No. 767,187. PATENTED AUG. 9, 1904.

R. WADHAM.

APPARATUS FOR TRANSMISSION OF HEAT.

APPLICATION FILED JUNE 6, 1903.

NO MODEL.

Fig. 1.

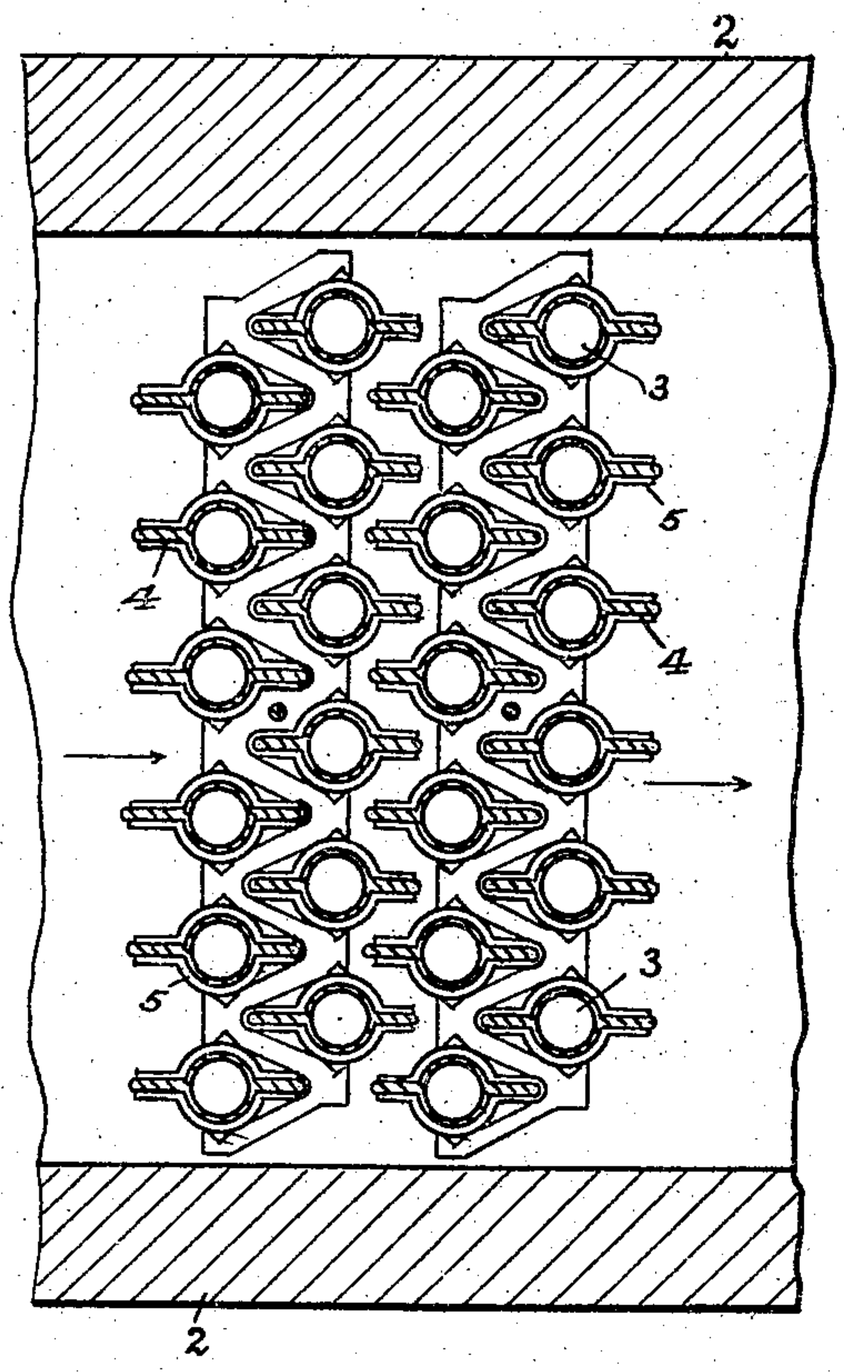
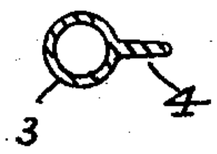


Fig. 3.



