

No. 897,364.

PATENTED SEPT. 1, 1908.

J. H. GLAUBER.
WASTE AND VENT COCK.
APPLICATION FILED OCT. 25, 1906.

Fig. 1.

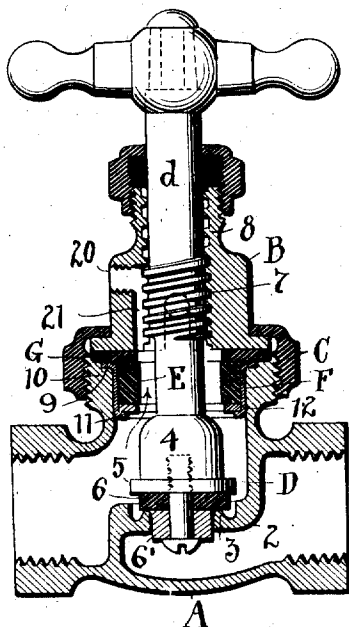


Fig. 2.

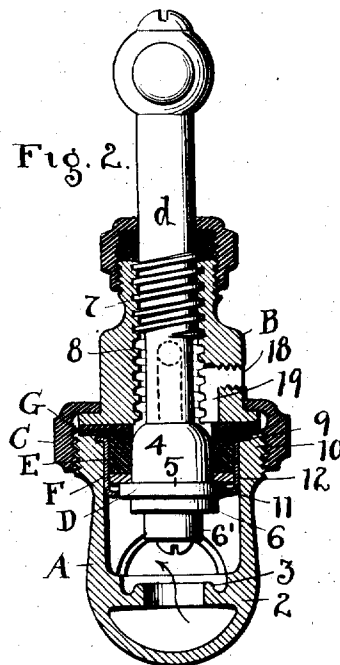


Fig. 3.

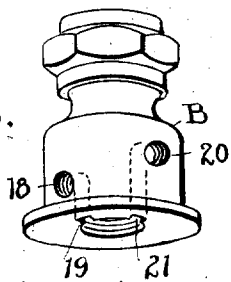


Fig. 4.



Fig. 5.

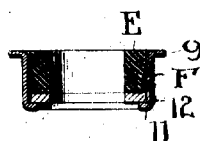
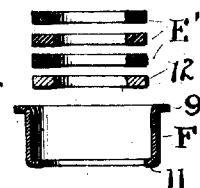


Fig. 6.



ATTEST

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JOSEPH H. GLAUBER, OF CLEVELAND, OHIO.

WASTE AND VENT COCK.

No. 897,364.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed October 25, 1906. Serial No. 340,456.

To all whom it may concern:

Be it known that I, JOSEPH H. GLAUBER, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Waste and Vent Cocks, and do declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a new and improved construction of waste and vent cock, all substantially as shown and described and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a sectional elevation of the invention complete and showing the valve closed on the main seat and the waste open. Fig. 2 is a vertical cross section of the invention at right angles of Fig. 1 and with the main valve open and the waste closed. Fig. 3 is a detail of the cap, or bonnet which contains the waste and vent openings, and Fig. 4 is a detail of the gasket therefor. Figs. 5 and 6 are details respectively of the tubular packing and packing holder adapted to be employed as hereinafter fully described.

These several views show a combined waste and vent cock which is adapted to bring the waste to any radial point about the bonnet or cap and according to the position the cock may occupy on the pipe, and the vent is so disposed or positioned in respect to the waste outlet as always to bring it on a higher plane than the said outlet, whichever way the said outlet is turned, as will hereinafter more clearly appear.

Referring to the several parts, A represents the valve casing, B the bonnet or cap thereon, C a coupling nut uniting said parts, D the valve, E the waste passage packing tube, F the packing holder or thimble, and G the gasket interposed between cap B and casing A to prevent leakage at that point. The details in these several parts comprise the usual diaphragm 2 in casing A having a main seat 3 for valve D. Said valve consists of or comprises a head 4 having a flange 5 about its base and a seat 6 and extension 6' fixed to the bottom of said head outside flange 5 and adapted to occupy seat 3 in diaphragm 2 relatively as shown and whereby said seat is directly occupied on top and within. The valve stem *d* has a quick thread 7 engaged in corresponding thread 8

