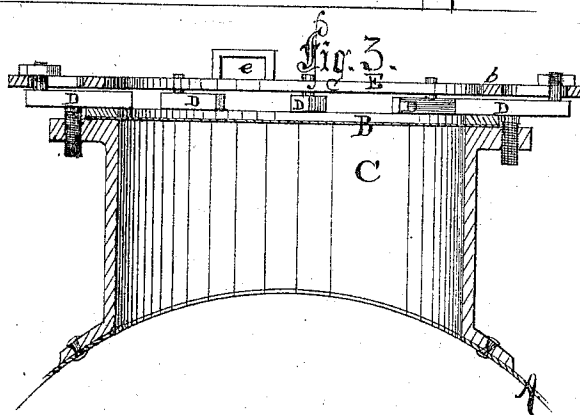
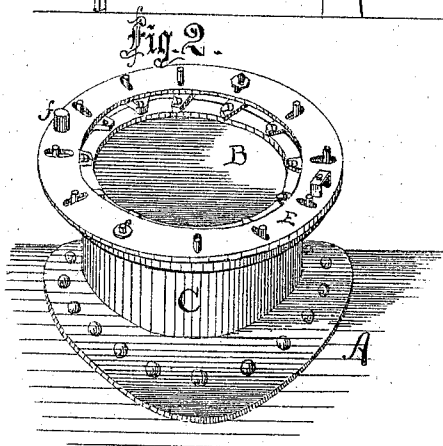
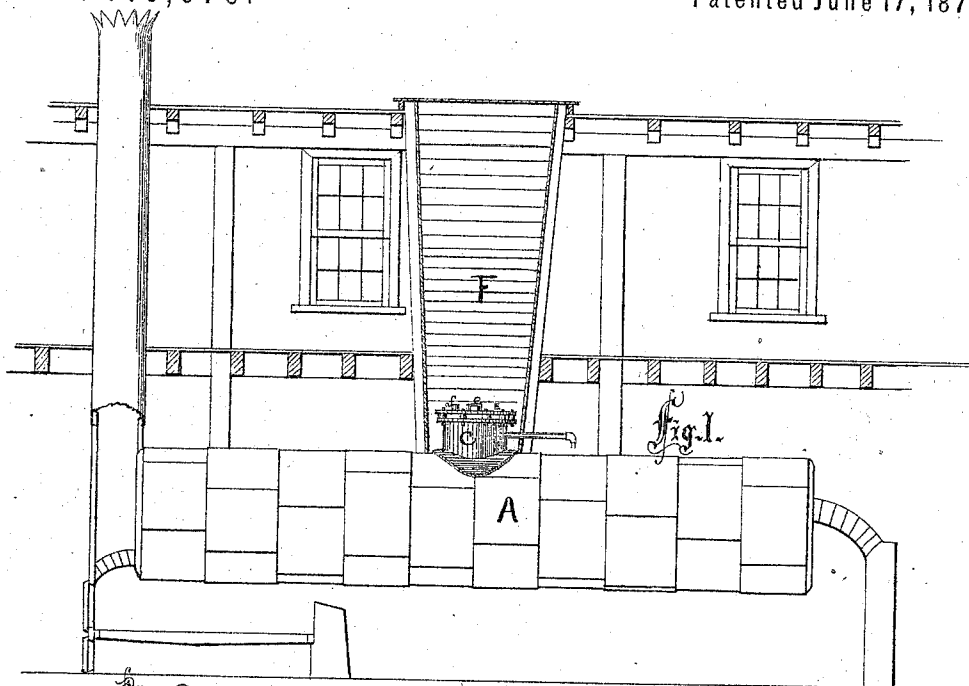


H. PEASE.
Steam Generators.

No. 140,070.

Patented June 17, 1873.



Witnesses.
E. M. Pease
Jesse Atkins

Inventor.
Horace Pease
By atty. R. D. Smith

UNITED STATES PATENT OFFICE.

HORACE PEASE, OF DAYTON, OHIO.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. **140,070**, dated June 17, 1873; application filed August 11, 1871.

To all whom it may concern:

Be it known that I, HORACE PEASE of Dayton, in the county of Montgomery and State of Ohio, have invented a new and useful Improvement in Steam-Generators; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a boiler with my improvement attached. Fig. 2 is a perspective view of the method of constructing my invention. Fig. 3 is a vertical central section of the same.

That others may fully understand my invention, I will more particularly describe it.

A is a steam-boiler, which may be constructed in any of the ordinary and well-known ways. Upon the top of said boiler A, at a central point, an opening is made and covered by a plate, B, of thinner metal than the shell of the boiler, and graduated in tensile strength in proportion to the strength of the shell A—as for instance, if upon test it should be found that the shell A withstands a pressure of one hundred pounds to the square inch, then the plate B might be graduated to withstand a pressure of only fifty pounds per inch, and thus the maximum pressure to which the boiler could ever be practically exposed could never exceed one-half that which the shell A would safely withstand.

In order to protect the boiler in this way, it is necessary that the plate B should be of comparatively large area, so that when ruptured the most rapid generation of steam would find ample vent, which no practicable safety-valve will be at all times able to do. I suppose to render safe a boiler forty-two inches in diameter and twenty feet in length, a safety-plate of twenty inches in diameter may be required.

The plate B should be made of copper in preference to other metal, not only on account of its non-liability to corrode, but from the fact that when ruptured, it would be less likely to shatter into fragments.

In some positions it will be of great importance that if a rupture of the safety-plate does occur it may be replaced with the least possible delay—as for instance, on a locomotive-engine it would be important to put the engine in operation again with as little delay as possible. Ordinary bolts could not be removed and replaced until the boiler had become cold, and the fire would therefore have to be drawn and the hot water discharged; and as this would consume considerable time, the delay might lead to serious consequences. I therefore employ the crank-screws D and the wrench-ring E, as shown in Figs. 2 and 3. The binding-ring *b* and safety-plate B can be released at all sides at once and without a close approach by the workmen, and the ruptured plate removed. As soon as the issuing volume of steam has expended itself a whole plate, B, could be put in place and secured by a reverse movement of the ring E. A crow-bar, or any other convenient lever, inserted through the loop *e*, and resting against the stud *f*, will furnish ready means of moving the fastenings of the plate B without the necessity of waiting until the boiler becomes cooled.

Having described my invention, what I claim as new, is—

In combination with a safety vent-plate, B, the crank-screws D and the wrench-ring E, substantially for the purpose set forth.

HORACE PEASE.

Witnesses:

R. D. O. SMITH,
E. R. MCKEAN.