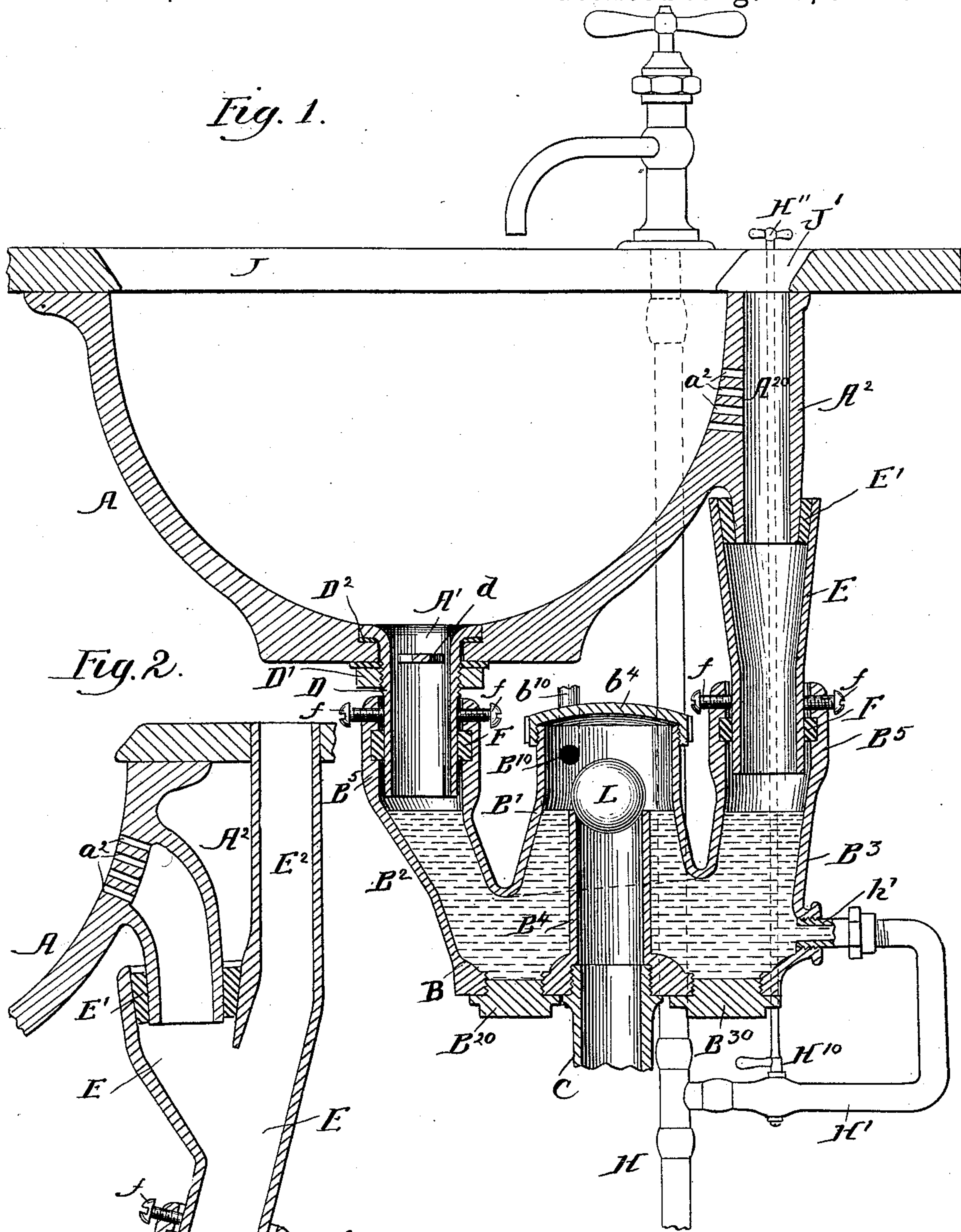


(No Model.)

J. J. WADE.
WASTE AND OVERFLOW TRAP.

No. 434,689.

Patented Aug. 19, 1890.



Witnesses:
Jean Elliott
John R. Peterson

Inventor:
James J. Wade
By Burton & Burton
Attorneys

UNITED STATES PATENT OFFICE.

JAMES J. WADE, OF CHICAGO, ILLINOIS.

WASTE AND OVERFLOW TRAP.

SPECIFICATION forming part of Letters Patent No. 434,689, dated August 19, 1890.

Application filed January 31, 1889. Serial No. 298,206. (No model.)

To all whom it may concern:

Be it known that I, JAMES J. WADE, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have
5 invented certain new and useful Improvements in Waste and Overflow Traps, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part hereof.

