No. 741,608. PATENTED OCT. 13, 1903.

J. McDERMOTT.

AIR DRAFT HEATER.

APPLICATION FILED SEPT. 27, 1902.

NO MODEL.

Fig. 1

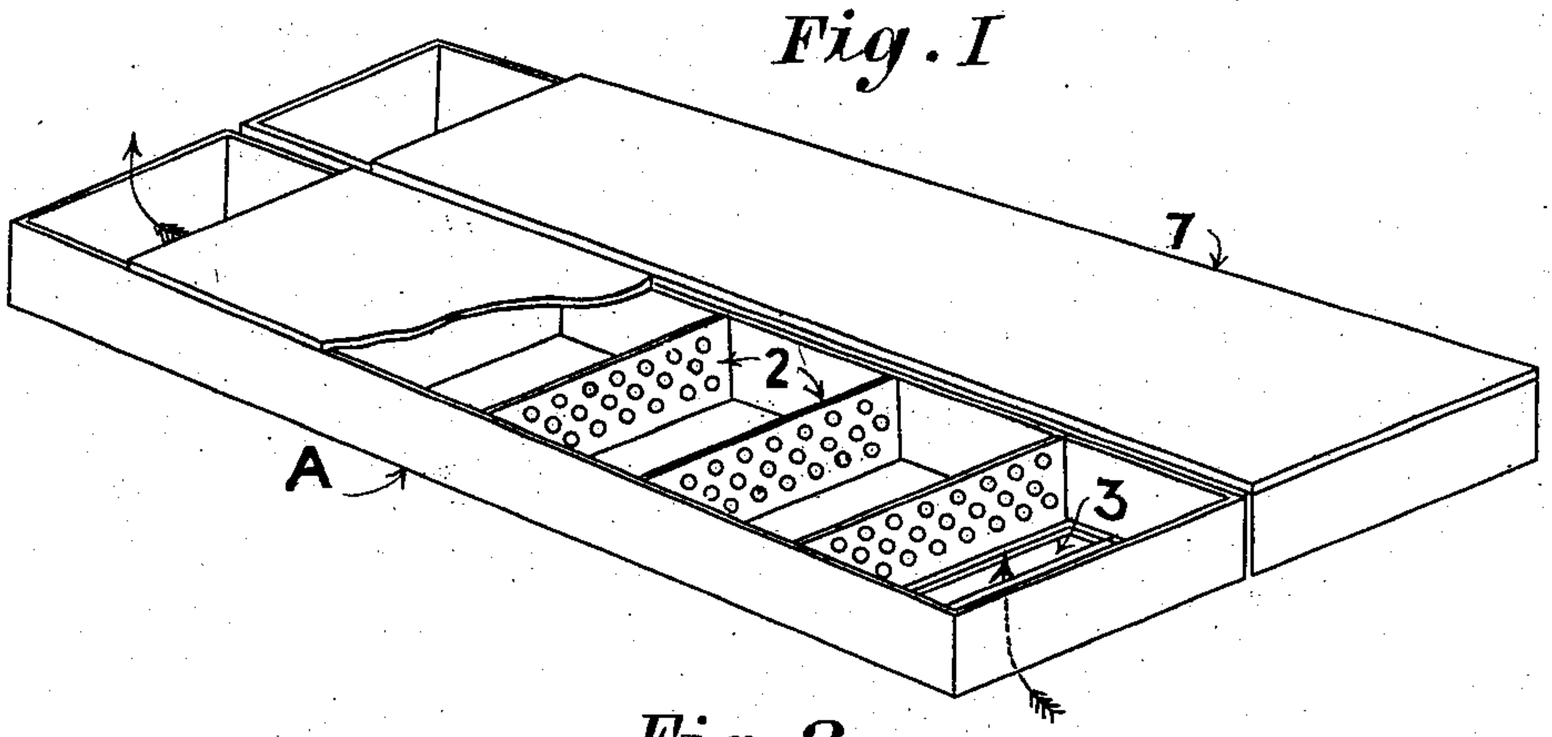


