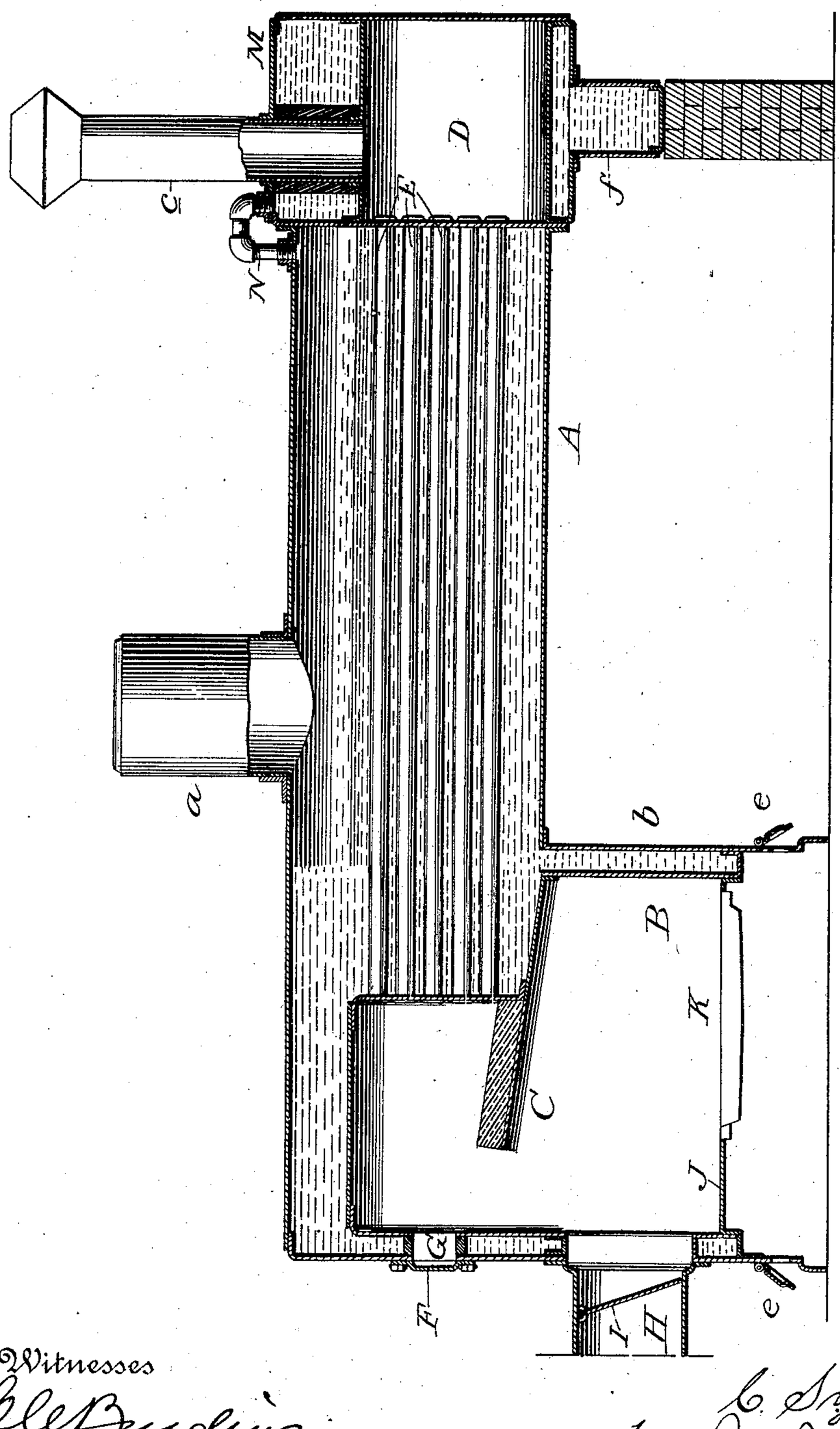
No. 763,079. PATENTED JUNE 21, 1904.

C. SYKORA.

STEAM GENERATOR.

APPLICATION FILED JAN. 19, 1904.

NO MODEL.



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No. 763,079. Patented June 21, 1904.

UNITED STATES PATENT OFFICE.

CHARLES SYKORA, OF AMO, MINNESOTA.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 763,079, dated June 21, 1904.

Application filed January 19, 1904. Serial No. 189,751. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SYKORA, a citizen of the United States, residing at Amo, in the county of Cottonwood and State of Minnesota, have invented new and useful Improvements in Steam-Generators, of which the following is a specification.

