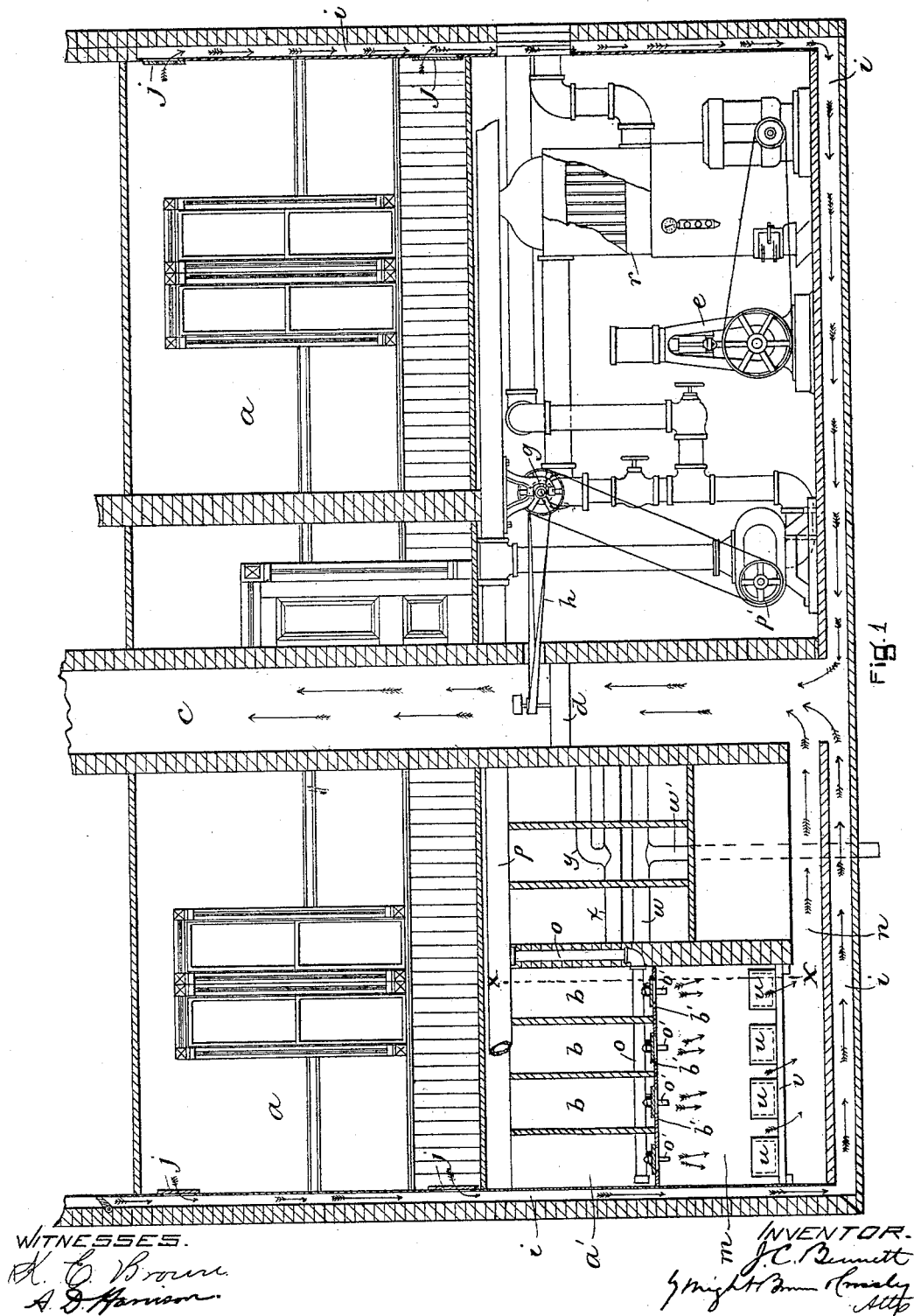


J. C. BENNETT.
VENTILATING SYSTEM FOR BUILDINGS.

No. 453,827.

Patented June 9, 1891.



