T. L. Jones,

Steam Condenser.

No. 102,272. Patented Apr. 26. 1870

Fig. 1.

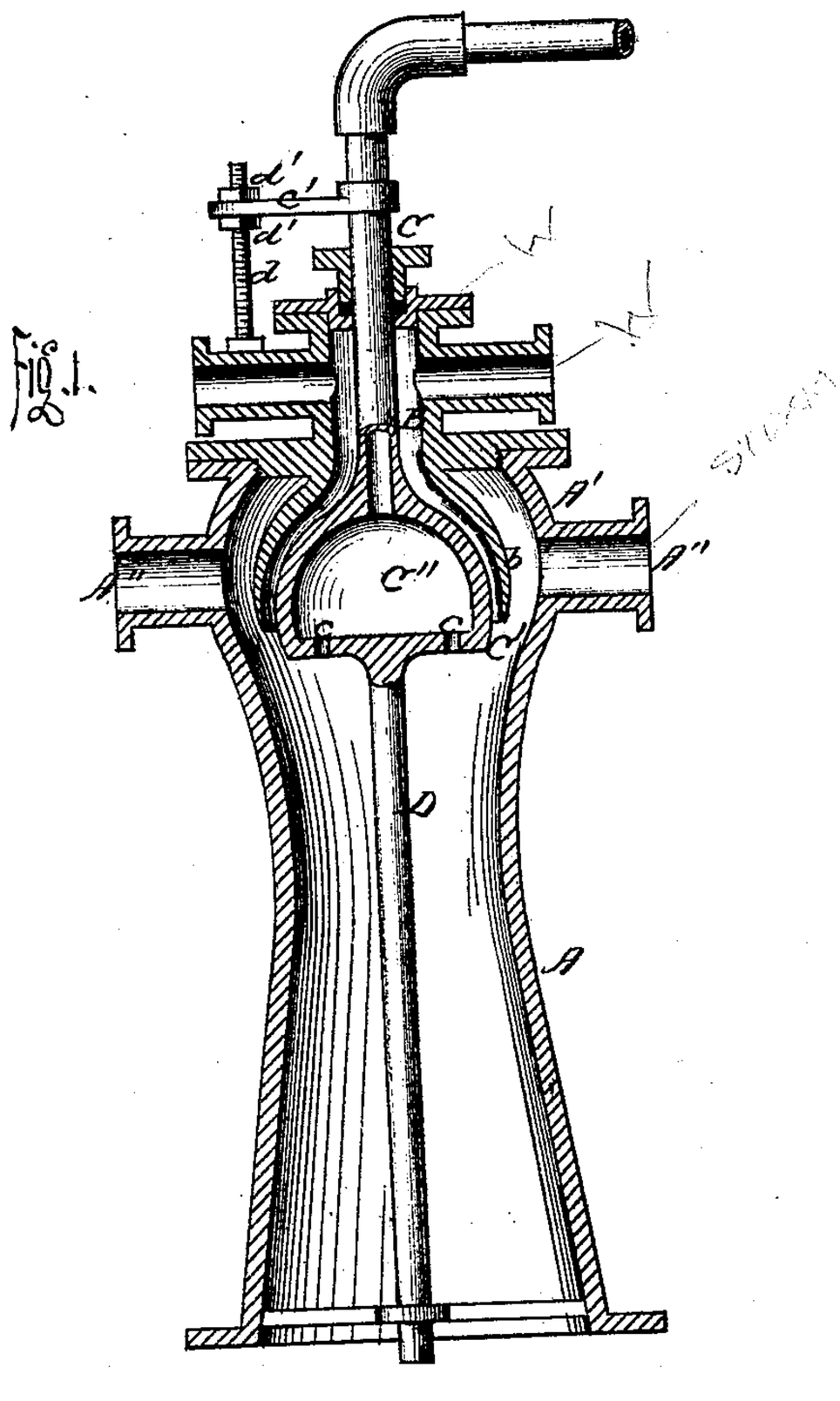
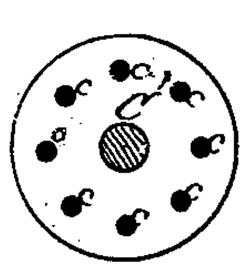


Fig. 2.



Witnesses:

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THOMAS L. JONES, OF NATCHEZ, MISSISSIPPI, ASSIGNOR TO HIMSELF AND DENNIS LONG.

Letters Patent No. 102,272, dated April 26, 1870; antedated October 26, 1869.

