

(No Model.)

2 Sheets—Sheet 1.

W. H. HEAN.

INLET PIPE FOR WATER WORKS.

No. 304,318.

Patented Sept. 2, 1884.

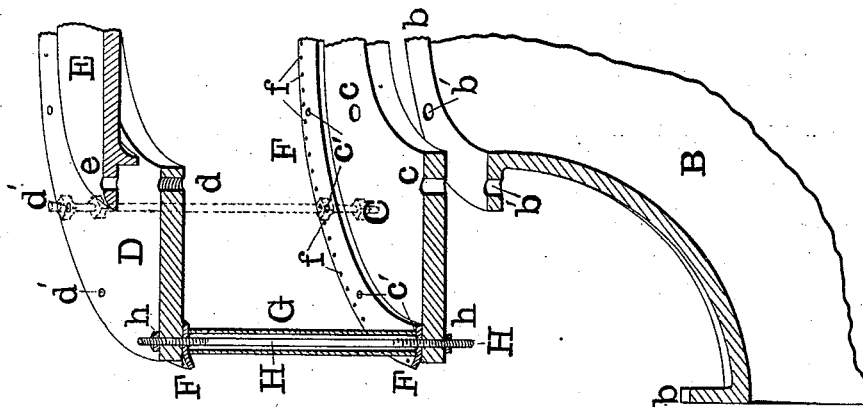
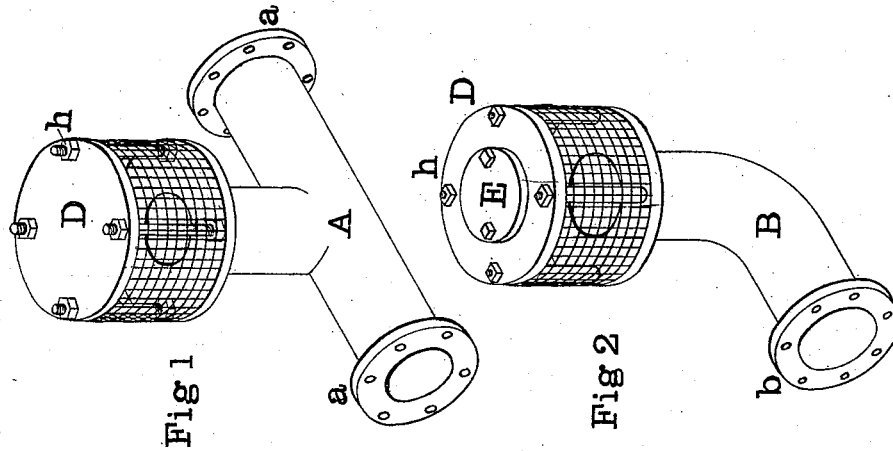


