(No Model.) 2 Sheets—Sheet 1.

F. W. PARSONS.

STEAM GENERATOR.

No. 429,771. Patented June 10, 1890.

Fig. 1.

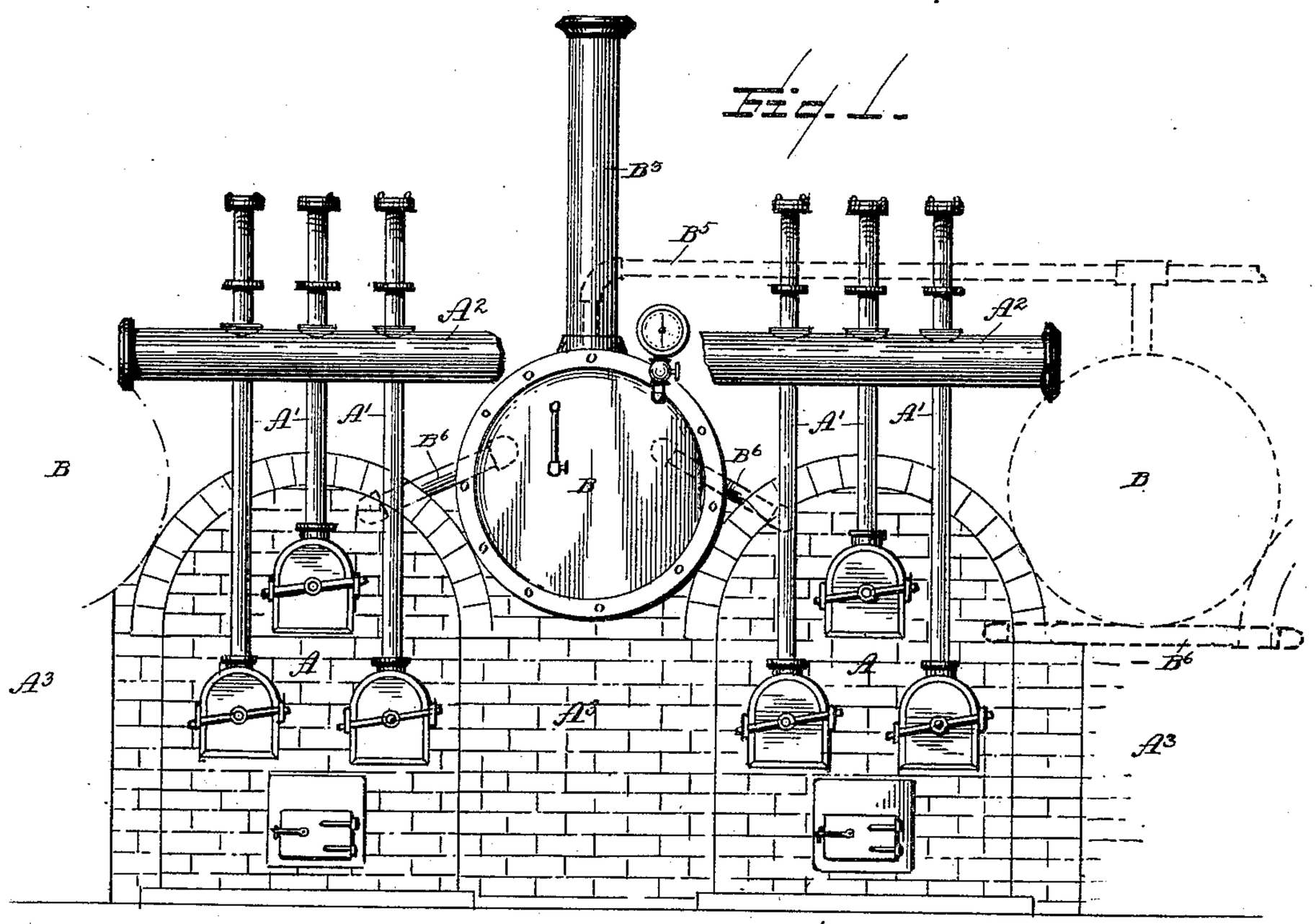


Fig. 2.

