

E. KRUSE,
SMOKE RETARDING DEVICE.
APPLICATION FILED APR. 29, 1910.

973,944.

Patented Oct. 25, 1910.

Fig. 1.

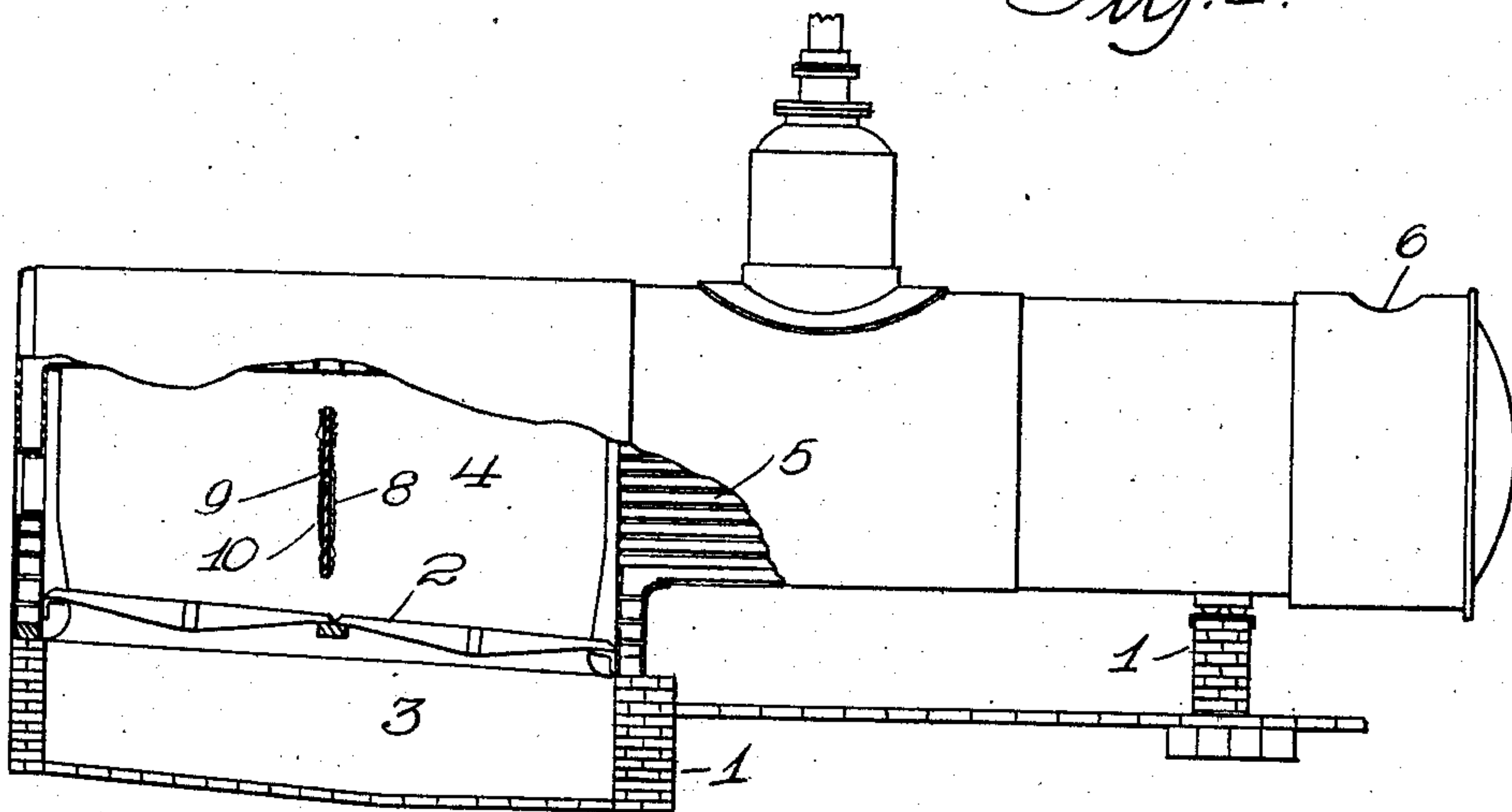
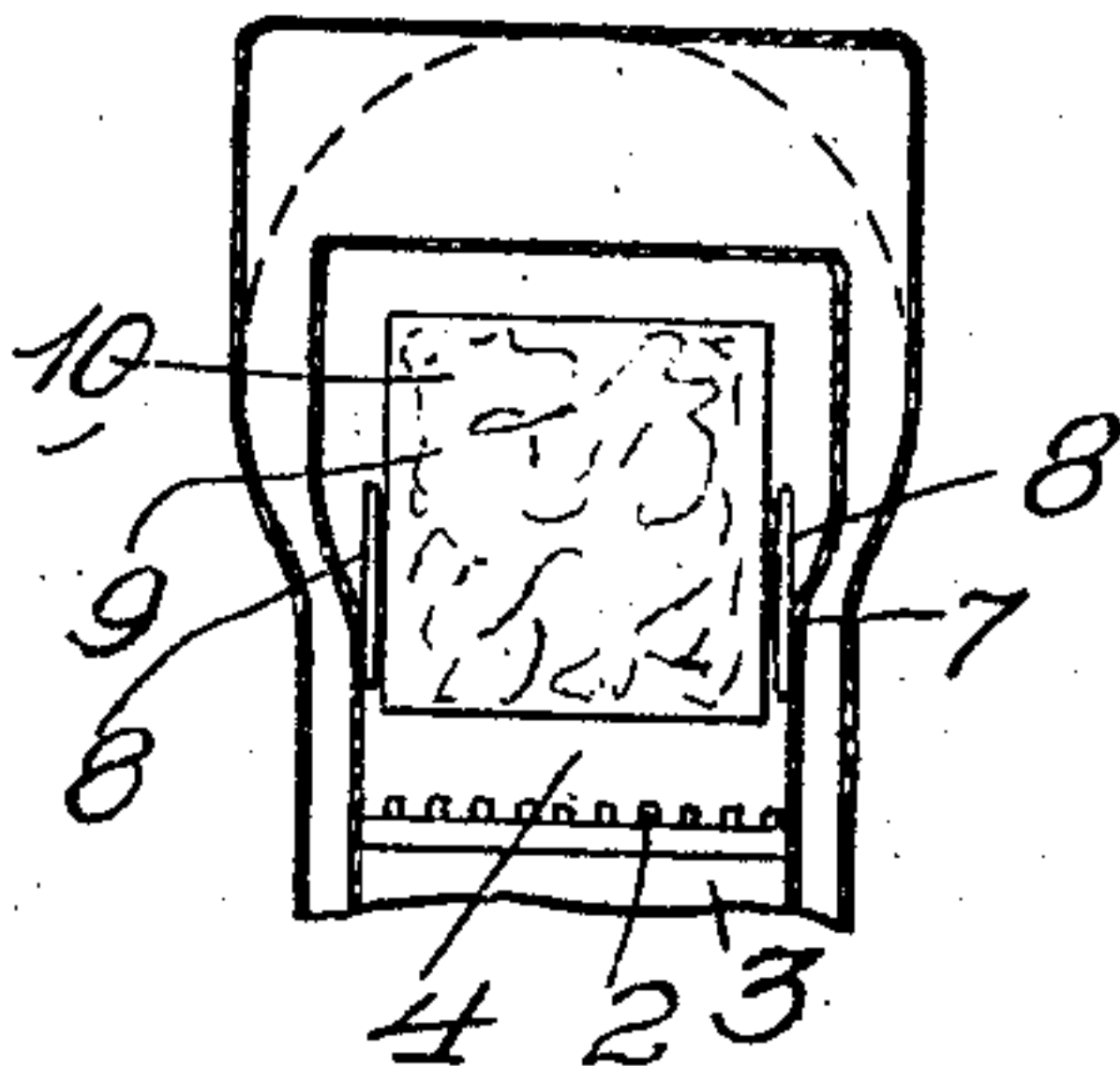


