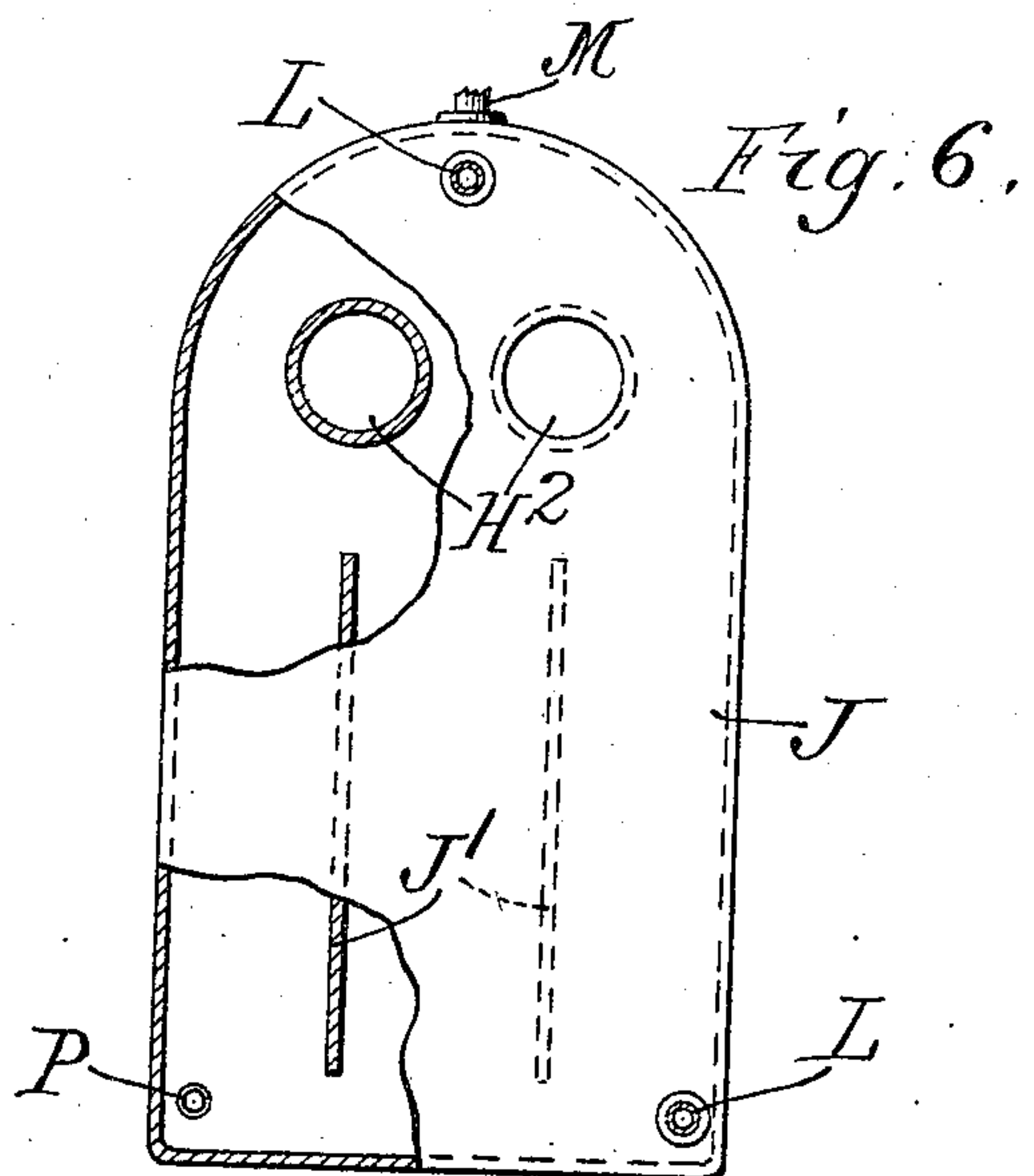
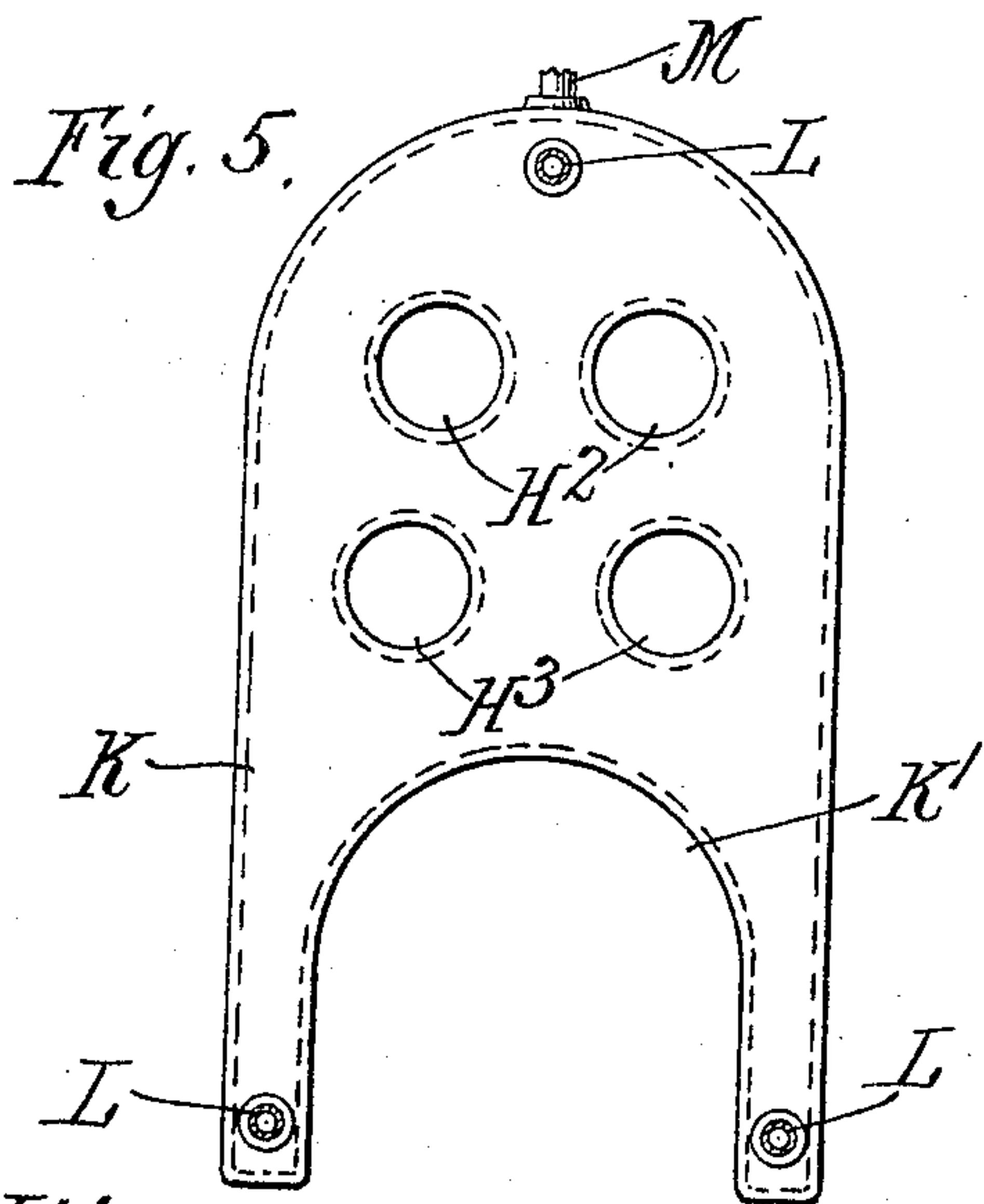
