

No. 607,066.

Patented July 12, 1898.

P. MILLER.

DEVICE FOR RETAINING HEAT IN LOCOMOTIVE BOILERS.

(Application filed Aug. 20, 1897.)

(No Model.)

FIG. 1-

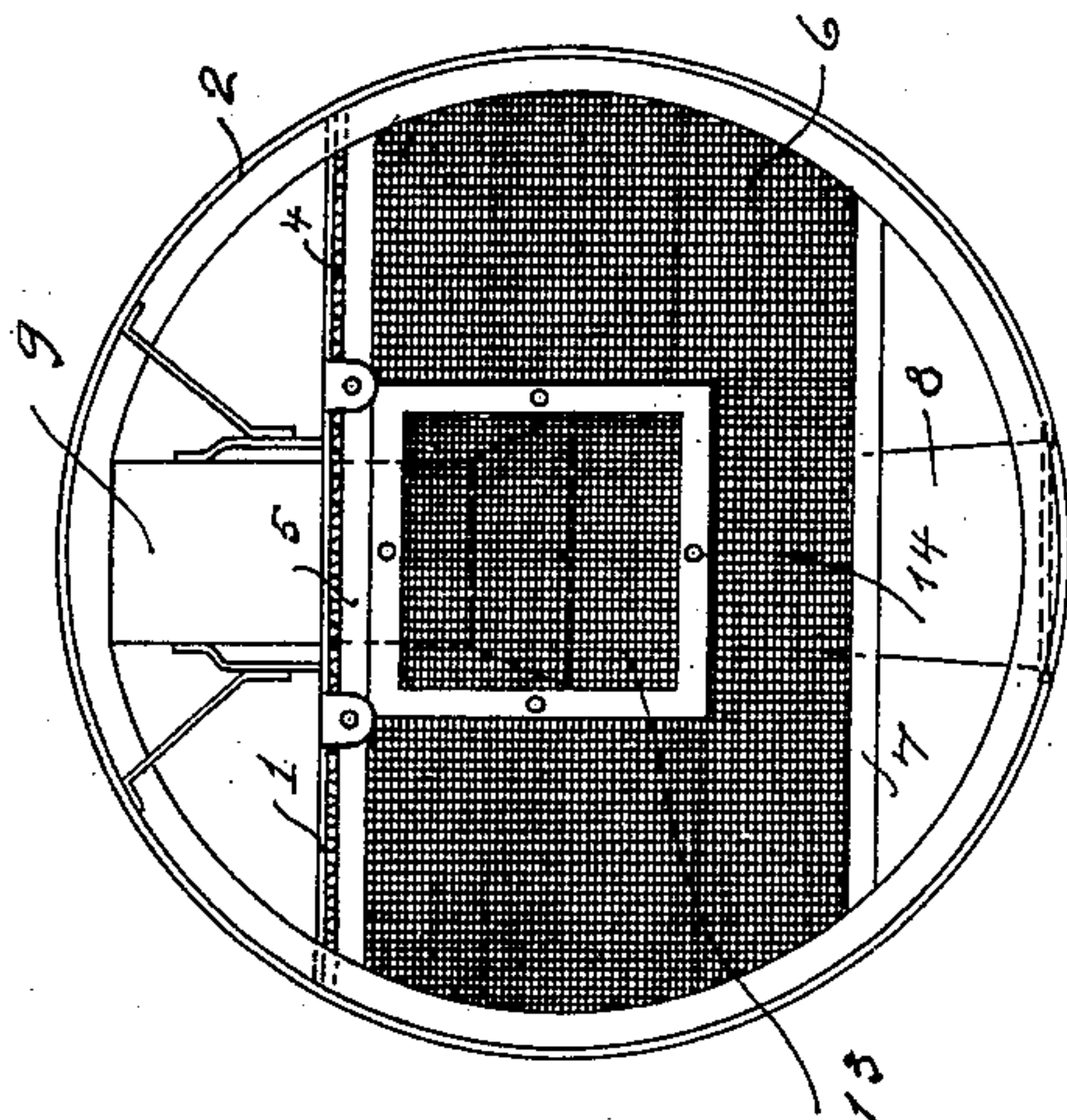


FIG. 4-

