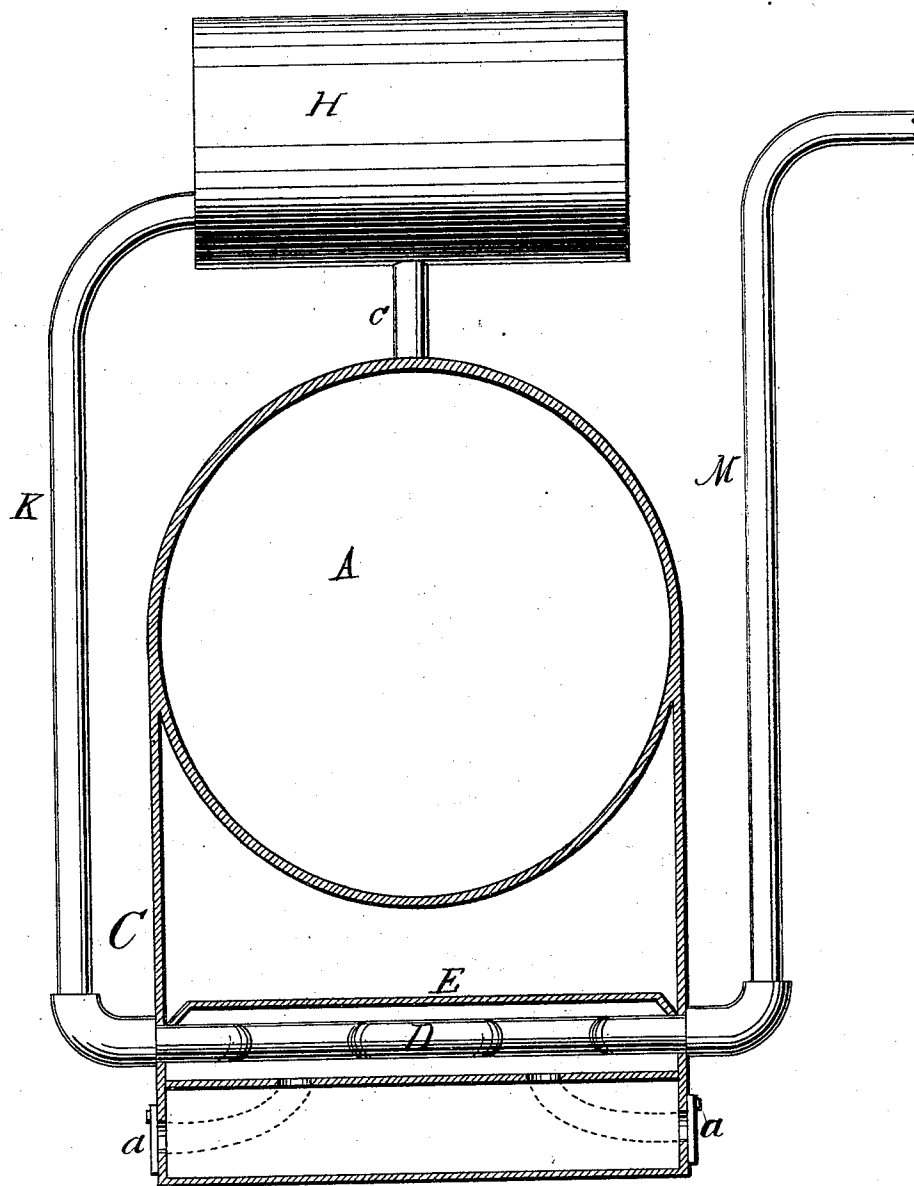


T. VERNON.
SUPERHEATERS FOR STEAM-BOILERS.
No. 170,316. Patented Nov. 23, 1875.

Fig. 1.



WITNESSES

Robert Everett,
George E. Bychall.

