

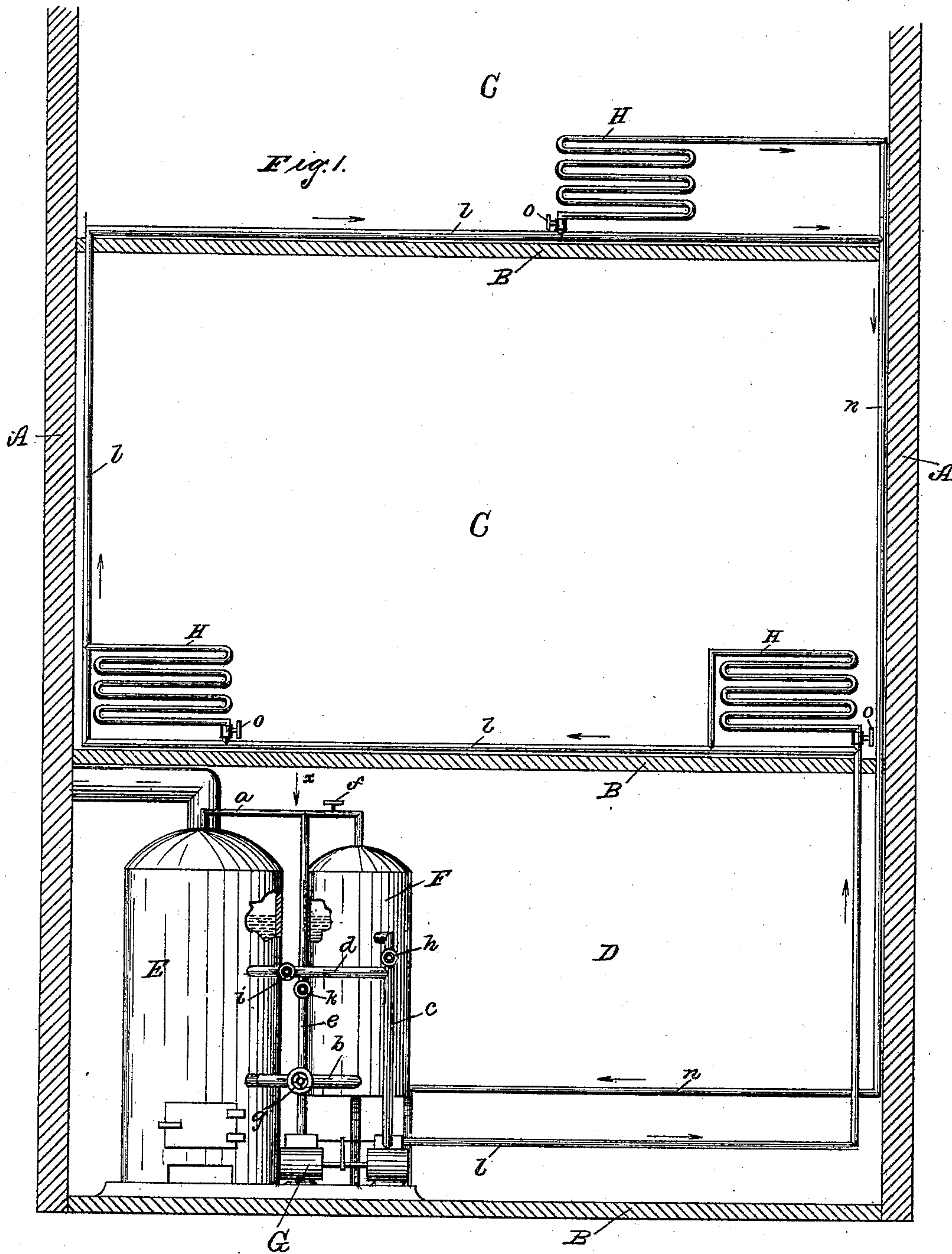
(No Model.)

2 Sheets—Sheet 1.

J. E. STUART.
DEVICE FOR HEATING BUILDINGS.

No. 427,634.

Patented May 13, 1890.



Attest:
M. L. McDermott.
F. A. Watson.

Inventor:
John E. Stuart.
By E. B. Whitmore, Atty.

