

(No Model.)

W. B. WARREN.
LOCOMOTIVE BOILER.

No. 557,459.

Patented Mar. 31, 1896.

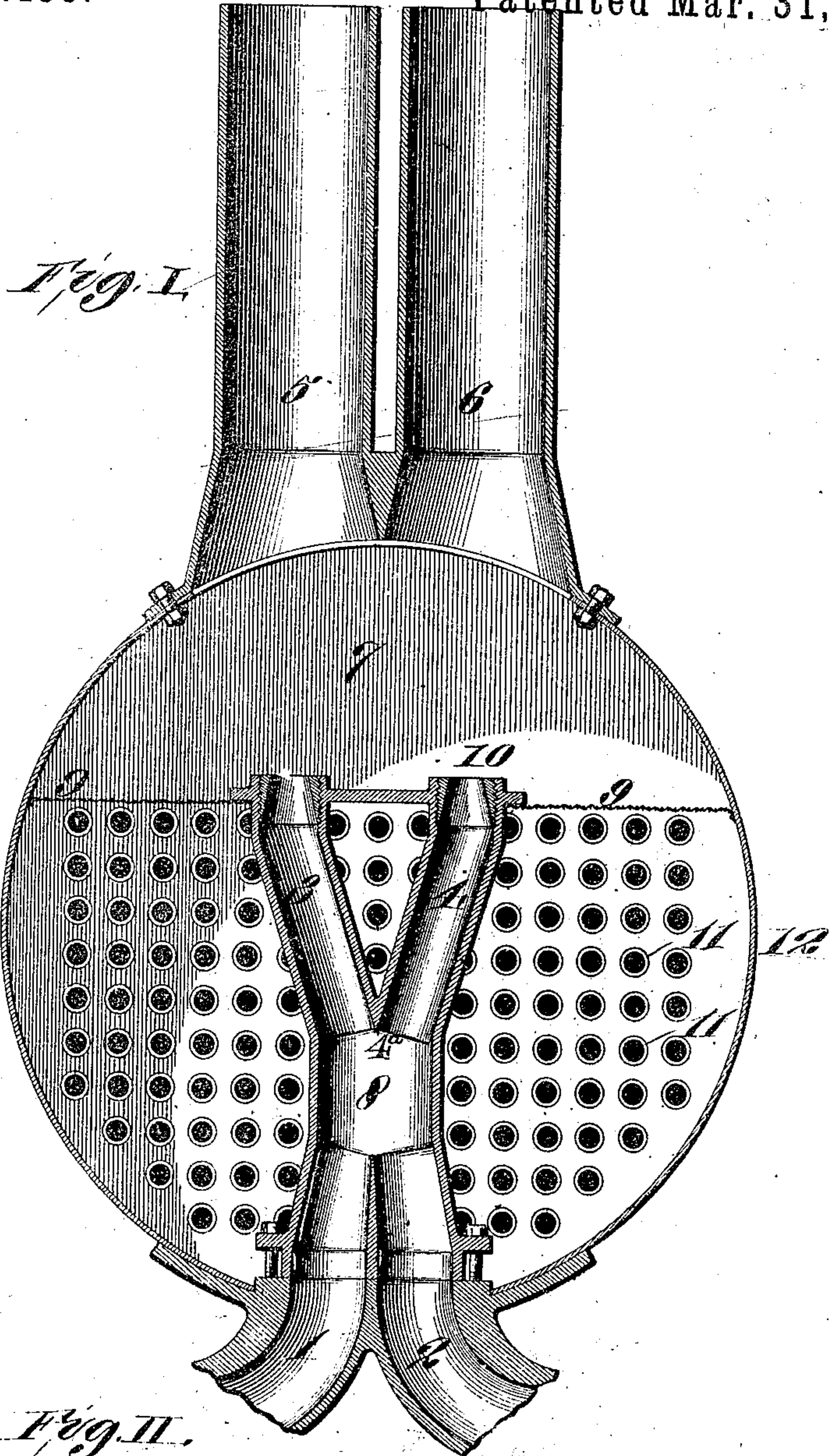
