A. S. PELTON.

Steam Heater.

No. 13,654. Patented Oct. 9, 1855.

Fig. 1

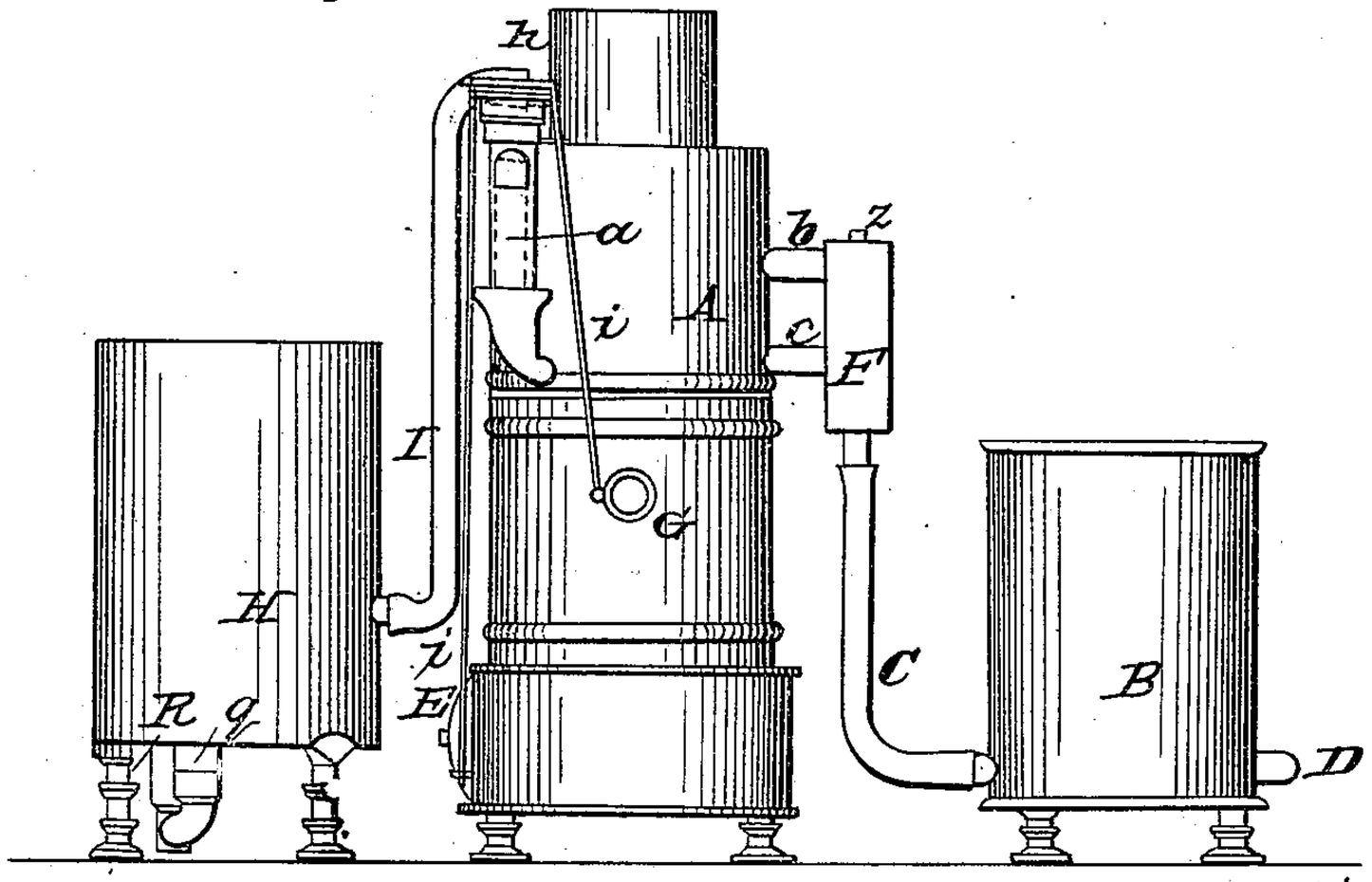


Fig. 5

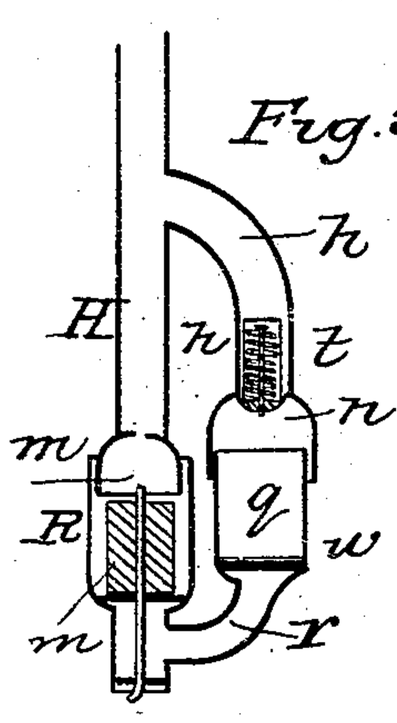


