

W. W. HANOLD.
HOT AIR CONDUIT.
APPLICATION FILED DEC. 4, 1906.

913,284.

Patented Feb. 23, 1909.

Fig. 1.

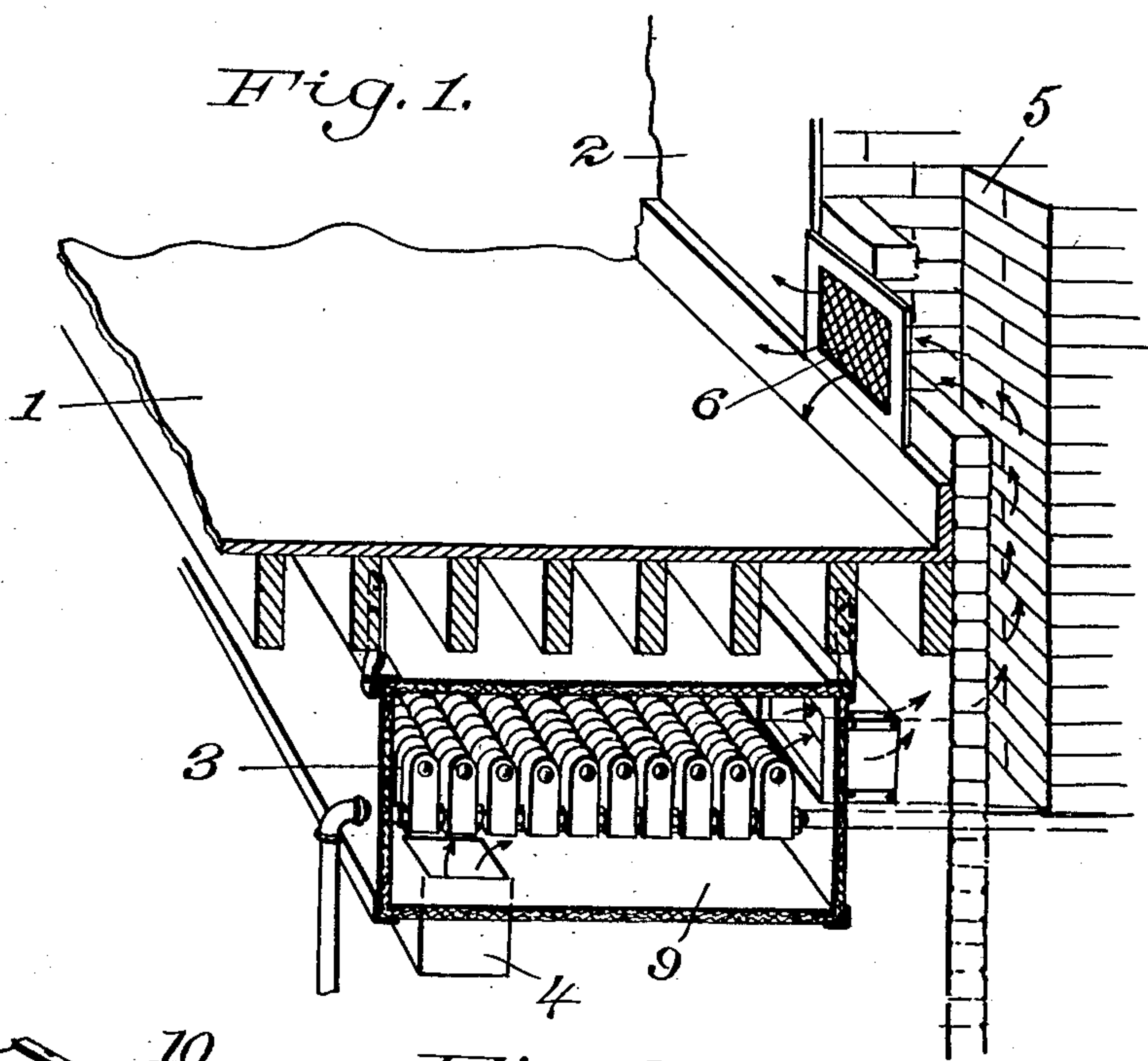


Fig. 3.