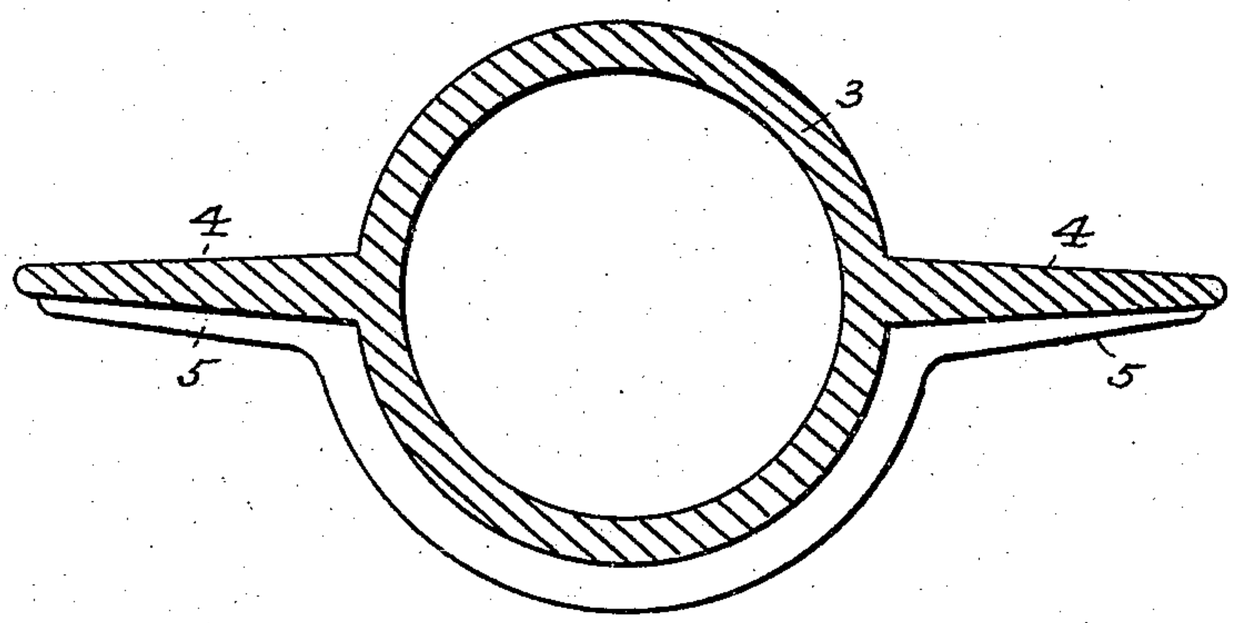


Fig. 2.

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No. 767,187. Patented August 9, 1904.

UNITED STATES PATENT OFFICE.

ROBERT WADHAM, OF STOCKHOLM, SWEDEN.

APPARATUS FOR TRANSMISSION OF HEAT.

SPECIFICATION forming part of Letters Patent No. 767,187, dated August 9, 1904.

Application filed June 6, 1903. Serial No. 160,382. (No model.)

To all whom it may concern:

Be it known that I, ROBERT WADHAM, a subject of the King of Great Britain and Ireland, and a resident of Rådmansgatan 65, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Apparatus for the Transmission of Heat Between Fluids, of which the following is a specification, reference being had therein to the accompanying drawings.

In that kind of apparatus which is generally known under the name of "economizer" and which is placed between the boilers and the chimney in order to transmit to the feed-water a portion of the heat which otherwise would be carried away with the products of combustion to the chimney I find that the draft is improved by providing the pipes with two longitudinal webs or fins projecting on each side of the pipe diametrically opposite each other and parallel to the draft in the flue containing the economizer.

In the accompanying drawings, which serve to illustrate the invention, Figure 1 is a horizontal section of the economizer, and Fig. 2 a cross-section of a pipe with scraper. Fig. 3 is a cross-section of a pipe provided with one web only.

The combustion-gases are supposed to pass in the direction of the arrows in the flue between the walls 2 2.

3 represents the pipes with their longitudinal webs 4 4, which are placed diametrically opposite each other and in the direction of the draft in the said flue.

The soot is removed from the pipe by the scrapers 5 5 working vertically up and down the pipe in the usual way.

By means of the said arrangement I gain the advantage of improved draft, thus allowing the pipes to be placed comparatively closer to each other or a smaller section of daylight through the apparatus to be used, thus effecting a greater speed of gases, and consequently greater efficiency, the efficiency of all such apparatus being in a certain ratio to the speed of the gases. This result of better draft is easily explained by the webs in question preventing to a great extent those eddy-currents and alterations in the density of the gases, such as partial vacuum behind the ordinary plain pipe, which cause what can be termed "internal" air-friction. In addition to this the heating-surface is of course increased.

It is evident that instead of two webs arranged as stated above one web only may be used on one side of the pipe, as shown in Fig. 3.

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

1. In economizers the combination of the pipes and longitudinal webs or fins projecting from the pipes respectively in a plane parallel to the draft in the flue containing the economizer, substantially as and for the purpose set forth.

2. In economizers the combination of the pipes and two longitudinal webs or fins projecting from diametrically opposite sides of each of the pipes and in a plane parallel to the draft in the flue, containing the economizer, substantially as and for the purpose set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

ROBERT WADHAM.

Witnesses:
ERNST SVANQVIST,
ROBERT SPELGREN.