Fig. 3

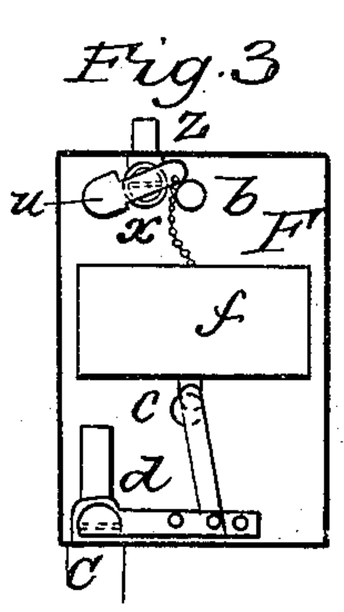


Fig. 4

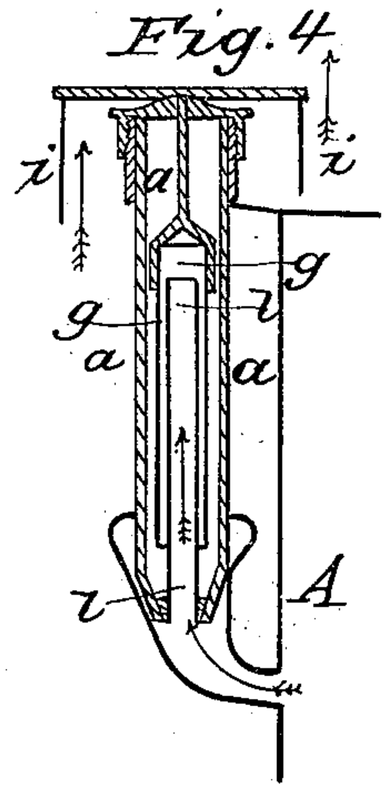
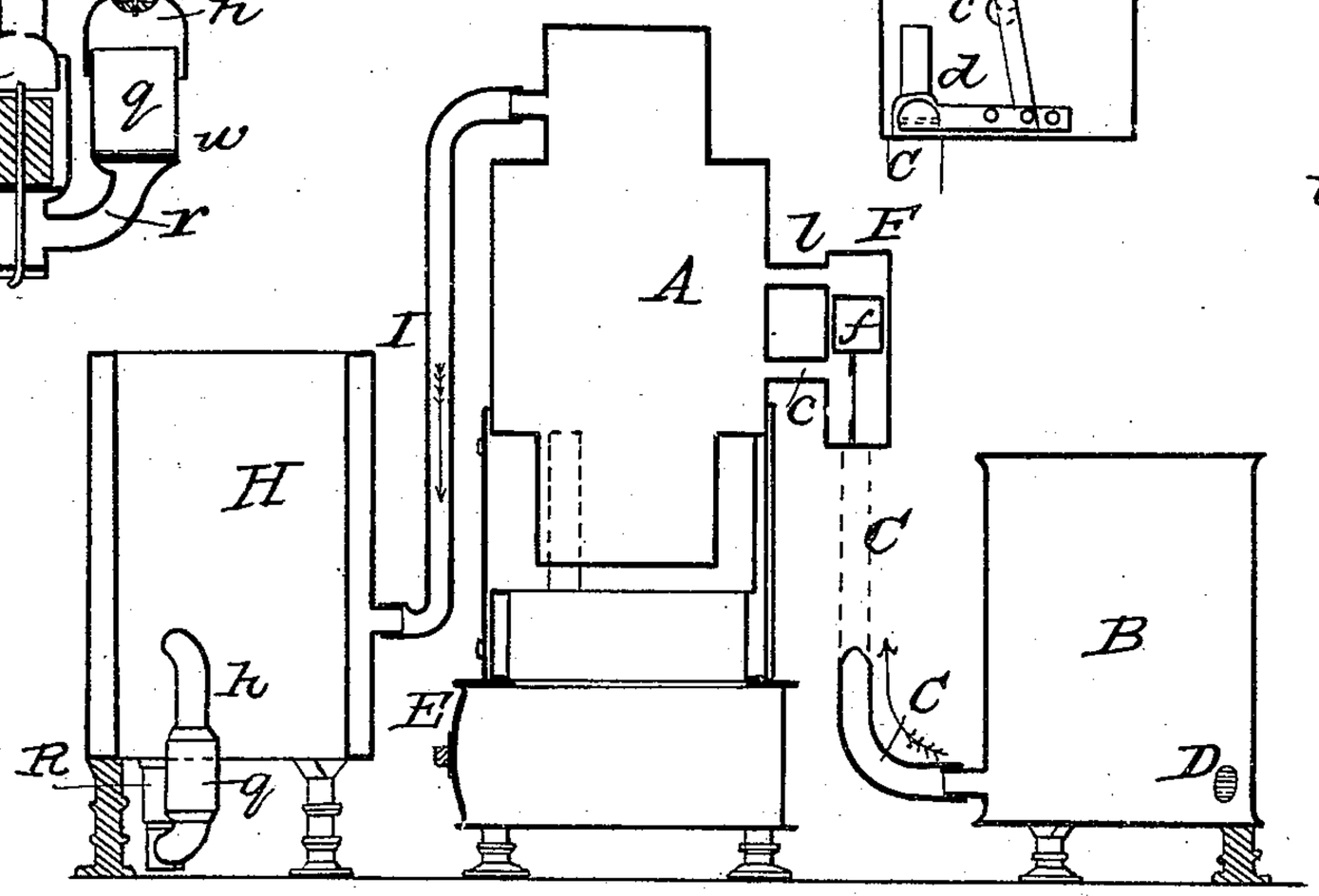