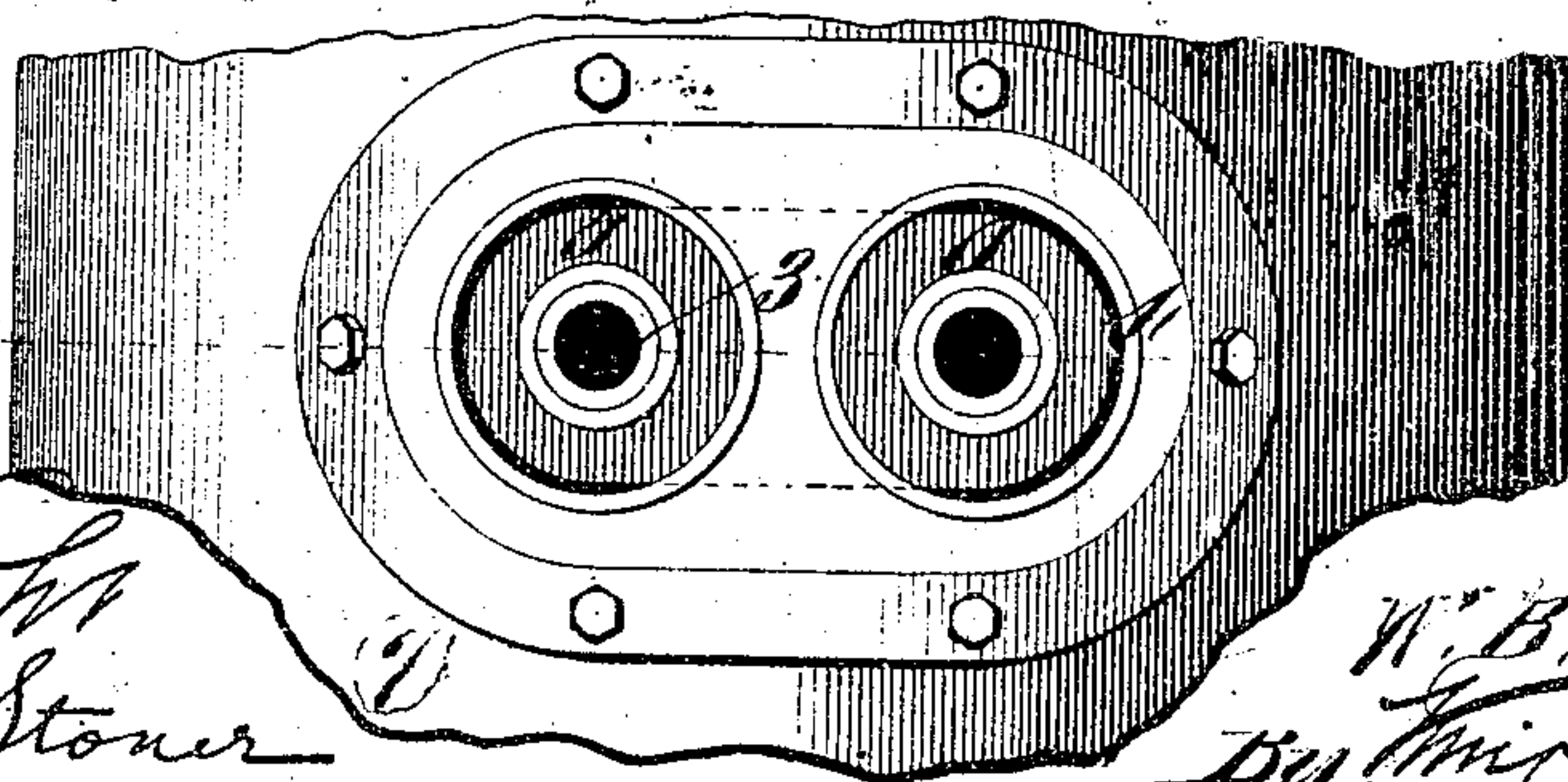


Fig. II.



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LOCOMOTIVE-BOILER.

