

G. P. BOWER.
HIGH WATER TRAP.
APPLICATION FILED SEPT. 27, 1913.

1,147,702.

Patented July 27, 1915.
2 SHEETS—SHEET 1.

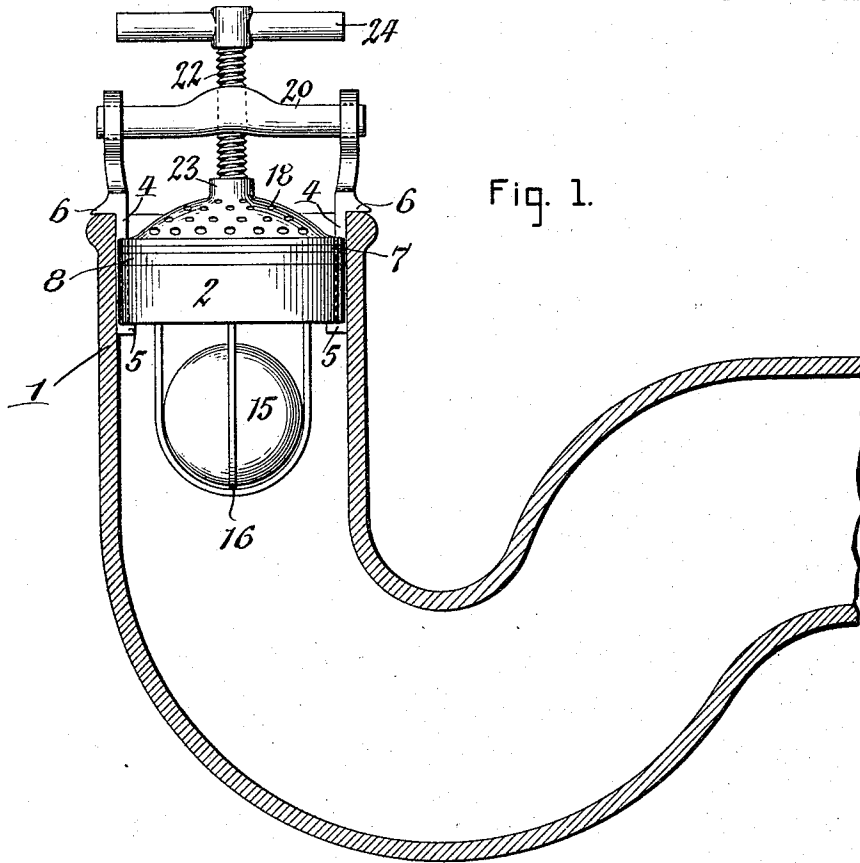


Fig. 1.

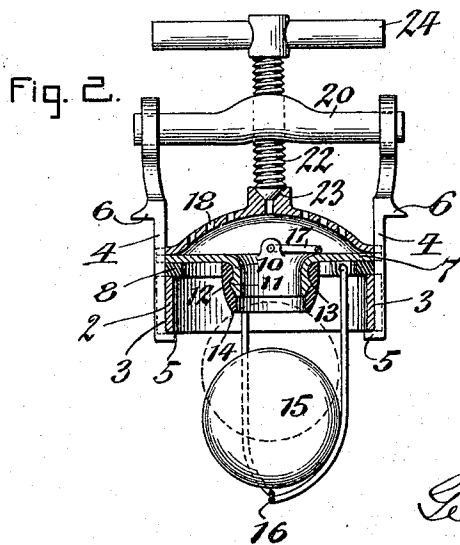


Fig. 2.

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Fig. 3.

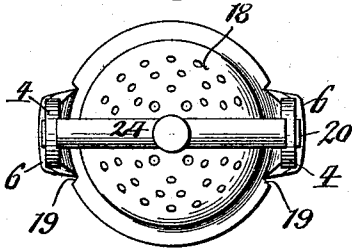


Fig. 4.

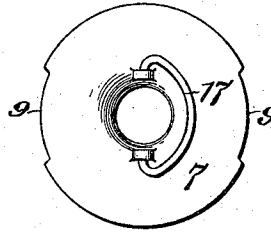


Fig. 5.

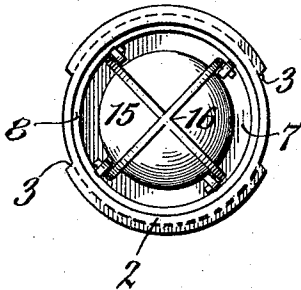
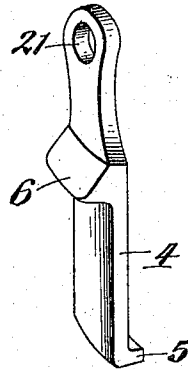


Fig. 6.