Fig. 2

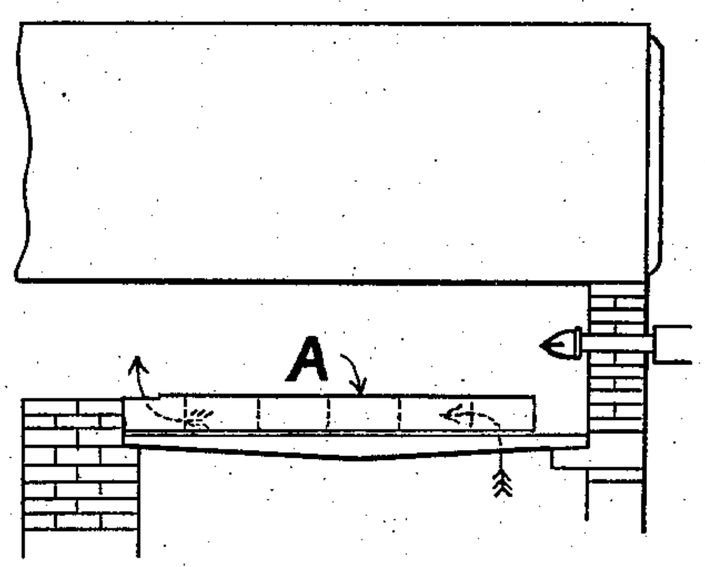


Fig. 3

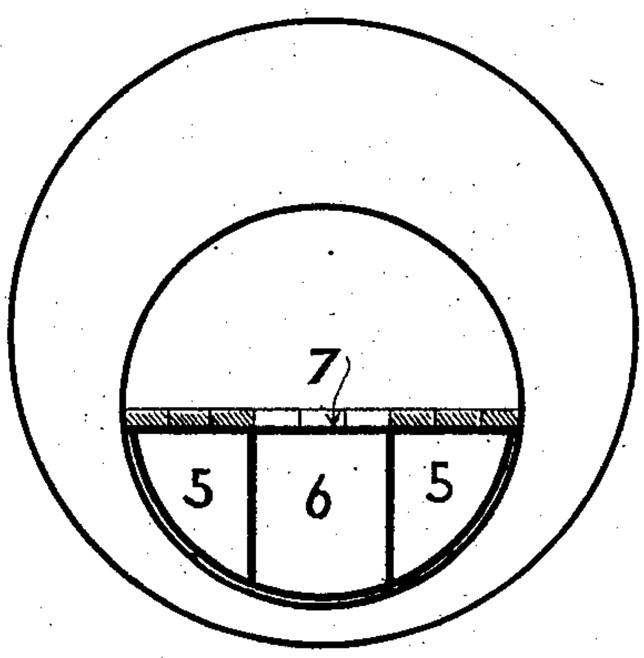
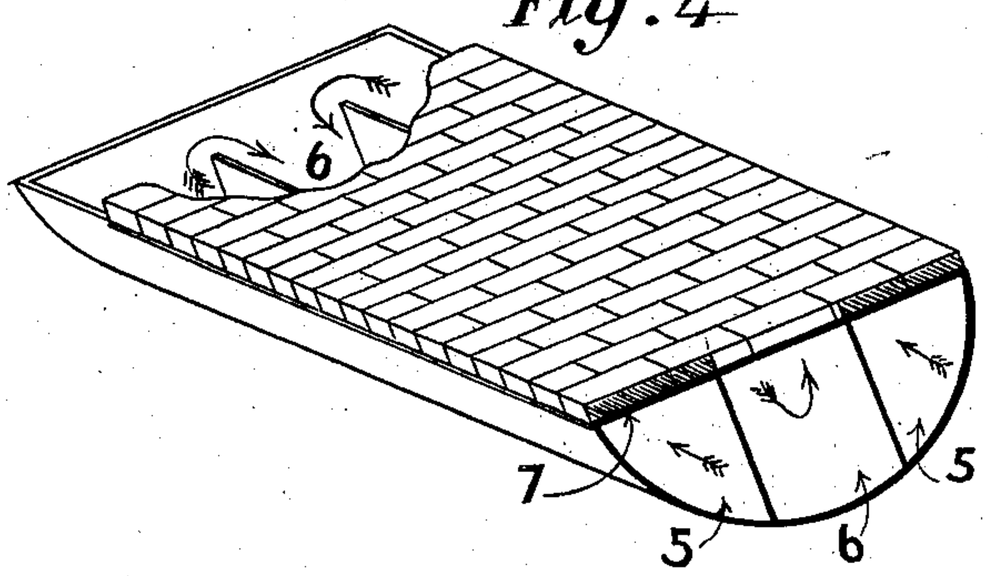