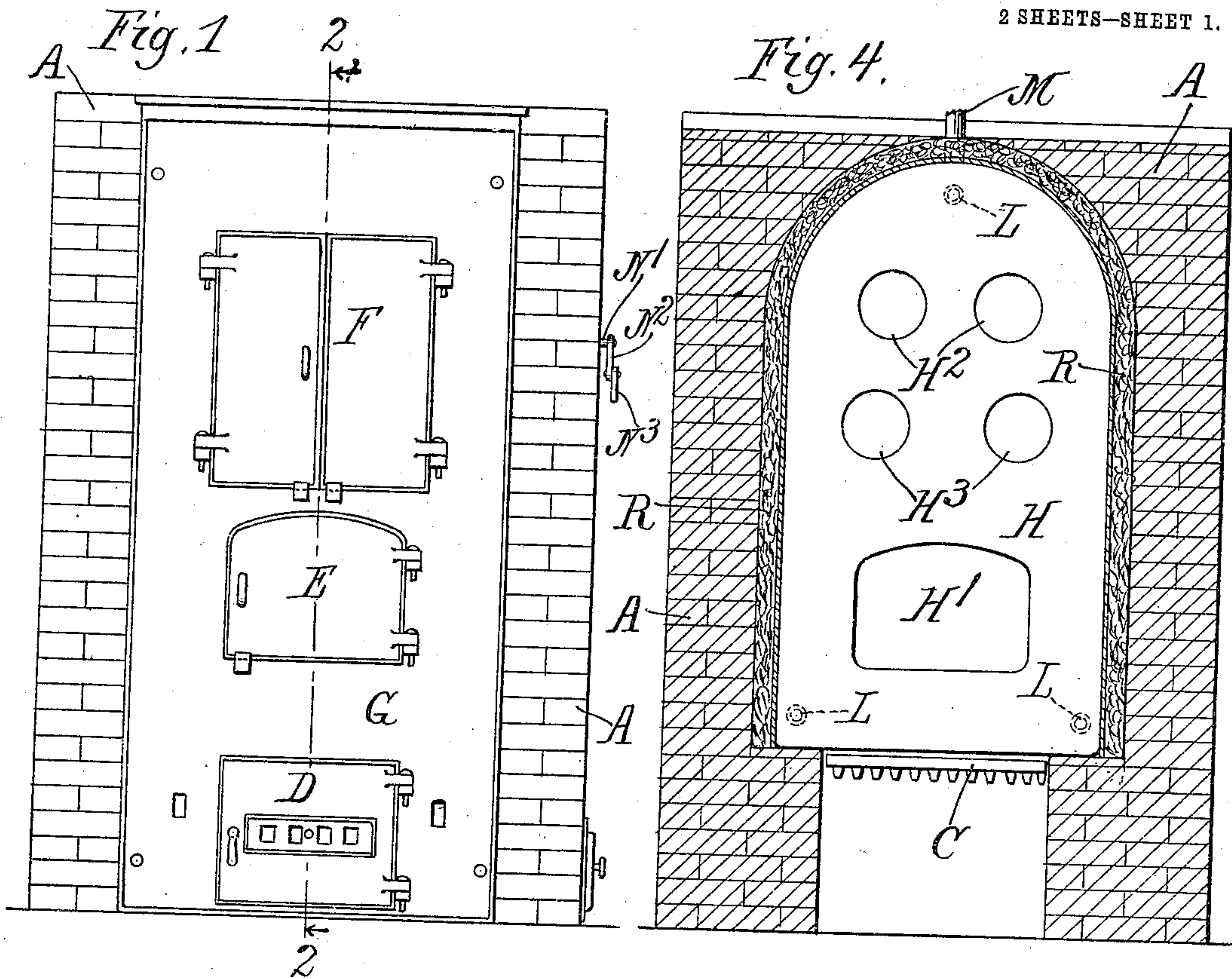


