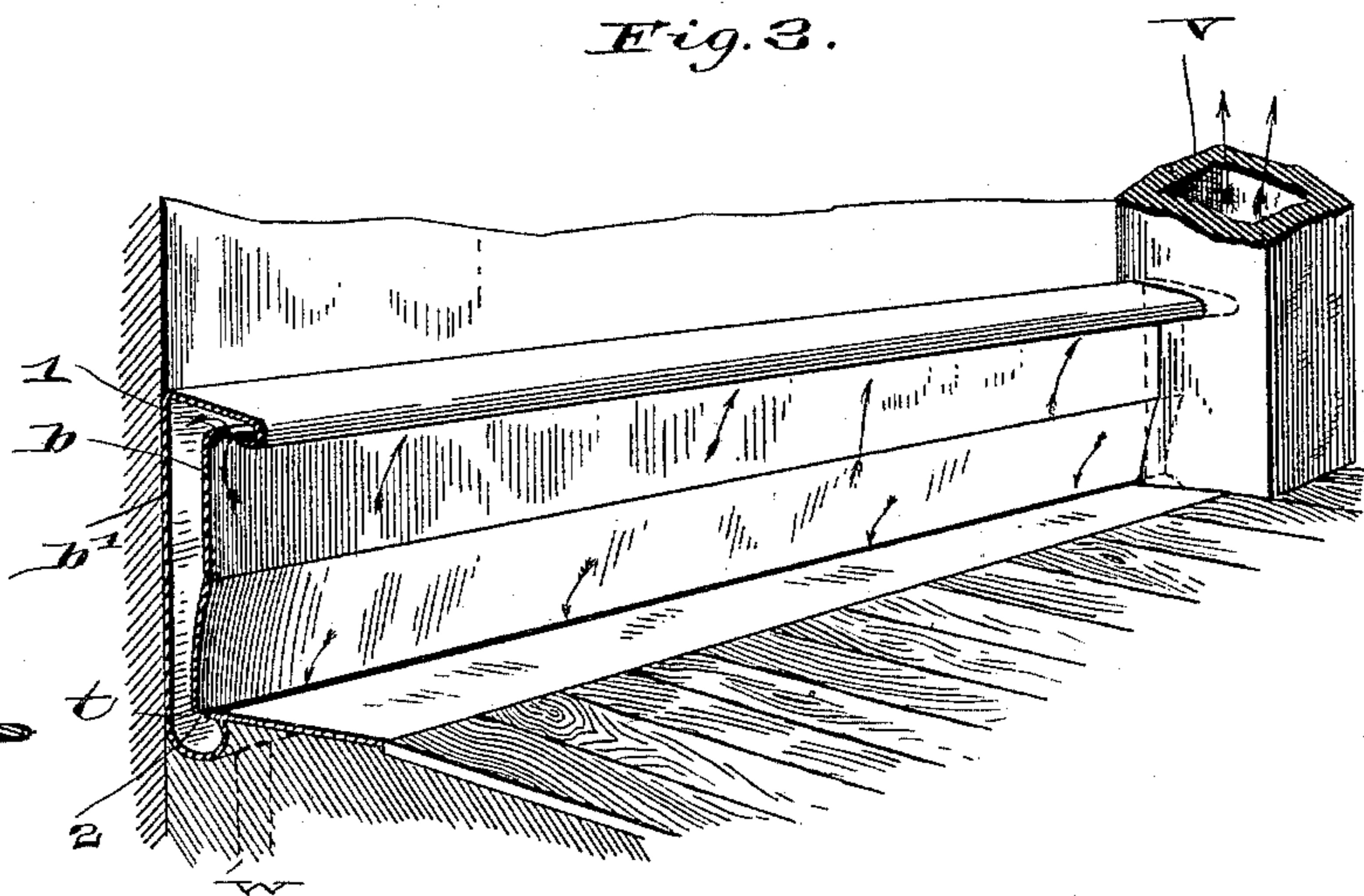