Fig. 4



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No. 741,608. Patented October 13, 1903.

UNITED STATES PATENT OFFICE.

JOHN McDERMOTT, OF WEST BERKELEY, CALIFORNIA.

AIR-DRAFT HEATER.

SPECIFICATION forming part of Letters Patent No. 741,608, dated October 13, 1903.

Application filed September 27, 1902. Serial No. 125,070. (No model.)

To all whom it may concern:

Be it known that I, JOHN McDERMOTT, a citizen of the United States, residing at West Berkeley, county of Alameda, State of California, have invented an Improvement in Air-Draft Heaters; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus which is designed for heating air to be employed for draft in furnaces or in connection with oil-burners or for like purposes.

It consists of one or more casings having transversely-disposed foraminous diaphragms and means for admitting air into one end of the casing and withdrawing it from the other.

It also comprises details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of my device without other connection. Fig. 2 shows device in position on fire-bars. Fig. 3 shows a device of modified form intended for use in marine boilers. Fig. 4 represents a perspective view of the device of Fig. 3 removed from the boiler, parts of the device being broken away.

It is the object of this invention to heat air which is to be used for various purposes requiring an elevated temperature.

As shown in the drawings, A is a casing having shallow vertical sides, which are here shown as convergent from the receiving toward the discharge end. This casing is of greater width than depth and may have a superposed top of a fire-brick or the like. Transversely across the casing are a series of partitions 2, extending from side to side and from top to bottom, and these partitions are perforated with a great number of small holes. Air is admitted at the wider end of the casing, as at 3, and may be either subject to forced or natural draft. The air thus passes through the great number of minute openings in the diaphragm 2, and heat being applied to the casing the temperature is gradually raised until the air reaches the discharge-opening at the narrower end of the casing, whence it may be delivered directly into the furnace or to the point of consumption.

As many of the casings A, with the diaphragms, may be employed as found desirable.

In Fig. 3 I have shown the device as applied to boilers of the type in which the outer boiler-shell has an inner and smaller cylindrical furnace extending through the lower part from end to end, within which the air is admitted into the lower part, as at 5. This lower portion is divided into three longitudinal compartments. The two outside compartments extending from the front to the rear end receive the air at the front and deliver it at the back end, whence it returns through the central compartment 6, and above these compartments is a covering-diaphragm, which may support bricks, as at 7, and the compartments may also have the transverse perforated diaphragms 2, as previously described.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An air-draft heater comprising an exterior casing containing a series of spaced plates forming air-passages, said casing having an air inlet and discharge, and a covering of heat-retaining material on the surface of the casing exposed to the heat.

2. An air-draft heater comprising an exterior casing having transversely-disposed foraminous plates located at intervals between the ends, said casing having an air-inlet, an air-outlet, and a covering of heat-retaining material on the surface exposed to the heat.

3. An air-draft heating apparatus consisting of a plurality of shallow casings having inlet and discharge passages at opposite ends, and a covering of heat-retaining material, means for applying heat to said casings, diaphragms extending transversely from side to side at intervals between the ends, said diaphragms having perforations through which the air may pass by natural or forced draft.

In witness whereof I have hereunto set my hand.

JOHN McDERMOTT.

Witnesses:
S. H. NOURSE,
JESSIE C. BRODIE.