W. H. KOGLE.
HOT WATER HEATER.
APPLICATION FILED MAR. 2, 1908.

935,117.

Patented Sept. 28, 1909.
2 SHEETS—SHEET 1.



Witnesses.
Edward T. Wray.
Abbie E. Johnson.

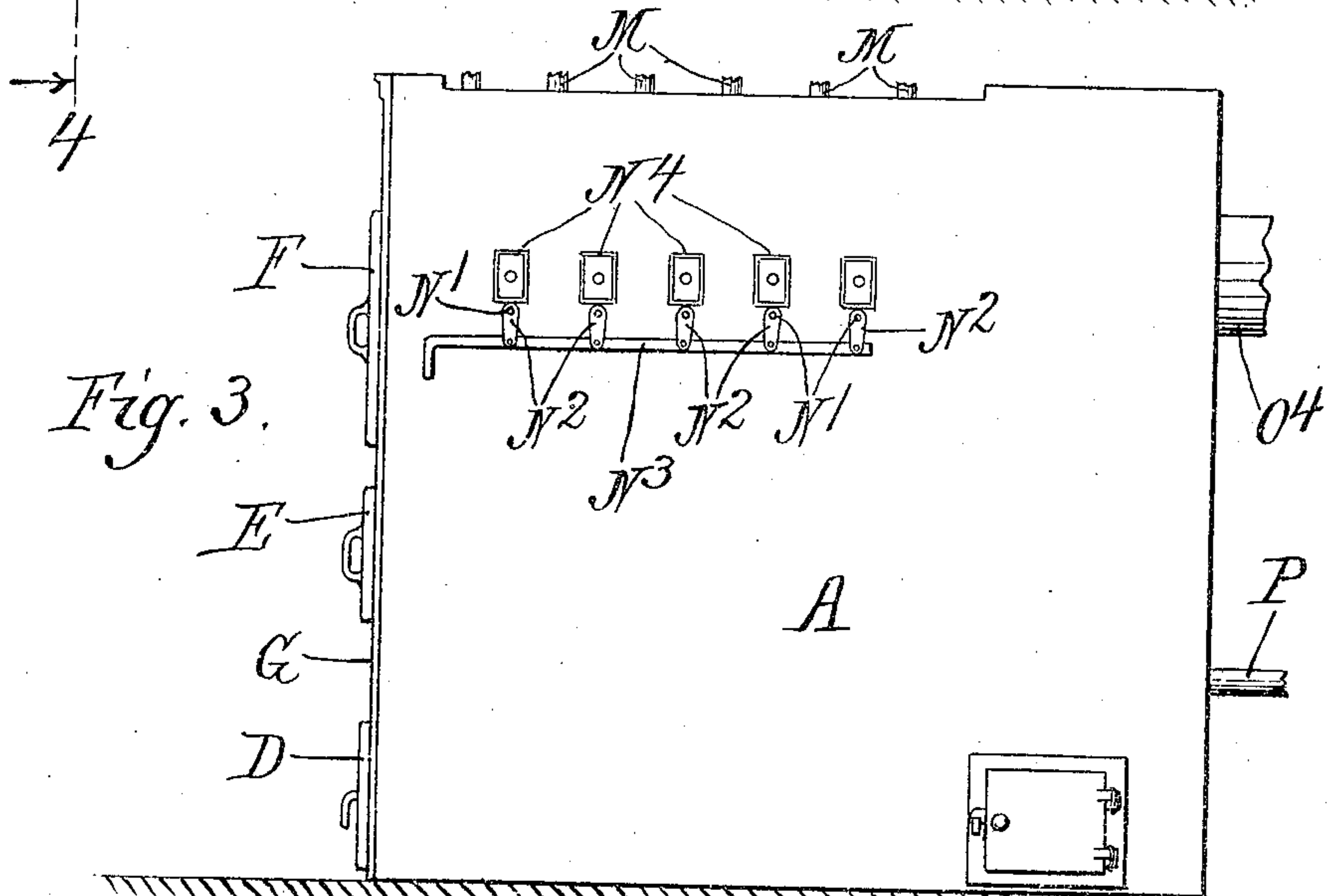
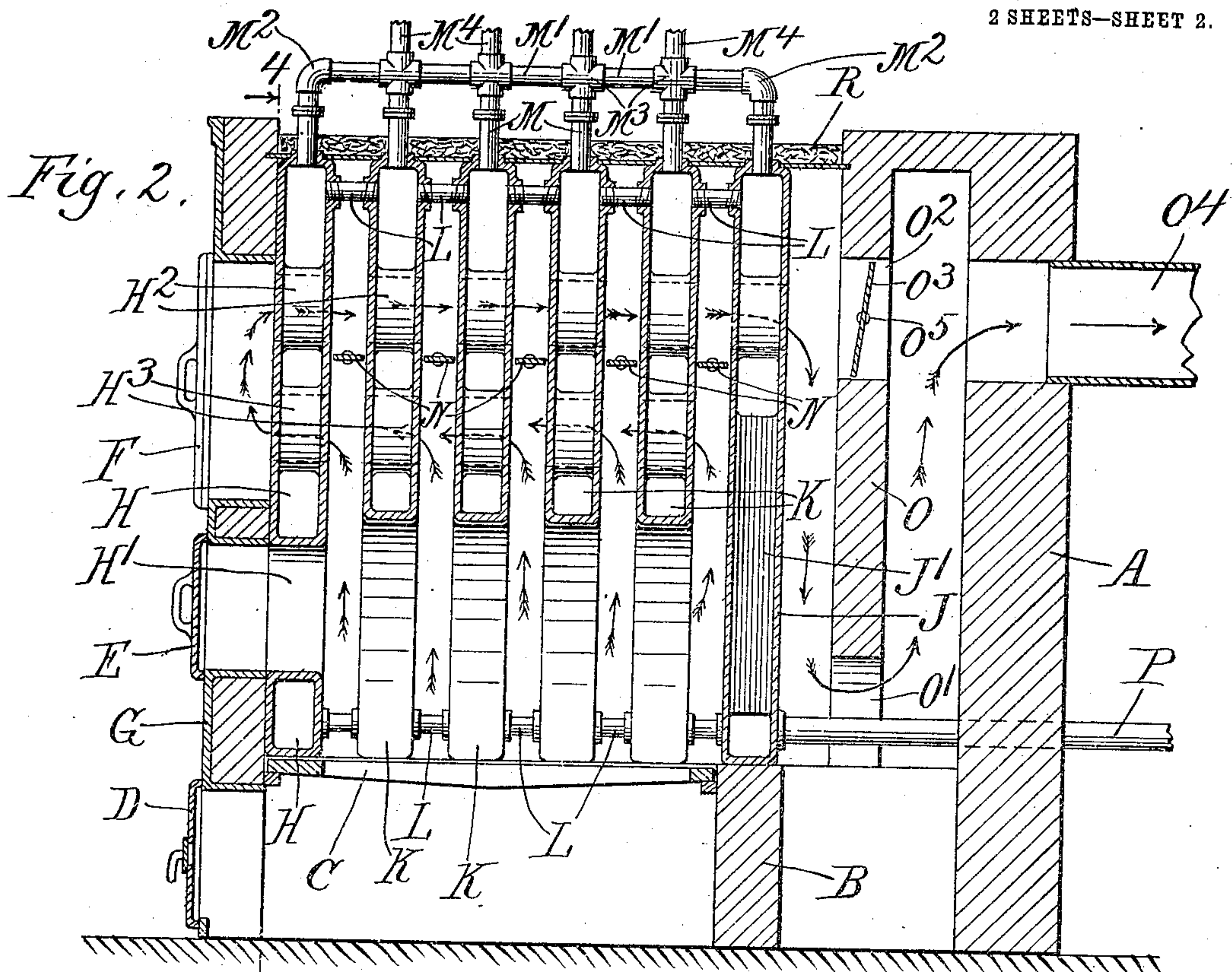
Inventor.
Wm. H. Kogle.
by *Parker & Kogle*
Attorneys.

