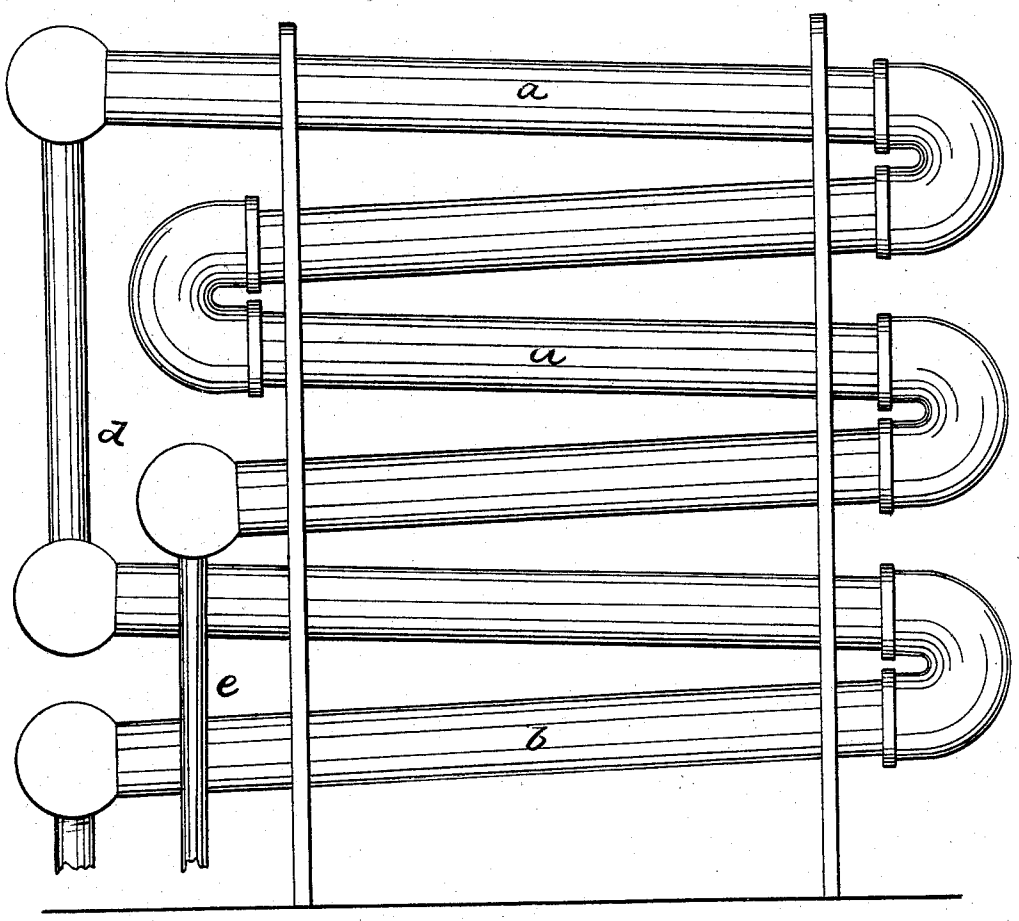
W. C. BAKER.

Steam Heating Apparatus.

No. 32,458. Patented June 4, 1861.



Witnesses
J. H. Maynard
J. R. Peckham

Inventor
Wm. C. Baker
by his attorney
L. P. Pierson

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

UNITED STATES PATENT OFFICE.

WILLIAM C. BAKER, OF NEW YORK, N. Y.

STEAM-HEATING APPARATUS.

Specification of Letters Patent No. 32,458, dated June 4, 1861.

To all whom it may concern:

Be it known that I, WILLIAM C. BAKER, of the city, county, and State of New York, have invented a new and useful Improvement in Steam-Heating Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being made to the annexed drawing, making a part of this specification, which is a side view or elevation of one method of carrying out my improvement.

In heating by steam through coils or clusters of pipes, it is usual to cause the steam to enter at the top of the coil or cluster, and descend through it, thus bringing the steam into contact successively with colder portions of the pipes, while the ascending currents of external air, are successively brought into contact with pipes of higher temperature. In addition to the economy of this arrangement, the condensed water, as it accumulates, descends in the pipes, in company with the current of steam, instead of flowing against it, (as it would were the steam admitted at the bottom of the pipes) which is an advantage. In very cold weather, however, a serious difficulty frequently occurs in the use of this otherwise beneficial arrangement, arising from the freezing of the water of condensation in the lower tiers of tubes, even while steam is going in above, for unless there is heat and pressure enough to drive the steam in with sufficient force, or quantity, to insure the maintenance of a temperature above freezing throughout the whole coil or tier, it is evident that the water trickling, as said steam condenses, may be frozen on its way to the boiler or discharge place, and the pipes thereby rendered liable to be ruptured. By my improvement, this objection is entirely overcome, and I am enabled still to retain the principle of applying the steam first to the top of the coil or tiers of pipes, while at the same time keep up the temperature at the bottom, sufficiently to prevent freezing, even where so little steam is admitted as on the old plan would not prevent it.

My invention consists in partially heating the cold air introduced, below the coil to prevent the freezing of the condensed steam in the lower portion of the coil substantially as hereinafter described.

In the drawing, at (*a*) is shown a tier of pipes as usually arranged for heating purposes.

At (*b*) is seen a tier by itself, placed beneath (*a*).

At (*c*) is the pipe supplying steam from a boiler connected with (*b*). In the old way, this pipe (*c*) would pass directly to the top of the cluster (*a*), but now it is made to enter first the short tier (*b*), thence through (*d*) into (*a*).

At (*e*) is the draining pipe to carry off the water of condensation, as usual. It is intended that the surfaces of (*a*) and (*b*) shall be so disproportioned, that steam will pass through the latter without suffering condensation, in order to insure the giving off of enough heat beneath (*a*) to keep the temperature above freezing at all times.

I have described the arrangement so that the whole of the steam flows first through (*b*), but this is not necessary, as a branch pipe may lead off and supply this separately. Neither is a tier of pipes necessary, as a double bottom of plates in the air box or casing to receive the steam will also operate to prevent the water from freezing in the pipes or other steam spaces above. I do not therefore wish to be understood as limiting my invention to any particular construction of apparatus for raising the temperature of the air before it reaches the lower portion of the coil or radiator; but

Having described the modes in which I have successfully practiced my invention, what I claim as new and desire to secure by Letters Patent is—

Raising the temperature of the current of air which enters below the main coil or heating surface above the freezing point before said current of air reaches the lower portion of the said coil or heating surface, substantially as and for the purposes described.

In witness whereof I have hereunto set my hand.

WM. C. BAKER.

Witnesses:

J. P. PIRSSON,

S. H. MAYNARD.