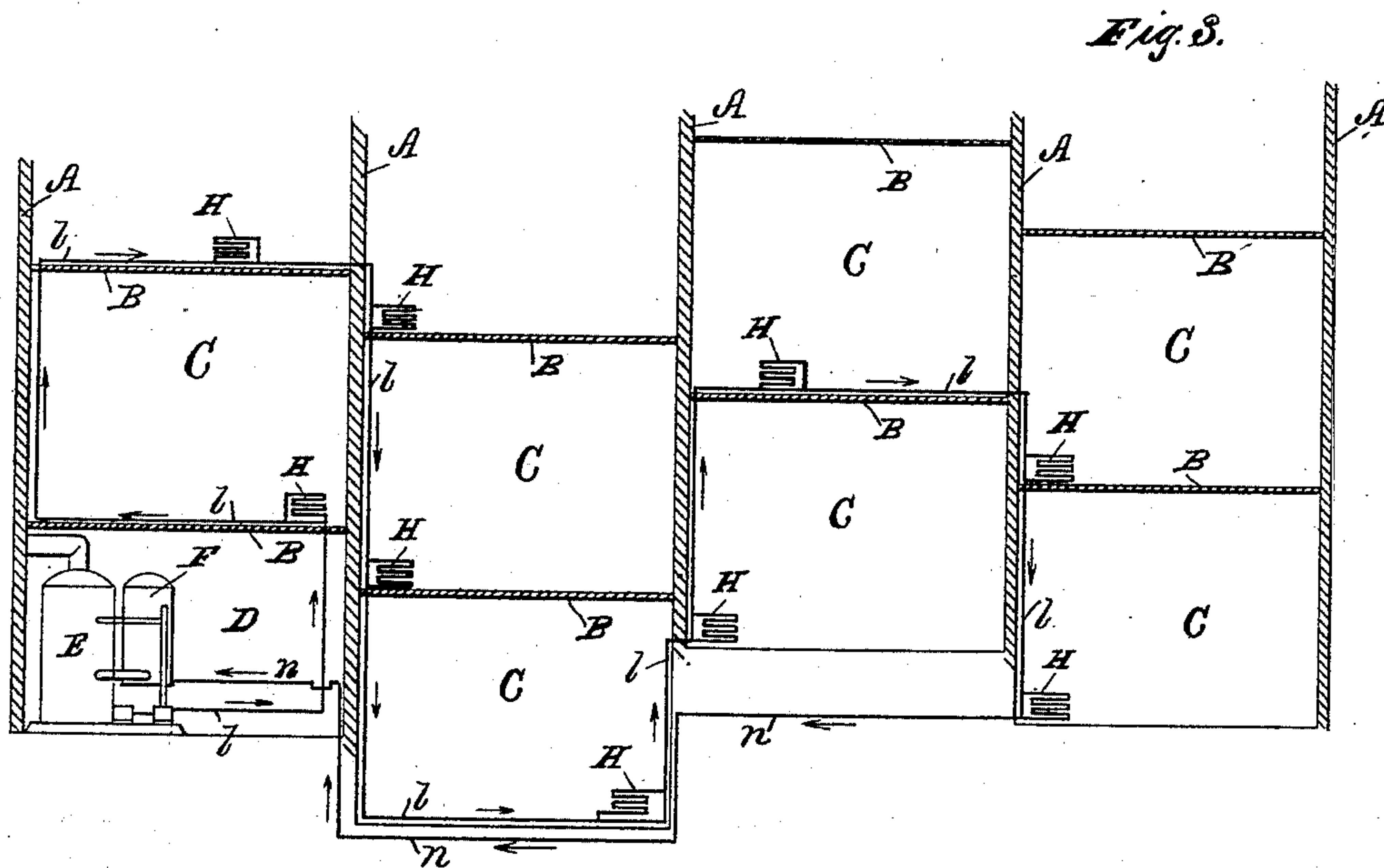
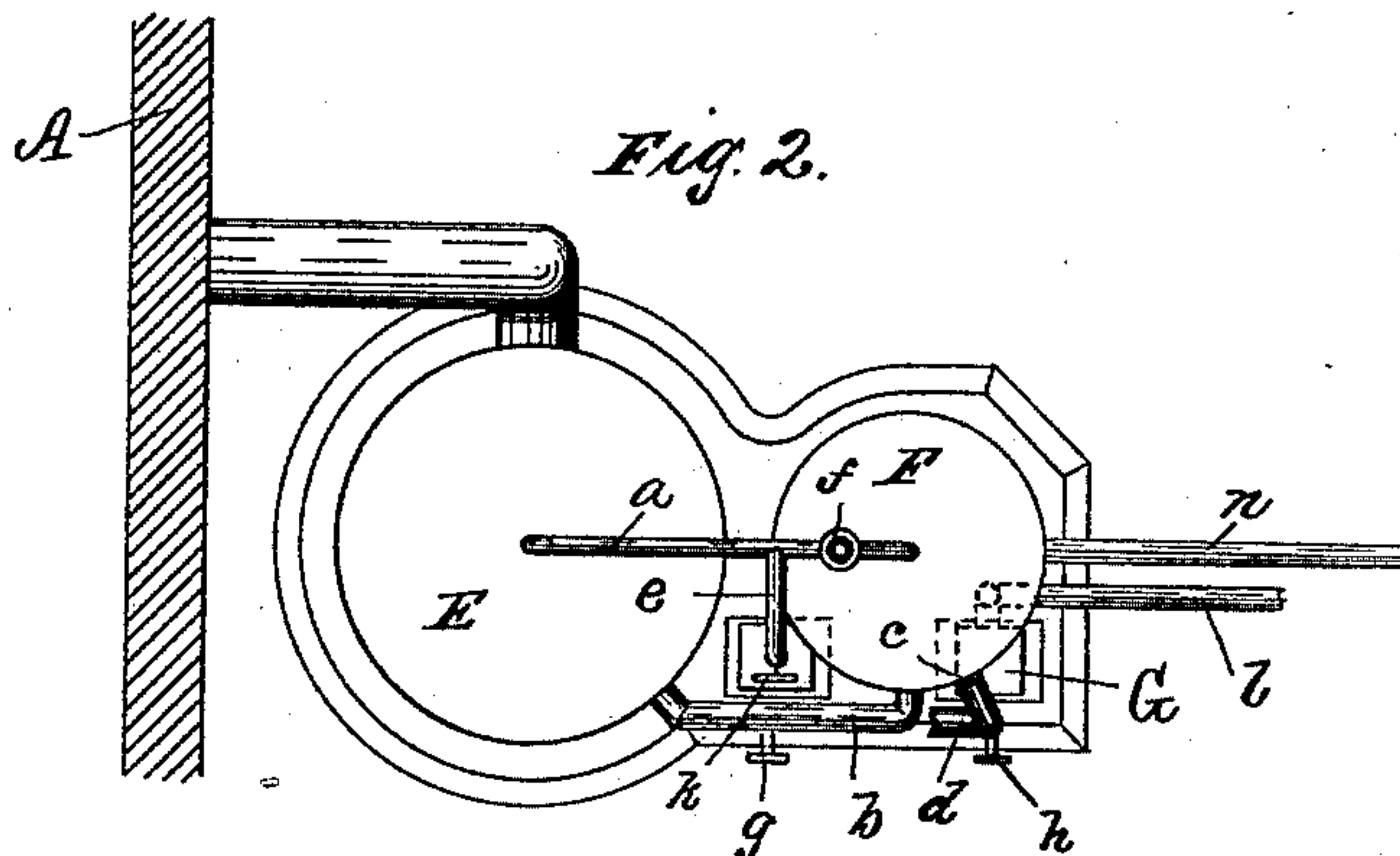
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UNITED STATES PATENT OFFICE.

