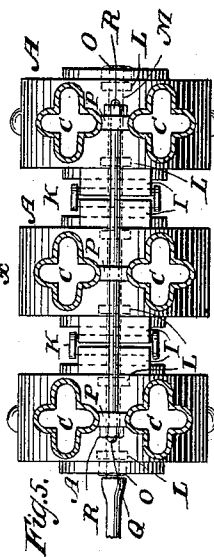
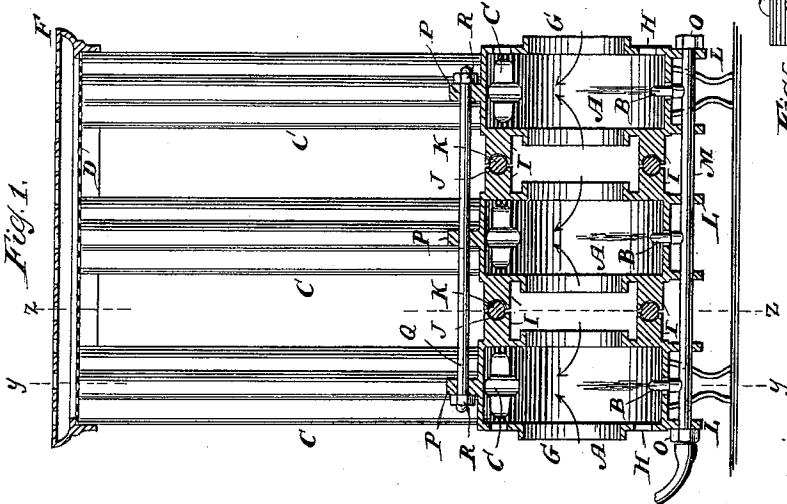
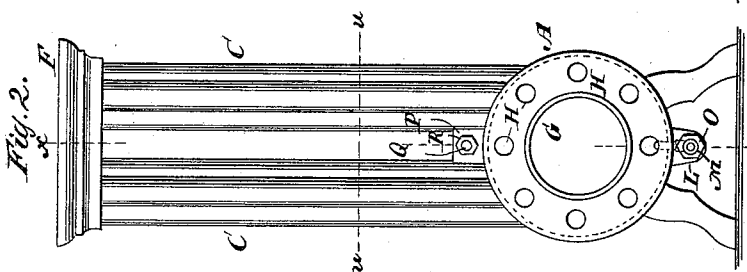
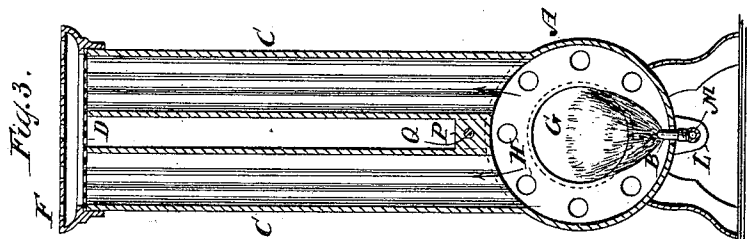
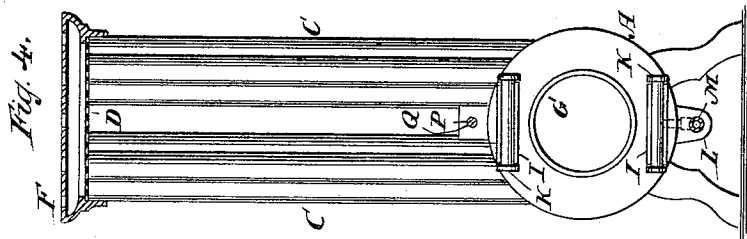


(No Model.)

W. J. MULLEN.
GAS RADIATOR.

No. 480,117.

Patented Aug. 2, 1892.



WITNESSES:

Edward Wolff.
William Mullen

INVENTOR:

William J. Mullen.
BY
Van Santwood & Hauff
his ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM J. MULLEN, OF NEW YORK, N. Y.

GAS-RADIATOR.