10 In the drawings, Figure 1 is a central vertical section through a hand-basin and the waste and overflow connection, showing the water-supply pipes in elevation. Fig. 2 is a detail
15 section of a modified form of connection to be supplied to a standard form of bowl having the usual overflow-horn.

A is the basin, having waste-outlet at A' and overflow-outlet through the horn A², the induction to which from the basin is through
20 the usual perforations a² in the wall of the basin near the upper margin.

B is the trap-fitting. It comprises the central chamber B' and the lateral induction-pipes B² and B³, respectively, which lead into
25 the chamber near the bottom. The induction from the chamber B' is through the central duct B⁴, which stands up in the middle of the chamber B', opening near the top thereof and leading out through the bottom. The
30 final waste-pipe C, leading to the sewer, is connected into the bottom of the trap-fitting B at the center, so that it makes junction with the duct B⁴, which thus becomes the initial part of the final waste-passage. The
35 chamber B' extends above the upper end of the duct B⁴ and is closed by the cap b⁴, and from the upper part of it there may be provided a ventilating-opening B¹⁰, from which the pipe b¹⁰ may lead to any convenient flue
40 or point of escape for gases which might be generated in the trap.

An important feature of this invention consists in the mode of connecting and securing the trap-fitting to the basin, this being
45 accomplished without use of soldered or "wiped" joints; but in such manner any one can make the attachment. The waste-outlet A' of the basin is provided with the thimble or tail-piece D, which is flanged at the upper
50 end and seated in the bowl in a familiar manner and provided with the grating d to pre-

vent the escape of large articles from the basin into the waste, and secured to the basin by the nut D', suitable packing or cement being employed to make the junction with the
55 basin water-tight. Below the boss which contains the thread whereat the nut D' is applied the tail-piece D is smooth and elongated, preferably two inches or more, to allow for adjustment hereinafter explained. 60

E is a tail-piece for connecting the overflow-horn A² with the trap-fitting. It is of metal, and at the lower part for the distance of two inches or more is straight, and above that part slightly flaring, so that at the up-
65 per end it is enough larger than the termination of the horn A² to permit the introduction between them when the tail-piece is placed over the horn of the rubber packing ring or sleeve E'. Both the waste and overflow in-
70 duction branches B² and B³ of the trap-fitting terminate upwardly in an elongated hub B⁵. This hub is provided with an interior annular groove about midway in its length, which receives a rubber packing-ring F, whose in-
75 terior diameter is such as to cause it to fit tightly about the lower ends of the tail-pieces D and E. Above the location of this rubber packing-ring in the hub there are inserted therein one or more, but preferably at least
80 two, set-screws f.

By means of the devices now described the trap-fitting B may be connected to the basin as follows: The tail-piece D being secured in the manner illustrated at the waste-outlet,
85 the tail-piece E will be slipped up over the lower end of the overflow-horn A², the rubber packing-ring E' having first been placed upon the end of the horn and the tail-piece being pushed up until a perfectly water-tight con-
90 nection is effected by the rubber packing-ring. The set-screws F being drawn back far enough to admit the lower ends of the tail-pieces D and E to the hubs, respectively,
95 the trap-fitting B is then pushed up until the tail-pieces are respectively entered through and within the rubber packing-rings F, and thereupon, the set-screws f being tightened, the fitting will thereby be secured to the tail-
100 pieces. The length of the tail-pieces permits of sufficient range of vertical adjustment of the trap-fitting to accommodate its position

to the necessity of the connection which will be made with the rigid waste-pipe C and water-supply pipes H. The waste-pipe C, it will be observed, will to a large extent support the entire trap-fitting, being located centrally under it. Additional support is also obtained by the connection of the waste branch B² to the basin by means of the tail-piece D; but in general no dependence should be placed upon this connection, since the basin itself is not always reliably supported independently of the pipes. From the supply-pipe H a branch H' is taken and carried into the trap-fitting, being connected thereto at the lower part, and, as illustrated and conveniently made, being connected at the bottom of the overflow induction branch B³ at the nipple h'. A valve H¹⁰, located in the branch H', controls the access of the water from said branch into the trap. The stem of the valve H¹⁰ is most conveniently carried up and protruded through the slab J and provided with a handle H¹¹ above the slab, so that it may be controlled from that point. The horn A² differs from the ordinary construction of overflow-horns of basins in that the duct A²⁰ through it extends to the upper margin of the basin and opens at the top instead of bending laterally, so as to communicate with the basin only through the ports a². An aperture J' is made in the slab directly over the mouth of the overflow-passage, (this aperture ordinarily constituting an indentation in the principal opening through the slab over the bowl,) so that access can be had to the duct A²⁰ directly from the top of the slab, and thence downward entirely through the horn and the intermediate tail-piece E and into the trap. By this means the overflow can always be readily cleared of obstruction, and especially by this means access directly to the trap is obtained, so that obstructions therein can be removed. In addition to the access thus afforded to the trap an aperture is provided at the bottom of each of the branches B² and B³, said openings being closed by movable caps B²⁰ and B³⁰, through which, also, access can be obtained both into the branches B² and B³ and into the central chamber B', and through the aperture which is closed by the cap B²⁰ access is obtained up through B² to the waste-outlet at the center of the bowl. Thus every part of the trap-fitting is made easily accessible for the purpose of cleansing. A branch H' of the water-supply pipe affords a further means of cleansing the trap. By opening the valve H¹⁰ a jet of supply-water is injected into the bottom of the trap, and thereby all accumulated matter is dislodged and washed over into the final waste. Since this can be done by the handle H¹¹ at the surface of the slab, it becomes very easy for the user to keep the trap perfectly clean, since on each occasion of use it is possible by opening the valve H¹⁰ for an instant to completely cleanse the trap and all its connections.

