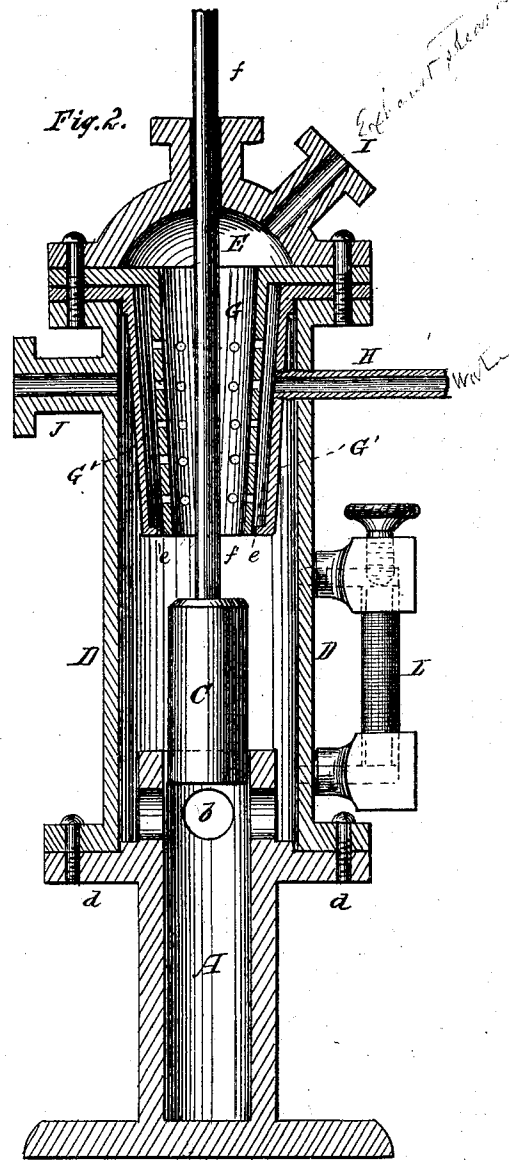
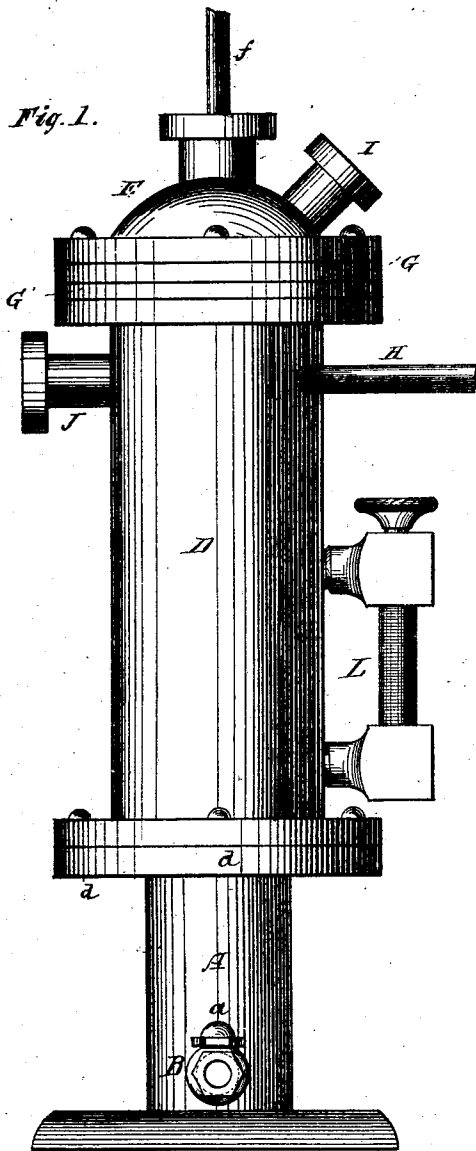


C. O. FARCIOT.
Combined Pumps and Condensers for Steam-Engines.
 No. 152,095. Patented June 16, 1874.



WITNESSES.

P. C. Dietrich.
H. C. Scott.

INVENTOR.

Charles O. Farciot

per.
C. H. Watson & Co.
 ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES O. FARCIOT, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN COMBINED PUMPS AND CONDENSERS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **152,095**, dated June 16, 1874; application filed April 13, 1874.

To all whom it may concern:

Be it known that I, CHARLES O. FARCIOT, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Combined Pump and Condenser; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The nature of my invention consists in the construction and arrangement of a combined pump and condenser for high-pressure steam-engines, the object of which is to save fuel and water by partially condensing the exhaust steam, and returning the water to the boiler at a high temperature, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side elevation, and Fig. 2 a longitudinal vertical section, of my invention.

A represents the pump-cylinder, of any suitable dimensions, closed at its lower end, and provided near said end, on one side, with a pipe, B, through which the water is forced from the pump into the boiler. In this pipe is a valve, *a*, of suitable construction, to prevent the return of the water to the pump. The upper end of the pump-cylinder A and the piston or plunger fits therein. *b b* are the inlet-openings in the upper end of the cylinder. Around the outside of the cylinder A, a short distance below the inlet-openings, is a circumferential flange, *d*. Upon the flange *d* is secured a cylindrical casing, D, the inner diameter of which is sufficiently larger than the outside diameter of the pump-cylinder to allow free access of the water between said casing and the upper end of the pump-cylinder to pass into the inlet-openings *b b*. Both ends of the casing D are flanged, as shown, and on the upper end is

secured a cap, E, by bolts through suitable flanges on both cap and cylinder. G and G' represent two conical shells, placed one within the other, and having a space, *e*, between them, which is closed at both ends, as shown. Around the upper ends of the shells G G' are flanges, which are placed between the upper end of the cylinder D and the cap E, and fastened by the same bolts which fasten said parts together. The inner shell G is perforated by a number of small holes, as shown in Fig. 2. H is the inlet-pipe for water, which pipe passes through the casing D, and into the outer conical shell G', to admit the water into the conical space *e*, from which it passes through the perforations in the inner shell G, and as soon as it emerges therefrom it is immediately acted upon by the exhaust steam from the engine, which enters through a pipe, I, in the cap E.

The water is thus heated by the exhaust steam, and the exhaust steam is partially condensed by its contact with the water, and, with the water, returned to the boiler by the action of the pump-plunger C in the cylinder A, said plunger being operated by either crank-motion or a steam-cylinder connected with the plunger-rod *f*.

J is the outlet for that portion of the exhaust steam not condensed.

By this construction of the pump there is no danger of the pump not working, no matter what temperature the water is. Explosions are sometimes caused by pumps heating from packing or vapor caused by the feed-water being too warm, which prevents the pumps from working. This difficulty is entirely obviated by my construction of the pump.

On the side of the casing D is an ordinary glass water-gage, L, to show the height of the water therein, so that it can be regulated to a nicety. This pump requires no suction-valve or packing, and will not leak. It is cheaper and more effective than the devices now generally used, and lessens the power required to force the exhaust steam through long pipes.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The conical shells G G', arranged as described, one within the other, forming the water-chamber *e*, from which the water passes through perforations in the inner shell G, and is acted on by the exhaust steam admitted from above, substantially as and for the purposes herein set forth.

2. In a force-pump requiring no suction-valve for boilers, the combination of the pump-

cylinder A, with inlets *b* and outlets B, the plunger C, and casing D, with cap E, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

CHAS. O. FARCIOT.

Witnesses:

SAML. HERMANN,
ALEX. EDOUARD.