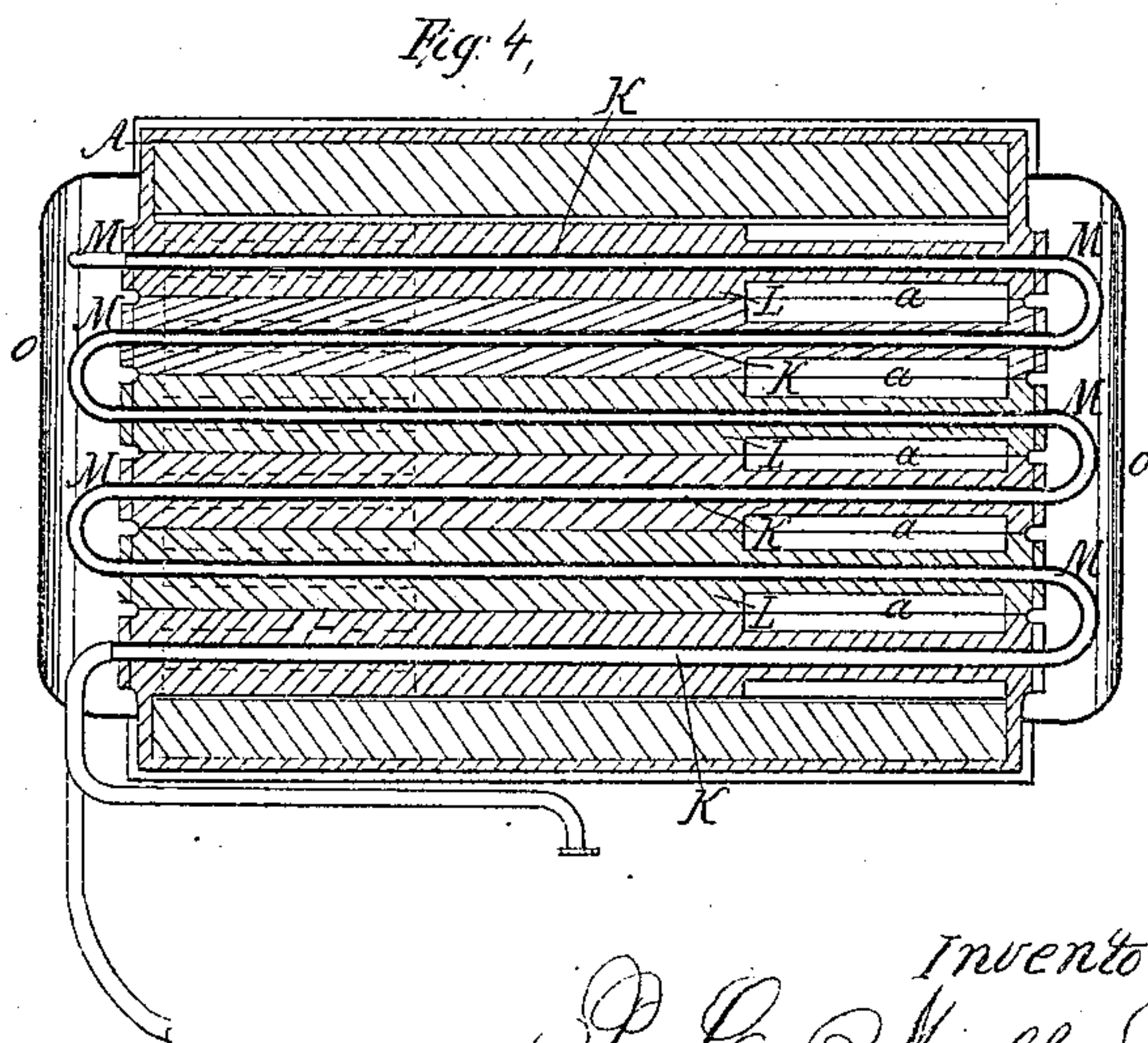