INVENTOR

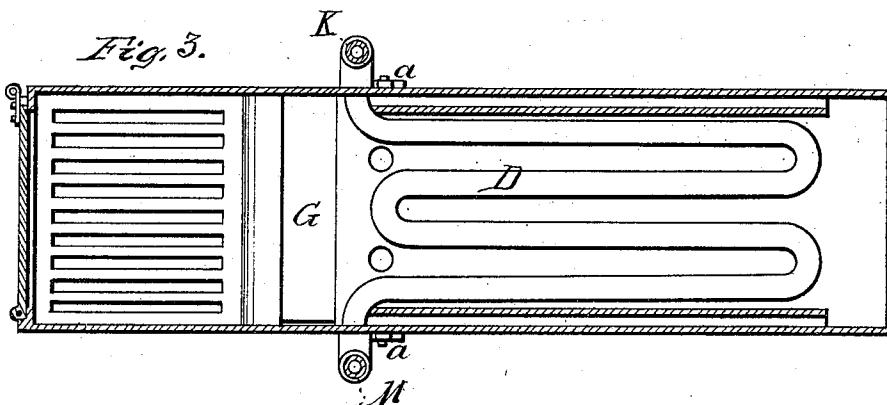
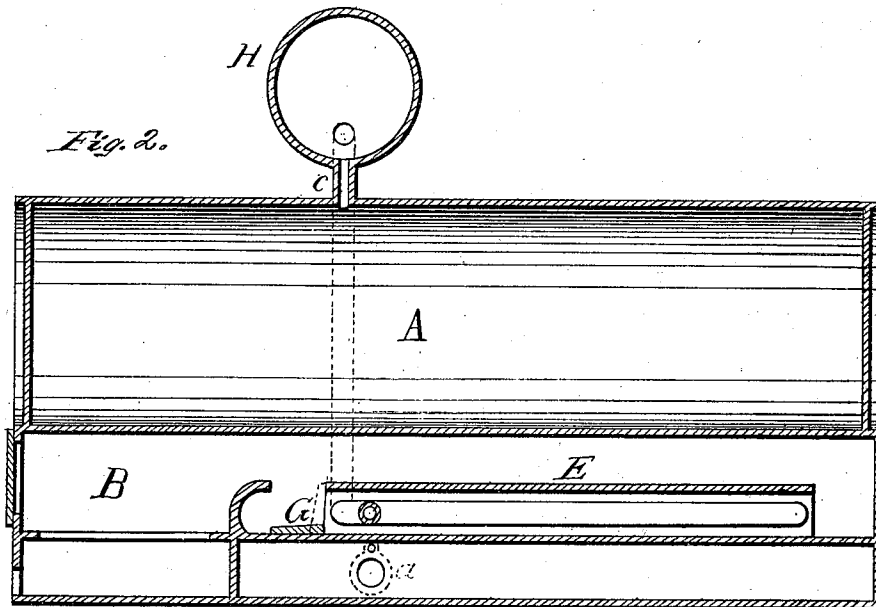
Tinsley Vernon
Chipman Hosmer & Co.
ATTORNEYS

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Patented Nov. 23, 1875.



WITNESSES

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UNITED STATES PATENT OFFICE.

TINSLEY VERNON, OF CHARLESTON, MISSOURI.

IMPROVEMENT IN SUPERHEATERS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **170,316**, dated November 23, 1875; application filed October 23, 1875.

To all whom it may concern:

Be it known that I, TINSLEY VERNON, of Charleston, in the county of Mississippi and State of Missouri, have invented a new and valuable Improvement in Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a transverse vertical section of my steam-boiler, and Fig. 2 is a longitudinal vertical sectional view thereof. Fig. 3 is a horizontal sectional view of the same.

My invention relates to the production of superheated steam; and it consists in the novel apparatus hereinafter described, by means of which unusual dispatch and safety are insured; the leading object of my invention being to render the production of superheated steam at once rapid, safe, and economical.

A of the drawings represents a steam-boiler; B, the fire-box and grate; and C a casing or wall, within which said box and boiler are arranged in the manner shown on Fig. 1. The letter D represents a coiled tube arranged below the boiler, and at the rear of the fire-grate. E represents a metallic plate, arranged in the fire-box, and above the coiled tube, to serve as a shield for said coil, as hereinafter mentioned. G represents a damper, arranged and adapted for shutting off the heat from the steam-coil at will, and *a a* dampers pivoted to the sides of the incasement, and covering openings therein, through which air may be admitted to the coil when desirable.

By means of the shields and dampers above described the operator is enabled to regulate the heat upon the coil, and prevent the burning, melting, and oxidation thereof, which

frequently occur with pipes and coils not thus protected.

The letter H represents a drum, arranged above the boiler, and connected therewith by the tube *c*. K represents a pipe leading from the drum H down through the side of the casing, and connected with the coil D. Steam from the boiler passes first to the drum through tube *c*, and from thence to the coil through tube K. M represents a pipe leading from the coil D to the cylinder of a steam engine. The top of this pipe is fixed above the water-surface, as shown. The steam is superheated in the coiled tube, and from them is taken through tube M to be used.

I usually attach a thermometer to this tube M to enable the operator to ascertain the temperature of the steam therein.

It will be observed that throughout the circuit, which the steam is forced to travel from the boiler to the cylinder, its course is unimpeded by any check or valve whatever. The result of this method of construction is that the steam has free passage-way in both directions. Therefore in the event of a sudden increase of heat upon the coil, or when the engine is at rest, the heated steam in the coil will retreat to the boiler, and thereby greatly lessen the danger of explosion.

I claim as my invention—

1. The shield E, in combination with the coiled tube D, substantially as described.
2. The combination of the dampers G and *a*, the shield E, and coil D, substantially as described and shown.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

TINSLEY VERNON.

Witnesses:

WALTER C. MASI,
BRYAN H. MORSE.