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HIGH-WATER TRAP.

1,147,702.

Specification of Letters Patent.

Patented July 27, 1915.

Application filed September 27, 1913. Serial No. 792,108.

To all whom it may concern:

Be it known that I, GEORGE P. BOWER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in High-Water Traps, of which the following is a specification.

This invention relates to a high water trap which is more particularly designed for use in cellars so as to permit water to flow from the cellar into a drain pipe or sewer but prevent any water from backing up through said drain pipe or sewer into the cellar.

It is the object of this invention to provide a device for this purpose which can be readily applied to drain pipes or sewers after the latter have been installed in the cellar, which will effectively prevent the entrance of water into the cellar but permit free discharge of the water therefrom, and which can be readily and conveniently taken apart without disturbing the drain pipe or sewer for the purpose of cleaning the trap or renewing its valve seat and valve.

In the accompanying drawings: Figure 1 is a vertical section of a drain pipe or sewer for cellars equipped with my improved high water trap. Fig. 2 is a vertical section of this trap detached from the drain pipe. Fig. 3 is a top plan view thereof. Fig. 4 is a top plan view of the diaphragm and its handle forming part of the trap. Fig. 5 is a bottom plan view of the diaphragm, and the ball valve, packing and retaining cage associated therewith. Fig. 6 is a perspective view of one of the straps forming part of the means whereby the several parts of the trap are held together.

Similar characters of reference indicate corresponding parts throughout the several views.

The drain pipe or sewer shown in the drawings for the purpose of illustrating the application of my invention is like those commonly employed in the cellars of buildings and provided with an inlet 1 which projects upwardly. This pipe is usually embedded in the ground or cement floor of the cellar so that the upper end of its inlet is flush with or slightly below the surface of the floor. My improved high water trap is mounted in the inlet portion of this drain pipe and is constructed as follows: 2 represents a supporting ring preferably of metal arranged within the bore of the inlet

or upright portion of the drain pipe and provided on opposite sides of its periphery with vertical grooves 3. 4, 4 represent two upright metal straps each of which has the inner part of its lower portion engaging with one of the grooves of the supporting ring while its outer side engages with the bore of the drain pipe inlet. At its lower end each of the straps is provided with an inwardly projecting supporting lug 5 which engages with the underside or lower edge of the supporting ring and on the central or intermediate part of the outer side of this strap the same is provided with a laterally projecting supporting lug 6 which engages with the upper edge of the drain pipe. By this means the downward movement of the straps in the drain pipe as well as the supporting ring and the parts connected therewith is limited and these parts are definitely held in position relatively to each other. In order to form a water tight joint between the supporting ring, the straps and the drain pipe, a suitable sealing medium is placed between the bore of the drain pipe inlet and the opposing surfaces of the supporting ring and the straps which medium preferably consists of sulfur, although any other suitable material may be used for this purpose if desired.

Upon the supporting ring is mounted a diaphragm 7 which supports the valve device. This diaphragm is removable and a water tight joint between the same and the upper edge of the supporting ring is formed by interposing a packing ring 8 of rubber or similar material between these members and pressing the same tightly together. The diaphragm is held against turning upon the packing and relatively to the supporting ring by providing opposite portions of its periphery or edge with notches 9 which receive the adjacent intermediate portions of the straps and thereby become interlocked therewith. In its central part the diaphragm is provided with a downwardly projecting tubular neck 10 the bore of which forms the valve port or passage and around the lower end of this neck the same is provided with an annular collar or bead 11.

12 represents an annular sleeve or ring of rubber or other suitable flexible material which surrounds the neck of the diaphragm and is provided with an internal annular groove 13 which receives the collar 11 so that this rubber ring becomes interlocked

with the neck and cannot be easily detached therefrom. The lower edge of this rubber ring is preferably tapered or brought to an edge so as to form a valve seat 14 which is adapted to be engaged by a valve 15 for closing the port or passageway of the trap. This valve is arranged below the diaphragm and is so constructed that the same is buoyant in water whereby this valve may be floated or lifted against the valve seat for closing the trap if any water should back up through the drain, while at other times the valve will drop away from the seat and permit any water from the cellar to pass through the trap into the drain. This valve is preferably constructed in the form of a hollow rubber ball although the same may be constructed in any other suitable manner and of material which will answer the purpose, such as aluminum.

In order to confine the valve within range of the valve seat and prevent the same from dropping too far away when not in use, as well as to insure its proper engagement with this seat when any water backs up through the drain, a guide device is provided which is preferably constructed in the form of a cage 16 which depends from the underside of the supporting plate or diaphragm and incloses the ball valve.