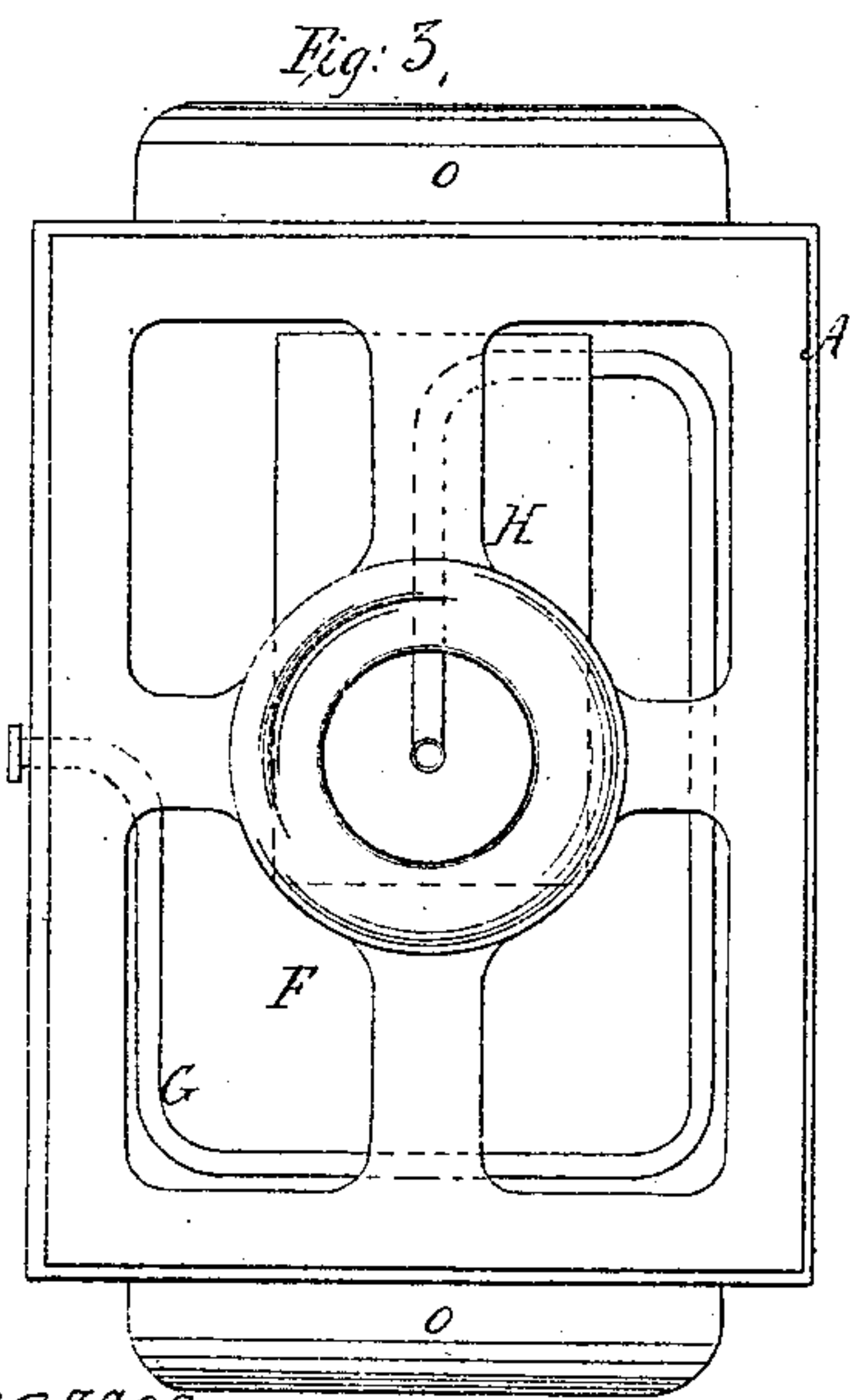