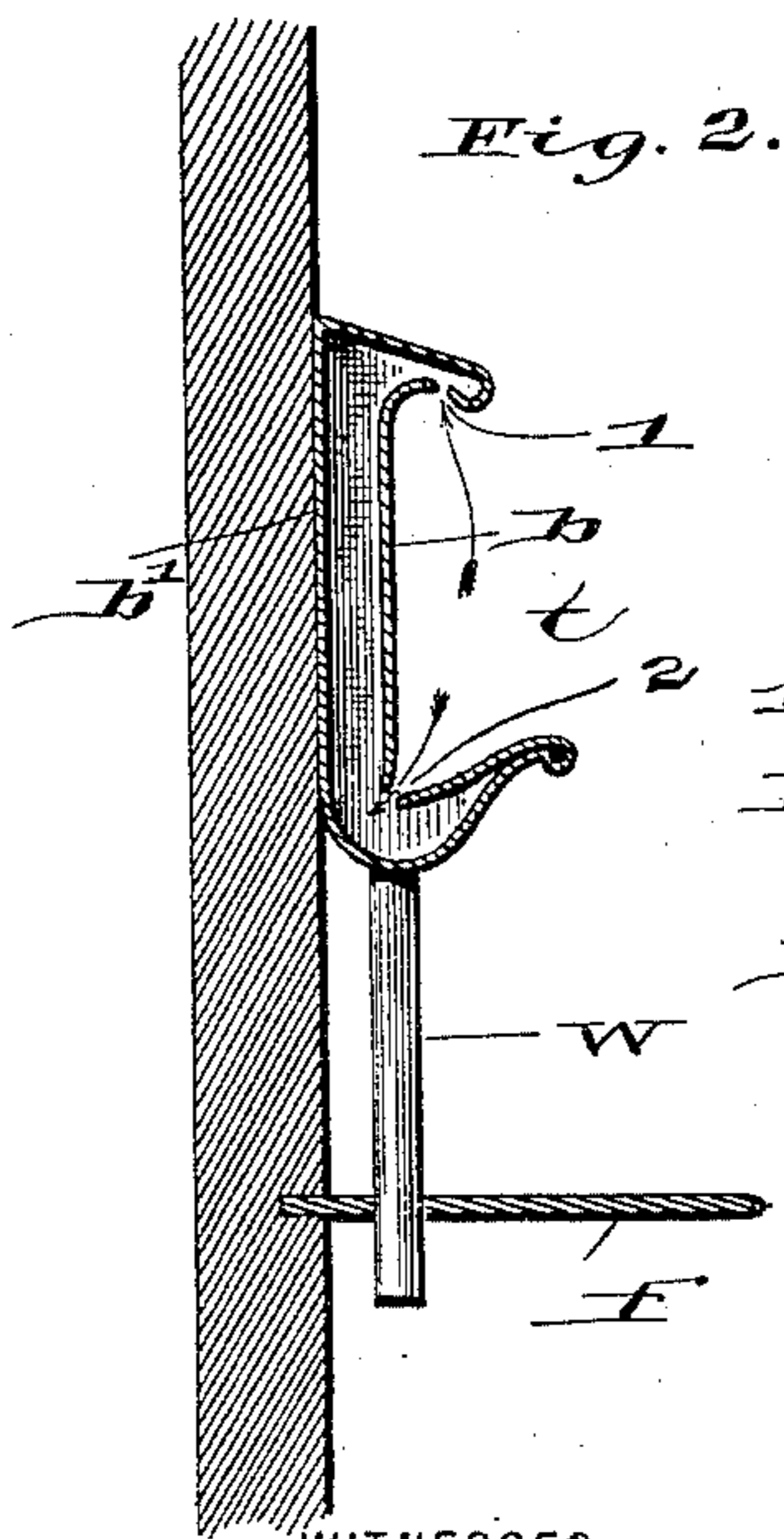
