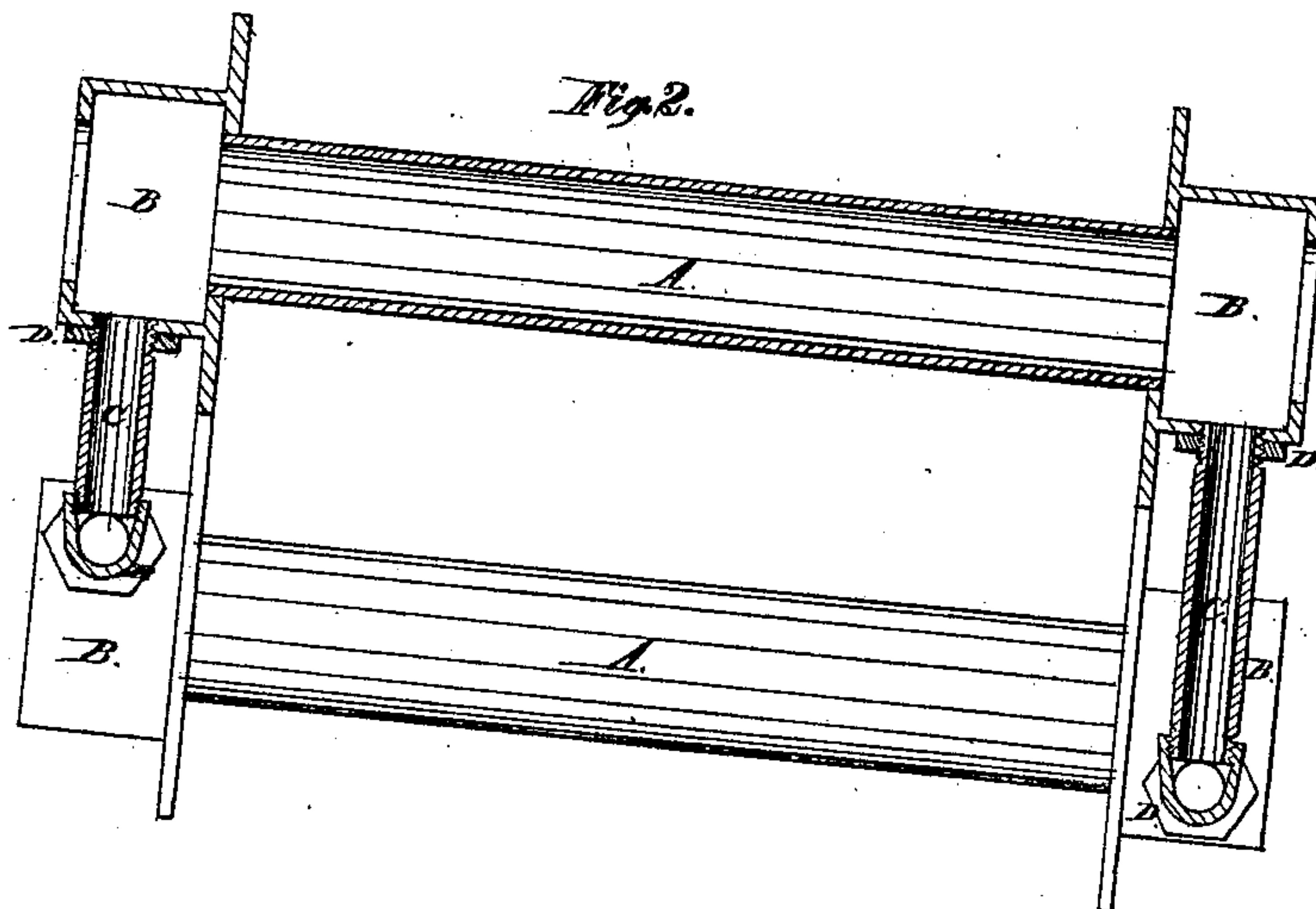
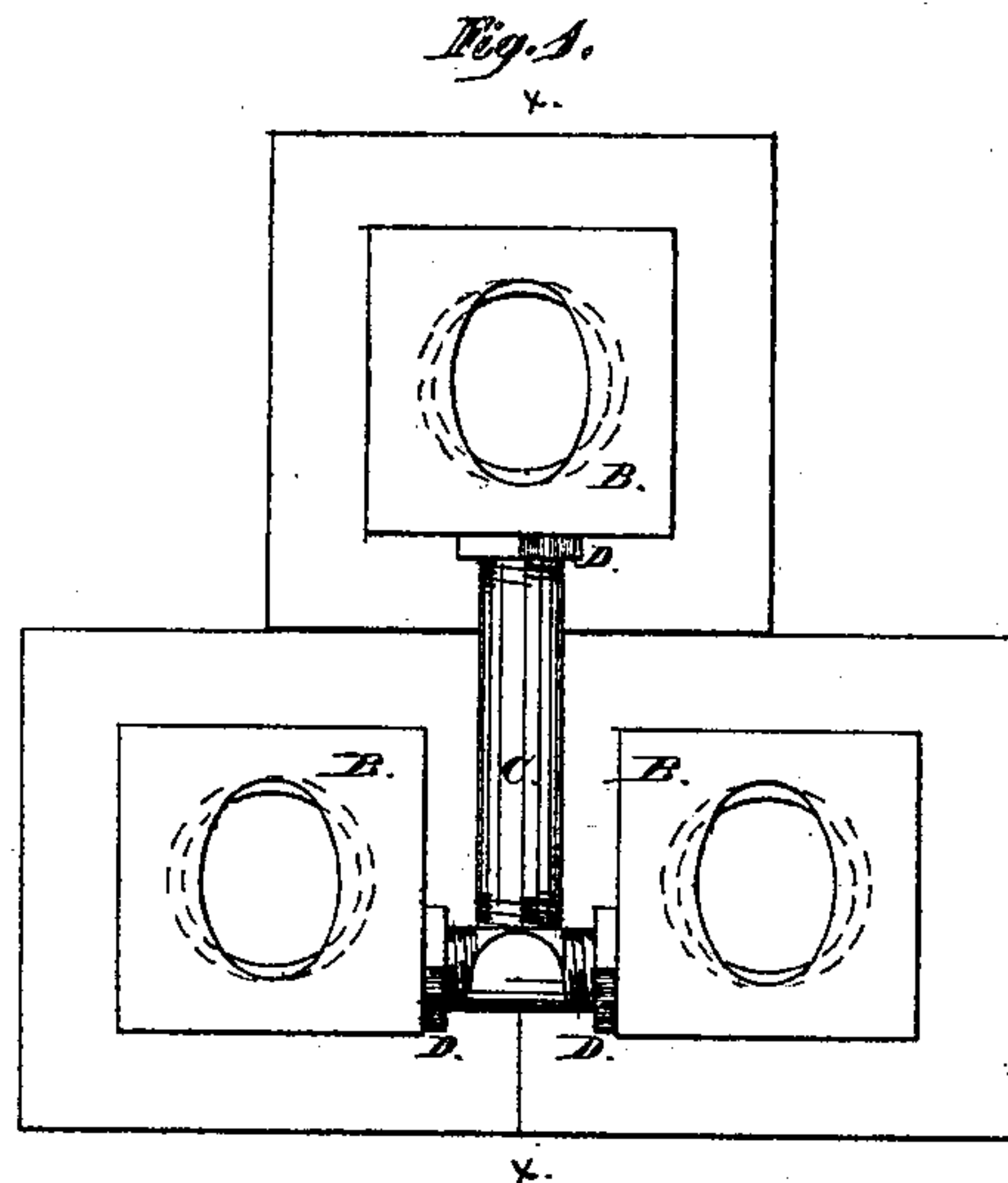


