

C. W. SCHULZ.
DRAFT REGULATING DEVICE FOR FIRE TUBE BOILERS.
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1,120,550.

Patented Dec. 8, 1914.

Fig. 1.

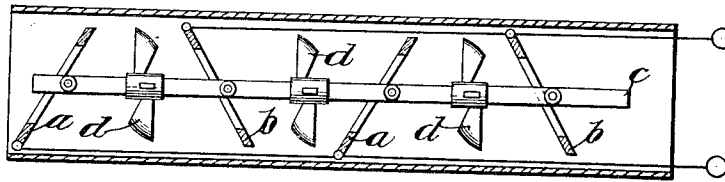


Fig. 2.

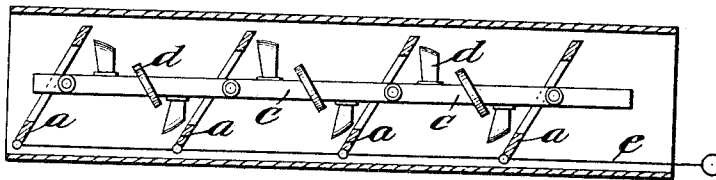
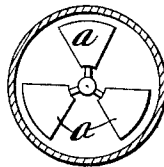


Fig. 3.



Witnesses:

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Inventor:

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by B. Singer Atty

UNITED STATES PATENT OFFICE.

CARL WILHELM SCHULZ, OF SPANDAU, NEAR BERLIN, GERMANY.

DRAFT-REGULATING DEVICE FOR FIRE-TUBE BOILERS.

1,120,550.

Specification of Letters Patent.

Patented Dec. 8, 1914.

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To all whom it may concern:

Be it known that I, CARL WILHELM SCHULZ, a subject of the German Emperor, and residing at 1 Pichelsdorferstrasse, Spandau, near Berlin, Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Draft-Regulating Devices for Fire-Tube Boilers, of which the following is a specification.

It is known to improve the transmission of the heat of the fire gases in tubular boilers through the walls of the tubes by forcing the gases to pass along an extended path within the tubes. The means heretofore employed with this object in view, are, however, not sufficient to bring the gases of combustion into intimate contact with the walls of the tubes along their entire path as it was heretofore not possible to impart to the gases a strong whirling movement.

The desired object is obtained with the object of the present invention by the employment of both, stationary, as well as movable deflectors, adjustable in their absolute positions as well as in their relative positions.

In the accompanying drawing: Figure 1 is a longitudinal section through the preferred form of boiler tube constructed according to the present invention. Fig. 2 is a longitudinal section through a modified form of the tube, Fig. 1, and Fig. 3 is a cross-section through a tube illustrating the rotatable deflectors.

As shown in the drawing, two groups *a*, *b* of the deflectors, inclined in different directions, are provided.

As shown in Figs. 1 and 3, between the deflectors of the two groups *a*, *b* fan-blades *d*, are arranged rotatable on the spindle *c* in such a manner that while the deflectors deflect the hot gases toward the walls of the tube, the fan-blades *b* will produce a whirling motion and therefore an intimate mixture of the gases.

In Fig. 2 the deflectors are shown in front view and are secured stationary and adjustably from the outside to a flat iron bar or spindle *c* extending in axial direction through the tube. Only one group of the deflectors *a* is employed between the individual members of which several fan-blades

d are rigidly secured to the bar of spindle *c*; the deflectors *a* are adjustable from the outside by means of a rod *e* in their inclination toward the axis of the tube.

What I claim is:

1. Draft regulating device for fire-tube boilers consisting of adjustable stationary inclined deflectors, means within the tubes of the boiler to which said deflectors are secured, and means cooperating with the deflectors for creating a strong whirling motion of the gases of combustion, substantially as described.

2. Draft regulating device for fire-tube boilers consisting of adjustable stationary deflectors inclined in different directions, rods within the tubes of said boilers constituting the longitudinal axle thereof to which said deflectors are secured and means alternating with said deflectors upon said rods for imparting a strong whirling movement to the gases of combustion, substantially as described.

3. Draft regulating device for fire-tube boilers consisting of adjustable stationary deflectors inclined in different directions, rods within the tubes of said boilers constituting the longitudinal axle thereof to which said deflectors are secured and fan-blades alternating with said deflectors upon said rods for imparting a strong whirling movement to the gases of combustion, substantially as described.

4. Draft regulating device for fire-tube boilers consisting of deflectors inclined in different directions, arranged in groups within the boiler tube and reducing the sectional area thereof, rods within the tubes of said boilers constituting the axle of said tubes, to which said deflectors are adjustably secured, fan-blades fitted to said rods alternating with said deflectors, and rods adapted to adjust the inclination of said groups of deflectors separately from the outside, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CARL WILHELM SCHULZ.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.