

N. T. EDSON'S

Improvement in Steam Generators.

1.16283

PATENTED JUN 27 1871

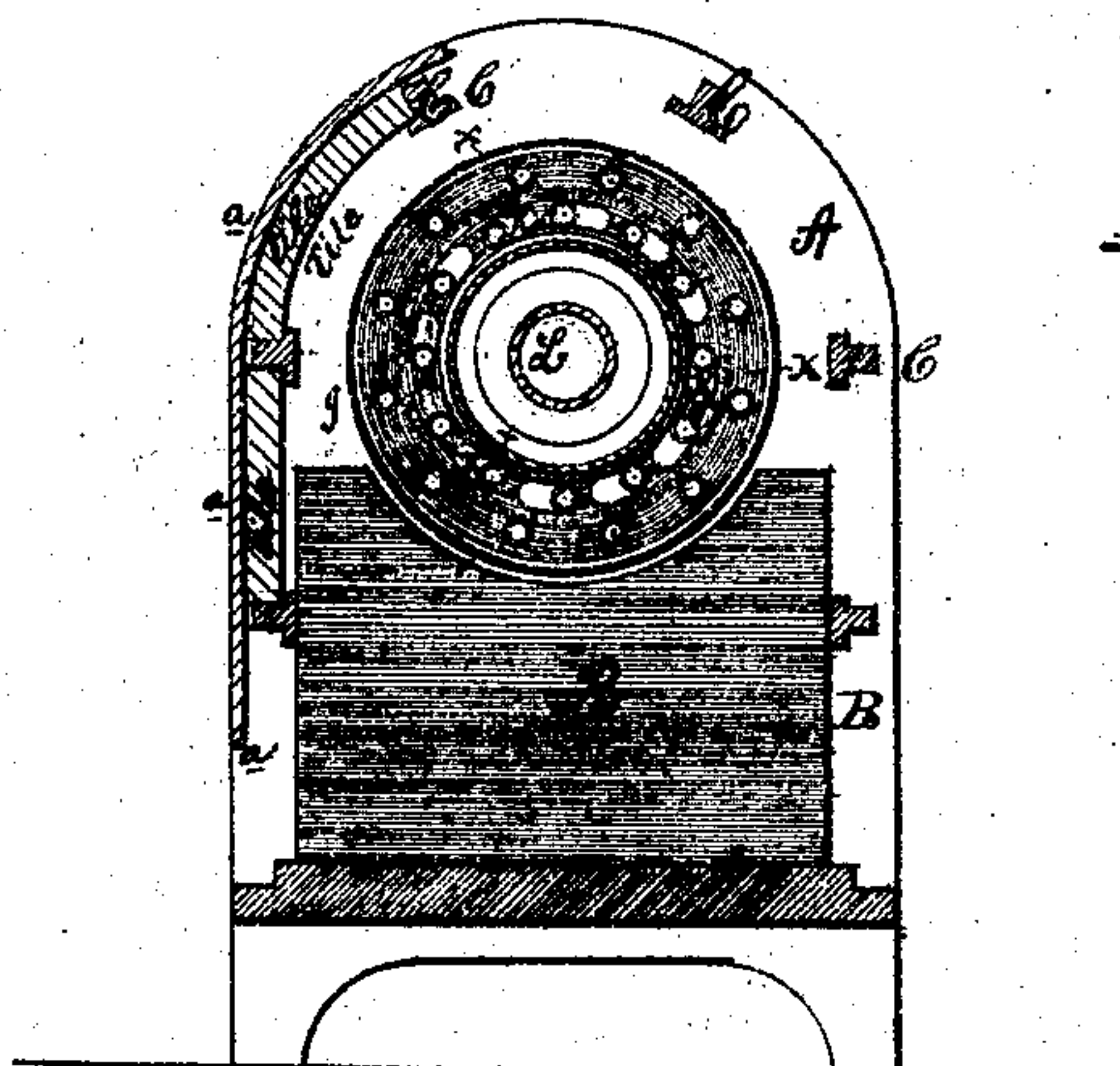


Fig. 1-

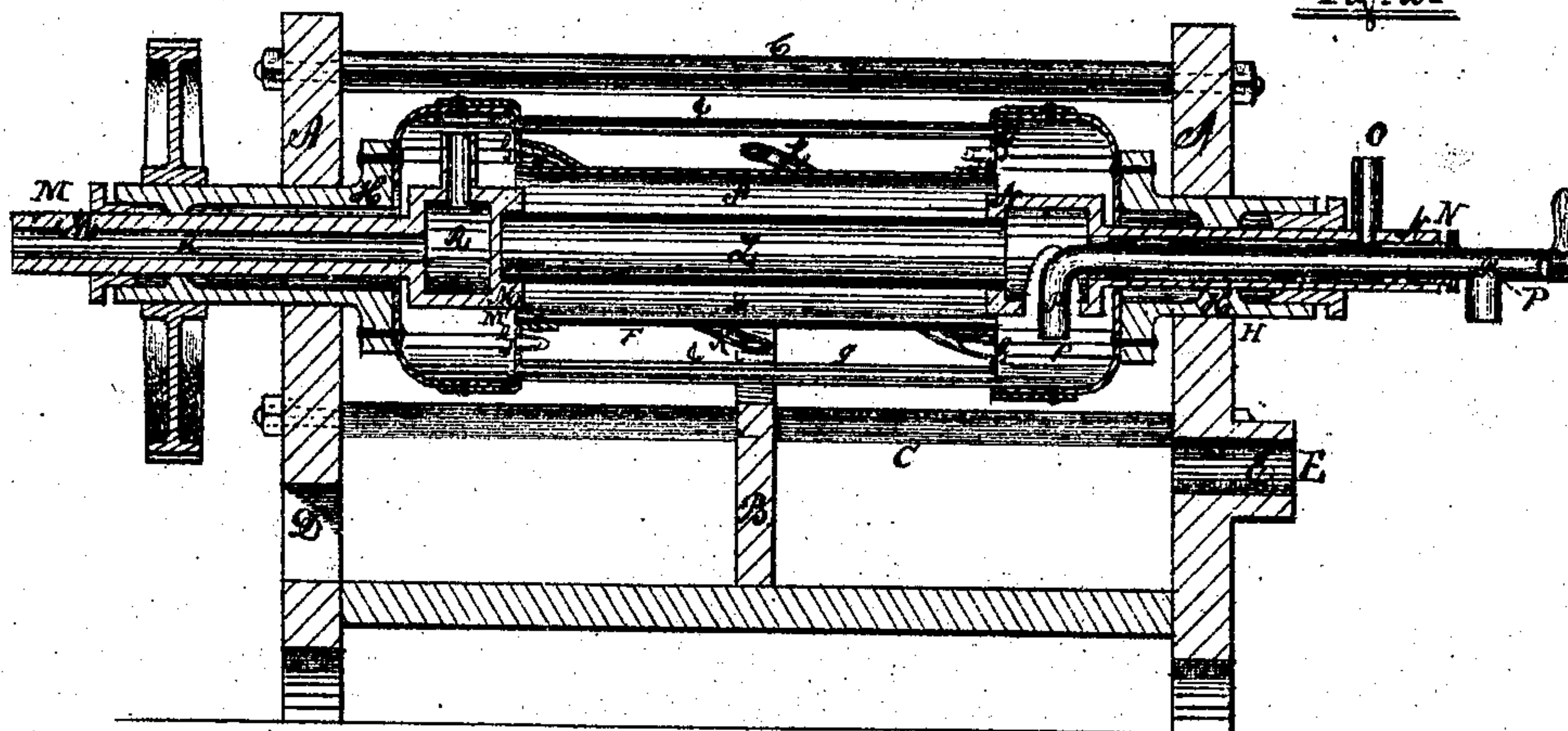


Fig. 2-

Witnesses

H. O. Jenkins
Herford B. Bond

Inventor

N. T. Edson

UNITED STATES PATENT OFFICE.

NATHANIEL T. EDSON, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN ROTARY STEAM-GENERATORS.

Specification forming part of Letters Patent No. 116,283, dated June 27, 1871.