Fig. 2.



WITNESSES

Samuel Payne;
R. H. Butler

INVENTOR

Emil Kruse.

W. C. Everett & Co.
by *Attorneys.*

UNITED STATES PATENT OFFICE.

EMIL KRUSE, OF TOKIO, NORTH DAKOTA, ASSIGNOR OF ONE-HALF TO ELIAS BODAL,
OF FORT TOTTEN, NORTH DAKOTA.

SMOKE-RETARDING DEVICE.

973,944.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Application filed April 29, 1910. Serial No. 558,417.

To all whom it may concern:

Be it known that I, EMIL KRUSE, a subject of the Emperor of Germany, residing at Tokio, State of North Dakota, have invented certain new and useful Improvements in Smoke-Retarding Devices, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a smoke retarding device for stationary and portable boilers, and the object of the invention is to provide a boiler with a device for retarding the smoke thereof, whereby the smoke or portions thereof can be consumed before finally exhausting from the boiler.

My invention aims to reduce the consumption of fuel, protecting the flues of the boiler from soot, and increasing the heating qualifications of the boiler. To this end, I arrange a shield or partition transversely of the fire-box or combustion chamber of the boiler to retain the heavy and carbon laden smoke in the front part of the chamber whereby it will be necessary for the smoke to pass over the rear part of the chamber and be consumed by the hot coals in the rear part of the chamber, thus leaving a small part of the smoke to pass through the flues to the stack or chimney of the boiler.

My invention will be hereinafter described in detail, and reference will now be had to the drawing forming a part of this specification, wherein there is illustrated a preferred embodiment of the invention, but it is to be understood that the structural elements thereof can be varied or changed without departing from the scope of the appended claims.

In the drawing:—Figure 1 is a side elevation of a boiler partly broken away and partly in section provided with my smoke retarding device, and Fig. 2 is a cross sectional view of the same.

In the accompanying drawing the reference numeral 1 denotes the foundations of a boiler having a grate 2, and ash-pit 3 beneath the grate, a combustion chamber 4 above the grate, and flues 5 communicating with the combustion chamber 4 and the stack or chimney opening 6. The side walls 7 of the chamber 4 are provided with vertical arms 8 and trunnioned between said arms is a sheet metal shield or retarding plate 9 adapted to have the sides thereof covered by asbestos or a non-fusible mate-

rial 10 adapted to protect the plate 9. The plate 9 is normally supported in a vertical position and the arms 8 are employed whereby the lower edge of the plate will be raised a sufficient distance above the grate 2 to permit of live coals being pushed rearwardly within the combustion chamber 4 to provide room for fresh coals at the forward end of the combustion chamber. When fresh coal is added to the live coals, the heavy and black smoke which is liberated passes under the shield 9 and impinges upon the live coals in the chamber 4 and is consumed. The hot coals will consume the carbon and such other combustible matter as is carried by the smoke and simply the non-combustible gases will pass through the flues to the opening 6, thus preventing soot or other matter from accumulating upon the flues, besides obtaining heat units by the consumption of the smoke that could not be otherwise obtained if the smoke was allowed to freely escape. In firing a boiler in this manner considerable coal is saved and a higher degree of efficiency obtained.

When it is desired to clean the combustion chamber or fire-box, the shield can be swung to a horizontal position.

Having now described my invention what I claim as new, is:—

1. A smoke retarding device comprising the combination with the combustion chamber of a furnace having the upper portion of its side walls off-set outwardly with respect to the lower portions thereof, of oppositely-disposed vertically-extending arms secured at their lower ends to the lower portions of the side walls of said chamber and having their upper portions spaced from the off-set portions of the said side walls, and a vertically-disposed plate trunnioned approximately centrally thereof in the upper ends of said arms and having its lower end spaced from the bottom of the combustion chamber, said plate spaced from the offset portion of the walls of the fire box and further spaced from the top of the fire box.

2. A smoke retarding device comprising the combination with the combustion chamber of a furnace having the upper portion of its side walls off-set outwardly with respect to the lower portions thereof, of oppositely-disposed vertically-extending arms secured at their lower ends to the lower portions of the side walls of said chamber and

having their upper portions spaced from the off-set portions of the said side walls, a vertically-disposed plate trunnioned approximately centrally thereof in the upper ends
5 of said arms and having its lower end spaced from the bottom of the combustion chamber, said plate spaced from the offset portion of the walls of the fire box and further spaced from the top of the fire box, and a

covering of non-combustible material in- 10 closing said plate.

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

EMIL KRUSE.

Witnesses:

A. C. ELLINGSON,
THEODORE JAHR.