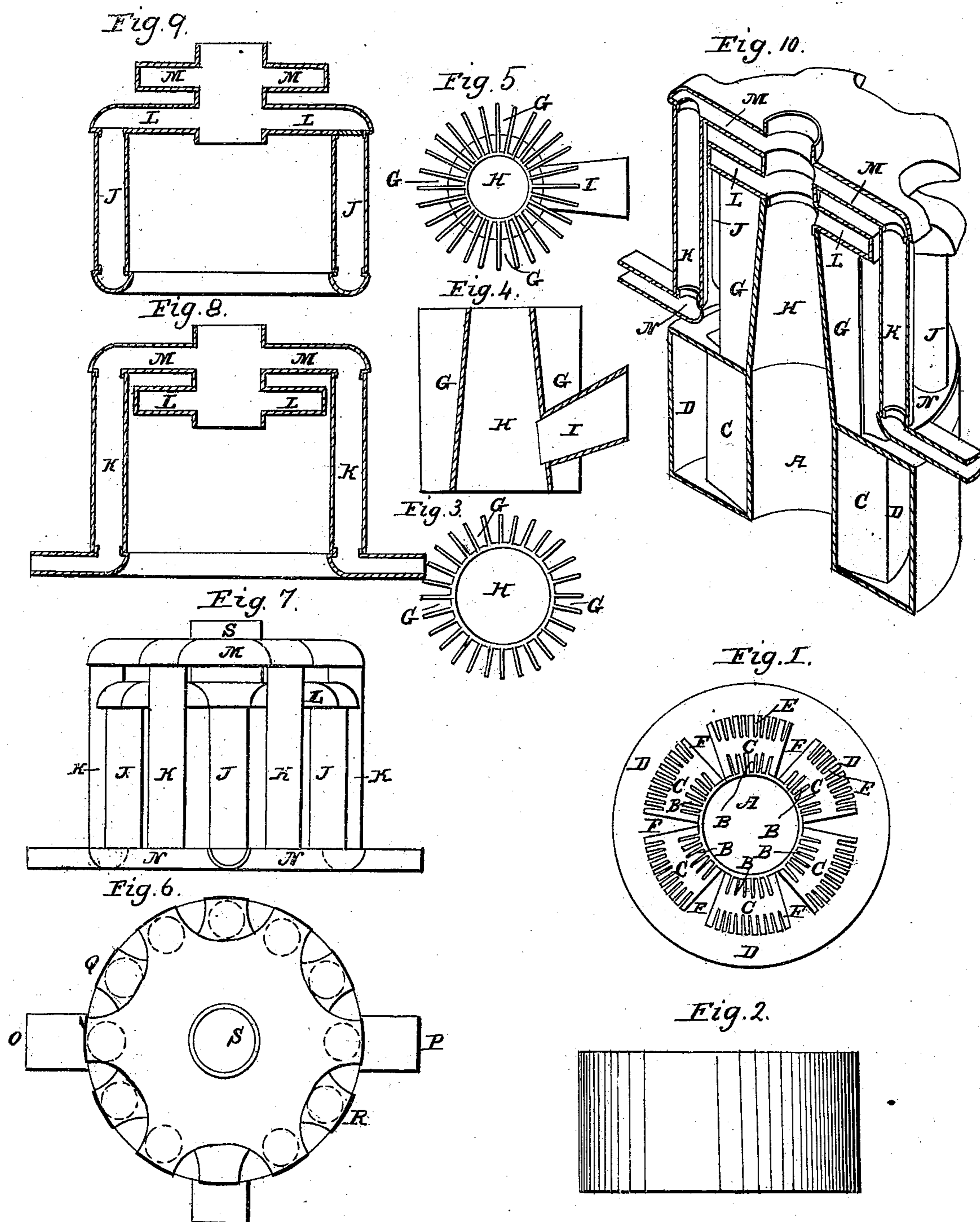


W. H. SEYMOUR.

Hot Air Furnace.

No. 34,785.

Patented March 25, 1862.



Witnesses:  
Charles W. Johnson  
Henry Robinson

Inventor  
William H. Seymour

# UNITED STATES PATENT OFFICE.

WILLIAM H. SEYMOUR, OF WEST HARTFORD, CONNECTICUT.