To all whom it may concern:

Be it known that I, NATHANIEL T. EDSON, of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain Improvements in Rotary Steam-Generators, of which the following is a specification:

The first part of my invention relates to revolving boilers, composed of a central water-containing cylinder connected at each end with hollow heads of larger diameter than the cylinder, said heads being also connected with each other by straight tubes exterior to the main cylinder; and it consists in providing, in addition to such straight tubes, a series of spiral tubes, also connecting the hollow heads of the boiler, by means of which a stronger circulation will be induced in the boiler as it is revolved, the spiral form of the tubes also admitting of their expansion and contraction without causing a leak at their ends. The second part of my invention relates to and consists in connecting the steam and water pipes that pass through the trunnion or hollow journals of revolving boilers so as to take the outward pressure off from the steam and water pipes and reduce the pressure against the heads of the boiler. The third part of my invention relates to revolving boilers with pipes passing through each of their trunnions; and it consists in forming an elongated opening in the water-pipe, through which the blow-off and water-gauge pipes are made to pass, and thereby partially revolved, by means of which the height of water in the boiler can be ascertained.

Figure 1 is a transverse section of a steam-generator embodying my invention. Fig. 2 is a longitudinal section of the same.

A A are the ends of the furnace. In each are circular openings, through which the trunnions H H pass. D is the furnace-mouth. The opening E is for the exit of smoke. B is the bridge-wall, by which the heat and flame are caused to impinge upon the entire structure in their passage around the cylinder F and among the tubes I and K. The bars C C, &c., extend from end to end of the furnace. Their inner edges are provided with projections or flanges for the reception of fire-tile. The tile are held in their places by a sheet-iron casing, a. G G are the tube-

sheets, the inner flanges of which are riveted to the cylinder F and the outer flanges to the heads. The outer circles of tubes are straight and are set parallel with the cylinder, their ends being firmly attached to the tube-sheet, thus bracing and greatly increasing the strength of the generator. K K, &c., the inner circles of tubes, are spiral, extending nearly half round the cylinder. Their ends enter the tube-sheets, and are fastened in the usual manner. M is the steam-pipe, with a branch extending upward in one of the enlarged ends of the generator, from whence the steam is taken to the engine. N is the water-pipe, with a branch, O, through which is supplied the generator. P is a pipe to which the blow-off cock and water-gauge are connected. The inner end is bent downward and terminates in the generator about or a little below the point at which water should be kept, so that whenever the water gets below that point steam will rush out instead of water, as would be the case if the regular supply were kept up. This pipe can be turned by its handle so as to show the height of water. L is a pipe, its ends firmly screwed to M and N. The end connected with N is open so as to use the interior of it for steam. An elongated opening is made in N for the supply of water to the generator and to admit the turning of the pipe P.

In putting together my boiler, pipe M is first placed in the generator; pipe L is then screwed into pipe M; pipe N is then screwed onto L, after which the trunnions H H are attached to the heads of the generator by screw-bolts. The furnace ends A A are then placed on the trunnions, and the bars C C, &c., are then placed in position and screwed firmly to the furnace ends, bracing the whole structure. The cog-wheel is then firmly attached to one of the trunnions, and by it the generator is revolved slowly over the fire, it being necessary always to have sufficient water in the generator to cover the lower part of the cylinder F.

Having thus described my invention, I do not confine myself to a combination of the spiral tubes with the straight tubes, as with large trunnions and large openings through them a sufficient pressure will be taken off their heads by pipe L to dispense with the straight tubes. Nei-

ther do I confine myself to the use of a pipe for connecting the water and steam pipes that pass through the trunnions, as a solid bar or rod of iron may be substituted therefor.

I claim as my invention—

1. The spiral tubes K connecting the hollow boiler-heads, substantially as and for the purposes hereinbefore set forth.

2. The pipe P, in combination with the elongated opening formed in pipe N, and with the pipe L or its equivalent, substantially as and for the purpose hereinbefore set forth.

NATHL. T. EDSON.

Witnesses:

WM. MCC. JONES,

J. S. TOOLEY.