

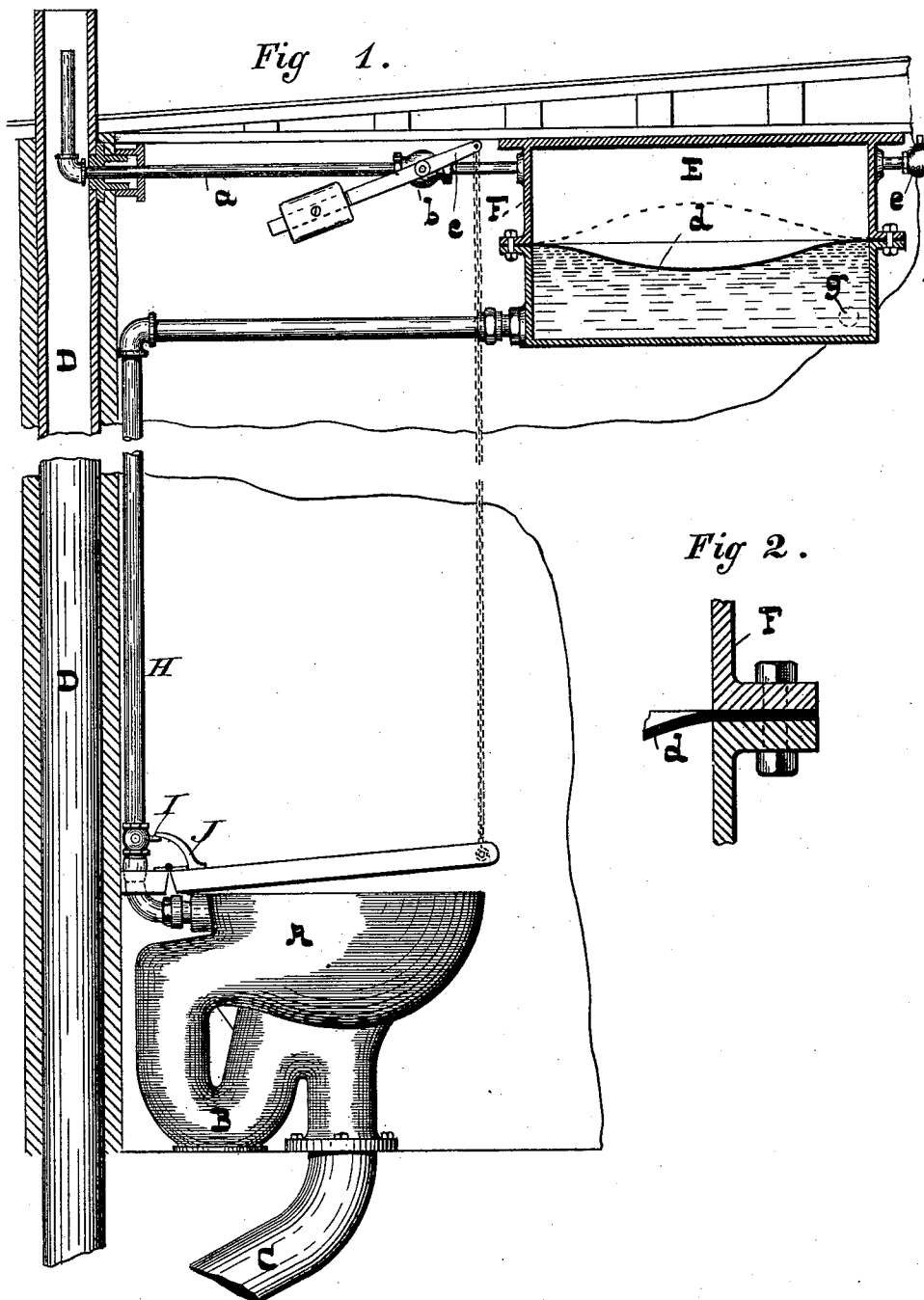
(No Model.)

J. L. HUTCHINSON.

VENTILATING APPARATUS FOR WATER CLOSETS.

No. 404,196.

Patented May 28, 1889.



-WITNESSES-

David Fisher
James Spacklin

-INVENTOR-

James L. Hutchinson
by Wm H. Howard
attys.

UNITED STATES PATENT OFFICE.

JESSE L. HUTCHINSON, OF BALTIMORE, MARYLAND.

VENTILATING APPARATUS FOR WATER-CLOSETS.

SPECIFICATION forming part of Letters Patent No. 404,196, dated May 28, 1889.

Application filed August 23, 1888. Serial No. 283,563. (No model.)

To all whom it may concern:

Be it known that I, JESSE L. HUTCHINSON, of the city of Baltimore, in the State of Maryland, have invented certain Improvements in Ventilating Apparatus for Water-Closets, of which the following is a specification.

This invention relates to improved means for effecting an upward current in the ventilating-pipe which leads from the soil-pipe of a water-closet, as will hereinafter fully appear.

