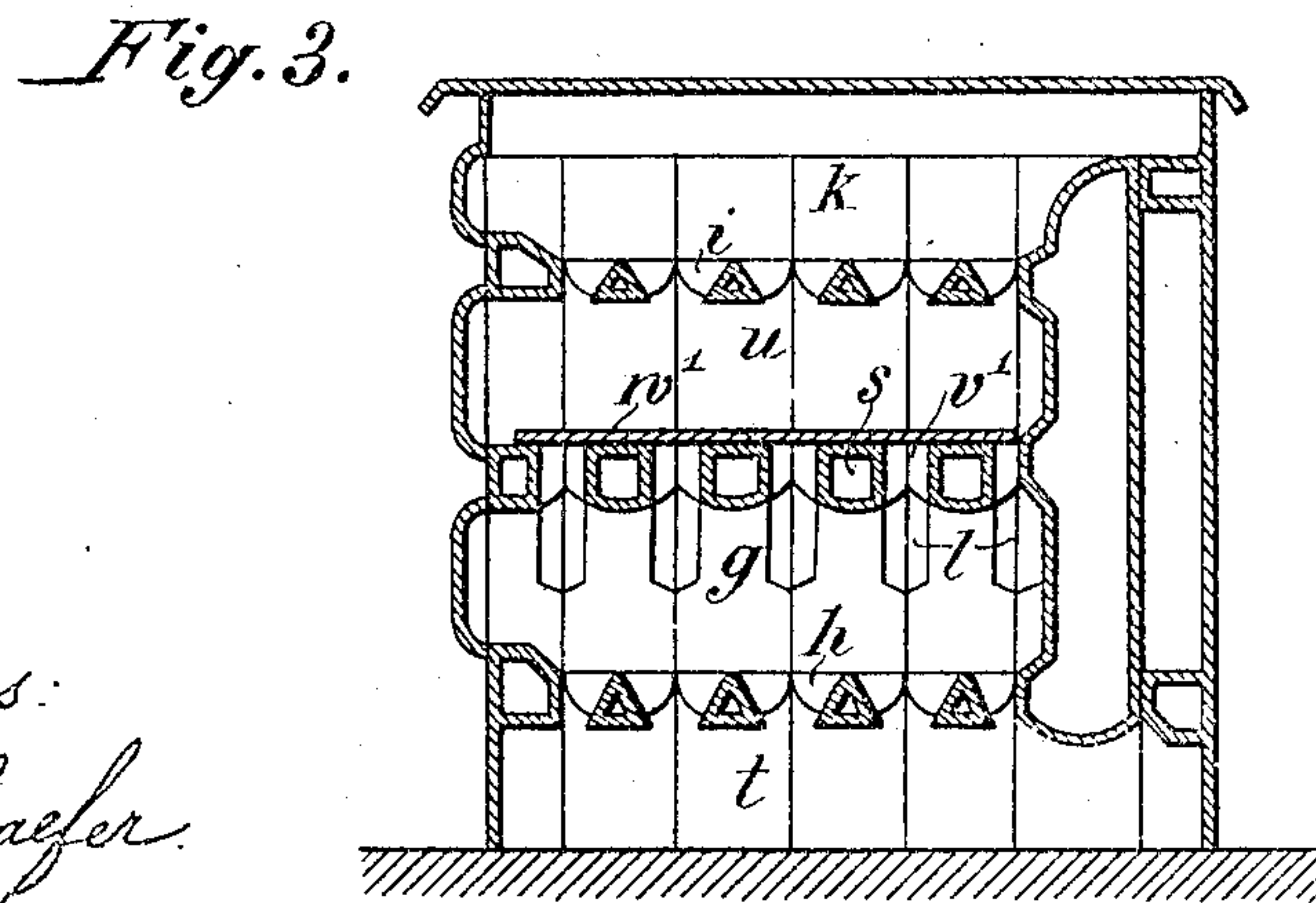