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by Parker & Kaste
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM H. KOGLE, OF MASON CITY, IOWA.

HOT-WATER HEATER.

935,117.

Specification of Letters Patent. Patented Sept. 28, 1909.

Application filed March 2, 1908. Serial No. 418,652.

To all whom it may concern:

Be it known that I, WILLIAM H. KOGLE, a citizen of the United States, residing at Mason City, in the county of Cerro Gordo and State of Iowa, have invented a certain new and useful Improvement in Hot-Water and Steam Heaters, of which the following is a specification.

My invention relates to boilers for hot water and steam heaters, and is illustrated in one form in the accompanying drawings wherein—

Figure 1 is a front elevation; Fig. 2 a cross section on the line 2, 2, of Fig. 1; Fig. 3 side elevation; Fig. 4 cross section on the line 4, 4, of Fig. 2; Fig. 5—an elevation of one of the sections; Fig. 6—a similar elevation of the last section with parts broken away.

Like parts are indicated by the same letter in all the figures.

A A is the furnace wall, which is preferably of the usual type and incloses the entire boiler apparatus.

B is a transverse wall in the bottom, forming the back of the ash pit.

C is the fire grate above the ash pit. D, the ash pit door, E the fuel door, and F the inspection doors in the front G of the boiler to give access to the interior.

R is any kind of insulation lining, which may be placed about the inside of the wall and next to the boiler sections, hereafter to be described.