Fig 3

Witness

W. S. Bates

Chas. Bates

Inventor

Wm H. Hean

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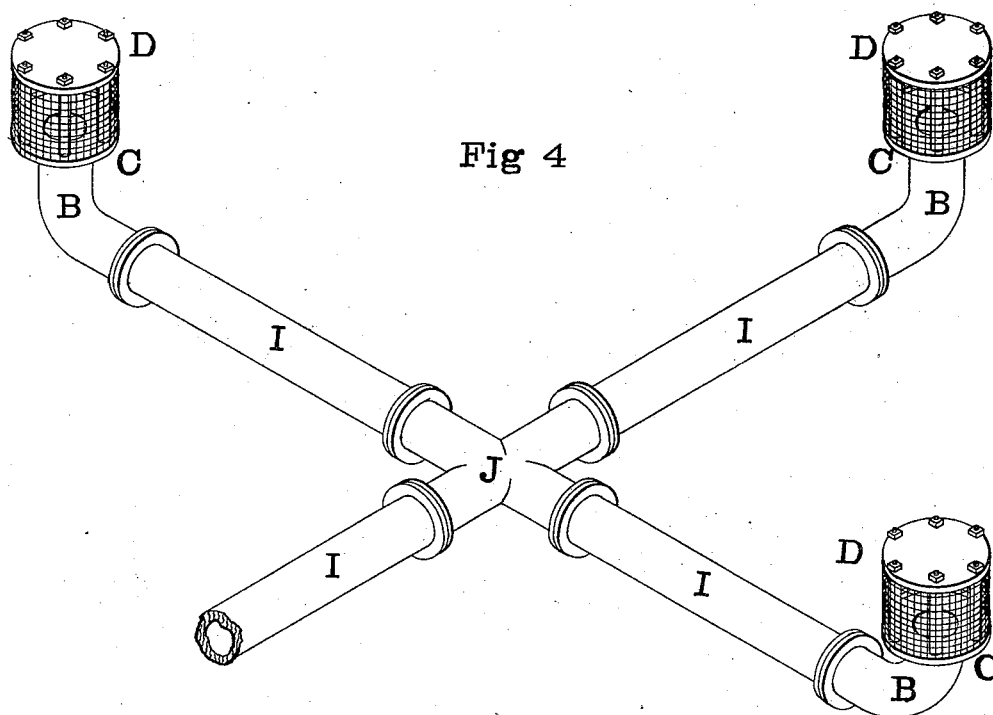
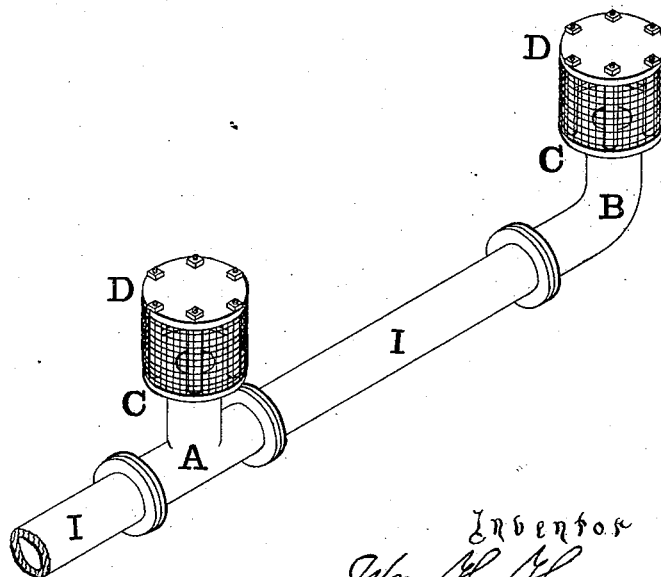


Fig 4

Fig 5



Attest  
Wm S Bates  
Chas Bates

Inventor  
Wm H Hean

# UNITED STATES PATENT OFFICE.

WILLIAM H. HEAN, OF CHICAGO, ILLINOIS.

## INLET-PIPE FOR WATER-WORKS.

SPECIFICATION forming part of Letters Patent No. 304,318, dated September 2, 1884.

Application filed May 19, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. HEAN, of Chicago, Illinois, have invented certain new and useful Improvements in Inlets for Water-Works, of which the following is a specification.

My invention relates to inlets for water-pipes of water-works.

In designing my improvements I have had reference more especially to the needs of cities located on the great lakes; but the invention is applicable to other places. In cities on the lakes there is always great trouble in winter from ice clogging the inlets or "cribs," as they are commonly called, and it is necessary to have men ready at all times to clear them to prevent stoppage of the water-supply.

It is one of the objects of my invention to avoid this difficulty, which I do by the use of an inlet-pipe having two or more inlet-openings at some distance apart, whereby not only is one opening frequently out of the way of the drift which clogs another one, but the suction at the different openings is reduced in proportion to their number, so that there is less tendency to draw the drift to the opening.

Another object of my invention is the production of an opening or inlet of such simple and cheap construction that cities and towns having but a limited amount of funds can secure the advantages of the invention. This object I accomplish by means of certain instrumentalities and combinations, which I will specifically point out in the claims at the end hereof.

Another object of my invention is the production of an inlet-strainer, which shall be self-cleansing. This I accomplish by the use of a straining-cage, open at the sides, so that any currents that may exist will pass right through the cage and clear away any débris that may have collected on the opposite side of the cage to that at which the current enters during any variation in the direction of the current.

Other objects of my invention and the means of accomplishing them will be obvious to the water-supply engineer on reading the following description of a specific embodiment of my invention, and referring to the drawings which illustrate it and show such embodiment of the invention.

Figure 1 shows the cage applied to a T. Fig. 2 shows the same applied to a bend. Fig. 3 is a detail view showing the preferred form of construction. Fig. 4 shows an inlet-pipe with three inlet-openings of equal suction. Fig. 5 shows an inlet-pipe with two inlet-openings in line and of unequal suction.

A is an ordinary T coupling or angle. B is an ordinary L coupling or angle. *a* and *b* are the ordinary flanges for making joints.