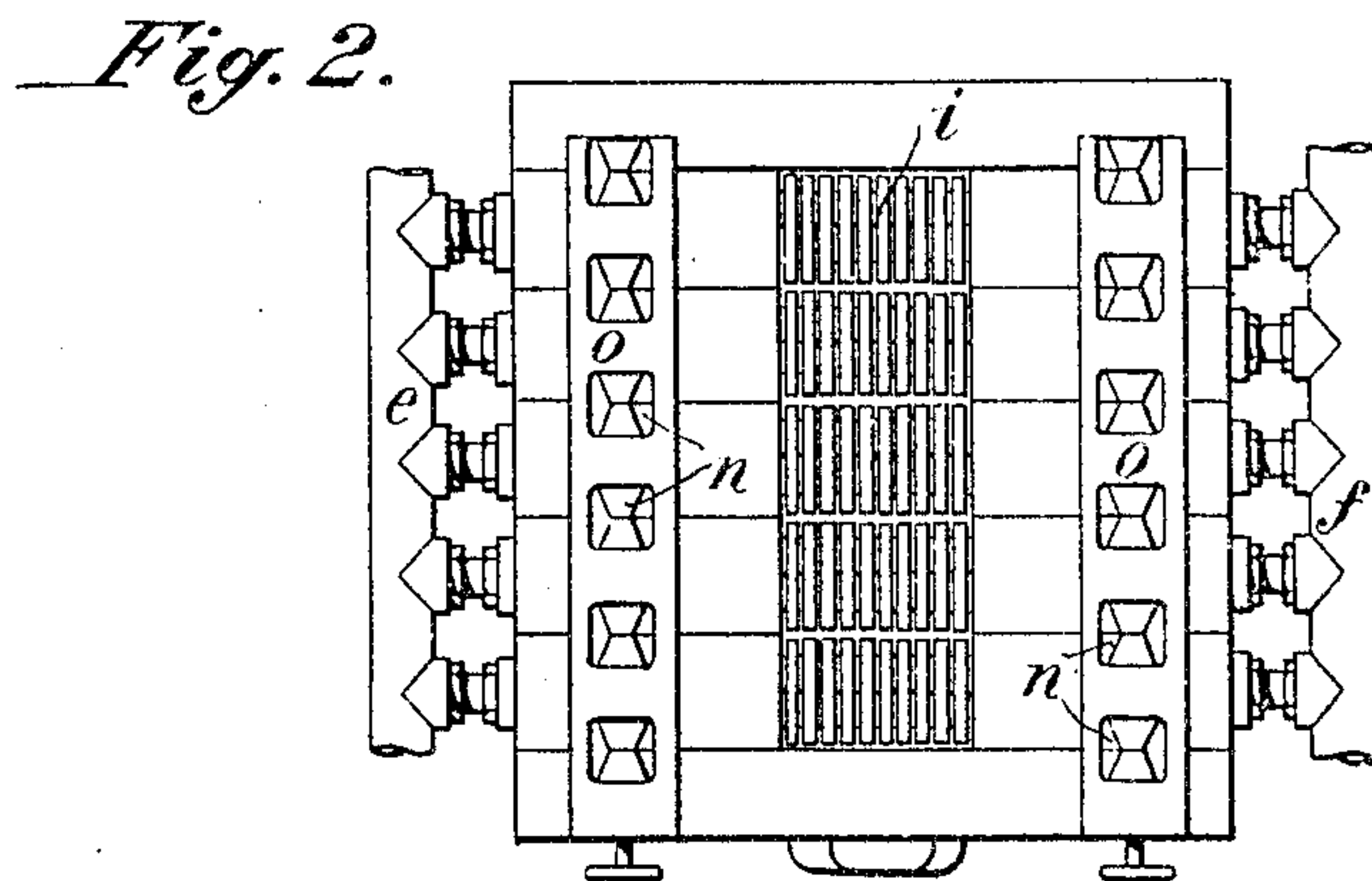