in cap B, by which it is rotated in either direction at will and the valve is opened or closed as to seat 3 or the waste seat as the case may be. The waste valve seat likewise occupied by valve D involves a holder or thimble F seated in the top of neck 10 of the casing and a packing tube E seated in said holder. It will be noticed that holder F is a loose and separate member, having a narrow flange 9 about its outer edge adapted to rest in a corresponding recess in neck 10 as well as to fit snugly within the smooth side of said neck. Thus, said neck supports said holder which extends downward therefrom and has an inwardly extending seat 11 for the packing tube E. Said packing tube is made of rubber or lead or composition and is straight inside, and is of a size in cross section internally to receive and pack head 4 of the valve. Said head is about the same length as said packing tube and operates to initially close the waste passage-way through said tube before the valve opens at its bottom to pressure side of the water at seat 3, as well as serving to keep said passage closed while the valve is being carried back to its seat 3. In either case, whether opening or closing the waste, it is desirable to cut off pressure from the water source as quickly as possible so that the waste will not be open to said pressure at any time, and it depends largely on the devices employed between the main valve and the said waste outlet to accomplish this purpose. Hence valve head 4 is of the length shown and adapted to close in packing E before lower valve extension 6' is withdrawn from within seat 3. Then as the valve is raised to wholly clear seat 3, the water will be free to flow through the casing and the waste will be entirely closed. This latter effect is obtained primarily and quite effectually through valve head 4, but the seal is made perfect by flange 5 engaging packing ring 12 and both seating thereon and compressing packing tube E tightly about head 4 and within holder F, Fig. 2.

The waste orifice or opening 18 has a passage 19 leading thereto through cap B from within packing E, and vent hole 20 has a like passage 21 and is placed sufficiently high above said waste orifice and at right angles thereto to insure venting of the body of the cock when the waste is opened and thereby promote draining of the waste water therefrom, no matter what position the cock may

be in, either on its side or reversely from that shown. Although the waste opening is designated by 18 and the vent-opening by 20, it will be understood that the opening which is uppermost becomes the vent and the other the waste, all as may be determined by the position of the cock. Cap B is also independently rotatable in respect to the body of the cock thereby permitting the waste and vent openings to be properly located for varying conditions.

Valve stem *d* is packed as usual at the top of cap B, coupling nut C unites body A and cap B, and gasket G intervenes these parts. Thus, the entire device is made separable and available for repairs.

A separate packing ring 12 is shown as resting beneath packing tube E and this ring is made of suitable material such as fiber or metal to take the wear and rotary friction of valve flange 5 during its upward travel to compress packing tube E within its confining walls. Ring 12 will always retain its shape and size even after long usage and make initial closing of the main waste passage certain and effective and this feature is important when considering the combination of said ring and packing tube E. Thus it will be understood that tube E is of a compressible and expansible nature likely to alter in size after repeated compressions and frictional wear and when so changed, especially as to its inner diameter, it would not serve as a perfect initial seal. But combined with ring 12 initial closure is always certain and then the sealing is made doubly sure and absolutely tight by compressing tube E. The value of this combination of parts is further augmented by the use of a holder F because both ring 12 and packing tube E require a support and backing to guide them in their movements and to confine them within fixed limits, either under compression or at rest and to hold them permanently so that the removal thereof from the body of the cock may be easily accomplished before or after their use. The use of instantaneous hot water heaters and extreme hot water conditions now prevailing in many water line systems has created an imperative call for effective packing means and replaceable packing, and the construction of the parts must be such that any suitable packing may be used as may be found convenient and at hand. Therefore, a holder E removable and replaceable within the cock, and packing removable and replaceable within the holder meets such conditions most advantageously.

In Fig. 5 I show a rubber or equivalent compressible and expansible packing tube E with a single ring or follower 12 beneath adapted to form a seat for the valve, and in Fig. 6 I show several packing rings E' removed from holder F and said rings may be all of the same material or of different mate-

rials, such as lead for one and composition of cloth and rubber for another. The advantage of a tubular packing and holder therefor arranged and constructed as shown, is that primarily it will have a long life and will make a perfect seal about valve head 4 under varying conditions, and secondly because a new packing or a change from one kind to another may be easily and quickly effected as the same may be removed and replaced in a holder separate from the cock. Said cock when on the pipe may be in an out of the way place and difficult to reach but with a removable holder for the packing it is an easy matter to make necessary alterations or repairs.

What I claim is:

1. In a waste and vent cock, a valve casing and a valve adapted to seat therein, in combination with a bonnet rotatably mounted upon said casing and independent openings for waste and vent, respectively, said openings being relatively positioned on different horizontal and vertical planes whereby either opening may become a waste or vent dependent upon the position of the cock.

