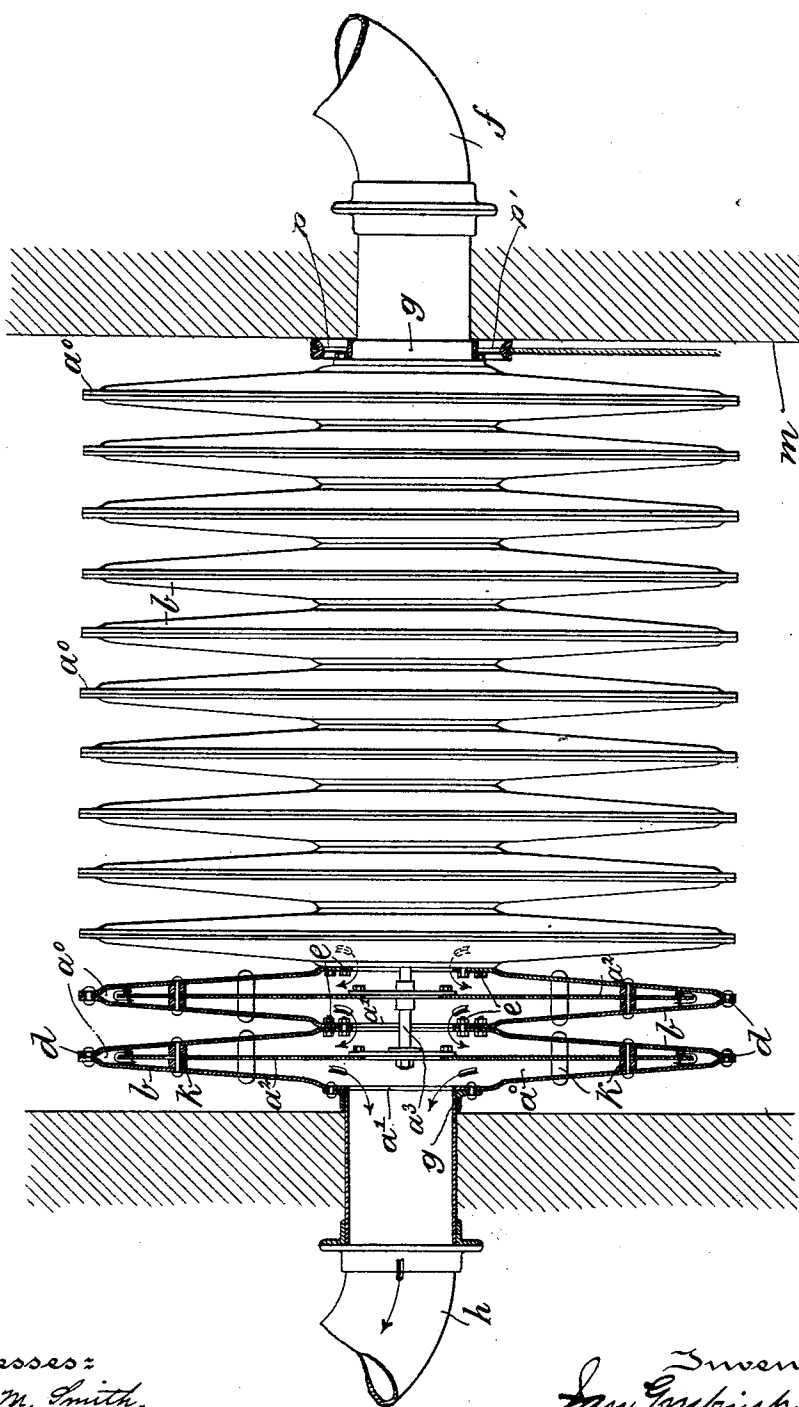


(No Model.)

J. GRUBINSKI.
STEAM SUPERHEATER.

No. 580,129.

Patented Apr. 6, 1897.



Witnesses:
Thomas M. Smith.
Richard C. Maxwell.

Inventor:
Jan Grubinski,
By J. Walter Douglas,
Attorneys

UNITED STATES PATENT OFFICE.

JAN GRUBINSKI, OF WARSAW, RUSSIA.

STEAM-SUPERHEATER.

SPECIFICATION forming part of Letters Patent No. 580,129, dated April 6, 1897.

Application filed October 29, 1896. Serial No. 610,407. (No model.)

