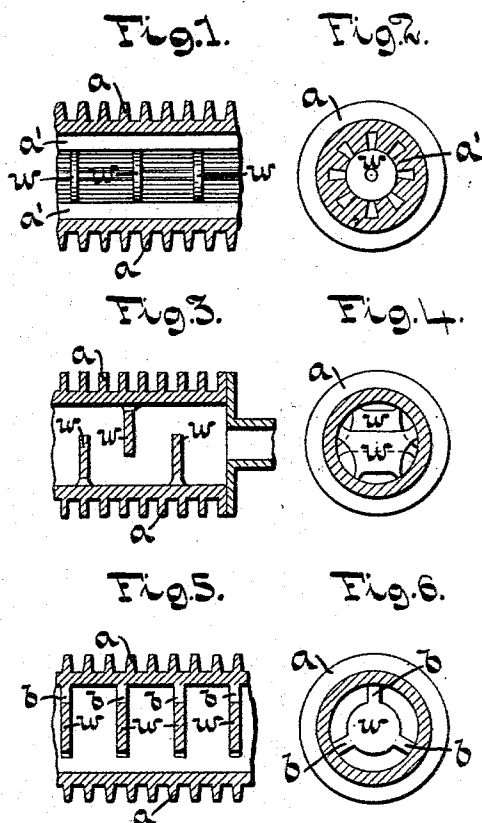


(No Model.)

E. SCHWOERER.
TUBE FOR SUPERHEATING STEAM.

No. 515,974.

Patented Mar. 6, 1894.



WITNESSES:

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EMIL SCHWOERER, OF COLMAR, GERMANY.

TUBE FOR SUPERHEATING STEAM.

SPECIFICATION forming part of Letters Patent No. 515,974, dated March 6, 1894.

Application filed October 12, 1891. Serial No. 408,479. (No model.)

To all whom it may concern:

Be it known that I, EMIL SCHWOERER, a subject of the Emperor of Germany, residing at Colmar, Alsace, Germany, have invented new and useful Improvements in Tubes for Superheating Steam, of which the following is a specification.

My invention has reference to improvements in the construction of superheating tubes or conduits, and has for its object to increase the working capacity of such tubes and at the same time to considerably restrict the dimensions of steam superheating apparatus.

To this end my invention consists essentially in the arrangement in the superheating tubes, or in the steam conduits connected therewith, of baffle-plates offering considerable resistance to the passage of the steam and consequently having a favorable influence on the superheating of the same.

The nature of my said invention will best be understood when described in connection with the annexed drawings, in which—

Figure 1 is a longitudinal section of a superheating tube embodying my invention. Fig. 2 is a cross-section of the same. Figs. 3 and 5 are longitudinal sections of modifications. Figs. 4 and 6 are the respective cross-sections thereof.

Similar letters of reference designate corresponding parts throughout the several views of the drawings.

Referring at present to Figs. 1 and 2, I construct the superheating tube with a series of internal longitudinal ribs a' , and with a series of transverse external ribs a , both sets of ribs projecting radially from the body of the tube. These ribs a' may be made continuous as shown, or they may be made up of a number of short sections. In either case they could also be made to extend spirally around the tube.

To increase the efficiency of tubes of this construction, either with or without the inner ribs a' , I provide the same with baffle-plates w arranged at suitable distances apart in the interior of the tube. The plates act as an obstacle to the passage of the steam and deflect the same outwardly against the hot walls of the tube.

The baffle-plates may be arranged in diverse ways within the tube, for instance, as illustrated in Figs. 3 and 4, they are arranged to project alternately from opposite sides of the tube, so as to cause the steam to take a sinuous course in its passage therethrough. The internal ribs a' are in this case omitted.

In Figs. 5 and 6, the baffle-plates are placed centrally as in Figs. 1 and 2, but are held in their central positions by radial arms b .

While hereinbefore I have described the steam as passing through the tubes, it is evident that the steam may be superheated by passing it around the tubes, while the hot gases are passed through the tubes. The baffle plates may also be arranged at any desired angle to the longitudinal axis of the tube, instead of at right angles to said axis as shown in the drawings.

By combining baffle plates and ribs in one structure the greatest possible utilization of the heat of combustion is attained, consequently an apparatus with such tubes is also especially valuable when but a restricted space is available for a superheating apparatus. In cases where the greatest utilization of heat is desired I prefer to use tubes provided with both internal and external ribs.

What I claim as new is—

1. A steam superheating-tube provided with ribs, as described, and with a series of transverse baffle plates w arranged at suitable distances apart in the interior of the tube for deflecting the steam passing through the tube against the periphery, substantially as described.

2. A steam superheating-tube provided with ribs as described, and with transverse baffle plates w arranged at suitable distances apart in the interior of the tube and projecting alternately from opposite sides for deflecting the steam in a zig-zag course alternately against opposite sides of the tube, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EMIL SCHWOERER.

Witnesses:

LUDWIG GLASER,
G. HÜLSMANN.