2. A valve casing having a main water passage and a main waste passage and independent vent and waste orifices open to said main waste-passage, and a main valve for said main water passage and an auxiliary valve adapted to close said main waste passage and thereby cut off communication with both said vent and waste orifices.

3. A valve casing having a main water passage and independent waste and vent openings communicating therewith and relatively positioned at different angles and on different cross sections, and a main valve for said main water passage having primary closing valve members upon opposite sides thereof adapted to close the said waste and vent openings before the main valve is opened and to close the said main water passage before the waste and vent are opened.

4. A valve casing and a main valve therein, and a rotatable bonnet mounted upon said casing having a waste outlet and a vent opening relatively positioned at different angles and planes to provide for automatic drainage regardless of the position of the valve, in combination with a cup shaped packing holder held in place by said bonnet and having removable packing therein adapted to seal the outlet to both said waste and vent.

5. A valve casing having a main water passage and a main valve therefor, and a waste passage adapted to be closed by said main valve, a packing holder removably seated within said casing and packing removably seated within said holder, and a primary sealing ring within said holder and beneath said packing.

6. A valve casing having a main water

passage and a valve seat therein, a main valve and a threaded stem therefor adapted to seat said valve, a threaded bonnet removably and rotatably mounted upon said casing and provided with a waste passage, and a primary closing valve-head upon said valve stem, in combination with a packing holder removably seated within said casing about said stem, and an annular packing seated within said holder and adapted to frictionally engage said valve-head.

7. In a waste and vent cock, a casing having a valve seat and an externally threaded neck at its top, a bonnet with openings on different planes, a valve stem threaded in said bonnet and provided with a valve head having a flange about its base, an annular holder seated removably in said neck and packing supported in said holder having internal diameter corresponding substantially to the cross section of said valve head, and the said holder having a bottom opening corresponding to the flange on said valve head, whereby said flange seats against the edge of said packing and compresses the same about the head of the valve.

8. In a waste cock, a casing having a central valve seat and a threaded neck at its top above said seat, a bonnet coupled on said neck, a valve stem threaded in said bonnet and having a cylindrical head with a flange about its base, in combination with a tubular packing seated within the top of said neck and adapted to receive the tubular head of the valve and thereby initially close the waste passage, and the flange about the bottom of the valve adapted to press against the lower edge of said packing and to compress the same about said head.

9. A valve casing having a central seat, a bonnet mounted on said casing, and a valve having a stem engaged in said bonnet, in combination with an annular packing seated in the top of said casing and the said valve constructed to seat against and within said packing and within and against the valve seat in said casing, whereby water from the pressure side is cut off from the waste orifice both in opening the valve and in primary closing of the valve.

10. The casing having a central valve seat and a neck above the same, a bonnet coupled on said neck and a valve stem mounted in said bonnet, in combination with an annular holder removably supported in said neck and

a tubular packing removably seated in said holder, and a valve on said valve stem constructed to seat within and against said packing and to occupy the seat in said casing, said bonnet being provided with waste and vent openings on different cross sectional planes and open alike to the interior of said casing.

11. A stop and waste cock having both a waste and a vent opening communicating with a single waste passage, a valve seat at the entrance of said passage, and a main valve for said cock having a supplementary seating portion adapted to close said valve seat whereby both waste and vent openings are cut off from the pressure within the cock.

12. A stop and waste cock having a rotatable bonnet provided with both a waste outlet and a vent opening communicating with a single waste passage in said cock, and a main valve for said cock having a seating portion adapted to close said single waste passage when the main valve is opened and whereby both waste and vent openings are closed by a single seat.

13. A stop and waste cock having valve means adapted to control both the supply and waste through the cock, in combination with a rotatable bonnet for said cock having both a waste outlet and a vent opening relatively staggered in respect to each other and whereby said cock may be installed in any position and have both free waste and vent.

14. In a stop and waste cock, a valve body and valve means therefor and a rotatable bonnet mounted on said body having a plurality of openings relatively offset in respect to each other both radially and longitudinally of said bonnet, whereby said cock may be installed in varying positions with the vent always on a higher plane than the waste.

15. A stop and waste cock having a main valve provided with a primary closing valve head, said cock having waste and vent openings and provided with a removable packing holder having a plurality of packing rings removably seated therein and adapted to frictionally engage said valve head.

In testimony whereof I sign this specification in the presence of two witnesses.

JOSEPH H. GLAUBER.

Witnesses:

R. B. MOSER,

R. A. KETCHAM.