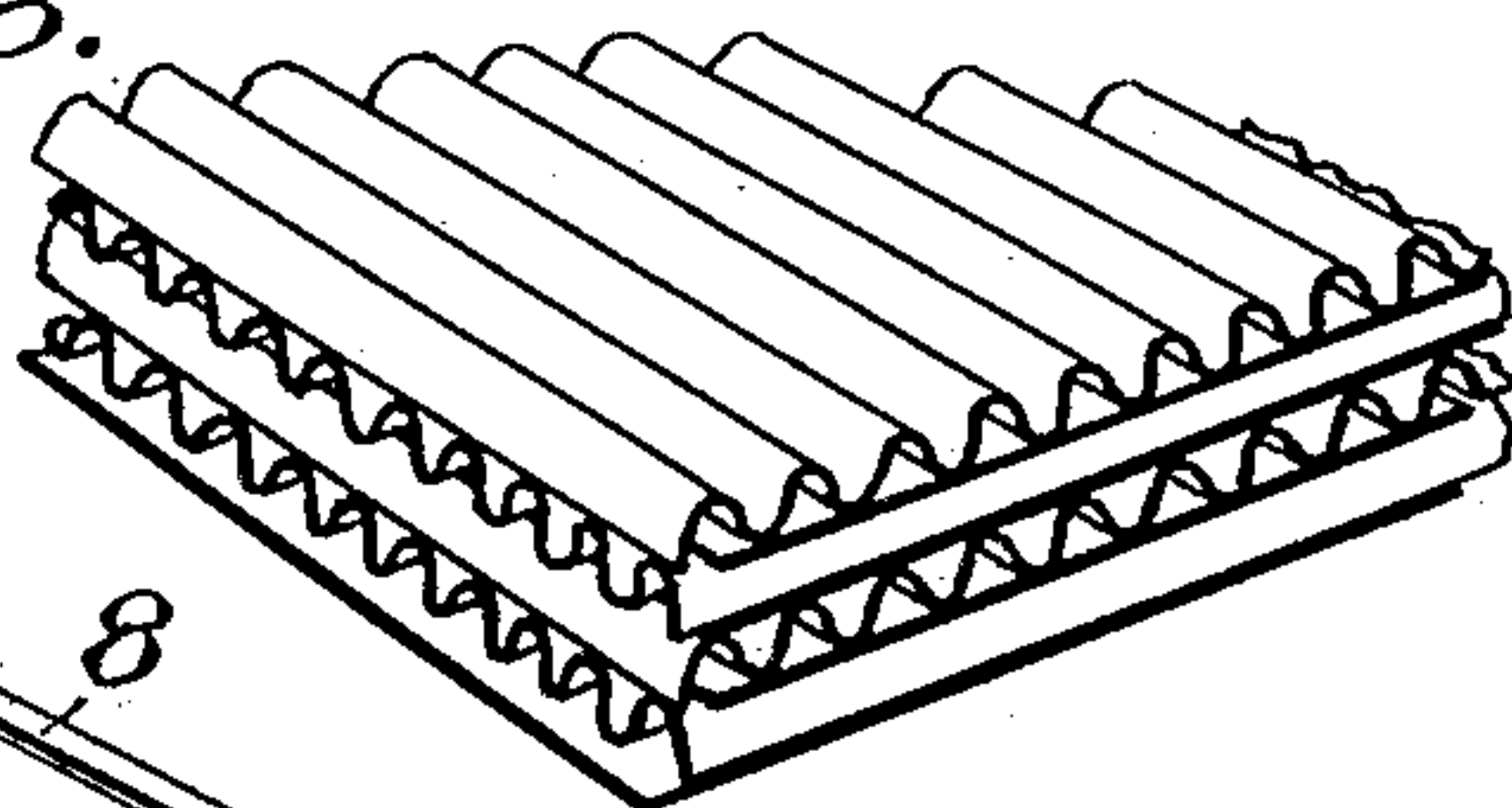