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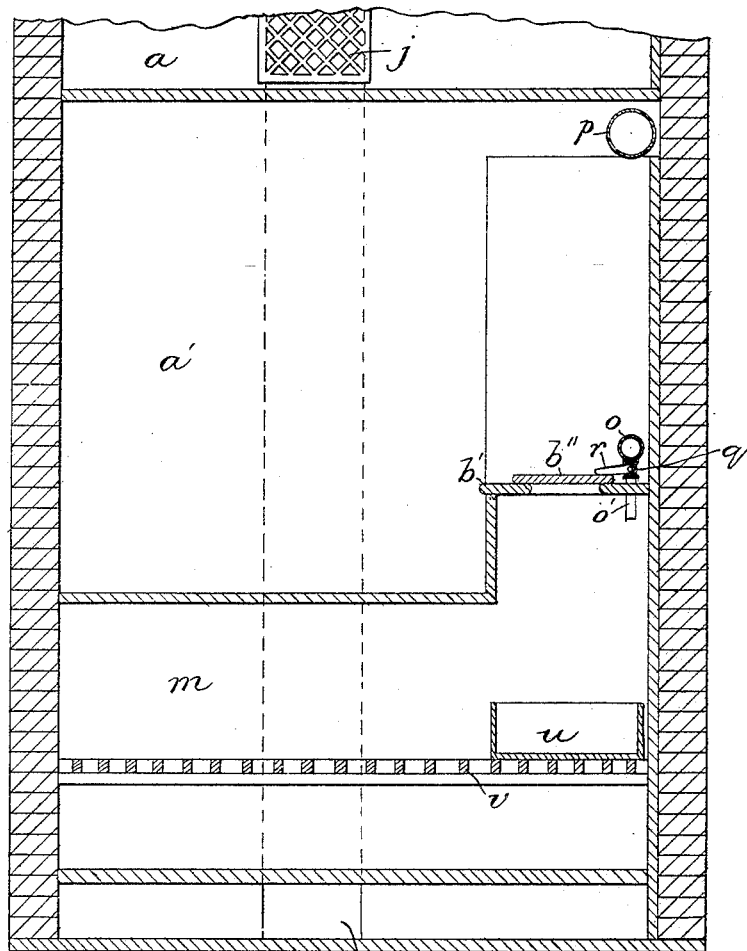


Fig. 2 i

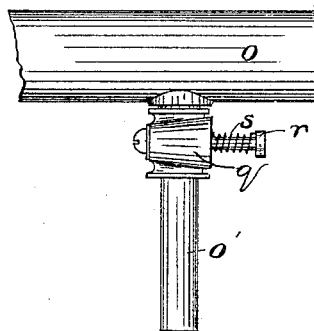


Fig. 3.

WITNESSES.

H. E. Brown
A. D. Harrison.

INVENTOR.

J. C. Bennett
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UNITED STATES PATENT OFFICE.

JOSIAH C. BENNETT, OF LYNN, MASSACHUSETTS, ASSIGNOR OF ONE-HALF
TO FREDERICK L. WHITE, OF SAME PLACE, AND CHARLES A. KIMPTON,
OF MALDEN, MASSACHUSETTS.

VENTILATING SYSTEM FOR BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 453,827, dated June 9, 1891.

Application filed June 1, 1889. Serial No. 312,852. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH C. BENNETT, of
Lynn, in the county of Essex and State of
Massachusetts, have invented certain new
5 and useful Improvements in Ventilating Sys-
tems for Buildings, of which the following is
a specification.

This invention has for its object to provide
an improved apparatus for removing vitiated
10 air from apartments in school and other build-
ings, and particularly to remove gases and
odors from the sanitary apartments or por-
tions of such buildings.

The invention consists in the provision of
15 means for injecting air into a closet apart-
ment which is connected by a flue with a ven-
tilating-shaft, the said flue connecting the
vault or space below the seats with the ven-
tilating-shaft, while the injected air enters
20 said vault or space at points immediately un-
der the seats, and thereby creates a constant
downward draft through the seats, the in-
jected air and the gases in the said vault or
space being drawn through the ventilating-
25 shaft.

The invention also consists in certain minor
incidental improvements, all of which I will
now proceed to describe.

In the accompanying drawings forming a
30 part of this specification, Figure 1 represents
a sectional elevation of a portion of a build-
ing having my improvements. Fig. 2 repre-
sents a section on line *x x*, Fig. 1. Fig. 3 re-
presents a detail.