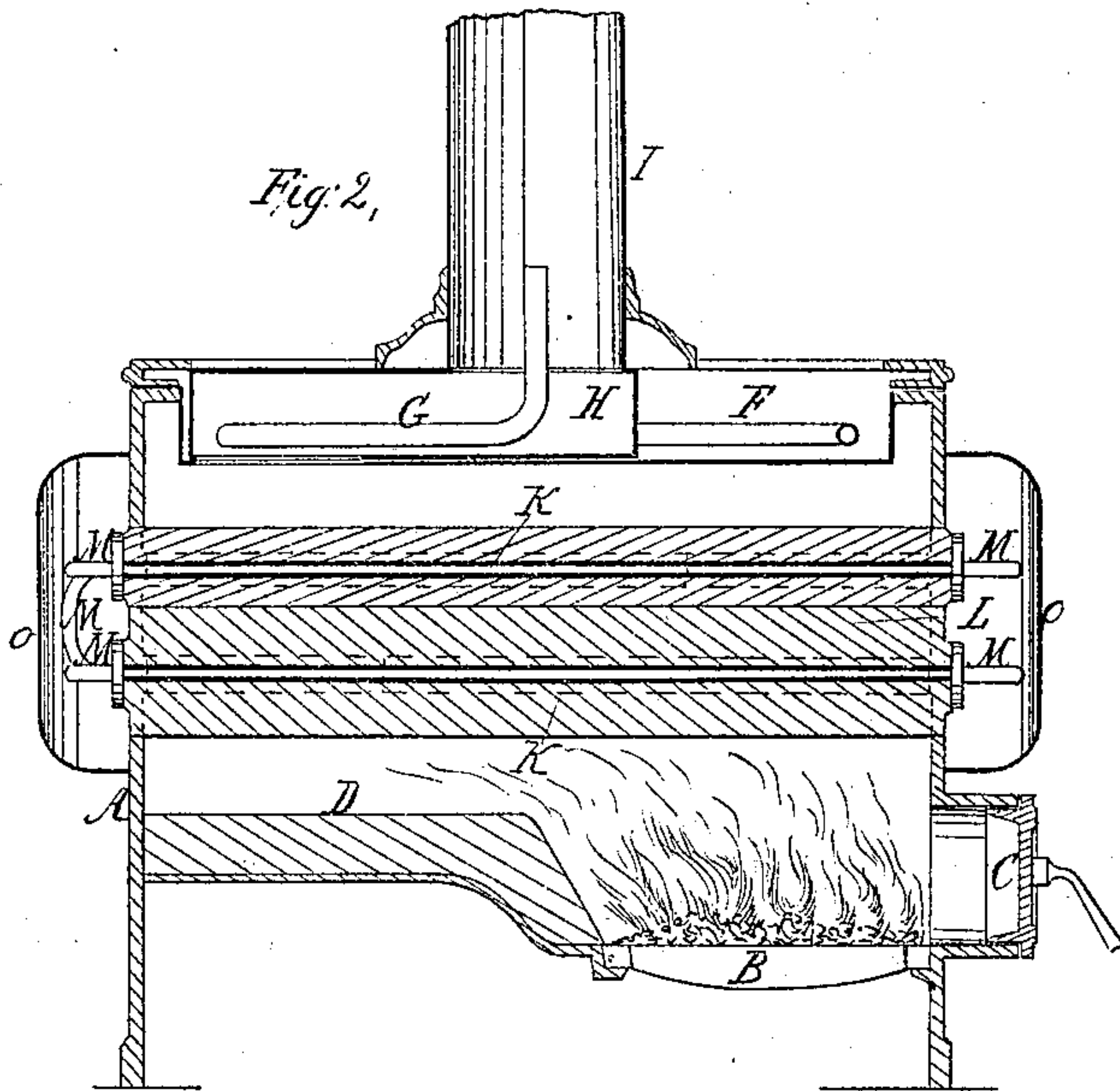