Fig. 2



N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

A. S. PELTON, OF CLINTON, CONNECTICUT.

IMPROVEMENT IN RADIATORS OF STEAM-HEATING APPARATUS.

Specification forming part of Letters Patent No. **13,654**, dated October 9, 1855.

To all whom it may concern:

Be it known that I, A. S. PELTON, of Clinton, in the county of Middlesex and State of Connecticut, have invented a new and useful Improvement in Apparatus for Heating Buildings by Steam; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, forming part of this specification, in which—

Figure 1 is a side elevation of apparatus. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is an elevation of interior of float-chamber. Fig. 4 is a longitudinal section through axis of damper-regulator. Fig. 5 is a sectional view of floating and escape-steam valves and parts connected therewith. The last three figures are on a larger scale than the first two.

In all the figures similar characters of reference denote the same part.

My invention concerns the apparatus for communicating heat to the portion of the building to be warmed. This is done by placing a radiator or heater H of any required form most convenient for the place to be heated and receiving steam directly from the boiler through a pipe I, adapted to the purpose. It is evident that if there be a simple pipe leading from the boiler to the radiator and forming a free connection between them each will sustain an equal amount of pressure, or nearly so, and no heat or new steam could be admitted into the radiator faster than the steam is condensed by contact with the cold surface by the surrounding atmosphere, and, also, if the pipe should lead to an elevation which would retard the drawing back in the boiler of water accumulated from condensation there would soon be a collection of water in the pipe and radiator, which would not only retard the free passage of steam to the radiator, but would cause a rumbling and snapping noise in the pipes as the steam was forced through the water there collected, thereby destroying a large amount of heat by the forcing of the steam through the chilled condensed water. To obviate this difficulty, I place in the bottom side of the radiator used in a chamber R a floating valve *m*, which, when there is a collection of water from condensed steam, will be raised until the water is discharged, when the float will fall and close the discharge-opening before the steam is permitted to escape. There is also placed in the radiator an escape-valve *n*, operated by a spring *t* to confine the steam to a given pressure, but opening when that pressure is exceeded and permitting the escape of steam therefrom, causing a constant circulation of hot steam from the boiler to pass through the radiator, thus producing a greater amount of heat than would be obtained if there were no escape of steam from the radiator. Now, as the escape of steam through this escape-valve would cause a sound in proportion to the pressure on the radiator, (which is always the case with confined steam escaping through such openings,) the vibration of this sound in a radiator would be great and very objectionable. For the purpose of destroying this sound I place in the escape-pipe *p*, a little without the valve, in a chamber *q* prepared therefor, a packing *w*, of porous texture, sufficiently tight to prevent this sound and yet permit the steam being forced through the same. The escape-steam when it passes the valve is conducted to the pipe *r* and passes off with the condensed water from the radiator. I use the same kind of float-valves which are attached to the radiator on the pipes leading from the radiator to the boiler whenever there should be occasion to use them by the various positions which it would be necessary to lead these pipes to various apartments of the building, thereby preventing the settling of condensed steam in said pipes. The float applied to the pipe at such places will effectually let off all the water from the pipe and keep the passage free, preventing this rumbling and snapping noise which would otherwise occur, besides cooling the steam to a great extent before it reaches the radiator.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement, substantially as specified, in a chamber exterior to the escape-valve, of a porous packing *w* for preventing noise

during the escape of steam from the heater, as hereinbefore set forth.

2. The employment of the float-valve *m*, in connection with the heater and pipes leading to the boiler, as specified, to prevent the accumulation of condensed steam.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

A. S. PELTON.

Witnesses:
J. W. MANSFIELD,
HENRY B. HARRISON.