35 The same letters of reference indicate the
same parts in all the figures.

In the drawings, *a a* represent class-rooms
or ordinary living apartments in a school-
40 building, and *a'* represents the apartment
containing the sanitary closets *b*.

c represents the ventilating-shaft, which is
located at any convenient part of the build-
ing and extends vertically from the basement
or lower portion to the top of the building,
45 its discharge end being preferably above the
roof.

d represents an exhaust-fan or air-forcing
apparatus of any suitable kind located in the
shaft *c* and driven by power applied in any

convenient way. I have here shown a steam- 50
engine *e*, located in one of the apartments of
the building, and having its shaft connected
by a belt *f* with a counter-shaft *g*, the latter
being connected by a belt *h* with the shaft of
the fan *d*.

i i represent flues communicating with the 55
apartments *a a* through registers or openings
j j in the walls thereof, and extending from
thence to the ventilating-shaft *c*, so as to con-
duct air from said apartments to said shaft, 60
the registers or openings *j* being located at
any suitable points. I prefer to provide two
registers for each apartment *a*, one being lo-
cated near the ceiling and the other near the
floor.

m represents the vault or space under the 65
closets *b*, and *n* represents a flue connecting
said vault with the ventilating-shaft, so that
the air and gases are drawn from the vault
into the ventilating-shaft.

o represents an air-pipe arranged just be- 70
hind the seats *b'* of the closets, and provided
with branches or nozzles *o'* extending below
the seats. The pipe *o* is connected with a
blower *p'*, which forces air through said pipe 75
and injects it in jets through the branches or
nozzles *o'* into the vault at points close to the
seats. The jets or currents of air thus in-
jected induce a constant downward draft
through the closet-seats, so that there is no 80
liability of the upward passage of gases and
odors through said seats into the apartment.

If desired, the strong downward draft or
current through the seat may be prevented
while the seat is occupied, to avoid exposure 85
of the person to such draft or current, by
closing the branch or nozzle *o'* of the occu-
pied seat. I have shown in Figs. 2 and 3 a
valve *q* in the nozzle *o'* arranged to be closed
by the raising of the cover *b''* of the seat 90
which said nozzle accompanies. When said
seat is closed, the valve is automatically
opened by a spring *s* or other suitable con-
trivance. As here shown, the stem of the
valve *q* is provided with an arm *r*, which bears 95
on the cover *b''*, said stem being provided
with a spring *s*, which holds the said arm
against the cover *b''* with a yielding pressure.

When the cover is raised, the arm is turned thereby to open the valve, and when the cover is closed the spring closes the valve. Any other suitable devices may be employed for the same purpose.

The air forced through the pipe *o* and nozzle *o'* may be supplied by a blower *p'* through a pipe or trunk *p*, of which the pipe *o* is a branch. Said pipe *p* and blower *p'* may be a part of the heating and ventilating system shown in application of C. A. Kimpton for Letters Patent filed April 5, 1889, Serial No. 306,089, warm air being supplied to the blower by a heater *r*, and conducted by the pipe *p* to the rooms *a a*. The air injected into the vault *m* may, therefore, be heated and the fecal matter in the vault will be rapidly dried by the passage of the heated air over it, so that it may be removed in a comparatively inoffensive condition.

I have here shown removable receptacles *u* placed under the seats *b'* and supported by parallel bars *v*, constituting a grating through which the air may pass freely.

w represents an elongated trough-shaped urinal connected by a pipe *w'* with a sewer.

x represents an elongated hood located over the urinal and connected with the ventilating-shaft by a pipe *y*, through which the odors and gases from the urinal pass to said shaft.

It will be seen that by the employment of the ventilating-shaft and the exhaust-fan therein a constant and uniform flow of air may be maintained from the apartments connected with the ventilating-shaft, the force of the air-currents being to a great extent independent of atmospheric conditions. It will also be seen that the natural upward draft in the ventilating-shaft is a constant factor, (although of varying force,) so that greater pulling or exhausting force is exerted on the air

than would be exerted by an exhaust-fan unaided by a ventilating-shaft.

I claim—

1. In a ventilating system for buildings, the combination, substantially as hereinbefore described, of a ventilating-shaft, air-forcing apparatus therein, a vault to receive fecal matter, a seat or seats communicating with said vault and located in an apartment above the same, a flue connecting the vault with the ventilating-shaft, an air-pipe entering the vault near the seat or seats, and means for injecting air through said pipe into the vault, as set forth.

2. In a ventilating system for buildings, the combination, substantially as hereinbefore described, of a ventilating-shaft, air-forcing apparatus therein, a vault to receive fecal matter, a seat or seats communicating with said vault and located in an apartment above the same, a flue connecting the vault with the ventilating-shaft, an air-pipe entering the vault near the seat or seats, an air-heating apparatus communicating with said pipe, and a blower whereby heated air may be injected through said pipe into the vault, as set forth.

3. The combination of the vault, a seat communicating therewith, the air-injecting pipe entering the vault near the seat, the hinged cover for the seat, and a valve in the air-pipe adapted to be closed by the raising of the cover and opened by the closing of the cover, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 22d day of May, A. D. 1889.

JOSIAH C. BENNETT.

Witnesses:

C. F. BROWN,

A. D. HARRISON.