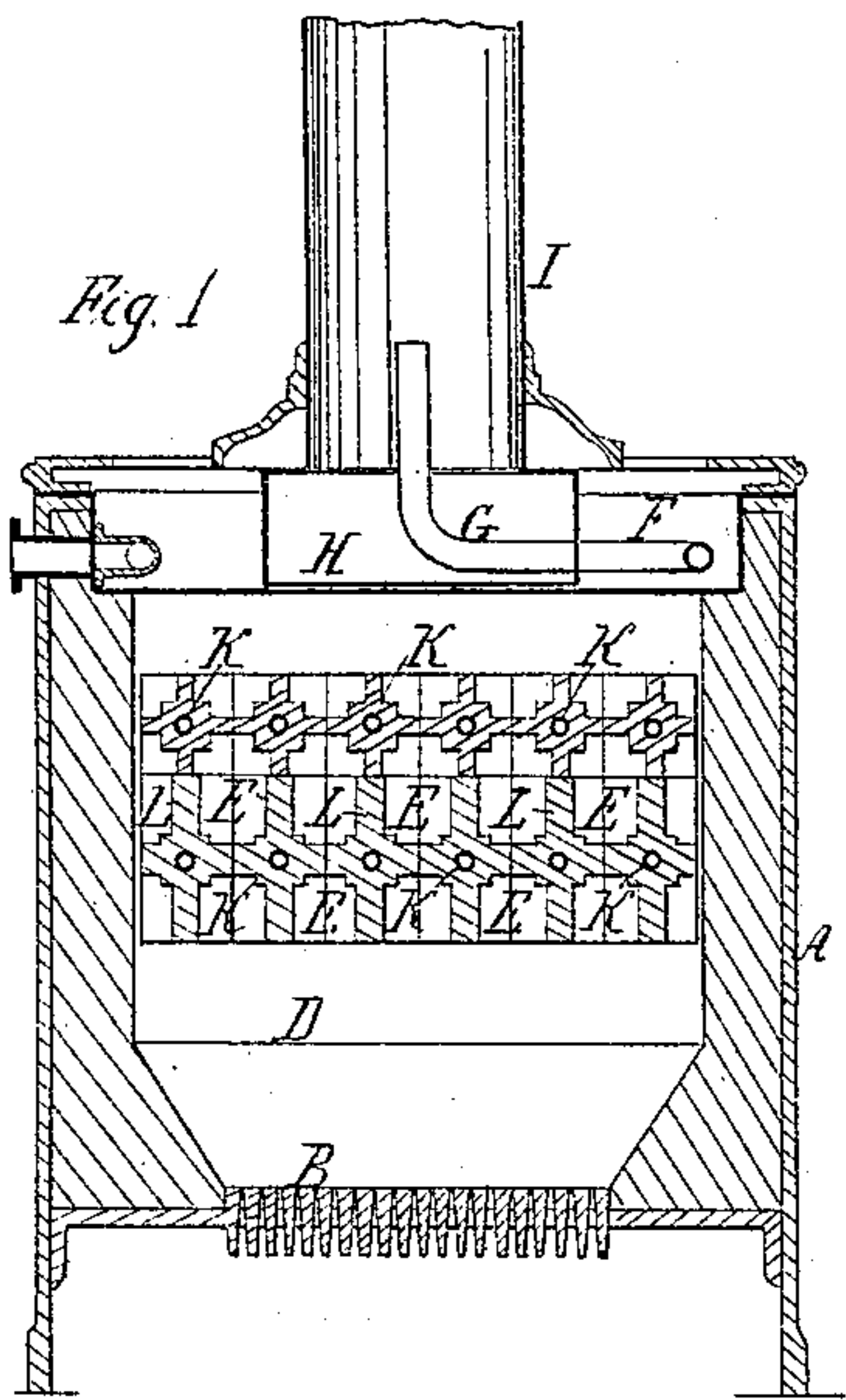


