No. 826,773.

PATENTED JULY 24, 1906.

F. ENGLEITNER.

CONDENSER.

APPLICATION FILED JULY 1, 1904.

Fig. 1

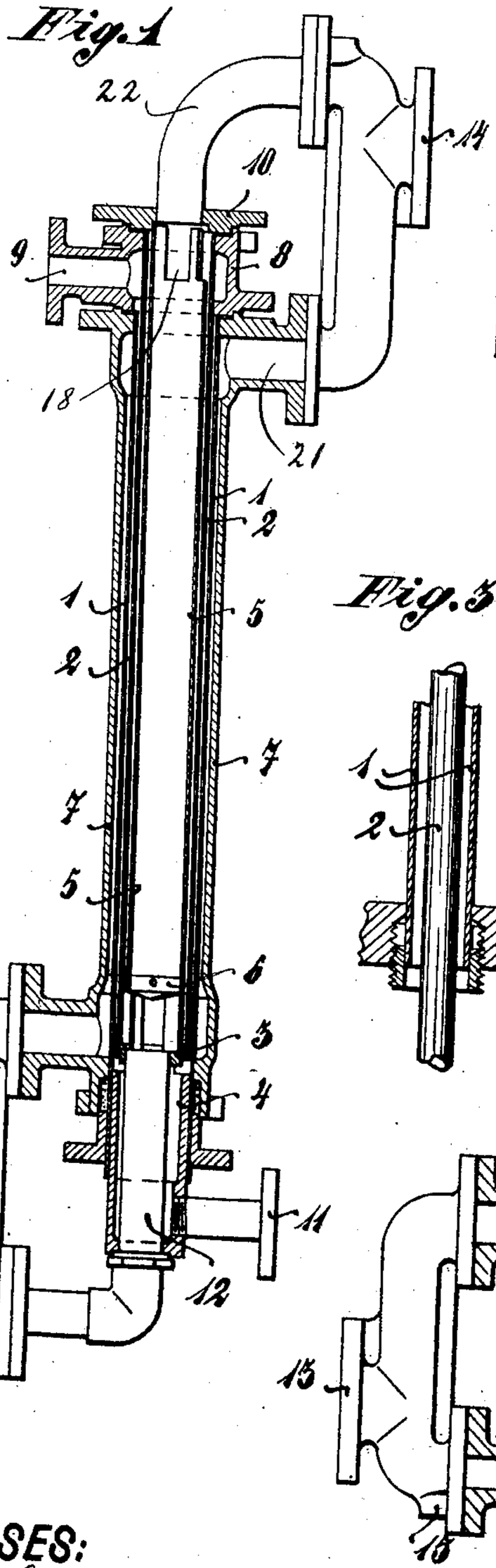

Fig. 2

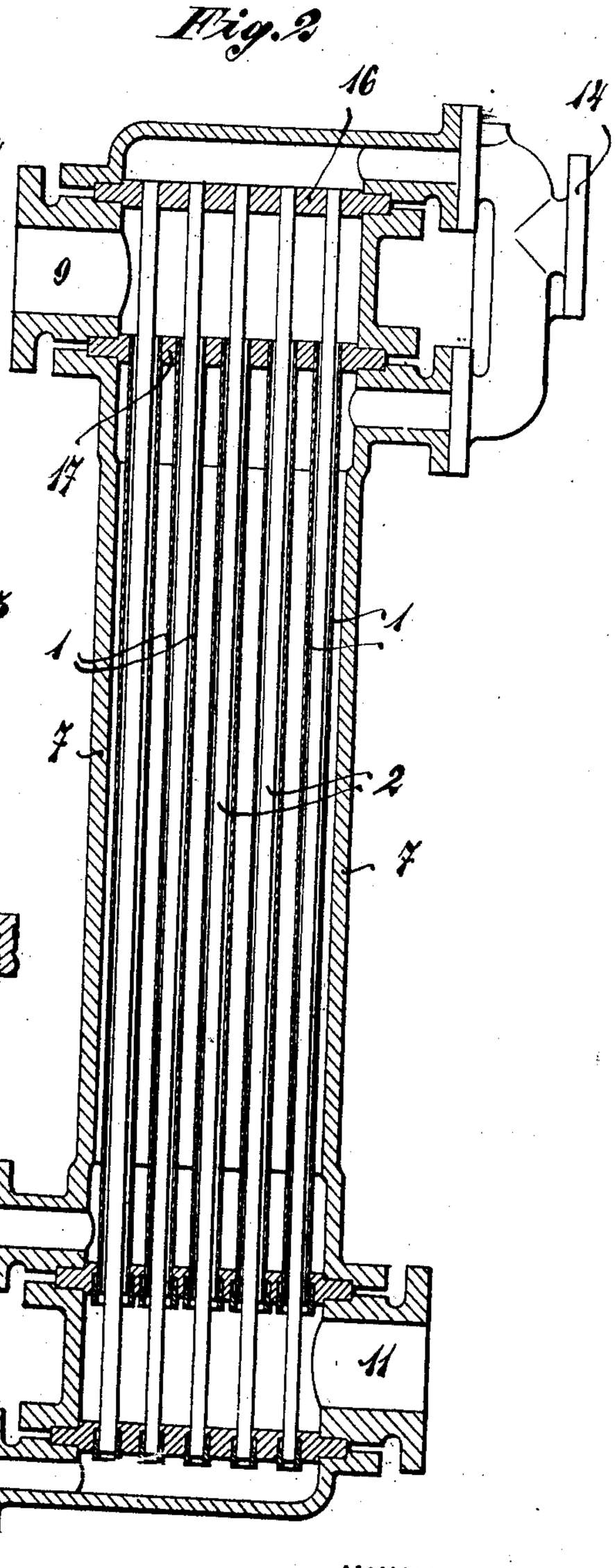

Fig. 3

WITNESSES:

Paul Lange.