When it is inconvenient to connect a ventilating-pipe as b¹⁰ to this trap, and when for any reason the ball-valve L, which is illustrated seating on the upper end of the final waste-duct B⁴, is not employed, so that there might occur danger of emptying the traps by siphoning, I construct the trap-fitting as I will now describe to prevent that result.

The opening of the overflow induction branch B³ into the central chamber B' is made to extend a little higher than the corresponding opening of the waste induction branch B², as illustrated in Fig. 1. If now the final waste-passage should become fully charged with the outflowing stream, so that a siphon would be formed of which such final waste-passage would be the longer limb, the siphonic action thus induced would lower the water in both the branches B² and B³ until it reached the level of the upper margin of the opening of B³ into the central chamber B'. When that level was reached, air would gain access past the water to the chamber B' and "break" the siphon, and this would occur before the water-level in B² would have reached so low as the upper margin of the opening of B² into B', and, the siphon being broken, the water remaining in the chamber B' would fall back and seal the opening from B³, thus leaving both overflow and waste passages water-sealed by the trap. The difference between the two levels—that of the upper margin of B³ and that of the upper margin of B²—is illustrated as being comparatively slight; but it may be made as great as desired or as experience may indicate to be necessary to produce the result above described, and it is safest to make it such that the amount of water in the duct B² between the two levels will be sufficient to seal both openings independently of the water which may fall back from the chamber B', since it sometimes occurs that the siphonic action is not entirely terminated by the first access of air, or at least until some additional quantity of water is carried over while the air is rushing in.

In order to adapt this trap-fitting to the ordinary form of bowl, which has the overflow-horn communicating with the bowl only through the overflow-apertures in the side of the latter, as illustrated in Fig. 2, I provide a modification of the tail-piece E of the form illustrated in Fig. 2, such tail-piece having a branch E², which extends up to and through the slab, in addition to the branch E³, by means of which connection is made to the horn in the manner already described. By means of this connection my trap-fitting can be applied to any ordinary bowl, access being gained to the overflow-passage and trap from the surface of the slab through the branch E² and the trap-fitting being connected without soldered or wiped joints in the manner described. This fitting may be adapted to be used with basins of any size and for any purpose, including baths and sinks, and the nec-

essary modifications of form to adapt it to such various situations will be obvious to any mechanic familiar with the art.

I claim—

5 1. In combination with the basin, the trap-fitting B, comprising the middle chamber B' and the waste and overflow eduction branches B² and B³, leading into the bottom of the central chamber and communicating, respectively, with the waste and overflow passages
10 of the bowl, and the final waste-passage leading from the upper part of the central chamber downwardly, whereby said chamber constitutes with said branches two traps, one be-
15 tween the waste-outlet and final waste-pipe and the other between the overflow-outlet and final waste-pipe, substantially as set forth.

2. In combination with the basin having separate waste and overflow outlets, a trap
20 between each of said outlets and the final waste-pipe, said traps communicating at their lower part, and the water-supply pipe having a branch through which water is dischargeable

into the lower part of both traps, substantially as set forth.

3. In combination with the basin having waste and overflow outlets, the final waste-pipe and a chamber into which said waste-pipe protrudes and with which it communicates
25 at the upper part, the waste and overflow out-
30 lets both communicating with said chamber below the communication therewith of the final waste-duct, whereby said chamber constitutes a double trap, sealing both the over-
35 flow and waste, one of them having its communication with said chamber extending higher than the communication of the other therewith, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set
40 my hand, in the presence of two witnesses,
at Chicago, this 26th day of January, 1889.

JAMES J. WADE.

Witnesses:

CHAS. S. BURTON,
JEAN ELLIOTT.