P. C. Moller,

Sectional Steam Boiler.

N^o 53,761.

Patented Apr. 3, 1866.



witnesses;
J. M. Edyan
Wm. Mearns

Inventor
P. C. Moller
per Mearns & Co
Attorneys

UNITED STATES PATENT OFFICE.

PETER C. MÖLLER, OF LEIPSIC, ASSIGNOR TO JOHANN TOBIAS ROMMINGER,
OF DRESDEN, SAXONY.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. 53,761, dated April 3, 1866.

To all whom it may concern:

Be it known that I, P. C. MÖLLER, of Leipzig, Saxony, have invented a new and Improved Steam-Generator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a transverse vertical section of this invention. Fig. 2 is a longitudinal vertical section of the same. Fig. 3 is a plan or top view of the same. Fig. 4 is a horizontal section of the same.

Similar letters of reference indicate like parts.

This invention relates to a steam-generator composed of a series of cross-shaped blocks, of cast-iron or any other suitable material, which when fitted together form fire-flues, and which are perforated in a longitudinal direction, and alternately open at opposite ends in such a manner that while the heated gases and products of combustion pass through the fire-flues in one direction the water is forced through the holes or pipes in the blocks in the opposite direction, and by the time said water reaches the last pipe it has formed into steam, which can be used immediately as it issues from said pipe for the purpose of giving motion to a steam-piston, or for any other purpose for which steam may be employed.

A represents a furnace, built up of cast-iron plates, and lined with brick, or made of any other suitable material, and provided with a grate, B, which may be constructed in any desirable manner.

The fuel is introduced through a door, C, and the heated gases and products of combustion pass up over the bridge-wall D and enter the fire-flues E. These fire-flues are formed by spaces between cross-shaped blocks L, of cast-iron or other suitable material, which extend throughout the entire length of the furnace, and provided with apertures *a* alternately at opposite ends, as shown in Fig. 4, so that the heat is compelled to pass up through the fire-flues in a zigzag course.

The upper part of the furnace is closed by the water-tank F, and by a smoke-box, H, which occupies a portion of the water-tank, and through which the products of combustion pass to the smoke-stack I. In the tank F is situated a coil, G, the end of which extends up into the smoke-stack, and through this coil the exhaust-steam passes. The water in the tank F is therefore heated by the products of combustion coming in contact with the outside of said tank, and also by the action of the exhaust-steam. After having thus been preliminarily heated the water is forced, by means of a suitable pump, through pipes K, formed by boring through the blocks L in a longitudinal direction and connecting the ends of the channels thus formed by elbows M. These elbows are protected by jackets O, and they are so arranged that the water forced in at the end of one of the pipes K has to pass down in a zigzag course through all the pipes in a direction opposite to that in which the heat passes up through the fire-flues. While passing through the pipes K the water forms into steam, and on issuing from the last pipe said steam can be used immediately for imparting motion to a piston in a steam-cylinder, or for any other purpose for which steam is generally used, or the steam may be passed into a steam chamber or dome, from which it is conducted to the engine or other place.

The pump used for injecting the water into the pipes K is operated by hand until the engine can be started, and then the same pump may be operated by power, or another pump driven by the engine may be used. In order to produce an even pressure throughout the whole series of pipes, I propose to make said pipes of gradually-increasing size, and in cases where the water is liable to produce a sediment in the pipes metal rods may be introduced in the same, thereby causing the steam to rush through the narrowed passage with increased force, which keeps the pipes clear of all sediment.

When this generator is combined with a steam-dome and engine a suitable governor, acting on a safety-valve, which may be applied

to the dome, can be used to regulate the supply of water to the pipes K, and the generation of steam is rendered uniform.

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

The combination of the cross-shaped blocks L, water-passages K, elbows M, jackets O, tank F, and coil G, constructed and arranged relatively to each other in the manner and for the purpose herein represented and described.

The above specification of my invention signed by me this 20th day of September, 1865.

PETER CORFITZ MÖLLER.

Witnesses:

M. CAMPBELL,

U. S. Consul, Dresden.

CARL HEINRICH KNOOP.