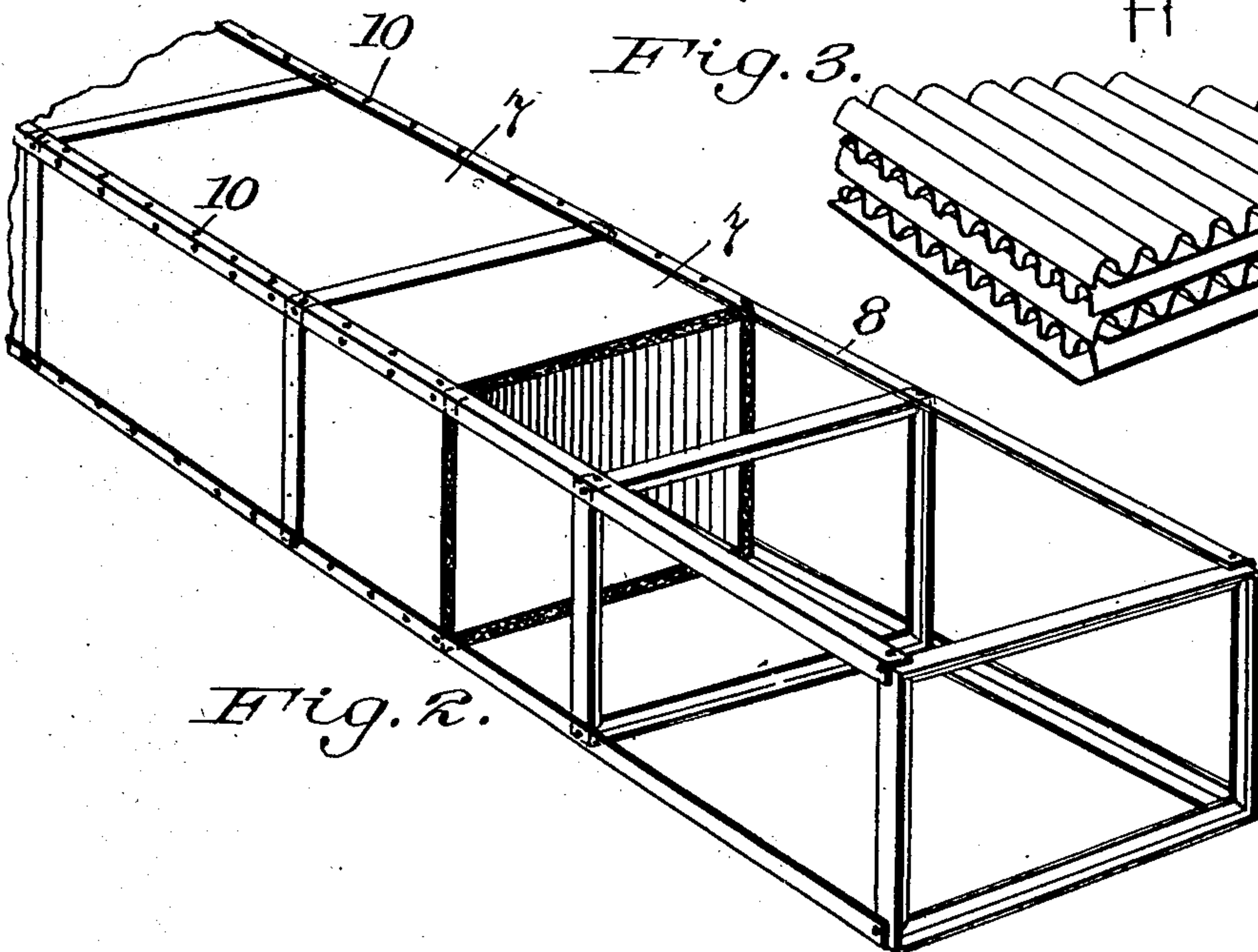


