

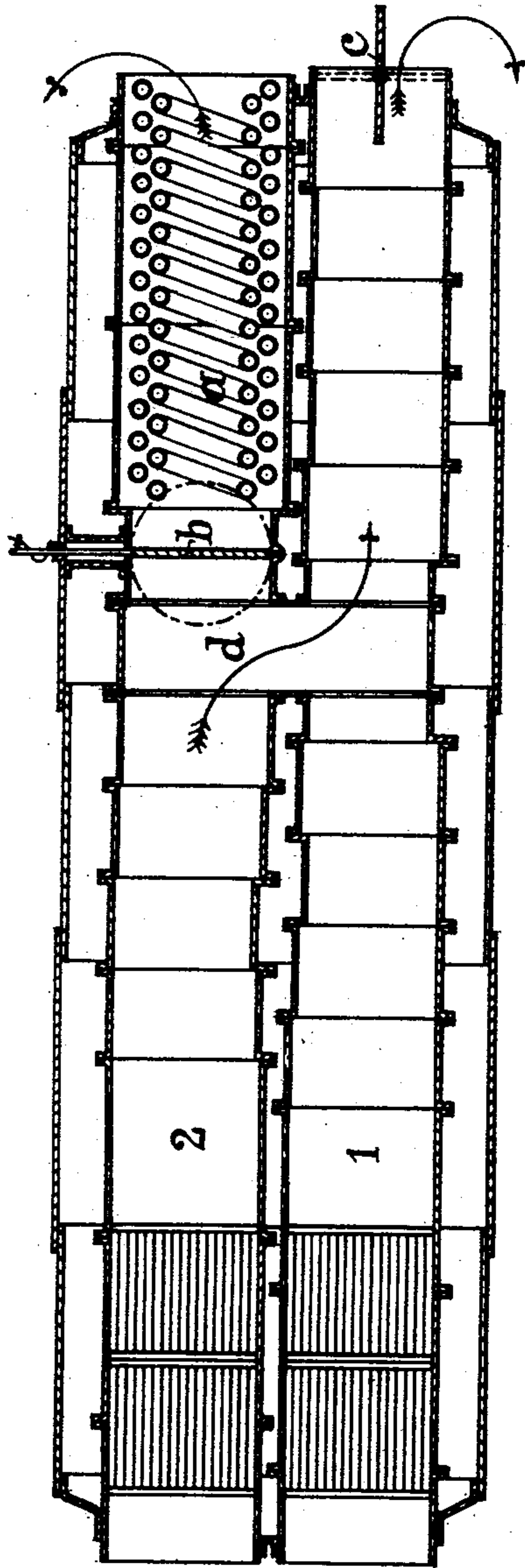
No. 713,462.

Patented Nov. 11, 1902.

L. LEWICKI.
STEAM BOILER.

(Application filed Apr. 25, 1902.)

(No Model.)



Witnesses:
Fred Stagner
George Barry Jr.

Inventor:
Leonidas Lewicki
By attorneys
Frown & Howard

UNITED STATES PATENT OFFICE.

LEONIDAS LEWICKI, OF DRESDEN, GERMANY.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 713,462, dated November 11, 1902.

Application filed April 25, 1902. Serial No. 104,599. (No model.)

To all whom it may concern:

Be it known that I, LEONIDAS LEWICKI, a subject of the King of Saxony, and a resident of Dresden, in the Kingdom of Saxony, German Empire, have invented a new and useful Improvement in Steam-Boilers, of which the following is a specification.

This invention relates to an improvement in steam-boilers, such as are known as "two-fire-tube steam-boilers," and it particularly relates to providing such a boiler with a superheater for the steam within one of the fire-tubes, in combination with means for putting said superheater into or out of action at will.

It is well known that the placing of a superheater within the brickwork flues of a steam-boiler causes a considerable loss of economical effect, because the superheater requires a high temperature of the heating-gases, and consequently the brickwork surrounding the superheater will conduct a considerable amount of heat to the outer atmosphere.

In locomotive-boilers superheaters have been provided partly within the fire-tube and partly within the smoke-box in order to make better use of the heating-gases than would be the case by arranging the superheater outside the boiler.

In order to combine a superheater with a two-fire-tube steam-boiler in such manner that such superheater may be entirely set out of action and also that its working when in action may be controlled, I, according to my present invention, connect the two fire-tubes laterally at a certain distance from their rear or outlet end by a tube or a chamber and place dampers in both fire-tubes at suitable places, and within one of said tubes between the said connecting-chamber and the outlet end of said tube I place the superheater. I am thus enabled to direct the current of heating-gases either all the way through both fire-tubes, thereby allowing the heating-gases in that fire-tube provided with the superheater to pass through the latter, or I am enabled by suitably regulating the dampers to allow the currents in both fire-tubes to pass wholly or partly through the superheater, or by changing the position of the dampers to allow the two currents to escape through the fire-

tube which has no superheater, thereby rendering the superheater in the other tube inoperative.

My improvement is illustrated in the accompanying drawing, which represents a horizontal section of a two-fire-tube boiler.

1 and 2 are the two fire-tubes which are connected laterally at a distance from their rear or outlet ends by the transverse chamber or passage *d*. Although I have represented this lateral connection as a chamber, it may consist of a tube connecting the two fire-tubes 1 and 2 and forming communication between them. The fire-tube 1 is provided at a suitable place beyond the chamber *d*—its outer end, for example—with the damper *c*. The fire-tube 2 is provided beyond the chamber *d* with a damper *b*. Between this damper *b* and the rear or outlet end of the fire-tube 2 the superheater *a* is arranged, consisting of any suitable arrangement of tubing or conduit—for example, the double coil represented—for the exposure of steam within it to the effect of the heating-gases passing through the fire-tube 2. If both dampers *b* and *c* are open, the fire-gases which pass through the fire-tube 2 will pass through the superheater and heat the same, whereas the gases which pass through the fire-tube 1 will heat the latter only. If an increase of heat is intended to be communicated to the superheater without increasing the fire, the damper *c* in the fire-tube 1 is so regulated that by throttling an inferior amount of heating-gases passes through tube 1, while the remainder of the gases from tube 1 pass through the superheater. If by regulating the damper *b* in front of the superheater, so that the entrance into the latter is reduced, a part of the heating-gases of the fire-tube 2 will join the current in the tube 1 and all of the gases will escape together through the damper *c*. By fully opening the damper *c* and fully closing the damper *b* the superheater is entirely set out of action. Both currents of gases will flow together through the rear part of the tube 1. The damper *b* in the fire-tube 2 might be arranged at the rear end of said tube, so that if said damper *b* be closed and the damper *c* opened the superheater and the

part of the fire-tube surrounding it is not fully deprived of the influence of heating-gases.

What I claim as my invention is—

5 In a steam-boiler having two fire-tubes, the combination with said tubes of a lateral communication between them at a distance from their outlets, a superheater in one of said tubes between its outlet and said communication, a damper in the one tube between its
10 contained superheater and said communica-

tion, and a damper in the other tube between its outlet and said communication, substantially as herein described.

In testimony that I claim the foregoing as 15 my invention I have signed my name, in presence of two witnesses, this 14th day of April, 1902.

LEONIDAS LEWICKI.

Witnesses:

HERNANDO DE SOTO,
PAUL ARRAS.