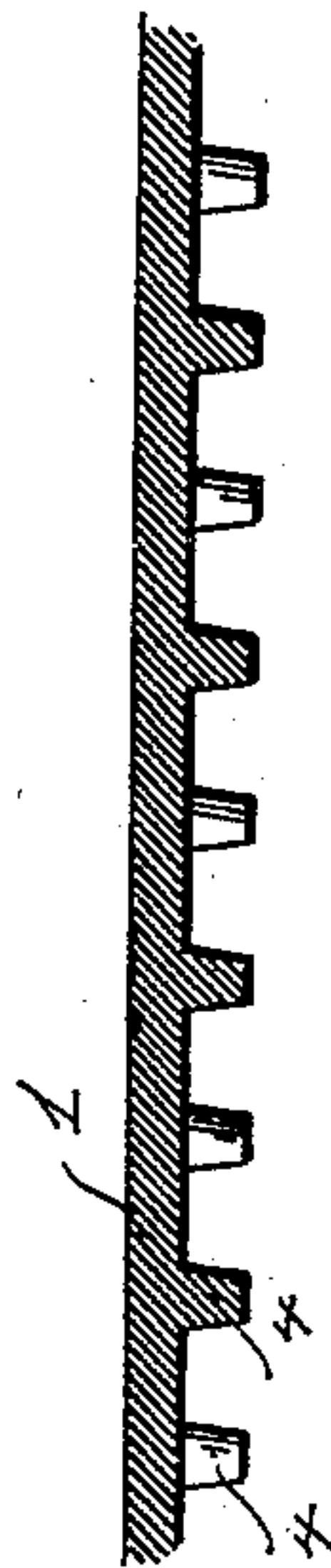


FIG. 2-

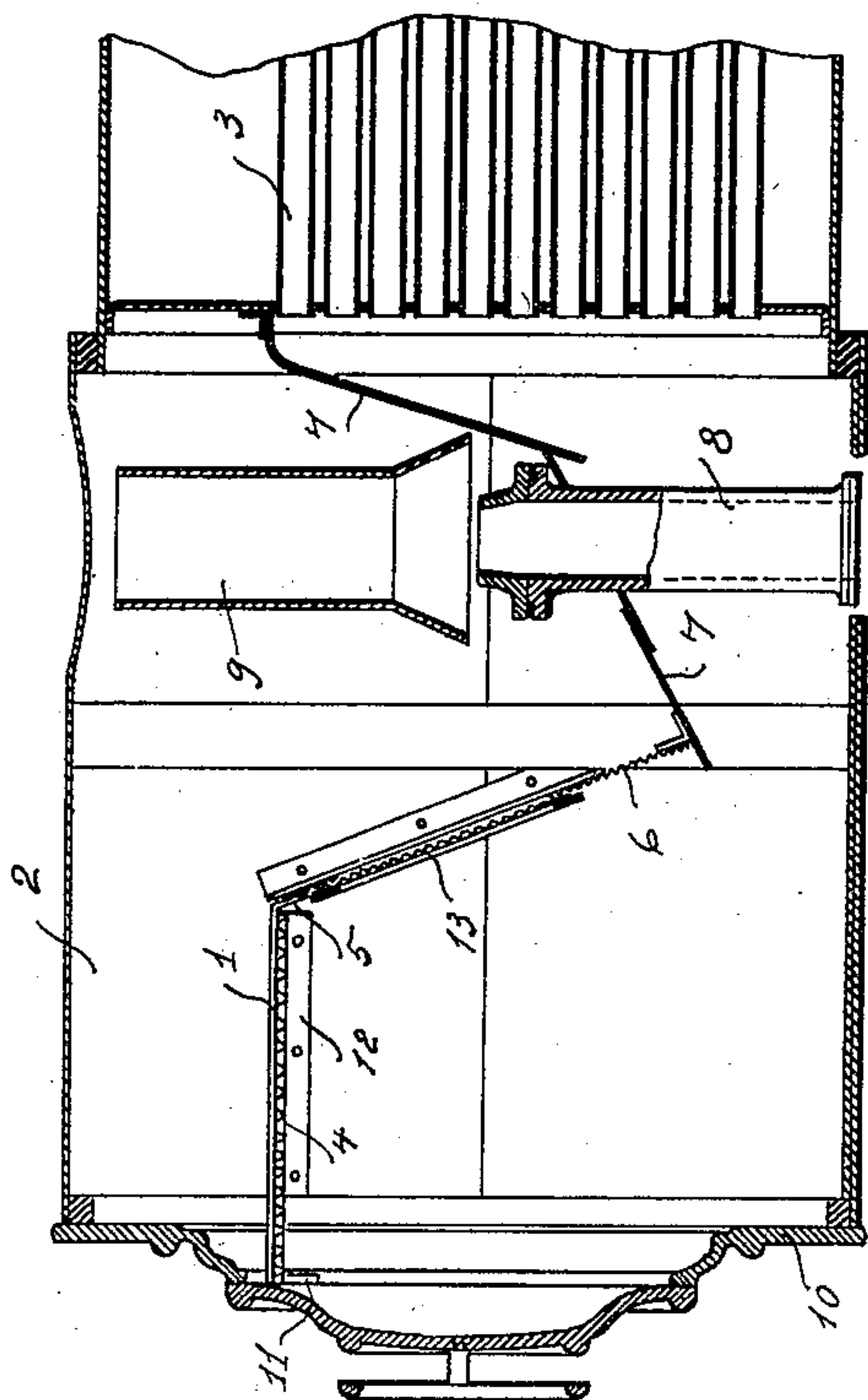
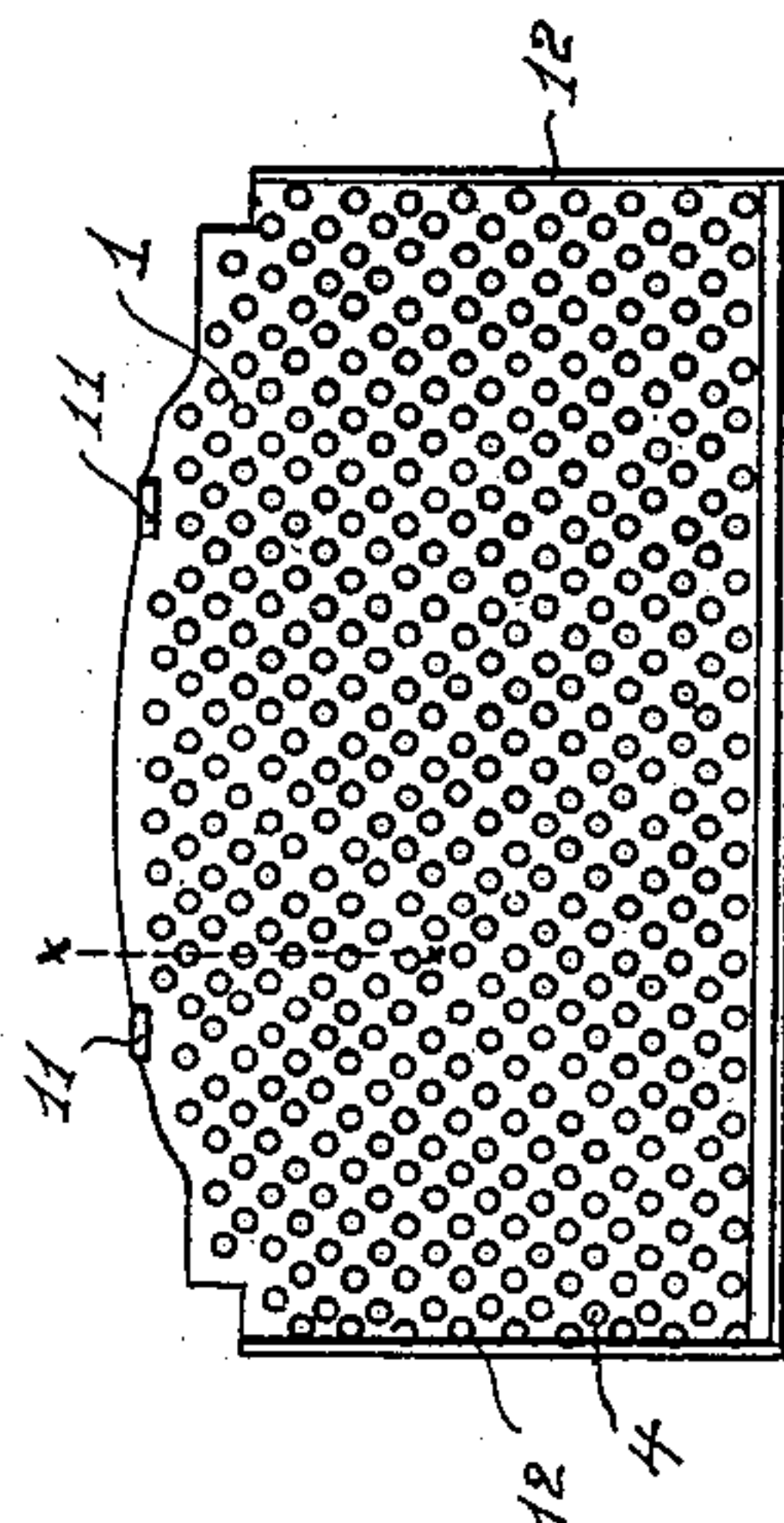