It is well known that in ventilating-pipes of the character alluded to there is practically no upward current unless the heavy foul air therein be rarefied by the application of heat to the pipe. In some cases the contained air is rarefied by applying to the ventilating-pipe a gas-flame, and in others the said pipe is run so as to be heated from a flue. The first of these methods is attended with considerable expense, as the gas-flame has to be constantly maintained. The second method cannot be easily employed when the water-closet is not in the vicinity of a flue constantly in use.

My invention consists in combining with the ventilating-pipe, a reservoir of air or water under pressure, and a pipe containing a suitable self-closing cock or valve, whereby, either in the use of the closet or by the movement of some device connected with the said valve, a current of compressed air or water is admitted to the interior of the said ventilating-pipe in an upward direction and the foul air therein set in motion.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

Figure 1 is a partly sectional view of the principal parts of a water-closet provided with my improved ventilating apparatus, and Fig. 2 a detail of the same on an enlarged scale.

Similar letters of reference indicate similar parts in both views.

In the said drawings, A represents the bowl of the water-closet, and B the trap, which empties into the soil-pipe C.

D is the ventilating-pipe, which consists in the present case of a continuation of the soil-

pipe and extends to a point above the roof of the building in the usual way.

E is a reservoir of compressed air, connected to the interior of the ventilating-pipe by means of a small pipe, *a*, in which is a cock or valve, *b*, having a small discharge-aperture. The handle *c* of the cock *b* may be opened by hand through the medium of a chain, if desired; but it is preferably attached to the seat of the closet, which in that case would be of the hinged description, by a wire or chain, as shown in the drawings.

I do not restrict myself to any particular means for obtaining a body of compressed air or water in a reservoir, as this can be effected in a variety of ways; but in cases where the ordinary flushing-tank can be applied I secure a body of compressed air by dividing the said tank, which is represented in the drawings by F, by a flexible diaphragm, *d*. The lower chamber is then used as a receptacle for water and the upper one for air, which is compressed as the water-chamber is filled by the upward movement of the flexible diaphragm. In Fig. 1 the diaphragm is shown in its lowest position in full lines and in its highest one by the dotted line.

With the construction described the air-chamber would have to be provided with a check-valve, *e*, to admit air and at the same time prevent its escape. The pipe for supplying the water-tank is denoted by *g*. This pipe may have a valve to control the flow of water through it; but such valve is not necessary if the pipe is made considerably smaller than the discharge-pipe H, which leads to the bowl. With pipes arranged in this manner the filling of the water-tank will be gradual, while the discharge to the bowl will be sudden.

The flushing-pipe H is provided with a valve, I, and the seat with a trigger, J, which, as the hinged seat is elevated, opens the valve for a period and effects the flushing of the bowl. The exact arrangement of these valves and the trigger is no part of my present invention, and does not, therefore, require any special description.

When the invention is arranged as shown in the drawings, a current of compressed air

is conducted to the interior of the ventilating-pipe in the act of using the closet; but, as before stated, it may be applied by hand independently of the seat of the closet, if desired. As the water in the tank is discharged to flush the bowl, the flexible diaphragm falls and air enters the upper chamber through the check-valve *c* and is compressed as the water-tank is again filled. By this means the closet is at all times provided with a body of compressed air, which may be discharged to the ventilating-pipe to form an upward current therein by hand or automatically, as described.

15 I claim as my invention—

1. In combination with the ventilating-pipe of a water-closet, a reservoir of compressed air or water, a pipe leading from the said reservoir to the interior of the ventilating-pipe, 20 a self-closing cock or valve in the said connecting-pipe, and a chain or wire whereby the said cock or valve may be opened and a current of air or water admitted to the interior of the said ventilating-pipe, substantially as and for the purpose specified.

2. In combination with the ventilating-pipe of a water-closet, a reservoir of compressed air or water, a pipe connecting the said reservoir to the ventilating-pipe, a cock or valve 30 in the said connecting-pipe, a movable seat, and a connecting chain or wire, whereby in the movement of the seat the said cock or

valve is opened and compressed air or water admitted to the interior of the said ventilating-pipe, substantially as and for the purpose 35 specified.

3. In combination with a water-closet and a ventilating-pipe leading therefrom, a tank having a flexible diaphragm therein which divides it into two compartments, one of which 40 is provided with a water-pipe to fill it, and a discharge-pipe for flushing the water-closet bowl, and the other compartment fitted with an inwardly-opening air-check, and a discharge-pipe leading to the ventilating-pipe, 45 having therein a controlling valve or cock, substantially as and for the purpose specified.

4. In combination with the ventilating-pipe of a water-closet, a tank, a flexible diaphragm to divide the tank into two compartments, 50 one for air and the other for water, suitable pipes connected with the water-compartment, whereby the same is filled and discharged, and another pipe leading from the air-compartment to the said ventilating-pipe, where- 55 by in the filling of the water-compartment air is compressed in the other and forced into the ventilating-pipe, substantially as and for the purpose specified.

JESSE L. HUTCHINSON.

Witnesses:

WM. T. HOWARD,
H. M. FITZHUGH.