STEAM-CONDENSER.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, THOMAS L. JONES, of Natchez, in the county of Adams and State of Mississippi, have invented a new and improved Jet-Condenser for Steam-Engines; 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 accompanying drawings making a part of this specification, in which—

Figure 1 is a longitudinal vertical section, and

Figure 2 is a transverse section of the plane face of the separator.

This invention consists in providing the pipe through which cold water enters the condenser of a steam-engine with a bell-shaped mouth, and in placing within said mouth a hemispherical separator, so located that it may separate the column of condensing-water so that it shall pass into the condensing-chamber in an expanded and tubular form, and thereby produce a more enlarged effect upon the exhaust steam.

The invention also consists in making the hemispherical separator that is situated within the bell-shaped nozzle of the water-pipe with an internal chamber, and connecting said separator, or forming it in one piece, with a pipe opening into said chamber, and conducting into it live steam from the boiler, and making in the plane face of the hemispherical separator a number of holes, through which the live steam may be discharged into the condensing-chamber in a comminuted form, which may be more readily condensed, and thus assist in the perpetuation of the necessary vacuum.

In the drawings—

A is the trumpet-shaped condensing-chamber, preferably placed in a vertical position for the better distribution of the condensing water and the advantage to be derived from its weight in descending, having a globular head, A′, into which open passages, A″ A″, for the entrance of the exhaust steam.

Through the flattened top of the globular head passes a vertical pipe, B, for the passage of the condensing water, said pipe having its lower end, *b*, flaring or bell-shaped. The water-pipe may have two ports of supply, one for a river or other ordinary source, and the other for a circulating pump, the latter to be used in case the amount of water furnished from the ordinary source proves insufficient by reason of the fineness of the pressure of the exhaust steam, or the too great length of the intervals between each exhaust.

Within the pipe B is a second and smaller pipe, C, which conducts live steam from the boiler, when that may be necessary to the increase of the vacuum, said pipe C passing through a stuffing-box in the upper end of the pipe B, and terminating in a hemispherical base, C′, which I call a separator, for the reason that it is so placed within the flaring mouth of the pipe B as to separate the column of water flowing therein and cause it to enter the condensing-chamber in a tubular and expanded form, greatly superior in its condensing power to a solid jet of the same amount of water, such as it would otherwise be.

The lower side of the separator C is plane, and through it are made a sufficient number of holes, *c*, opening into the chamber C″ within the separator. The live steam passes into the chamber C″ and out through the holes *c* into the space surrounded by the tubular sheet of water pouring off from the separator, within which space it is condensed and a better vacuum formed, which tends to draw the exhaust steam on the outside of the tubular sheet of water, through the same, and thus greatly to facilitate the condensation of the exhaust. The holes *c* are made upon the same principle as the hemispherical separator—that is, in order to bring the live steam into a more rare and diffused condition, and one, consequently, more favorable to its condensation than a single large jet.

A solid spindle, D, projects from the center of the face of the separator, and moves in a bracket anywhere conveniently placed, to guide it.

The steam-pipe C has a sufficient play in the stuffing-box to enable the hemispherical separator to be so brought in contact with the inside of the flaring mouth *b* as to close the same, and measure the amount of condensing water required to effect the necessary vacuum, and shut off the water entirely, when desired.

Above the stuffing-box an arm, *c′*, is attached to the steam-pipe, or in any convenient place, through the outer end of which arm passes a threaded bolt, *d*, projecting upward from one of the water-ports, on which threaded bolt are placed two nuts, *d′ d′*, one on each side of the arm *c′*, by means of which said arm may be fixed at any point to which it is desired to regulate the amount of water required.

I am aware that it is no new thing to effect the distribution of the condensing water into a tubular sheet; but what I have done is to effect such distribution by means of the bell-shaped mouth of the water-pipe B and the enlarged head of the live steam-pipe C placed therein. It is true that the same attenuation could be given to the tubular sheet by employing a water-pipe and a live-steam pipe of the same diameter throughout as the bell-shaped mouth and the enlarged head, but the employment of this size of pipe would be entirely unnecessary for any other purpose than that of attenuating the sheet. For all other purposes very much smaller pipes are amply sufficient. Hence, by enlarging the mouth of the

water-pipe and the head of the steam-pipe, I accomplish the desired object in a less expensive manner than would otherwise be necessary.

Having thus described my invention,

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

1. The combination of the funnel-shaped mouth of the water-pipe B and the hemispherical separator C, in the manner described and for the purpose set forth.

2. Providing the hemispherical separator with the chamber C″, into which live steam is admitted at one side, and with the perforations *c* in its plane face, for the purpose specified.

THOS. L. JONES.

Witnesses:
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