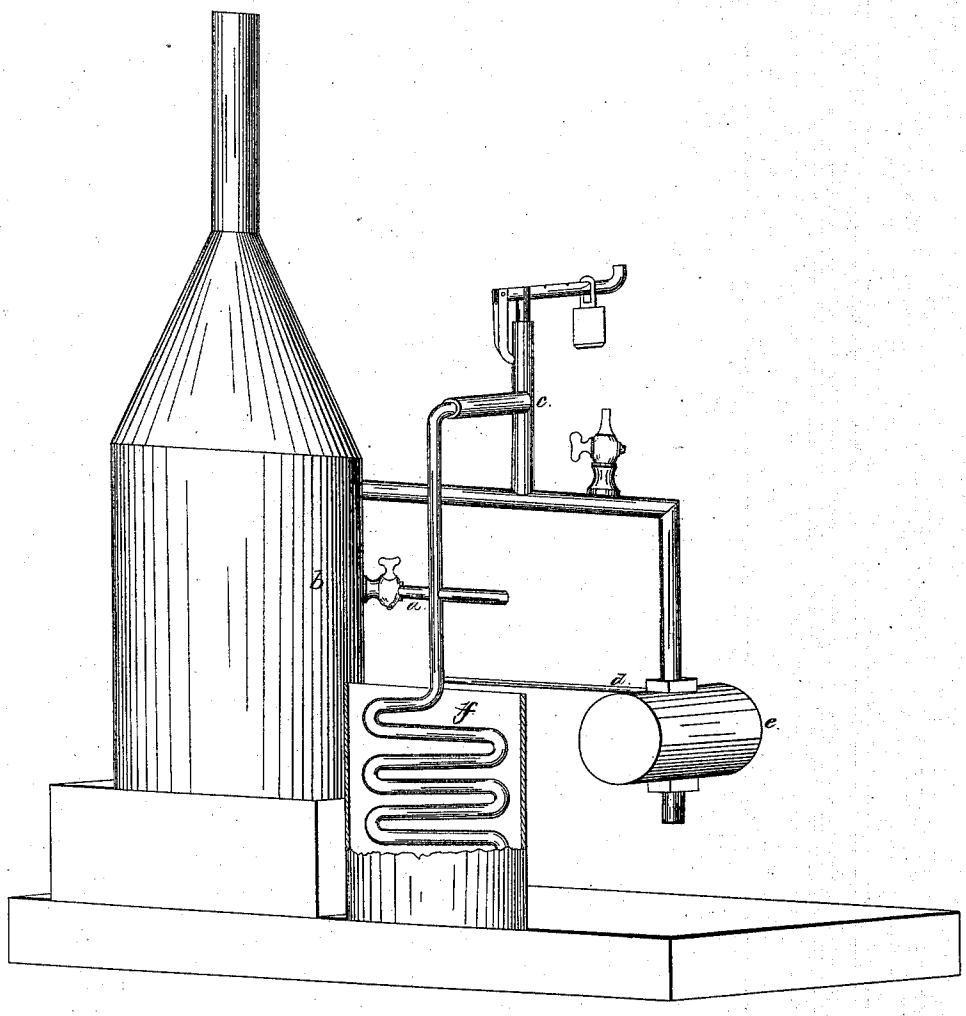
R. E. Rogers,

Steam-Boiler Condenser.

No. 26,619. Patented Dec. 27, 1859.



Witnesses:
Lorenzo Laggart
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Inventor:
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A.M. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

ROBERT E. ROGERS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN STEAM-ENGINES FOR LAND-CARRIAGES.

Specification forming part of Letters Patent No. **26,619**, dated December 27, 1859.

To all whom it may concern:

Be it known that I, ROBERT E. ROGERS, of the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a certain Improvement on Steam-Engines for Land-Carriages; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters and marks thereon.

My improvement is more particularly designed for city passenger railway-cars, but, as will readily be seen, may be applied to locomotives, land-carriages on common roads, or even to stationary engines and to steam-vessels. It is specially valuable to city passenger-cars, mainly for the reason that the noise produced by the escape of steam in towns and cities is apt to alarm and frighten horses, giving rise to severe accidents and injuries, to disturb the comfort of passengers and citizens generally, and also greatly to interfere with many of the ordinary affairs of business.

It is anticipated that at this time my invention will be readily adopted by city-railway companies, and that steam-carriages will take the place of horse-cars. As such carriages will have to make frequent stoppages, the escape of steam by its noise will be found very objectionable, and it will become very important in introducing such carriages in cities to avoid such objection.

My invention has in view the perfect and complete adaptation of the steam-engine to city railways; and it consists in rendering the escape-steam of the safety-valve, gage-cocks, or try-cocks, and exhaust-steam from the cylinder noiseless.

The drawing forming part of this specification illustrates the carrying out of my invention, although, as is evident, other arrangements of the devices than that here shown may be adopted.

By the drawing it will be seen that the try-cock or gage-cock *a* of the boiler or generator *b* and the escape-orifice of the safety-valve *c*, together with the exhaust-pipe *d* of the cylinder *e*, are all put in connection with a condenser *f*, so that whatever steam escapes either from the boiler or the engine will be immediately condensed and rendered noiseless. The pipe connecting the try-cocks with the condenser may be throughout its length of metal, either with some flapping device in it near the try-cock for indicating by sound the escape of water or steam, or the engineer may rely only on the sound which would be produced by the escape of the steam or water from the one or more cocks into the pipe, or a portion of the pipe may be of glass plate, or a glass tube of sufficient strength may be interposed between the end of the metallic pipe and the try-cock, and thus the engineer be able to judge of the water in the boiler both by sound and sight. The condenser may be so constructed as to condense by water or by air, or by both air and water, as may be preferred, and the water of condensation may be allowed to run to waste or be used as feed-water to the boiler.

The advantages of my invention will be seen to extend to the safety of boilers wherever it may be applied. Suppose it be desired or necessary for the power required that steam of sixty-pounds pressure be regularly used, it will be readily perceived that if the safety-valve be loaded to the sixty-pounds pressure whenever from the stoppage of the carriage or engine the steam would be confined and its generation being continued, the excess above that pressure would quietly pass off and without noise or disturbance. Thus the engine would be at all times operated or actuated by steam of a uniform degree of pressure and the rate of speed established or controlled.

A further advantage of this invention pertains to the management of the fire, since by condensing all the escape-steam and rendering it thereby noiseless there exists no objection to so load the valve as to permit the free escape at all times far within the limits of the strength and safety of the boiler. Therefore there is less need of that close and constant watchfulness of the state of the fire which in the ordinary management of boilers is so necessary to prevent a too rapid generation of steam. My invention, therefore, renders steam as a motive power noiseless, or comparatively so, gives safety to the boiler and facility to the management of the fire.

Having thus fully and clearly set out my

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

Connecting the safety-valve, the gage or try cocks, and all the steam-escape orifices of an engine and boiler with a condensing apparatus, whereby the steam which may escape or be let off either occasionally or continuously may be prevented from producing its peculiar harsh noise, as herein described.

R. E. ROGERS.

Witnesses:
LORENZO TAGGART,
C. BRAZER.