## IMPROVEMENT IN HEATERS.

Specification forming part of Letters Patent No. 34,785, dated March 25, 1862.

*To all whom it may concern:*

Be it known that I, WILLIAM H. SEYMOUR, of West Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Device for Warming Buildings; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure I is a plan of the lower section of the furnace above the ash-pit. The latter, being of the ordinary kind, is neither figured nor described.

In Fig. I are shown the fire-pot A, the flange-radiators B, projecting from its exterior surface into the air-space C, the water-space D, and the flange-radiators E, projecting from its inner surface into the said air-space, and the water wedges or points F, connecting the said water-space with the exterior surface of the fire-pot at such intervals as shall, with the aid of the said flange-radiators B and E, keep the temperature of the fire-pot below red heat.

Fig. II is an elevation of Fig. I. Fig. III is a plan of the combustion-cone H, hereinafter described, with its flanges or radiators G. It surmounts the fire-pot A, Fig. I. Fig. IV is a vertical sectional view of the same through its center, exhibiting the combustion-cone H, the flanges G, and the feeding-spout I. Fig. V is a plan of the top of Fig. IV. Fig. VI is a plan of the extreme top of the furnace when all its parts are put together. Fig. VII is an elevation of the upper section of the heater of which Fig. VI is the plan, showing the descending smoke-pipes J, the ascending smoke-pipes K, the deflecting-cap L, and the radiating-cap M, the circular smoke and cleaning flue N, and the relative positions of those several parts. Fig. VIII is a vertical section taken through Fig. VI from O to P. Fig. IX is a vertical section of the same from Q to R. Fig. X is a perspective vertical section of the furnace, showing all the parts in their proper relations to each other and taken through its center.

By reference to Fig. I it will be seen that the fire-pot A is surrounded by a broad air belt or space C, open at the base and top and through which passes the air to be warmed.

This air-space is bounded on its inner circumference by the fire-pot A and on its outer by the hot-water belt D, and subdivided into segments or sections by the water-wedges F. Those water-wedges rapidly conduct the sharp heat of the fire-pot into the water-belt D, and, in conjunction with the flange-radiators B, so keep down its temperature that the largest fire will not bring it to a red heat, while the heat produced is widely and evenly distributed over a broad surface, and with which the air is forced into immediate contact in its passage through the air-space C. Thus the rapid conduction of heat from the fire-pot by the combined action of the water, the flanges, and the air-currents, as stated, saves equally from injury the iron composing it and the air which it warms. In doing this no more steam is formed with the largest fire than is needed to properly moisten the air that is warmed, for the flange-radiators E, projecting from the inner surface of the water-belt D, take off the heat that is conducted into it so rapidly as to prevent the evolution of steam.

Fig. I is shown in section in Fig. X, by which it will be seen that a conical chamber or combustion-cone H, Figs. III, IV, and V, surmounts the fire-pot A. Into this cone are discharged all the gases and fumes of combustion. To prevent the sharp and unhealthy heat which would arise from it, numerous and wide radiating-flanges G (see Figs. III, IV, and V) are projected from its external circumference, which qualify the temperature of the cone and diffuse the heat. That combustion-cone is surmounted by a deflecting-cap L, from the exterior circumference of which drop the descending smoke-flues J, Fig. VII, and enter the cleaning-flue N, and from the said cleaning-flue and alternating with the descending smoke-flues aforesaid arise an equal number of ascending smoke-flues K, Fig. VII, which terminate in the exterior circumference of the radiating-cap M, and from which the fumes are conveyed through S, Fig. VI, to the chimney.

Similar letters of reference indicate corresponding parts in each of the several figures.

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

1. The combination of the water-belt D,

Fig. I, and its connecting-points F, with the air-space C, extending from the fire-pot A to the said water-belt, substantially as represented, and for the uses set forth.

2. The combination of the flange-radiators E, Fig. I, projecting from the water-belt D into the air-space C, with the flange-radiators B, projecting from the fire-pot A, substantially as and for the uses and purposes represented.

3. The peculiar construction and arrangement of the upper section of the device represented in Figs. VII and X, including its pipes J, K, and N and its caps L and M, substantially as and for the purposes specified.

WILLIAM H. SEYMOUR.

Witnesses:

HENRY C. ROBINSON,  
CHARLES W. JOHNSON.