

Y. KYOTO.
FUEL SAVER.

APPLICATION FILED SEPT. 4, 1912.

1,055,921.

Patented Mar. 11, 1913.

2 SHEETS-SHEET 1.

Fig. 1.

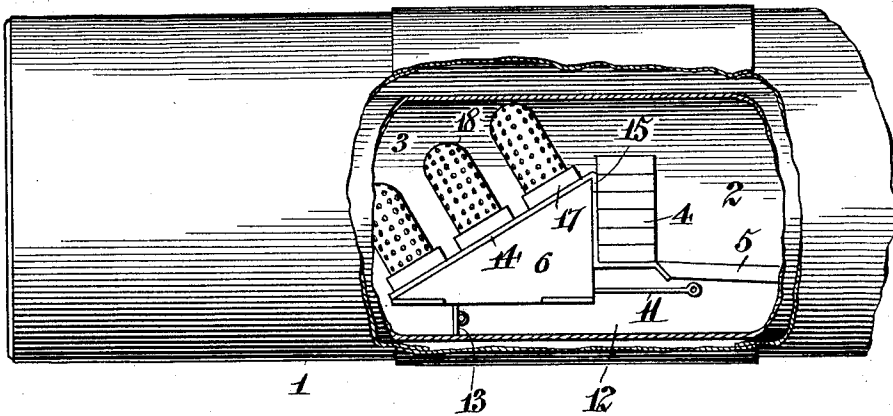
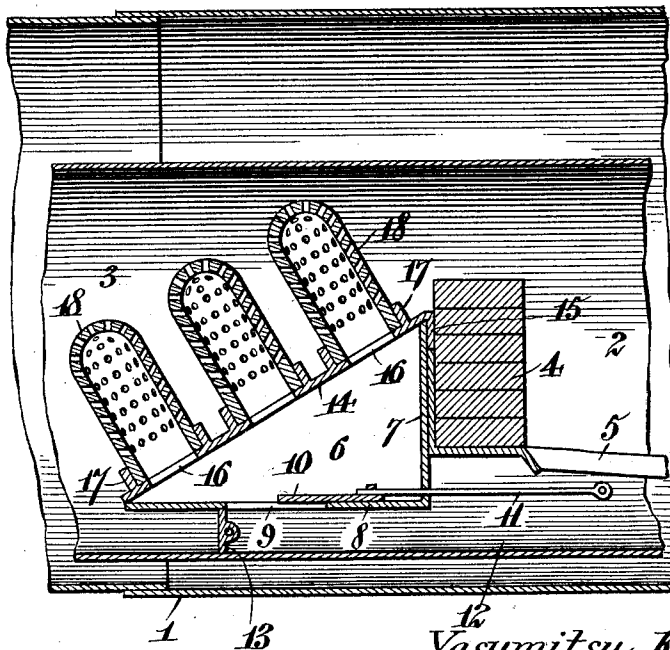


Fig. 2.



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2 SHEETS—SHEET 2.

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Fig. 3

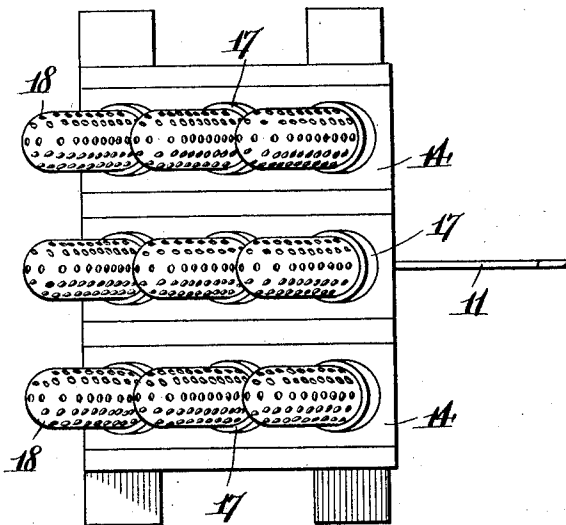


Fig. 4.