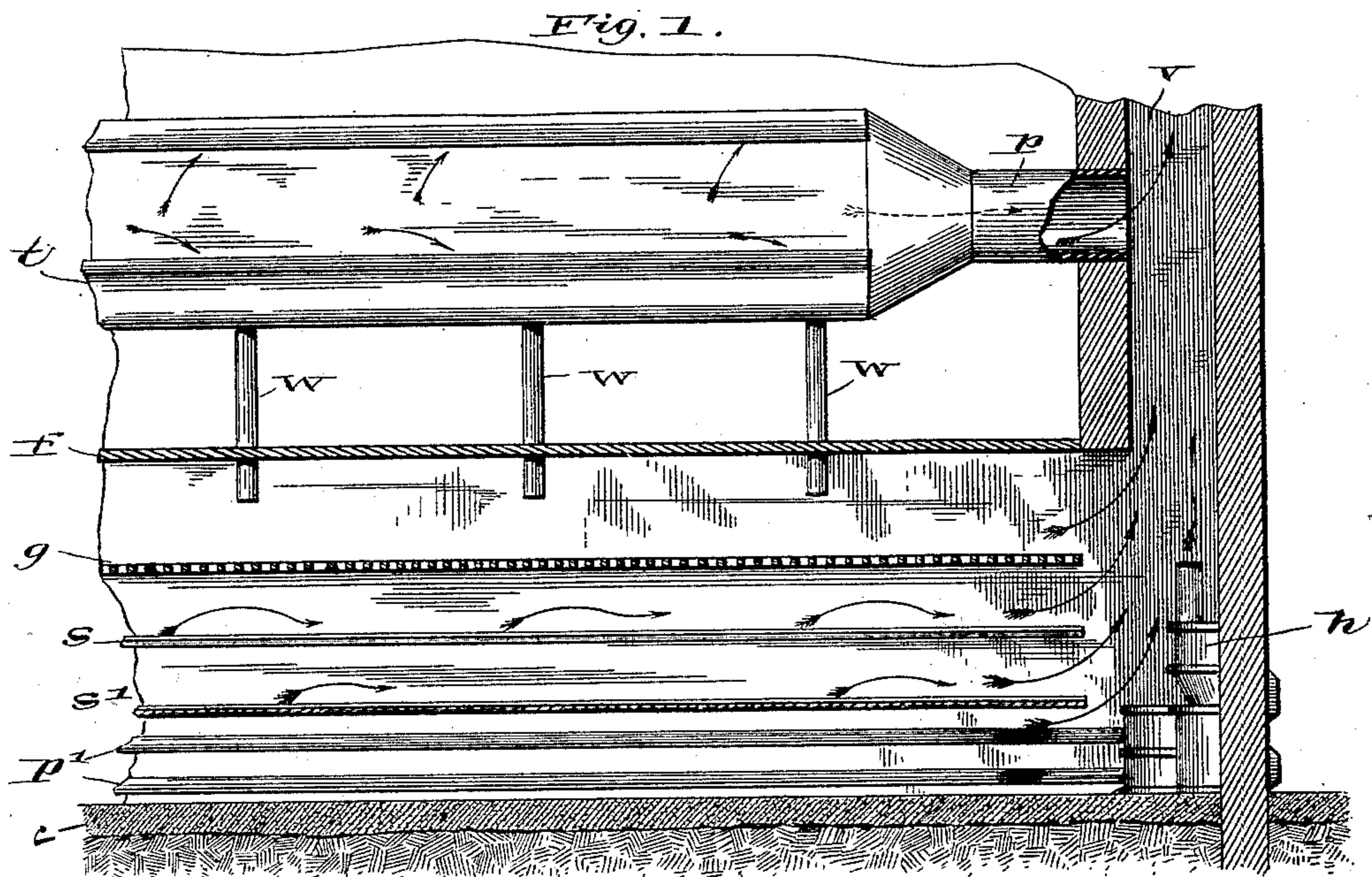