At the bottom, the walls A may be built inwardly, so as to form ledges on which these boiler sections may rest. Each of these sections is preferably made of some kind of cast metal, and consists of a hollow case shaped as shown. The first section H has an opening H' opposite the fire door and four transverse flues H², H², H³, H³. The last section J has two internal strengthening ribs J', J', and the two upper flues H². All of the intermediate sections K, K, are provided with flues, H², H², H³, H³, and are cut away below as indicated at K'.

The several sections are properly spaced and supported on the wall ledges above referred to. They are connected together by short nipples L, L, above and below, and each has emerging from the top, a short pipe M, which connects with the pipe system, consisting of the transverse sections M', M', the elbows M², M², the crosses M³, M³, and the outleading pipes M⁴, M⁴.

Intermediate the several sections are baffle plates N, adapted to close the vertical spaces between the sections, and each is mounted on a shaft N', provided with an exterior arm N², all of which arms may be pivotally connected with a rocking bar N³, whereby these baffle plates may be moved to any desired position, horizontally or vertically.

N⁴, N⁴ are openings whereby access may be had to the baffle plates.

O is a rear bridge wall, back of section J, having an opening O' at the bottom and O² at the top. In this last opening is placed a damper O³, opposite the smoke discharge pipe O⁴. This damper is mounted on a rod O⁵, which projects through the side of the inclosing wall, and is provided with a handle whereby the damper may be controlled.

P is the inleading water pipe, which opens into the last section J.

The particular size and the exact form and arrangement of these several parts could be greatly varied without departing from the spirit of my invention. I wish, therefore, that these several features, as shown, be taken as diagrammatic.

The use and operation of my invention is as follows; When the parts are properly assembled, as shown, the front section which lies close to the front portion of the inclosing wall is positioned so that its aperture is opposite the fuel door. All of the sections are properly spaced and rigidly secured together, and rest on the wall ledge above the ash pit. The grate supported in any desired manner lies under them, so that a fire box or space is formed by the several openings in their lower portions. This fire box is closed at the end by the last section, and the ash pit is closed at the end by the transverse wall on which the last section rests. Water is put into circulation through the device, or introduced in any desired manner, and of course, it could be flowed through the sections in either direction. The various fittings and connecting parts are not here shown, as they form no part of this invention. By manipulating the several baffle plates and dampers, the movement of the products of combustion can be regulated in any desired way. If the baffle plates and damper are arranged as shown in Fig. 2, the products of combustion will pass upwardly from the grate, as indicated by the arrows, and will then pass forward through all the flues H³, until they pass through the

first section. Then they pass above the baffle plates through the flues H^2 to the damper O^3 . Thence, they pass down beneath the bridge wall O and up again and out through the
5 pipe O^4 . In this way the several sections are exposed on all sides and at all points to the heat. This action, of course, can be varied and the several baffle plates can be operated simultaneously, or they might be
10 detached from the rock bar, and operated separately if desired.

I claim:

In a boiler apparatus, the combination of an inclosing wall having inwardly project-
15 ing lower ledges and a transverse wall formed in the back of the ash pit, with a series of relatively thin, hollow, vertical, separated water sections, the first provided with an opening to lead into the fire chamber, the
20 intermediate ones provided with downwardly depending water legs which inclose the fire chamber, the first and intermediate ones provided also with two series of transverse open pipes leading through their re-
25 spective water chambers, the last section having only the upper series of transverse pipes, a boiler front connected with the inclosing wall so as to make therewith a chamber for the water sections and provided

with a large recess above through which the 30 two series of transverse pipes may be connected, an intermediate recess which registers with the furnace opening through the first section and the lower recess which opens into the ash chamber, two walls in the rear 35 separated from each other and from the last water section, a discharge to the flue pipe opening from the top of the rear wall, two openings, one at top and one at the bottom of the intermediate wall, a damper in the top 40 opening, a series of transverse baffle plates between the water sections and in a horizontal plane which lies between the two series of transverse pipes, controlling means 45 outside of the wall to control these baffle plates, a series of nipples which connect together the lower ends of the water legs of the intermediate sections and the two end sections, a pipe which leads into the lower end of the end section, pipes which lead one 50 out of the top of each of the water sections, and connections therefor, and pipes leading thereto, substantially as shown and described and for the purpose set forth.

WILLIAM H. KOGLE.

Witnesses:

HARDY F. POOL,
JOHN C. STIER.