J. M. CLARK.  
STEAM GENERATOR.

No. 101,433.

Patented Apr. 5, 1870.



*Witnesses.*

*J. C. Robbins*  
*Sydney E. Smith.*

*Inventor.*

*Jonathan M. Clarke*  
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# United States Patent Office.

JONATHAN M. CLARK, OF NEW YORK, N. Y.

Letters Patent No. 101,433, dated April 5, 1870.

## IMPROVEMENT IN STEAM-GENERATORS.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JONATHAN M. CLARK, of the city, county, and State of New York, have invented certain new and useful Improvements in "Steam-Generators," of which the following is a full, clear, and exact description, reference being had to the accompanying drawing through letters of reference marked thereon, and in which—

Figure 1 represents an end view of a portion of a generator embracing my improvement.

Figure 2, a longitudinal section through the line *x* on fig. 1.

The same letters indicate like parts on both figures.

The object of this invention is to provide for the more convenient connection of the heads at each end of the pipes, and the production of a better circulation therethrough; and

It consists in forming tubular connections to be screwed into the two adjacent heads, with lock-nuts outside of the latter; also in the arrangement of the lateral connection at the feed-end of the pipes, as near the bottom of the head as possible, and at the upper or steam end as near the top as possible.

Referring to the drawing—

A represents the pipes of steam-generator, which are arranged side by side, and in tiers one above another in a zigzag or alternate manner, so that the pipes in one row, horizontally, shall be vertically intermediate of those in each adjacent row, and are also arranged on a slight incline, longitudinally, as represented in fig. 2.

The heads B may be cast separate, and wrought-iron or other pipes connected in any suitable manner, or the pipe, with its two heads, may be cast in one piece.

These are then connected by *I*-pieces C, screwed into each three adjacent pipes throughout the entire tier, and the joints made steam and water-tight by lock nuts D. They may be put together with right and left-hand screws, or all right-hand, in the latter case they must be first screwed double their proper distance into one head and then backed out and into the other one.

By arranging the lateral connection at the lowest point of the low end of the range the water has a better circulation, and its arrangement at the highest point at the opposite end gives a freer escape for the steam upwardly as it is generated.

What is here claimed as new, and desired to be secured by Letters Patent, is—

1. The *I*-formed tubular connection C, in combination with the lock-nuts D and heads B, substantially as shown and described.

2. The arrangement of the lateral tubular connections near the bottom of the heads at the one end of the pipes A, and near their top at the other end of the said pipes, as set forth.

JONATHAN M. CLARK.

Witnesses:

SYDNEY E. SMITH,  
GEO. F. HALE.