Fig. 2.



Witnesses
Manuel Lopez
M. G. Crawford

Inventor
William W. Hanold
By his Attorney R. P. Ketchum

UNITED STATES PATENT OFFICE.

WILLIAM WALDRON HANOLD, OF NEW YORK, N. Y., ASSIGNOR TO H. W. JOHNS-MANVILLE COMPANY, A CORPORATION OF NEW YORK.

HOT-AIR CONDUIT.

No. 913,284.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed December 4, 1906. Serial No. 346,259.

To all whom it may concern:

Be it known that I, WILLIAM W. HANOLD, a citizen of the United States of America, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Hot-Air Conduits, of which the following is a specification.

My invention relates generally to heat insulation and more specifically comprises an improved conduit for containing and conveying heated air.

It has its most important application in the heating of buildings by what is known as the indirect method of steam heating. In plants operating on this method, air is propelled by natural or forced draft over a coil of steam pipes, or a set of steam radiators, or other steam containing vessels through conduits to the various rooms to be heated. It is highly desirable that these conduits should not radiate the heat of their contents, and it has been heretofore the practice to make them of metal and cover the same with a non-heat conducting covering. This construction is heavy, costly and awkward. I have invented a form of chamber and conduit for this purpose which avoids these difficulties.

The best form of apparatus embodying my invention at present known to me is illustrated in the accompanying sheet of drawings in which:

Figure 1 is a perspective, partly sectional view of a portion of a building with my invention applied thereto. Fig. 2 is a detail perspective view of a conduit embodying my invention with parts broken away. Fig. 3 is a detail perspective view of a piece of the preferred form of material used in practicing my invention.

Throughout the drawings, like reference figures indicate like parts.

1 is the floor of a building, 2 a portion of the wall, and 3 a steam radiator mounted in a hot air chamber 9, to which air is introduced through conduit 4 and discharged through conduit 5, and register 6, into the interior of the building.

The walls of the hot air chamber 9, as shown in Fig. 1 are formed according to my invention by slabs of asbestos paper fabric, or other non-resonant, fireproof material,

held in, or fastened to, a skeleton frame of angle iron or other fireproof material of sufficient tensile strength. The preferred material employed by me is that shown in Fig. 3, and consists of alternate sheets of flat and corrugated asbestos paper fastened together, preferably with the corrugations of alternate sheets running at right angles one to another. This material is light in weight, strong, and easily cut to size and perforated for the passage of bolts, or rivets, without destroying its structure or strength. Pieces, 7, of this material cut to size are inserted in the skeleton frame 8 of angle iron which is riveted or bolted together, as best shown in Fig. 2. The slabs of material may be so shaped that they will interlock within the skeleton frame and so retain their positions therein, or they may be bolted to the angle iron flanges by bolts 10, 10, or otherwise fastened thereto.

In operating my invention, the steam radiator 3 is heated by steam and the current of air heated by radiation and convection therefrom flows out of the chamber and through the conduit 5 without losing any appreciable portion of its heat, as it does not come in contact with any cold metal or other good conductor of heat. It is entirely confined within the non-conducting walls of asbestos paper or other non-conducting, non-resonant fireproof material and so retains all of its heat until it reaches the room to be heated. The conduits do not transmit sound as the present metal ones do, acting as speaking tubes and magnifying sounds. Besides preventing loss of the heat of the air, this improved conduit, being formed of cheap material, easily worked, costs little to construct and being light in weight, does not burden the building or the transporting agencies.

Any other strong, fireproof material might be substituted for iron in the framework, and other forms of fireproof non-resonant material might be used in place of asbestos paper.

When it is necessary to carry the hot air considerable distances from the heating chamber 9 to the point of delivery, the conduit shown in Fig. 2 may be employed.

Having, therefore, described my invention, I claim:

In a system for heating by hot air, the

combination with a steam radiator of an inclosing casing therefor comprising a skeleton frame of angle iron and slabs formed of a series of layers of plain and corrugated
5 asbestos paper bolted to said angle iron inside of the skeleton frame and forming continuous walls for said casing.

Signed at New York, N. Y., this 3rd day of December, 1906.

WILLIAM WALDRON HANOLD.

Witnesses:

A. PARKER-SMITH,
M. G. CRAWFORD.