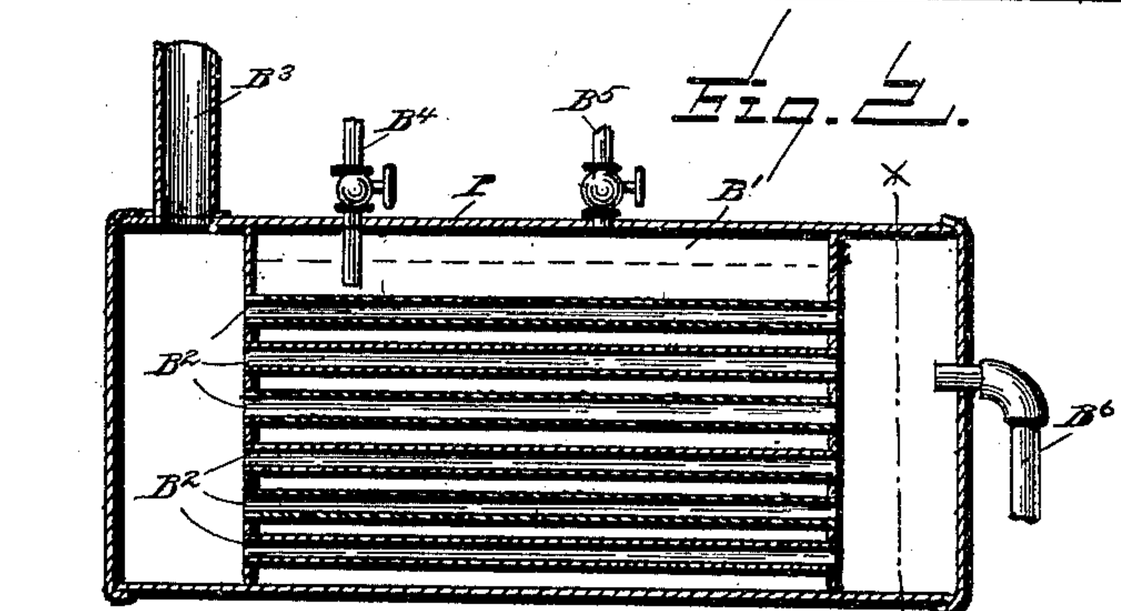
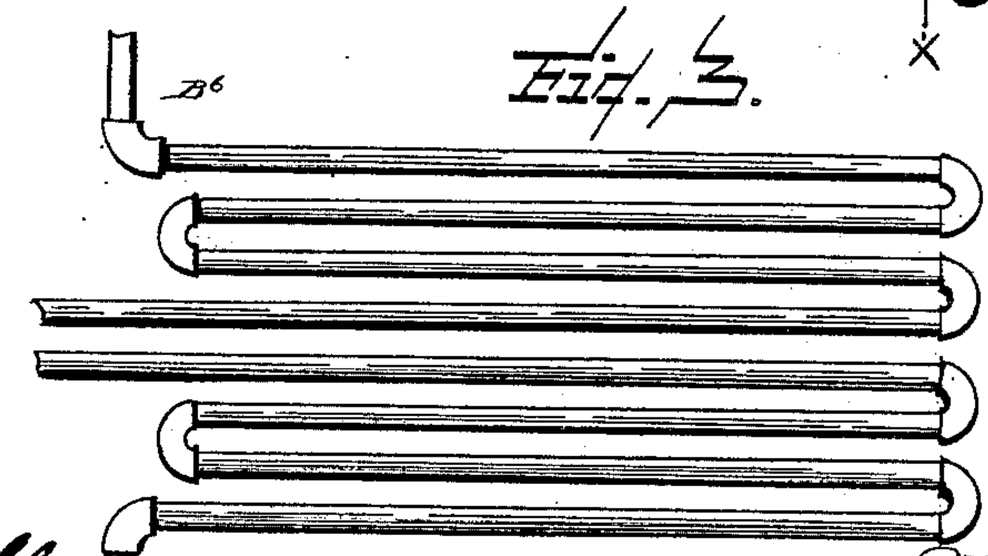


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

F. W. PARSONS.

STEAM GENERATOR.

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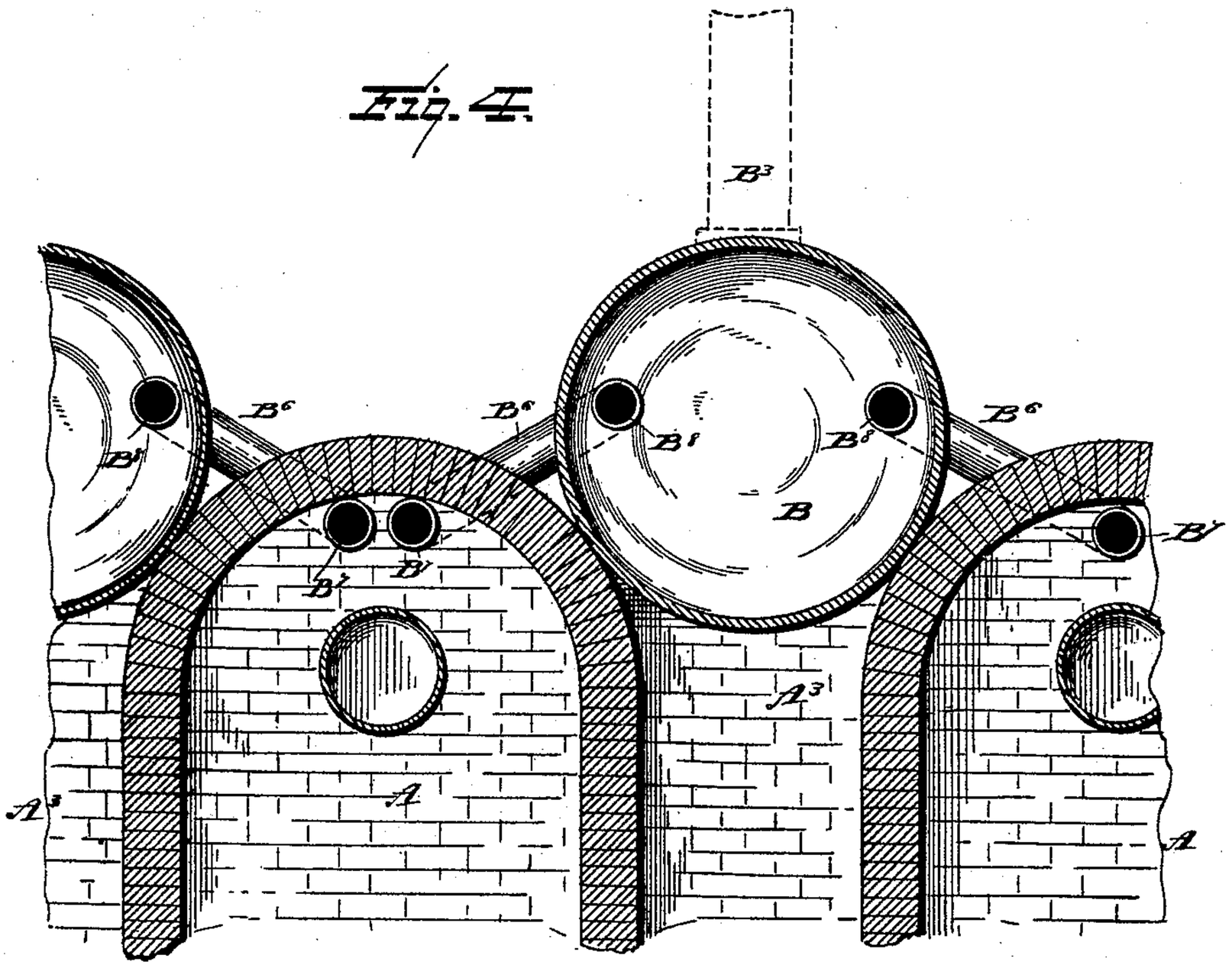
Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANCIS W. PARSONS, OF PHILADELPHIA, PENNSYLVANIA.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 429,771, dated June 10, 1890.

