W. F. KLEES.

RADIATOR.

APPLICATION FILED JULY 26, 1911.

1,014,828. Patented Jan. 16, 1912.

Fig. 1.

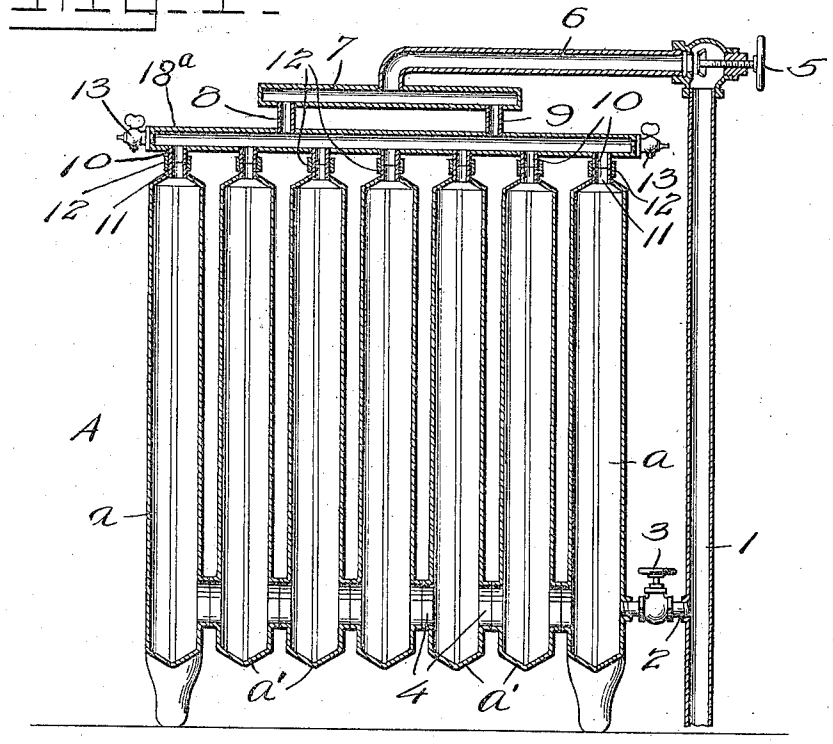
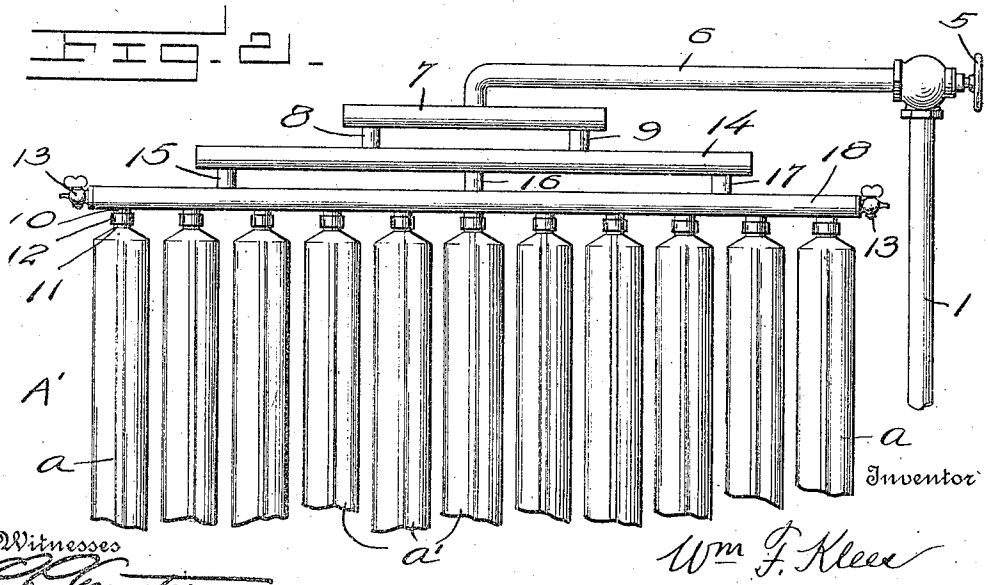


Fig. 2.



Witnesses

A. D. Newton

Newton P. Willis.

Inventor

Wm F. Klees

By Watson & Boyden

Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM F. KLEES, OF SCRANTON, PENNSYLVANIA.

RADIATOR.

1,014,828. Specification of Letters Patent. Patented Jan. 16, 1912.

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To all whom it may concern:

Be it known that I, WILLIAM F. KLEES, a citizen of the United States, residing at Scranton, in the county of Lackawanna and State of Pennsylvania, have invented certain new and useful Improvements in Radiators, of which the following is a specification.