JOHN E. STUART, OF NEWARK, ASSIGNOR OF ONE-HALF TO SILAS B. STUART,
OF ROCHESTER, NEW YORK.

DEVICE FOR HEATING BUILDINGS.

SPECIFICATION forming part of Letters Patent No. 427,634, dated May 13, 1890.

Application filed January 31, 1889. Serial No. 298,248. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. STUART, of New-
ark, in the county of Wayne and State of New
York, have invented a new and useful Im-
5 improvement in Devices for Heating Buildings,
which improvement is fully set forth in the
following specification, and shown in the ac-
companying drawings.

My invention relates to heating buildings
10 by means of radiators filled with steam or hot
water; and the object of the invention is to
overcome certain difficulties attending the use
of these devices and this means of heating.

The invention is hereinafter fully described,
15 and the features of novelty particularly point-
ed out in the claims.

Referring to the drawings, Figure 1 is a ver-
tical section of a building, showing my im-
proved device for heating attached; Fig. 2, a
20 plan view of some of the parts seen, as indi-
cated by arrow *x* in Fig. 1; and Fig. 3, a gen-
eral view, on a smaller scale, of a series of
rooms, serving to illustrate the advantages of
the invention.

Referring to the parts, A are the walls of a
25 building or inclosure of any kind; B, the
floor; C C, apartments of various stories, and
D the boiler-room in the basement.