Application filed January 23, 1888. Serial No. 261,621. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS W. PARSONS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Steam-Generators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object the utilization of heat generated in the manufacture of gas from coal for the purpose of generating steam to be used for power or heating purposes, and to provide an arrangement of retorts, boilers, and connections whereby the heat generated under the retorts is conducted by a suitable system of piping into or in contact with suitably arranged and located boilers, which boilers are provided with a system of steam-distributing pipes.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a front elevation of a series of gas-retorts and boilers and systems of heat and steam pipes for connecting the same. Fig. 2 is a longitudinal section of the preferred form of boiler, and Fig. 3 is a plan of a modification of a system of heat-conducting pipes. Fig. 4 is a vertical section on the line $x\,x$ of Fig. 2, showing the details of connection of the heat-conducting pipes between the benches and the boilers.

Similar letters of reference indicate like parts in all the figures of the drawings.

A represents a series of gas-retorts, which are of the usual construction and provided with the usual gas-conducting pipes A′, leading to the main pipe A^2, by which the gas generated is led to the desired points for consumption.

B represents a series of, in this instance, tubular boilers, which are mounted between the retorts A upon any suitable foundation or support A^3.

If desired, any other form of boiler desired may be substituted for the ones herein shown, in which case the means for transmitting heat to the boiler is changed to coincide therewith, as will be hereinafter described.

Within the boiler B is formed the water-space B′, through which pass the fire-tubes B^2, which communicate with and lead to the uptake B^3, mounted upon the rear end of the boiler.

B^4 represents the water-supply pipe, which leads to the boiler from any suitable source of supply, and B^5 represents the steam-conducting pipe.

Leading from the benches A, and connected thereto at B^7, are heat-conducting pipes B^6, by which the heat generated in the benches and the product of combustion are led into the boiler B B^8 through the fire-tubes thereof and out the uptake B^3. The steam generated in the boilers B by the heat and products of combustion thus conducted is carried by the pipe B^5 to any suitable system of piping and may be used for either power or heating purposes. By such an arrangement the heat generated in the retort-benches and usually wasted is utilized to make steam, and the same plant that furnishes gas to a community can also furnish power or heat.

Having described my invention and its operation, what I claim is—

1. The combination, with the retort-benches A, having the intermediate masonry A^3, and gas-conducting pipes A′ A^2, of the boilers B, connected with the retort-benches by pipes B^6 for conducting the heat products of combustion from the benches through the boilers, and the steam-conducting pipes B^5, arranged for joint operation, substantially as described.

2. The combination, with the series of retorts having gas-conducting pipes A′ A^2 and intermediate masonry A^3, of the series of boilers mounted on said masonry between the retorts and having water-space B′ and tube B^2, the supply-pipe B^4, leading to the water-space, the steam-conducting pipes B^5 from the boilers, the uptakes B^3 from the boilers, and the heat-conducting pipes B^6, connecting the upper portions of the retorts with the boilers to conduct the products of combustion and heat generated from the retorts through the flues of the boilers, substantially as and for the purpose specified.

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

FRANCIS W. PARSONS.

Witnesses:

W. S. DUVALL,

L. C. HILLS.