(No Model.)

W. H. JOHNSON & T. KRUSE.
URINAL.

No. 453,118.

Patented May 26, 1891.



WITNESSES:

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WILLIAM H. JOHNSON AND THEODORE KRUSE, OF INDIANAPOLIS, INDIANA.

URINAL.

SPECIFICATION forming part of Letters Patent No. 453,118, dated May 26, 1891.

Application filed May 22, 1890. Serial No. 352,795. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. JOHNSON and THEODORE KRUSE, of Indianapolis, county of Marion, and State of Indiana, have
5 invented certain new and useful Improvements in Urinals; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like let-
10 ters and figures refer to like parts.

Our invention relates to the construction of urinals, and will be understood from the following description.

In the drawings, Figure 1 is a front view,
15 partly in section, of our device. Fig. 2 is a vertical section of the trough and wall to which it is attached. Fig. 3 is a perspective view of the same, one end being in section.

This particular device is intended to be
20 used in connection with the dry closet invented by us and described in an application filed contemporaneously herewith, and Fig. 1 shows the same arrangement of vault, flue, grating, and shelves which is shown in such
25 application.

In detail, *t* is a trough, which is made in the shape indicated, having double backs *b b'*, with an opening 1 at the top, through which currents of air may pass, and an opening 2 at the bottom, through which the liquid
30 falls into the bottom of the trough and air-currents are admitted. The space between the two backs of the trough constitutes a pipe, along which the offensive odors are carried
35 to the ventilating-flue *v*, with which the trough is connected, either directly, as shown in Fig. 3, or by means of a smaller pipe *p*, as shown in Fig. 1.

f is the floor through which the waste-pipes
40 *w* connected to the trough pass, and are either connected with a sewer or with a vault containing the devices shown in Fig. 1. These comprise the metal grating *g*, overlapping shelves *s s'*, formed of corrugated iron, each
45 being of less width than the vault to the walls of which they are connected, and below these shelves are heating-pipes *p'*, connected to a heater *h*, which is located at the bottom of the ventilating-flue. The bottom of the vault
50 is formed of concrete or cement *c*, laid directly upon the soil. The heater is open at the outside of the wall of the flue for replenishing the fire. The object of this heater and its connected devices is to carry the heat

throughout the vault for the purpose of dry- 55
ing the air and inducing a current in the direction of the arrows up the ventilating-flue *v*. By the peculiar construction of the trough
60 *t* it will be seen that any offensive odors are carried away by the air-currents between the two backs of the trough and along into the ventilating-flue *v*, with which the trough is connected. The heated air from the vault
65 below evaporates the liquid that falls through the grating and upon the shelves *s s'*, and carries this, with all odors, up the same flue with which the trough is connected, thus se-
70 curing a rapid and complete evaporation of all liquid matter and the carrying away of all offensive odors and vapors both in the pipe between the backs of the trough and from the vault below through the flue *v* out to the open air.

What we claim as our invention, and desire to secure by Letters Patent, is the following: 75

1. In a urinal, a hollow trough *t*, composed of front and back pieces *b b'*, having an upper longitudinal opening 1 for the escape of vapors above and a lower longitudinal open-
80 ing 2 for the escape of fluids and vapors below, such trough having one or more waste-pipes *w* connected beneath and passing through the floor, substantially as shown and described.

2. In a urinal, a hollow trough *t*, composed 85
of front and back pieces *b b'*, having longitudinal openings 1 above and longitudinal openings 2 below, and one or more waste-pipes *w*, connected beneath, passing through the floor, such trough connected at its inner end
90 to and in combination with a draft-flue, substantially as shown and described.

3. In a urinal, a hollow trough *t*, composed of front and back pieces *b b'*, having longi-
95 tudinal openings 1 above and longitudinal openings 2 below, and one or more waste-pipes *w*, connected beneath, passing through the floor, such trough connected at its inner end by a smaller pipe to and in combination with a draft-flue, substantially as shown and de-
100 scribed.

In witness whereof we have hereunto set our hands this 20th day of May, 1890.

WM. H. JOHNSON.
THEODORE KRUSE.

Witnesses:

H. D. NEALY,
E. B. GRIFFITH.