FIG. 3-



WITNESSES
H. H. Martin
Jean A. Parre

INVENTOR
Peter Miller
By William Webster
att'y

UNITED STATES PATENT OFFICE.

PETER MILLER, OF YPSILANTI, MICHIGAN.

DEVICE FOR RETAINING HEAT IN LOCOMOTIVE-BOILERS.

SPECIFICATION forming part of Letters Patent No. 607,066, dated July 12, 1898.

Application filed August 20, 1897. Serial No. 648,866. (No model.)

To all whom it may concern:

Be it known that I, PETER MILLER, of Ypsilanti, county of Washtenaw, and State of Michigan, have invented certain new and useful Improvements in a Device for Retaining Heat in Locomotive-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to a device for retaining heat in locomotive-boilers, and has for its object to provide suitable plates and screens adapted to be secured in the smoke-box of the locomotive-boiler, whereby the heat is retained and a more perfect combustion established.

A further object is to adapt a plate for granulation of the sparks educted by the force of the exhaust.

In the drawings, Figure 1 is an elevation of my device applied to a locomotive-boiler. Fig. 2 is a longitudinal vertical section through the smoke-box of the boiler and partially through the flues. Fig. 3 is a plan view showing the granulating fingers or projections of the heat-retaining plate. Fig. 4 is a section through the same on lines *x x*.

In carrying out my invention the heat-retaining plate 1 is secured to the front end of the smoke-box 2, being preferably level with the top row of flues 3. The under side of the plate 1 is serrated or roughened by projecting lugs or fingers 4. Upon the inner end of the plate and integral with the body is a flange 5 for securing thereto a foraminous metal plate or screen 6, which is also secured by suitable means to the baffle-plate 7.

8 designates an exhaust-nozzle, which is in vertical alinement with the flared end of the smoke-pipe 9. The front portion of the plate 1 is secured to the cover 10 by bolts engaging lugs 11, and the plate is supported in its position in the smoke-box by flanges 12 integral with the plate.

In operation the heat passing through the flues 3 outwardly toward the smoke-stack is retained by the plate 1, causing a cushion of

air to exert a back pressure within the flues and combustion-chamber of the boiler. The result of such retention or back pressure is to more fully intermingle the combustible gases with the oxygen contained within the atmosphere, thereby causing a perfect combustion within the flues and combustion-chambers of the boiler and also greatly reducing the consumption of fuel. The force of exhaust in educting the cinders or sparks from the flues will force them against the retaining-plate 1, thereby granulating the sparks into fine particles and they are then educted through the smoke-stack as fine dust.

It will be seen that all of the live cinders or sparks come in contact with the retaining-plate and are granulated, passing out through the smoke-stack in dust-like form and dead as they reach the atmosphere, thereby preventing any cause of fire from live cinders or sparks.

The life of the screen is also increased by the action of the plate 1 in retaining the heated sparks and is prevented from burning out by a plate 1 being in the direct path of travel of the heated gases.

For the purpose of repairing within the smoke-box of the boiler behind the screen I have provided a detachable screen 13, centrally located and which is secured to the main section by bolts 14.

What I claim is—

In a locomotive-boiler, a horizontal flanged heat-retaining plate provided upon its under side with lugs, and secured at one end to the cover 10, the inclined screen secured to the opposite end of the plate, an oppositely-inclined baffle-plate secured to the screen, an exhaust-nozzle vertically located in the smoke-box, a smoke-pipe located over and in alinement with the nozzle, and a boiler provided with flues arranged adjacent to the smoke-pipe and nozzle, all arranged and operated as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

PETER MILLER.

Witnesses:

JEAN A. PARRÉ,
H. H. MARTIN.