H. N. Winans,

Boiler-Furnace Draft-Regulator.

No. 44,992. Patented Nov. 8, 1864.

Fig: 1.

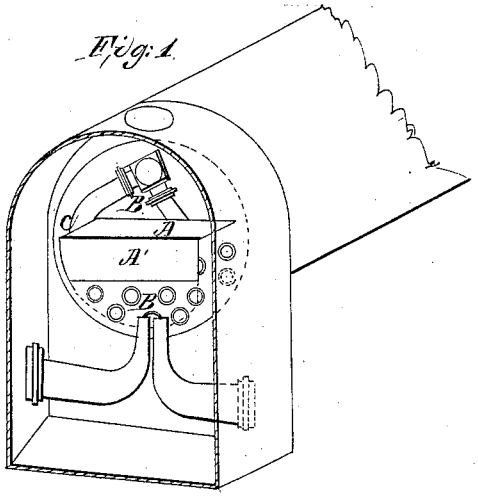


Fig: 2.

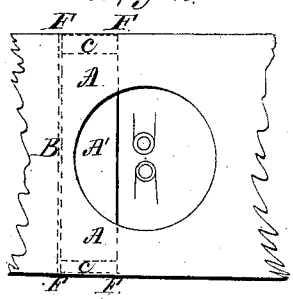


Fig: 4.

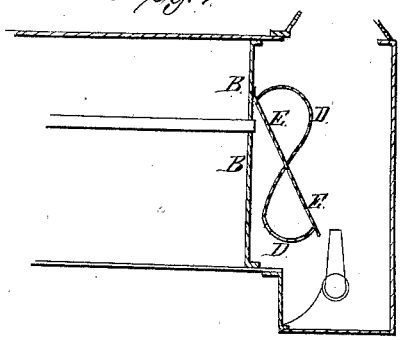


Fig: 3.

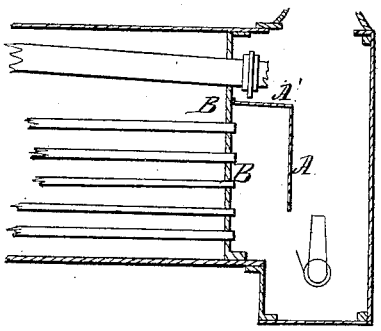
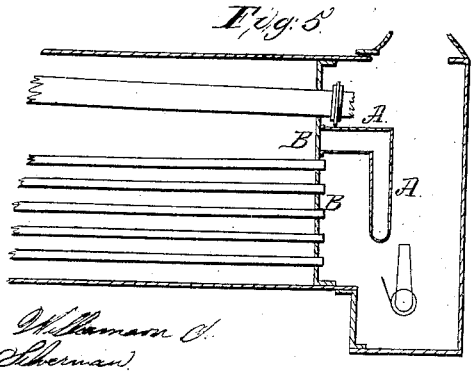


Fig: 5.



Witnesses:
Wm. P. Wilkinson
Benj. J. Sherman

Inventor:
H. N. Winans

UNITED STATES PATENT OFFICE.

H. N. WINANS, OF NEW YORK, N. Y.

IMPROVEMENT IN DRAFT-REGULATORS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **44,992**, dated November 8, 1864.

To all whom it may concern:

Be it known that I, H. N. WINANS, of the city, county, and State of New York, have invented a new and useful Improvement in the Smoke-Box of Locomotive-Boilers; and I hereby declare that the following is a full and exact description thereof.

The nature of my invention consists in arranging an addition to the diaphragms in the smoke-boxes of locomotive-boilers, when placed vertically therein between the flue-sheet and exhaust-pipes, so as to extend back and rest against the flue-sheet about the top row of flues, in order to compel a more general descent of the gases and a more uniform draft to the lower flues.

To enable others skilled in the business to make and use my invention, I proceed to describe its construction and operation, reference being had to the drawings hereunto annexed, and making part of this specification, also to the letters of reference denoted therein, the same letters referring to the same things throughout, and forming a part of the specification.

Figure 1 represents a perspective front elevation of my improved diaphragm A′; Fig. 2, as seen looking down through mouth of chimney, showing part of diaphragm; Fig. 3, a longitudinal section, with side view of diaphragm. Fig. 4 shows different shapes and positions of the diaphragm. Fig. 5 represents the arrangement peculiar to the diaphragm used as a feed-water heater.

To the diaphragms now used in locomotives, known as "Wood and Winans' diaphragm," or its equivalent, consisting of a plain imperforated sheet of iron placed in the smoke-box between the exhaust-pipes and the flue-sheet, extending from about the upper row of flues to about on a line with the lower row of flues, a few inches less in size than the boiler, so there shall be a free space around it. I add at or near the top of it an extension of about five inches in depth, running back to and resting against the flue-sheet about on a line with the upper row of flues, thus shutting off the direct escape of the gases to the chimney by compelling them to pass under and around the diaphragm, leaving the exhaust free to act and giving the draft a more uniform flow, particularly to the bottom flues. This addition should conform to the width of the diaphragm, leaving sufficient space at the ends for the escape of the smoke and cinders. About two inches I have found proper for freight-engines, and three to four inches for passenger-engines. The space, however, must be regulated according to the style of engine and the diaphragm used.

A represents the diaphragm of Wood and Winans in general use; A′, my improvement or the extension claimed; B, the flue-sheet; O O, spaces at the ends for the escape of smoke and cinders; D and E, different forms and positions in which it may be placed. Fig. 5 shows the arrangement as applicable to a water-heater, but not at present claimed.

As engines vary in construction and draft, I do not confine myself to any particular width, depth, or angle of my improvement, nor to an exact location of it against the flue-sheet, as it may be found expedient in some engines to put it below the upper row of flues; but it must not extend beyond the diaphragm as used by Wood and Winans, which is between the exhaust and flues, in such position as not to interfere with the free escape of the exhaust-steam, consequently does not extend over or beyond the exhaust-pipes.

What I claim as new, and desire to secure by Letters Patent, is—

An improved diaphragm, as at *a′*, constructed and arranged substantially as within described, and for the purposes set forth.

H. N. WINANS.

Witnesses:

OWEN G. WARREN,

J. D. STURTEVANT.