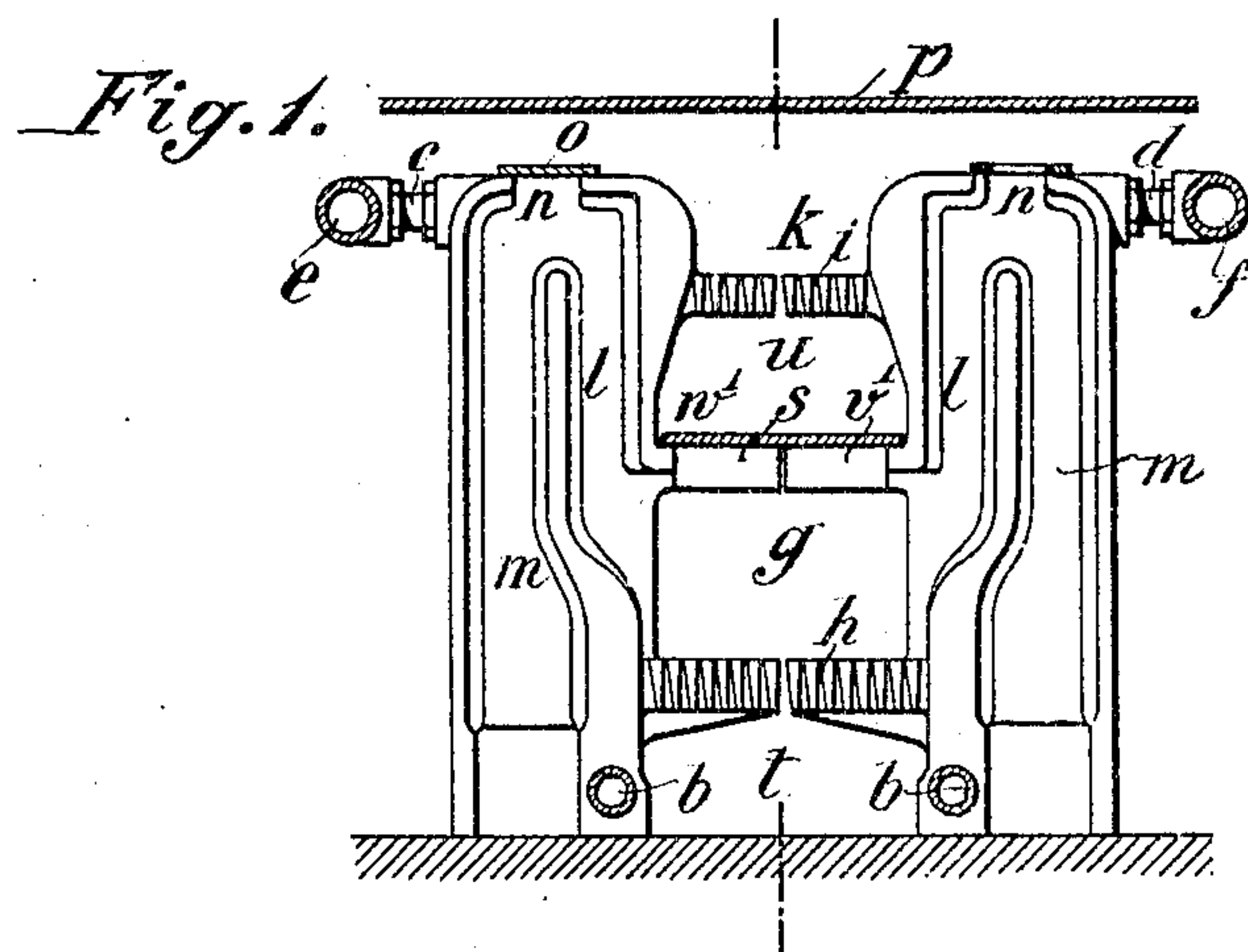


