

BRUCE B. PRESTON.