SPECIFICATION forming part of Letters Patent No. 557,459, dated March 31, 1896.

Application filed July 2, 1895. Serial No. 554,726. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. WARREN, residing at the city of Peoria, county of Peoria, and State of Illinois, have invented a certain new and useful Improvement in Locomotive-Boilers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

10 The object of my invention is to provide a construction of exhaust-passages and smoke-stacks which will create a greater and more equal draft through the flues of the boiler, thereby saving fuel, and also providing a better spark-arrester by more equally distributing the draft across the smoke-arch.

15 Figure I is a vertical section of the boiler, exhaust-pipes, and smoke-stack through the line I I of Fig. II. Fig. II is a top or plan view of a portion of the boiler.

Referring to the drawings, 1 and 2 are the exhaust-pipes leading from the cylinders. I prefer to have them lead into a chamber 8, as shown, from which diverge two exhaust-passages 3 and 4, forming at their point of convergence the deflector 4^a. These open into the smoke-arch 7, as shown.

5 and 6 are smoke-stacks, so situated as to be immediately above and coincident or in line with the exhaust-pipes 3 and 4, said passage 3 discharging into stack 5 and said passage 4 into stack 6.

9 is a perforated screen at the bottom of the smoke-arch and above the top line of the boiler-flues.

10 are nipples secured to the ends of the exhaust-pipes and fitting in the screen for holding the exhaust-passages in position in the screen.

11 are the boiler-flues, and 12 the boiler-cover.

The operation of my device is as follows: Exhaust-steam from the cylinders of the locomotive discharges through the pipes 1 and 2 into the chamber 8, and by reason of the wedge-shaped part at 4^a the steam is divided and passes into the passages 3 and 4, which are located beneath the smoke-stacks 5 and 6 and which direct the steam through the smoke-arch 7 into the smoke-stacks. I thus create

a draft through both stacks, which are located at different points on the smoke-arch, at each exhaust from the two cylinders, and this accomplishes the purpose of creating a greater and more equal draft or vacuum through all the flues than can be produced when exhausting steam into one smoke-stack, which was the case in the old system, the single exhaust tending to produce a draft only through the center flues and not through the side and top flues, as is the case in my invention. Also by reason of the dividing of the steam and providing a plurality of exhaust-passages therefor the back pressure of steam in the cylinders is reduced to a minimum.

The screen 9 serves as a spark-arrester, and the two smoke-stacks 5 and 6 may be inclosed in an outer covering, if desired, to give it the appearance of a single stack.

Having described my invention, I desire to secure by Letters Patent—

1. The combination of a plurality of smoke-stacks located in a line across the top of the smoke-arch and on different arcs thereof, exhaust-pipes leading from the steam-cylinders to a point directly under the smoke-stacks, a chamber with which such exhaust-pipes communicate, and diverging exhaust-passages leading from said chamber to the smoke-stacks whereby the exhaust-steam from each cylinder will be directed through both of the passages and stacks, substantially as shown and described.

2. The combination of a plurality of smoke-stacks located in a line across the top of a boiler and on different arcs thereof, a smoke-arch located under the smoke-stacks and above the top line of boiler-flues, exhaust-pipes leading from the cylinders to a chamber and exhaust-passages leading from said chamber to the smoke-arch and so arranged that each exhaust from the cylinders will pass out into the smoke-arch and through both smoke-stacks and thereby cause a draft through all the boiler-flues, substantially as and for the purpose set forth.

3. The combination of a boiler, the plurality of smoke-stacks located in a line across the boiler-top and on different arcs thereof, exhaust-pipes leading from the steam-cylinders

ders to the boiler, and a chamber having di-
verging exhaust-passages leading therefrom
communicating with the exhaust-pipes, and a
wedge-shaped portion formed at the point of
5 convergence of the exhaust-passages whereby
the exhaust-steam from each cylinder will be
directed through both of the exhaust-passages

and smoke-stacks, substantially as shown and
described.

WILLIAM B. WARREN.

In presence of—

W. L. VERMILLION,
R. S. CAPPOCK.