My invention pertains to steam-generators; and it has for its object to provide a steam-generator designed more particularly for burning straw and similar fuel and one which is constructed with a view of being expeditiously cleared of soot and other collective products of combustion and is calculated to utilize the flames and heated gases to the best advantage for heating the feed-water precedent to the passage of the same into the boiler proper.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in connection with the accompanying drawing, forming part of this specification, in which the figure is a view, partly in longitudinal vertical section and partly in side elevation, of the generator constituting the preferred embodiment of my invention.

Referring by letter to the said drawing, A is the boiler proper of my novel generator, which is provided with the usual steam-dome *a* and is also provided with the usual water-holding depending portion *b*, surrounding a combustion-chamber B.

C is a baffle-plate disposed in the combustion-chamber about midway the height thereof.

D is a smoke-box arranged at the forward end of the boiler proper and having the usual uptake or stack *c*.

E E are smoke-flues connecting the portion of the combustion-chamber B above the baffle-plate C and the smoke-box D, and F is a door controlling an opening G in the rear wall of the upper portion of the combustion-chamber B.

In virtue of the construction thus far described it will be observed that the flues E may be very quickly and easily cleared of collected soot and other products of combustion by introducing a suitable scraper through the opening G and forcing such products of combustion into the smoke-box D, from whence the same may be readily removed through the usual door. (Not shown.)

In addition to the baffle-plate C the combustion-chamber B is provided with a spout H, having an inwardly-opening gate-valve I, which is calculated to permit of the introduction of straw or similar fuel into the chamber and prevent the escape of flames and other products of combustion therefrom. The combustion-chamber is also provided with a dead-plate J, disposed below the spout H, and a grate K, arranged in front of said dead-plate. The dead-plate and the grate are arranged over the usual ash-pit L, which is provided on its front and rear walls with suitable dampers *e*, as illustrated.

Surrounding the smoke-box D is a jacket M, separate from the remainder of the boiler, into which the feed-water of the boiler is injected or otherwise forced. The said jacket is provided at its lower end with a mud-drum *f*, and its upper portion is connected, through the medium of an exterior pipe N, with the upper forward portion of the boiler A. In virtue of the water-jacket being disposed around the smoke-box and connected with the boiler proper, as stated, it will be observed that after the flames and heated gases from the combustion-chamber B pass through the flues E to heat the water in the boiler proper the remaining heat of said flames and gases will be utilized to the best advantage to raise the temperature of the water in the jacket, and hence the water will enter the boiler proper in a heated state and be quickly converted into steam therein.

The arrangement of the jacket M separate from the boiler A is advantageous, since the water is heated in the jacket to a considerable extent precedent to being supplied to the boiler, while the arrangement of the pipe N on the exterior is advantageous because of the facility with which said pipe may be removed and cleared of collected scale and the like and when necessary replaced with a new pipe.

As will be readily observed by reference to the drawing, the lower portion of the jacket M is isolated from the boiler A, and the only connection between said jacket and boiler is

the pipe N, connected at its opposite ends to the tops of the jacket and boiler and having its end which communicates with the jacket disposed in a horizontal plane above that of its other end. From this it follows that all of the water may be removed from the boiler A for any purpose and yet the jacket M will remain full of water; also, that when the generator is used in a traction-engine there is no danger of the jacket M getting dry when the engine is traveling uphill.

Notwithstanding the advantages of my novel generator as pointed out in the foregoing it will be appreciated that the same is simple and practical in construction and may be built quite as cheaply as the ordinary generators extant. It will also be noticed that the generator may be either stationary or portable without involving a departure from the scope of my invention.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The herein-described steam-generator comprising a boiler, a combustion-chamber disposed at the rear of the boiler and having a baffle-plate, a dead-plate and a grate, a feed-spout communicating with the combustion-chamber above the dead-plate and having an inwardly-opening gate-valve, a smoke-box arranged in front of the boiler, a door in the rear wall of the combustion-chamber in a plane above the baffle-plate, smoke-flues arranged in the boiler and connecting the upper portion of the combustion-chamber and the smoke-box, a water-jacket separate from the boiler, surrounding the smoke-box and adapted to receive feed-water, and an exterior pipe N connecting the upper portion of the water-jacket and the upper portion of the boiler.

2. A steam-generator comprising a boiler, a combustion-chamber disposed at the rear of the boiler, a smoke-box arranged in front of the boiler, one or more smoke-flues extending through the boiler and between the combustion-chamber and the smoke-box, a water-jacket surrounding the smoke-box and adapted to receive feed-water; the lower portion of said jacket being isolated from the boiler, and a conduit connecting the tops of the boiler and water-jacket; the end of said conduit which communicates with the water-jacket being disposed in a horizontal plane above the end of the conduit which communicates with the boiler.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CHARLES SYKORA.

Witnesses:
O. P. PETERSON,
JNO. L. GESSELL.