Carl Krehain

INVENTOR:

Franz Engleitner.

UNITED STATES PATENT OFFICE.

FRANZ ENGLEITNER, OF SCHWERTBERG, AUSTRIA-HUNGARY.

CONDENSER.

No. 826,773. Specification of Letters Patent. Patented July 24, 1906.

Application filed July 1, 1904. Serial No. 215,041.

To all whom it may concern:

Be it known that I, FRANZ ENGLEITNER, civil engineer, a subject of the Emperor of Austria-Hungary, and a resident of Schwertberg, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Condensers and Feed-Water Heaters for Boiler Feed-Water and other Purposes, of which the following is a specification.

My invention relates to certain new and useful improvements in condensers and feed-water heaters for boiler feed-water and other purposes, and has for its object to improve the said mechanism in such a manner that the whole quantity of steam passing is in the same degree cooled down and utilized.

A further object of my said invention is to hold the water in every cross-section of the apparatus on the outside and inside of the steam-pipes at one and the same temperature.

I obtain the said objects by the mechanism hereinafter described, and illustrated in the annexed drawings, in which—

Figure 1 shows an apparatus in longitudinal section which is more especially suited for smaller quantities of steam. Fig. 2 is also a longitudinal section of an apparatus especially suited for larger quantities of steam. Fig. 3 shows further details.

My invention as shown in Fig. 1 consists of two concentrical metal tubes 1 2, with an interspace of a few millimeters between them, which tubes are provided at their lower ends with joint-pieces 3 4, fastened to them by hard soldering. Within the tube 2 a loose iron tube 5, with stopper 6, is provided, which tube has arranged slits at its top and bottom and serves to guide the inner stream of water. The said modification of my invention as shown in Fig. 1 possesses a jacket 7, with stuffing-box at the lower end, a dome 8 with steam-port socket 9, a lid 10 on top of the latter, a further socket 11, screwed into the piece 4 as exit for the condensation-water, a gas-pipe 12, projecting into the piece 4, two T-iron pieces 13 14 for the distribution or collection of the water, and a discharging device 15.

When working the apparatus, the exhaust-steam enters the port-socket 9, passes through the interspace between the two metal pipes 1 2, and then leaves the apparatus through the socket 11 as cooled water. The feed-water is conducted in a contrary direction through the inlet 13, where it separates into two streams, one passing up the space between the casing 7 and tube 1, while the other stream enters the pipe 12 and passes up the apparatus in the space between the plugged tube 5 and the tube 2. The outer stream of water leaves the casing 7 by the socket 21, while the inner stream passes through the top slots 18 of pipe 5 into the pipe 22, both streams then making their exit at the outlet in the pipe 14. The object of the pipe 5 hereby is to prevent the formation of a dead nucleus, which, as is well known from practice, would otherwise form because of the comparatively large diameter of pipe 2.

Provisions have been made for a thorough cleaning, as the apparatus can be entirely taken to pieces.

In the modification of my invention shown in Fig. 2 a number of double pipes are united in one jacket for the purpose of condensing a larger quantity of steam. Here the steam-pipes 1 and 2 are rolled in at the upper wall 16 and 17; but in the lower they rest in stuffing-boxes and are tightened by the same. The construction of the stuffing-boxes is shown in Fig. 3, but may as well be constructed in any other suitable way. Preferably said stuffing-boxes are constructed exactly like those of ship-condensers. The working process in the second modification, as shown in Fig. 2, is similar to that aforedescribed and consists in the exhaust-steam entering at 9, passing through the interspaces between the pipes 1 and 2, and leaving the apparatus as water at 11. The cold water is divided by the T-piece 13 into two streams, which then pass in a counter-stream along the steam-pipes on the outside and inside and are afterward united again by the T-piece 14.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. Condenser and feed water-heater for boiler feed-water and other purposes comprising in combination elements consisting of two concentric pipes 1, 2 having at their lower ends adjoint pieces 3, 4, a loose tube 5 with stopper 6 within the said element bearing slits at its top and bottom, a jacket 7 surrounding the said element with stuffing-box at the lower end, a dome 10 with steam-port socket 9 and lid 10 on top of same, substantially as described and shown and for the purpose set forth.

2. Condenser and feed-water heater for boiler feed-water and other purposes comprising in combination elements consisting of two concentric pipes 1, 2 having at their lower ends adjoint pieces 3, 4, a loose tube 5 with stopper 6 within the said elemnt bearing slits at its top and bottom, a jacket 7 surrounding the said element with stuffing-box at the lower end, a dome 8 with steam-port socket 9 and lid 10 on top of same, a socket 11 screwed into the piece 4, a gas-pipe 12 projecting into the latter and two T-iron pieces 13 and 14 for the distribution or collection of the water, substantially as described and shown and for the purpose set forth.

In witness whereof I have hereunto signed my name, this 19th day of May, 1904, in the presence of two subscribing witnesses.

FRANZ ENGLEITNER.

Witnesses:

ALVESTO S. HOGUE.

AUGUST FUGGER.