C is a plate adapted to the end of the coupling, and having an opening in it corresponding to the bore of the pipe or coupling. The plate C is secured to the coupling by bolts passing through the holes *c* in the plate and the holes *b'* in the flange of the coupling.

D is another plate.

H is a bolt securing plates C and D together. G is a gas-pipe through which bolt H passes, and which serves to keep the plates apart. A number of these bolts should be used. Instead of the gas-pipe, the bolts may have nuts on both sides of the plates C and D, as in Fig. 1, in which case it is desirable to make the bolts larger in diameter.

F are rings held in place, as shown, by the bolts H and gas-pipe, and perforated with small holes *f*. A wire-netting is applied, as in Figs. 1 and 2, the ends of the wires being passed through the holes *f*, and twisted or bent over to secure them. The netting is supported against the gas-pipe and bolts, these being sufficiently numerous for this purpose.

E is a cap or man-hole in plate D. The cap may be secured by tap-bolts, as indicated.

J is an X coupling or four-way. In the arrangement shown in Fig. 5 the X is not used, as the inlets are all on the direct line. I is the pipe. In some cases it will be sufficient to have the inlet-openings separated by a single length of pipe between coupling, as shown, and in other cases it will be necessary to have a greater separation. Any number of openings may be provided by a simple extension of the system.

I have shown in the drawings only flanged joints; but it is obvious that the ordinary bell-and-spigot joint may be used.

It is desirable in practice to securely anchor the pipe-line, either by piles or otherwise, and in the arrangement of openings shown in Fig. 5 it is desirable to guy the cages, so that they

may have no tendency to turn over and twist the pipe-line, and it is desirable to do this without choking the space under the projecting edges of the plates C, as the tendency of such projecting edges is to oppose the accumulation of sand about the cages.

By providing the main or inlet pipe with a series of lateral branches, as shown in Fig. 4, the said pipe is prevented from turning over or twisting, and it is also to some extent prevented from being displaced by the action of the waves or movement of the water, as said lateral branches break the force of the waves and aid in weighting said pipe on opposite sides, so as to anchor the same.

It is obvious that the cages may be of such size that no matter how fine a strainer be used on them the required amount of water will pass through them with as little resistance as it will pass through the pipe. It is also obvious that though one opening be entirely stopped by drifting ice or debris the water-supply will be unchecked, owing to the presence of a second opening at a distance from the first, and out of the way of the debris.

By using two or more lateral branches in connection with a main pipe, as described, the inlet for the water is self-anchoring—that is, the lateral branches on the sides prevent the displacement of the main pipe from the action of the waves or movement of the water.

What I claim is—

1. The combination of the plates C and D, the bolts connecting said plates, the tubes encircling said bolts, the screen extending vertically between the said plates, and the angle-coupling, to the free end of which the plate C is connected, substantially as described.

2. The combination of the plates C and D, the bolts connecting said plates, the rings F, bearing against the inner faces of said plates, the screen extended vertically between said plates and secured to said rings, and the angle-

coupling, to the free end of which the plate C is connected, substantially as described.

3. In a system of water-supply for cities, the combination of an inlet-pipe, an angle-coupling connected therewith, and a cage having perforate vertical sides, an imperforate top, and an opening in its bottom, said cage being supported vertically upon the free end of the angle-coupling, with the opening in its bottom over the inlet end of the coupling, whereby water entering the cage through its perforate sides will pass therefrom into the coupling, substantially as described.

4. In a system of water-supply for cities, the combination, with the inlet-pipe, of a series of lateral branches located in the source of water-supply, and connected with the inlet at suitable distances apart, substantially as described, and provided with openings for the inlet of water, whereby the suction at the different openings is reduced and an obstruction to the inflow of water into one of said openings will not affect the other openings, substantially as described.

5. In a system of water-supply for cities, the combination, with the inlet-pipe, of a series of angle-couplings located in the source of water-supply, and connected with the inlet-pipe at suitable distances apart, substantially as described, and a cage having perforate vertical sides connected to the inlet end of said angle-couplings, substantially as described.

6. The combination, with the inlet-pipe, of lateral branches thereto provided with inlet-openings, whereby the inlet-pipe is anchored by said lateral branches, substantially as described.

Witness my hand this 14th day of April, 1883.

WM. H. HEAN.

Attest:

W. C. MINARD,  
D. NORRIS.