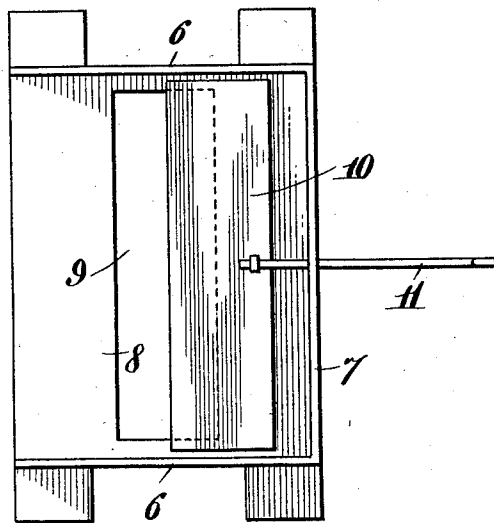
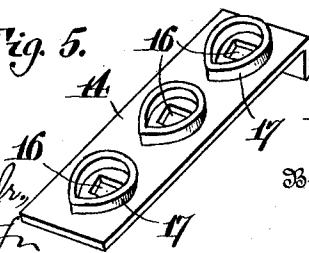


Fig. 5.



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UNITED STATES PATENT OFFICE.

YASUMITSU KYOTO, OF LOS ANGELES, CALIFORNIA.

FUEL-SAVER.

1,055,921.

Specification of Letters Patent.

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Application filed September 4, 1912. Serial No. 718,498.

To all whom it may concern:

Be it known that I, YASUMITSU KYOTO, a citizen of Japan, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Fuel-Savers, of which the following is a specification.

This invention relates to boiler furnaces and more particularly to attachments therefor, the object of the invention being to provide a simple and efficient attachment whereby the unconsumed products of combustion passing over the bridge will be commingled with the fresh air in sufficient quantities to produce a combustible mixture which will burn throughout the length of the combustion chamber and thereby increase the steaming capacity of the boiler, and reduce the consumption of fuel.

A further object of the invention is the provision of a device of this character wherein the air outlet members are constructed of a refractory material and may be readily removed for replacement when desired and wherein the amount of air required may be properly regulated to secure the most complete combustion of the unconsumed products passing over the bridge wall.

Further objects of this invention will appear as the following specific description is read in connection with the accompanying drawings, which form a part of this application, and in which:—

Figure 1 is a side elevation of the boiler with parts broken away, showing the arrangement of the attachment therein. Fig. 2 is a longitudinal sectional view. Fig. 3 is a top plan view of the attachment removed from the boiler. Fig. 4 is a bottom plan view of the attachment removed from the boiler. Fig. 5 is a perspective view of one of the air tube holders removed from the attachment.

Referring more particularly to the drawing, 1 represents an ordinary boiler which is divided into compartments 2 and 3 by a bridge wall 4, said compartments constituting a fire box and combustion chamber, the former of which contains the usual grate 5. The attachment consists of a substantially triangular casing consisting of sides 6, back 7, and bottom 8, the latter of which parts is provided with an opening 9 controlled by a valve 10 which is operated in any suitable

manner, a rod 11 being shown connected thereto and passed through an opening in the back 7. In this type, the wall is supported above the bottom of the flue tube so as to provide a passage 12 which, when the device is used, is closed by a gate 13 extending from the bottom 8 down to the bottom of the tube and being curved on its under side so as to conform with the flue tube. The top of the casing is inclosed by a plurality of plates 14 having flanges 15 formed thereon to overhang the back and support the plates upon the casing. Each plate is provided with a plurality of openings 16 surrounded by flanges 17 in which are mounted foraminous distributing tubes 18 having their upper end closed, as shown. As the unconsumed products of combustion pass over the bridge wall with the flame, they are met by and commingled with jets of fresh air issuing from the foramina of the tubes 18, thus this air supports combustion of the unconsumed products and the flame is continued throughout the length of the tube, thus producing a greater heating area.

With a device of this character, it will be of course understood that a considerably smaller amount of coal can be used to obtain the same steam capacity than where the attachment is not used. Furthermore, it will be seen that the air issuing from the tubes 18 may be properly regulated by the valve plate 10 so that the exact amount may be fed to the casing for insuring proper combustion. This latter feature is particularly advantageous where it is necessary for the engineer to use many different types of coal, certain of which burn with considerably more freedom than others.

The plates 14 may be readily removed from the casing so as to clean the same or the casing may be conveniently cleaned through the opening 9.

What is claimed is:—

In a device of the class described, the combination with a boiler furnace having a bridge wall raised from the bottom of the furnace and separating the fire box and combustion chambers thereof, of an attachment comprising a triangular casing secured to the bridge wall and having its bottom provided with an opening, a slidably mounted valve plate for regulating the size of said opening, a member extending between the bottom of the casing and the furnace, a plu-

5 rality of plates removably mounted upon and adapted to cover the casing, said plates having openings therein, flanges surrounding said openings, and outwardly projected perforated discharge members mounted within the flanges and communicating with said apertures.

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

YASUMITSU KYOTO.

Witnesses:

G. D. KIYOWARO,
A. B. WORKMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."