This invention relates to improvements in steam radiators whereby steam is admitted to all of the radiator sections at the same time and in a uniform way so that the radiator may be heated more quickly than is possible by the customary method of admitting the steam at the base of the radiator.

In carrying out my invention I provide a series of distributing pipes of successively greater lengths, each pipe connected to the succeeding pipe at several points between the ends of the latter, in order to facilitate the distribution and flow of the steam, the last pipe in the series being connected by branch pipes to the upper ends of the several radiator sections, in order that the steam may flow directly into the upper part of the radiator.

The invention may be applied to radiators which have been installed and is particularly desirable in connection with such radiators in cases where it is found that the radiator does not heat up readily when steam is admitted through the ordinary connections. The distributing pipes also afford additional radiating surface, which is desirable in such cases.

In the accompanying drawing which illustrates my invention, Figure 1 is a vertical section through a radiator fitted with two distributing pipes; and, Fig. 2 is a side elevation, partly broken away, of a radiator having a greater number of sections and provided with three distributing pipes.

Referring to Fig. 1 of the drawing, 1 indicates a steam pipe having a connection 2, controlled by a valve 3, leading to the base of a radiator A, this radiator being of common form and comprising vertical end sections *a* and intermediate sections *a'*, connected by passageways 4. The steam pipe 1 is connected to a pipe 6 through a controlling valve 5 and the pipe 6 is connected to the central portion of a short distributing pipe 7, having closed ends and provided with lateral branches 8 and 9 which are connected to a longer distributing pipe 18^a at points intermediate the ends of the latter. The distributing pipe 18^a has valve controlled vents 13 at its ends for the purpose of permitting the air to escape when steam is turned on. The branch pipes 8 and 9 are preferably permanently connected to the distributing pipes, as by brazed joints, and the distributing pipe 18^a has tap pipes 10 connected to tap pipes 11 in the upper ends of the several radiator sections by union joints 12.

It will be seen that if the valves 3 and 5 are opened steam will be admitted to the base of the radiator and will also flow through the pipe 6 to the pipe 7, thence into the pipe 18^a at points equidistant from its ends and from the pipe 18^a the steam will flow into the upper ends of the several radiator sections. This arrangement of pipes permits the steam to flow directly into the radiator sections without much hindrance from condensation and each section receives the same amount of steam at substantially the same moment, causing the sections to heat quickly and simultaneously. In order to allow the air to pass out of the distributing pipes, the valves 13 may be opened.

In Fig. 2 the construction is substantially the same except that as the radiator has a greater number of sections, a greater number of distributing pipes are employed. Thus, in Fig. 2, the steam flows from the pipe 1 through pipe 6 to the first distributing pipe 7, thence through the connections 8 and 9 to two points in the distributing pipe 14 and thence through connections 15, 16 and 17 to the distributing pipe 18 at equidistant points in the latter. The pipe 18 is connected to the upper end of each radiator section through the nipples 10 and 11 which are secured by couplings 12. In this device it will be evident that the steam will flow from the pipes 1 and 6 to the center of the first distributing pipe 7, thence through the connections 8 and 9 at the ends of such pipe to two points intermediate the ends of the pipe 14, thence to three points intermediate the ends of the pipe 18 and thence into the several radiator sections. Thus, with a radiator having many sections the steam will be admitted to them all at the same time and in substantially equal amounts.

When the invention is applied to old radiators, of course it will be understood that the upper ends of the radiators sec-

tions must be tapped and the nipples 11 inserted, before the distributing pipes can be applied. For new radiators the sections are each cast with an opening in the top to receive a fitting to be connected to the last distributing pipe in the series. The number of distributing pipes employed will depend upon the length of the radiator and the number of sections.

What I claim is:—

1. The combination with a radiator comprising a series of vertically arranged sections, of a distributing pipe having branch connections with the upper ends of the several radiator sections, a second distributing pipe connected to said first mentioned pipe at several points intermediate the ends of the latter, a steam pipe connected to the base of the radiator and also connected to said second distributing pipe intermediate the ends of the latter.

2. The combination with a radiator comprising a series of vertically arranged sections, of a distributing pipe having branch connections with the upper ends of the several radiator sections, a valve-controlled vent in said pipe, a second distributing pipe connected to said first mentioned pipe at several points intermediate the ends of the latter, a steam pipe connected to the base of the radiator and also connected to said second distributing pipe intermediate the ends of the latter, and a valve in said steam pipe for regulating the flow of steam to the distributing pipes.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM F. KLEES.

Witnesses:
C. A. BATTENBERG,
AARON V. BOWER.