For convenience in manipulating the diaphragm its upper side is preferably provided with a pivoted bail or handle 17. In order to prevent any large particles which may be present in the cellar from being washed into the trap and drain and possibly clog the same a screen 18 is arranged above the port or passageway of the diaphragm. This screen is preferably constructed in the form of an upwardly dished plate or disk so as to form a dome above the port of the diaphragm and its marginal part rests upon the marginal part of the diaphragm and it is interlocked with the straps so as to be held against turning by providing opposite parts of its edge or periphery with notches 19 which receive the adjacent parts of the straps, as shown in Figs. 2 and 3. The supporting ring, diaphragm and screen are clamped together by means which permit of readily assembling these parts and also dismembering the same when required for cleaning, inspection or repairs. The preferred means for this purpose which are shown in the drawings comprise a horizontal yoke or cross piece 20 arranged above the screen and detachably engaging its opposite ends with openings 21 in the upper parts of the straps, and a clamping screw 22 engaging with a screw threaded opening in the central part of the yoke while its lower end engages with a socket 23 in the central part of the upper side of the screen and its upper end is provided with a handle 24 for turning the same. By this

means the supporting ring, diaphragm and screen can be securely clamped together so as to form a water tight joint between the same and only permit water to pass from the cellar through the screen and the port of the diaphragm into the drain pipe but prevent any water from passing through the joints between these parts and the drain pipe into the cellar while the ball valve is closed when water backs up in the drain pipe.

This high water trap is very simple and durable in construction, it has no parts which are liable to get out of order, the same can be easily dismembered for cleaning, inspection or repairs and if its valve seat or valve should become worn out the same can be readily replaced at small cost for keeping the trap in perfect working condition.

I claim as my invention:

1. A high water trap, comprising a supporting ring adapted to be secured in a drain pipe, a diaphragm mounted on the upper edge of said ring and provided on its underside with a valve seat, a valve adapted to be lifted by water into engagement with said seat, a screen arranged above said diaphragm, and means for detachably connecting said ring, diaphragm and screen, comprising two upright straps engaging with notches in opposite peripheral parts of the supporting ring, diaphragm and screen and each having an inwardly projecting lug engaging with the underside of said ring and a clamping device interposed between the upper ends of said straps and said screen.

2. A high water trap, comprising a supporting ring adapted to be secured in a drain pipe, a diaphragm mounted on the upper edge of said ring and provided on its underside with a valve seat, a valve adapted to be lifted by water into engagement with said seat, a screen arranged above said diaphragm, and means for detachably connecting said ring, diaphragm and screen, comprising two upright straps engaging with notches in opposite peripheral parts of the supporting ring, diaphragm and screen and each having an inwardly projecting lug engaging with the underside of said ring and an outwardly projecting lug adapted to engage with the upper edge of said pipe.

3. A high water trap, comprising a supporting ring adapted to be secured in a drain pipe, a diaphragm mounted on the upper edge of said ring and provided on its underside with a valve seat, a valve adapted to be lifted by water into engagement with said seat, a screen arranged above said diaphragm, and means for detachably connecting said ring, diaphragm and screen, comprising two upright straps engaging with notches in opposite peripheral parts of the supporting ring, diaphragm and screen and each provided at its lower end with an inwardly projecting lug engaging with the

lower side of said ring and on its intermediate part with an outwardly projecting lug adapted to engage with the upper end of said pipe, and a clamping device interposed
5 between the upper ends of said straps and the upper side of said screen.

4. A high water trap, comprising a supporting ring adapted to be secured in a drain pipe, a diaphragm mounted on the
10 upper edge of said ring and provided on its underside with a valve seat, a valve adapted to be lifted by water into engagement with said seat, a screen arranged above said diaphragm, and means for detachably connecting
15 said ring, diaphragm and screen, comprising two upright straps engaging with notches in opposite peripheral parts of the supporting ring, diaphragm and screen and each provided at its lower end with an in-

wardly projecting lug engaging with the
20 lower side of said ring and on its intermediate part with an outwardly projecting lug adapted to engage with the upper end of said pipe, and a clamping device interposed
25 between the upper ends of said straps and the upper side of said screen and comprising a yoke removably seated at its opposite ends in openings in the upper ends of said straps and a clamping screw working in a
30 threaded opening in the central part of said yoke and engaging with the upper side of said screen.

Witness my hand this 24th day of September, 1913.

GEORGE P. BOWER.

Witnesses:

EDWARD C. KOEPF,
ALBERT C. KOEPF.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."