To all whom it may concern:

Be it known that I, JAN GRUBINSKI, a subject of the Czar of Russia, residing at Warsaw, in the Province of Poland and Empire of Russia, have invented certain new and useful Improvements in Steam-Superheaters, of which the following is a specification.

My invention has relation to a device for the rapid superheating of steam for engines, and in such connection it relates particularly to the construction and arrangement of such a device for said purposes.

The principal objects of my invention are, first, to provide a superheater for steam consisting of a number of flat or shallow chambers in communication with each other and through which steam is led, the chambers revolving upon the pipe or conveyor for the steam and heated by the gases of a furnace, and, second, to provide in such a superheater a series of shallow rotating chambers each divided by an annular partition or baffle-plate into two compartments communicating with each other at the periphery of the baffle-plate and the chambers connected with each other and rotatable on a steam inlet and outlet pipe in communication, respectively, with the first and last of the series of chambers, and means for rotating the chambers in the presence of fire-gases or other source of heat.

My invention, stated in general terms, consists of a superheater for steam constructed and arranged in substantially the manner hereinafter described and claimed.

The nature and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which is represented in side elevation, partly sectioned, a superheater embodying the features of my present invention.

Referring to the drawings, a^0 represents a hollow shallow chamber consisting of two dish-shaped plates b , united together at, preferably, their periphery by bolts d . Each plate is provided with a central opening a' , forming a central opening into and out of each chamber a^0 . The chambers a^0 are united together at the periphery of the registering openings a' by means of bolts, rivets, or other suitable fastenings e . The end chambers a^0 thus united together are provided at the opening a' with

a collar or sleeve g , forming a movable and steam-tight joint between the chambers a^0 and the inlet steam-pipe f and outlet steam-pipe h , respectively. Within each of the chambers a^0 is placed an annular partition or baffle-plate a^2 , which is of less diameter than the inner diameter of the chamber a^0 . There is thus formed two compartments in each of the chambers a^0 , in communication with each other at the periphery of the baffle-plate a^2 . These baffle-plates a^2 are united to a rod or tube a^3 and are maintained in a fixed position within the chambers a^0 , preferably by means of stays k , securing the plates to the walls of the chamber. The series of chambers a^0 thus constructed and arranged are mounted to rotate in a flue or chimney m , through which fire-gases having a temperature of from 300° to 400° centigrade are passed. By preference the chambers a^0 are rotated by means of the grooved collar or pulley p , secured to the chambers and operated by means of a cord or belt p' from a driven pulley. (Not shown.) The steam from the inlet f is conducted through the various and successive chambers a^0 , the water thereof being condensed in minute globules upon each succeeding baffle-plate a^2 and is heated in the chambers a^0 until it finally passes into the outlet h in the required superheated condition. The water separated by and condensed upon the plates a^2 is, during the rotation of the chambers a^0 and said plates, rapidly vaporized before the same can collect in appreciable quantities.

The circulation of the steam from chamber to chamber and compartment is indicated by the arrows in the drawings.

Having thus described the nature and objects of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a steam-superheater, a series of communicating shallow chambers provided with steam inlets and outlets, a series of baffle-plates each dividing a chamber into two compartments in communication with each other at the periphery of the baffle-plates, and means for rotating the chambers and baffle-plates in the presence of heat, substantially as and for the purposes described.

2. In a steam-superheater, a series of revolvable shallow chambers, each chamber consisting of two dish-shaped plates united to-

gether at their peripheries and having a central opening, a baffle-plate secured within the chamber to divide said chamber into compartments in communication with each other
5 at the inner periphery of the chamber, and means for revolving said chambers, substantially as and for the purposes described.

3. In a steam-superheater, a series of revolvable shallow chambers, each chamber consisting of two dish-shaped plates united together at their peripheries and having a central opening, said chambers united together at the peripheries of their registering central openings, a series of baffle-plates secured
10 within the chambers and each adapted to divide a chamber into two compartments communicating with each other at the periphery

of the baffle-plate, a steam-inlet to one compartment of an end chamber and a steam-outlet to the other compartment of the chamber
20 at the opposite end of the series, all arranged so that steam entering the first chamber is deflected by successive baffle-plates and passed through successive compartments of the series of chambers, substantially as and for the
25 purposes set forth.

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

JAN GRUBINSKI.

Witnesses:

KAJETAN MTODOWSKI,
KAROT BOGDONS.