No. 843,337.

PATENTED FEB. 5, 1907.

A. HAGE.
SECTIONAL BOILER.
APPLICATION FILED DEC. 17, 1906.



Witnesses:
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UNITED STATES PATENT OFFICE.

ALOIS HAGE, OF HILDESHEIM, GERMANY.

SECTIONAL BOILER.

No. 843,337.

Specification of Letters Patent.

Patented Feb. 5, 1907.

Original application filed January 15, 1906, Serial No. 296,168. Divided and this application filed December 17, 1906.
Serial No. 348,144.

To all whom it may concern:

Be it known that I, ALOIS HAGE, residing at Hildesheim, Germany, have invented certain new and useful Improvements in or Relating to Sectional Boilers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This present application is a divisional one and a part of the application, Serial No. 296,168, filed January 15, 1906, for sectional boilers.

This invention relates to a sectional boiler for kitchen-ranges, and is intended both for large and small houses. It is distinguished by great adaptability to most varied requirements.

This device is also intended to make it possible to use it within wide limits for culinary purposes—that is to say, chiefly for cooking food—since, for instance, in large hotels or clubs the demands on the kitchen vary to a great extent.

An apparatus fulfilling the above requirements is the subject of this invention, and consists of a section-boiler which is built into the range and provided with two furnaces, which can be operated either independently of each other or simultaneously, and the parts of which, walls, grates, ash-pits, are cooled by the contents of the boiler and at the same time heat the said contents of the boiler, while the said parts are then protected against becoming incandescent. One of these furnaces is considerably larger than the other and is suitable for heating the whole contents of the boiler, while the other furnace acts only on a comparatively small portion of the heating-surface of the boiler. Both furnaces are, however, arranged in such manner that their combustion-gases can be utilized for heating the range—that is to say, for heating the range-plates and roasting and warming stoves, heating baking-stoves, kettles, and generally for any other purposes.

Another feature of the apparatus, according to this invention, consists in the fact that when only the large furnace is used the parts of the smaller one are also heated—that is to say, act as a heating-body.

The boiler is represented by the accompanying drawings, in which—

Figure 1 is a vertical section. Fig. 2 is a

plan of the boiler without the range-plate, and Fig. 3 is a longitudinal section through the boiler.

The boiler illustrated in Figs. 1 to 3 consists of partly similar and partly dissimilar hollow sections filled with water, arranged side by side, communicating with each other. Single boiler-sections when placed together form in the well-known manner a large combustion-chamber *g*, which is closed at the bottom by a grate *h*, through which water circulates. This chamber forms a large furnace, which heats the whole contents of the boiler. The sections also form projections which constitute a second grate *i* for a small furnace *k*, which is arranged above the former close to the range-plate *p*, so that only the upper portion of the contents of the boiler is heated by the same smaller furnace, chiefly by the heating action of the incandescent fuel on the grate.

Under the large grate *h* is an ash-pit *t*, and under the small grate a similar ash-pit *u*. The small furnace *k* is separated from the large furnace *g* by a partition, which is also constituted by boiler-section parts *s*, through which circulates water. Between the section parts *s* are arranged slots *v'*, normally closed by a plate or damper *w'*, so that they can be opened by removing the said plate, when the combustion-gases from the large furnace *g* will pass through the small furnace *u*.

Combustion-gases from the large furnace pass into flues *l m*, arranged between the sections, the flues *l* leading upward from close above the grate *h*, and then passing into the downward flues *m*. At the highest point, where the two flues join, are arranged openings *n*, which can be closed by dampers *o*, the combustion-gases passing, when the dampers are open, direct under the range-plate *p* and acting here with the greatest portion of their heating power. When the openings in question are closed, the combustion-gases go downward and heat further the water contained in the boiler.

In order to allow the combustion-gases to act still more on the contents of the boiler and also on the range-plate *p*, intermediate spaces or slots *v'* are arranged between the parts *s*, which are generally closed by a plate or damper *w'*. After the removal of this damper the combustion-gases can pass through these slots into the ash-pit *u* and

further through the intermediate spaces between the parts *i* of the grate into the furnace *k*, and thus under the range-plate *p*. If in this case the dampers *o* are also open, the furnace-gases of the furnace *g* act not only in the rising flues *l* before they arrive under the range-plate, but also on the parts *s* and *i* and the walls of the furnace *k* and of the ash-pit *u*. There is thus a far-reaching utilization of heat with respect to the contents of the boiler and a more uniform enfeebled heating of the range-plate.

What I claim is—

1. In a boiler, the combination, with a series of sections arranged side by side and provided with flue-passages and water-spaces, and having at their middle parts partition portions also provided with water-spaces and flue-passages, said parts forming two superposed combustion-chambers which are connected by the flue-passages of the said partition portions; of dampers for regulating the flue-passages between the said chambers, a range-plate arranged over the said chambers, and means for connecting all the said water-spaces together.

2. In a boiler, the combination with a series of sections arranged side by side and pro-

vided with water-spaces connected by upper and lower cross-tubes *e, f* and *b*, said sections forming a main combustion-chamber *g*, upwardly-extending flues *l* and downwardly-extending flues *m*; of an auxiliary combustion-chamber *k*, arranged above the main combustion-chamber, a range-plate arranged over the said combustion-chambers, dampers at the upper ends of the flues *l* and *m* permitting the products of combustion to pass from said chamber *g* to the range-plate, section parts *s* forming the partition between the main combustion-chamber *g* and the ash-pit of the auxiliary combustion-chamber *k* having slots between the same, a damper adapted to close said latter slots and permitting the products of combustion to pass through said chamber *k* from said combustion-chamber *g*, and a discharge-outlet for the products of combustion common to both of the said combustion-chambers.

In testimony whereof I affix my signature in presence of two witnesses.

ALOIS HAGE.

Witnesses:

MARTA L. THOMPSON,
HEDWIG LEIMER.