SPECIFICATION forming part of Letters Patent No. 480,117, dated August 2, 1892.

Application filed February 4, 1892. Serial No. 420,334. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. MULLEN, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Gas-Radiators, of which the following is a specification.

This invention relates to radiators in which gas is used as fuel; and it consists in certain new features which are hereinafter described, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical central section taken on the line xx of Fig. 2. Fig. 2 is an elevation of the radiator seen from either end. Fig. 3 is a vertical section taken on the line yy of Fig. 1. Fig. 4 is a vertical section taken on the line zz of Fig. 1. Fig. 5 is a plan view of a horizontal section taken on the line uu of Fig. 2.

My radiator is composed of hollow rings or chambers A, into which the gas is conducted by burners B and in which it is ignited. In this example the radiator is provided with three such rings or chambers; but there may be less or more as may be desired. Each of said rings or chambers A is provided or connected with a vertical flue or flues C, which rise from the upper side of the ring or chamber to a suitable height and discharge through a sheet-metal perforated diaphragm D, which extends over the tops of the flues and through the perforated cap F.

Each ring or chamber A is in this example connected or provided with two flues C, which are arranged one behind the other and are cast in one piece with its ring. Each of the three rings and its two flues C C are indicated in the plan view, Fig. 5. The flues may, if preferred, be made separate from the ring and be afterward connected therewith in any convenient manner. The rings A are open at each end, being provided with large central openings G, and also smaller openings H. Furthermore, the several rings are set apart from each other by means of bosses I, formed on the sides of the rings and projecting toward each other until their ends meet, as shown in the drawings, by means whereof a suitable space is left between adjacent rings

for the circulation and movement of the circumjacent air. The ends of the bosses I are made concave, so that when they come together they form grooves J, which receive pins K, that serve to prevent the rings A from moving or rising away from each other, the pins K, in conjunction with the grooves J, operating as locks to the rings. The lower parts of the rings are provided with lugs L, in which are formed bearings for the support of the gas-pipe M, that supplies gas for the radiator. The gas-pipe is provided with burners, as before stated, that project into the hollow rings at the proper points, and said gas-pipe serves as a binding or connecting rod to hold the rings to each other, for which purpose it is provided with nuts O O, that are screwed against the outermost lugs L and serve to clamp the pipe M to the radiator. The upper parts of the rings are provided with stationary blocks P, through which passes another binding-rod Q, whose ends are secured to the blocks by means of nuts R. The upper ends of the flues C are held securely in place by means of the cap F, which fits a little way down upon the sides of the upper ends of the flues.

In the operation of my radiator the gas-chambers or interiors of the rings A are open on both sides to the entrance of air from the space between the rings, and therefore complete combustion of the gas will take place in the hollow rings and in the flues above. The perforated diaphragm D operates to prevent paper or other foreign matter from falling down into the tubes, and so prevents the making of unseemly odors from that cause.

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

1. In a gas-radiator, the combination of a ring A, having opposite side openings G communicating with the external atmosphere, the flues C, rising from the uppermost side of the ring, a gas-burner B, located in the ring, and a gas-supply pipe M, connected with the gas-burner, substantially as described.

2. In a gas-radiator, the combination of a series of rings A, each having opposite side openings G, which are in communication with the external atmosphere, devices for detach-

ably connecting the rings, a pair of flues C, rising from the uppermost side of each ring, a gas-burner projecting into each ring, and a gas-supply pipe M, connected with the gas-burners, substantially as described.

3. In a gas-radiator, the combination of a series of rings A, each formed with a grooved boss I and having opposite side openings G, communicating with the external atmosphere, the keys K, engaging the grooved bosses, a pair of flues C, rising from the uppermost side of each ring, a perforated diaphragm extending over the upper open ends of all

the flues, a perforated cap surmounting the tubes and diaphragm, devices for detachably connecting the rings, a gas-burner projecting into each ring, and a gas-supply pipe connected with the gas-burners, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WM. J. MULLEN.

Witnesses:

J. VAN SANTVOORD,
E. F. KASTENHUBER.