E is a steam-boiler of any suitable kind or
30 pattern, and F an adjacent hot-water cham-
ber on a level with the boiler, and connected
with the latter at the top by a steam-pipe *a*
and near the bottom by a water-pipe *b*.

G is a pump of any kind—for instance, a
35 steam-pump—connected with the hot-water
chamber by a water-pipe *c* and with the boiler
by a branch water-pipe *d*. The pump is con-
nected with the steam-space of the boiler by
a steam-pipe *e*, extending from the steam-pipe
40 *a*. These pipes described are provided, re-
spectively, with gates *f*, *g*, *h*, *i*, and *k*.

l is an outflow-pipe leading from the pump
to the various radiators H, located in the
apartments of the building.

45 *n* is a corresponding return-pipe leading
from the radiators to the water-chamber F.
Steam passing from the boiler to the chamber
through the pipe *a* above the water-line heats
the water in the chamber, and the pipe *b*,
50 joining the boiler and chamber at points

nearer the bottom of the water-space of each,
admits of a free flow of water from one to the
other.

The inflow-pipe *n* is joined to the chamber
F, at the bottom thereof, and the suction-pipe 55
c of the pump is joined to the chamber at a
point just below the water-line, as shown.
Now, in operating this device, by closing the
gate *i* the water for the radiators H may be
drawn wholly from the chamber by the pump, 60
or by opening the gate *i* and closing the gate
h the water may be drawn wholly from the
boiler. By this means either hot or warm
water may be forced through the radiators,
according to whether the weather is cold or 65
moderate, or as it may be desired. The cool
water from the radiators flowing back into the
chamber reduces the temperature of the water
contained therein, and if the gates *f* and *g* of
the steam and water pipes, respectively, are 70
closed or nearly closed the water in the cham-
ber may be reduced to any degree of coldness
down to the temperature of the surrounding
air. This enables the operator to perfectly
regulate the heat of the apartments. 75

It frequently occurs in practical house-heat-
ing that the floors of adjacent parts of a build-
ing, or of adjacent buildings to be heated
from the same boiler, are on different levels,
as shown, for instance, in Fig. 3. In such 80
cases the steam or water for heating has to
be conducted downward and upward to va-
rious levels, and traps or pockets are formed
holding "dead-water," and a free circulation
or flow to some of the radiators is prevented. 85

By using the device herein shown a steady
flow of hot or warm water may be maintained
through any or all of the radiators wholly
without regard to the matter of the levels at
which the radiators are placed, and trapping 90
or pocketing water is wholly prevented. The
pump forces the hot water through all the
heating-pipes or radiators back to the hot-
water chamber, there being a forced circula-
tion through the whole. 95

This device is adapted equally well for heat-
ing ordinary dwellings, business blocks, hot-
houses, establishments for evaporating fruit,
railway-cars, boats, &c.

The radiators may be constructed so that by 100

closing a valve *o* in each the hot water will be shut off therefrom and turned directly through the outflow pipe or conduit *l*.

What I claim as my invention is—

5 1. In a device for heating buildings, a steam-boiler and a water-chamber separate from the steam-boiler in the same apartment with the boiler, in combination with radiators placed at different levels in the building, a pump to
10 force water through the radiators to said water-chamber, pipes for connecting the radiators with the pump and the water-chamber, respectively, pipes connecting the boiler and the water-chamber, one pipe being above and the
15 other pipe being below the water-line of the boiler and the chamber, a pipe connecting the pump and water-chamber, a pipe connecting the pump and water-space of the steam-boiler, and gates for controlling the two pipes last
20 mentioned, so that water may be drawn by the pump from either the water-chamber or the boiler, for the purpose set forth.

2. The combination, in a device for heating

buildings, of a steam-boiler, a separate chamber for holding the water for the radiators, a 25 pipe connecting the steam-space of the boiler with the space above the water in the water-chamber, a pipe connecting the water-space of the boiler with the water-space of the water-chamber, radiators for the apartments of the 30 building, a pump to force water through the radiators to the water-chamber, a pipe connecting the pump with the steam-space of the boiler, a pipe connecting the pump with the water-space of the boiler, a pipe connecting 35 the pump with the water-space of the water-chamber, an outflow-pipe connecting the pump with the radiators, and a return-pipe connecting the radiators with the water-chamber at a point below that at which the pump 40 draws water from the water-chamber, substantially as described.

JOHN E. STUART.

Witnesses:

E. B. WHITMORE,
M. L. McDERMOTT.