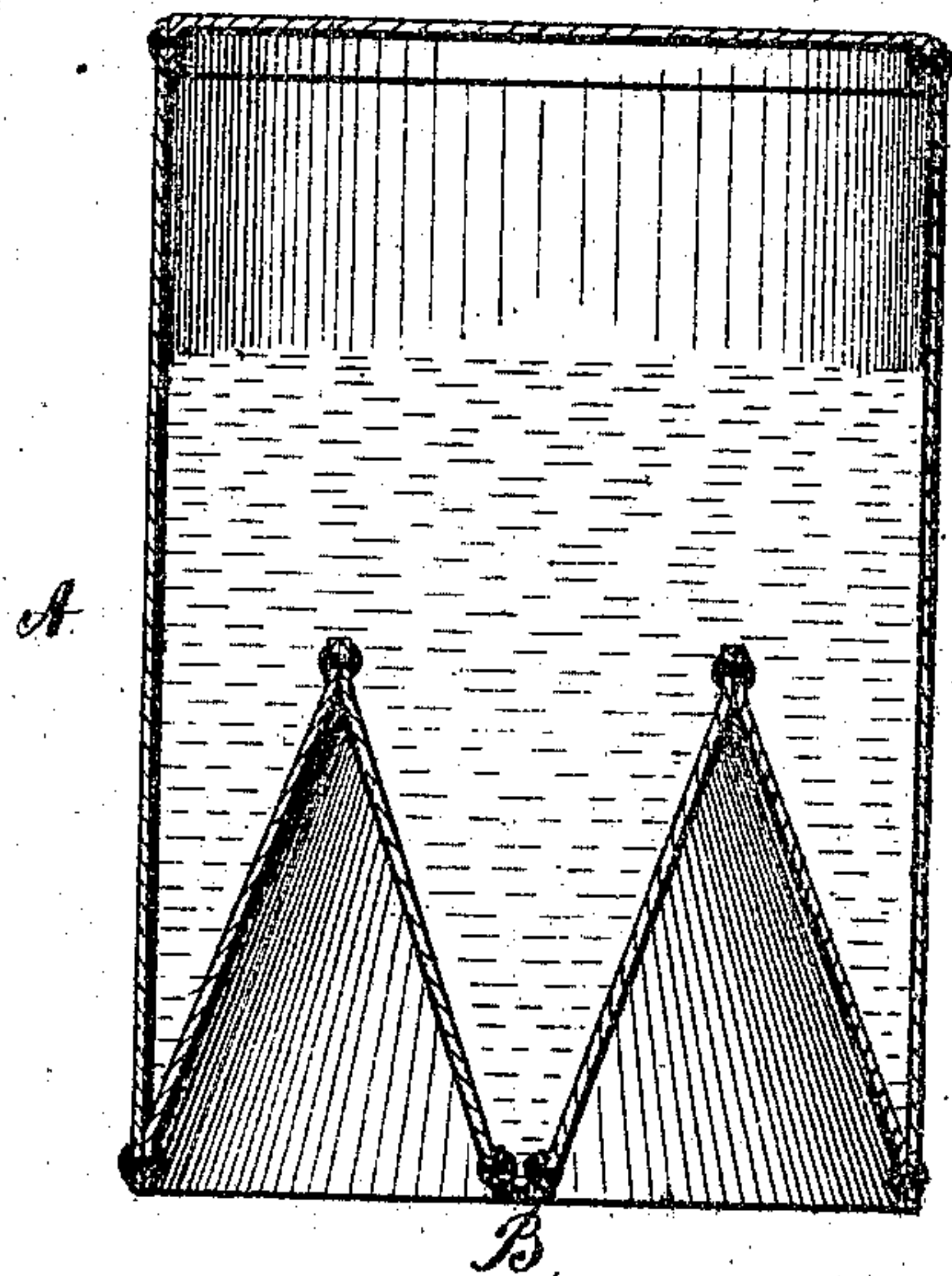


H. L. ROBERTSON JR.

Improvement in Steam Boilers.

No. 120,102.

Patented Oct. 17, 1871.



Witnesses.

H. St. John
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Inventor.

H. L. Robertson Jr.

UNITED STATES PATENT OFFICE.

RICHARD L. ROBERTSON, JR., OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN STEAM-BOILERS.

Specification forming part of Letters Patent No. 120,102, dated October 17, 1871.

To all whom it may concern:

Be it known that I, RICHARD L. ROBERTSON, Jr., of the city of New Orleans and State of Louisiana, have invented an Improved Steam-Boiler; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the drawing annexed, which constitutes a part of this specification.

My improvement relates to a boiler for the generation of steam by means of the application of gasoline thereto as a fuel for the accomplishment of this purpose. To attain the object in view I have constructed my boiler in a peculiar and novel manner, as will hereinafter be more fully explained.

My boiler, as to its exterior outline, is of the usual cylindrical form, but the lower head is constructed so as to form a furnace of a peculiar and novel shape, and so as to present in a very small space as much heating or fire-surface as possible. This head is for this purpose recessed around the inner periphery of the boiler and provided with a central outward conical projection, a cross-section of which will form the letter **W** inverted, which will be seen by the drawing annexed. There are no continuous draught-passages through the boiler, as is usual with tubular or flue-boilers, where wood or coal is consumed and where smoke is created. My object being the use of gasoline, which does not create smoke, hence there is no necessity for draught-passages. The gasoline is contained in some suitable vessel, which may be placed for better safety and security on top of the car, (provided a car be the object propelled by the power generated by my device,) whence it may be conveyed by pipes to jet-burners placed beneath the furnace of my boiler. These jet-burners should be of a kind which will distribute the flame over as great an area of the interior surface of the furnace as possible, to the end of producing the most rapid and economical production of steam within the boiler above the furnace.

I have not shown on the drawing the vessel containing the gasoline nor the pipes and burners to be used in connection therewith, as these may be varied as much according to circumstances, and as they form no part of my invention. Many burners which exist and which are in general use are applicable and suitable for the purposes of burning the gasoline under my boiler.

er. The number and size of the burners should vary, of course, to accord with the size of the boiler used.

The peculiar form of the furnace herein shown and described may be, to some extent, varied without in the least deviating from the principles of my invention. It is desirable, however, that the furnace should extend as far within the boiler as is consistent with a proper regard for a reasonable amount of water and steam-space, and without rendering it liable to the possibility of accident by an exposure of any part of the steam to the direct action of the fire-surface.

The burning of gasoline in the manner above described, although the flame passes directly within an inclosed furnace, will not, as before stated, produce the light volatile gases which constitute smoke; hence, the omission of air or smoke-flues. It is this omission of the flues which exist in all other devices of the character to which my improvement relates which constitutes the novelty and peculiarity of my invention.

Although my improved boiler is more especially designed to be applicable to street-railroad cars, it may likewise be made equally available for the generation of steam for small engines, to be used for a variety of purposes when motive-power is required.

I do not deem it essential for the purpose of this application to show on the drawing the gauge-cocks, safety-valve, steam-gauge, steam-and-water connections which are the usual appendages of a steam-boiler, it being, of course, well understood by the intelligent engineer that these things are invariably and absolutely necessary.

On the drawing, A is the steam-boiler, shown in section. B is the furnace above described.

What I desire to secure by Letters Patent is—

The within-described boiler A, constructed as described, for the purposes of applying thereto gasoline or other equivalent fuel for the generation of steam within the said boiler A, as and for the purposes specified.

R. L. ROBERTSON, JR.

Witnesses:

H. N. JENKINS,
L. I. OLMSTEAD.

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