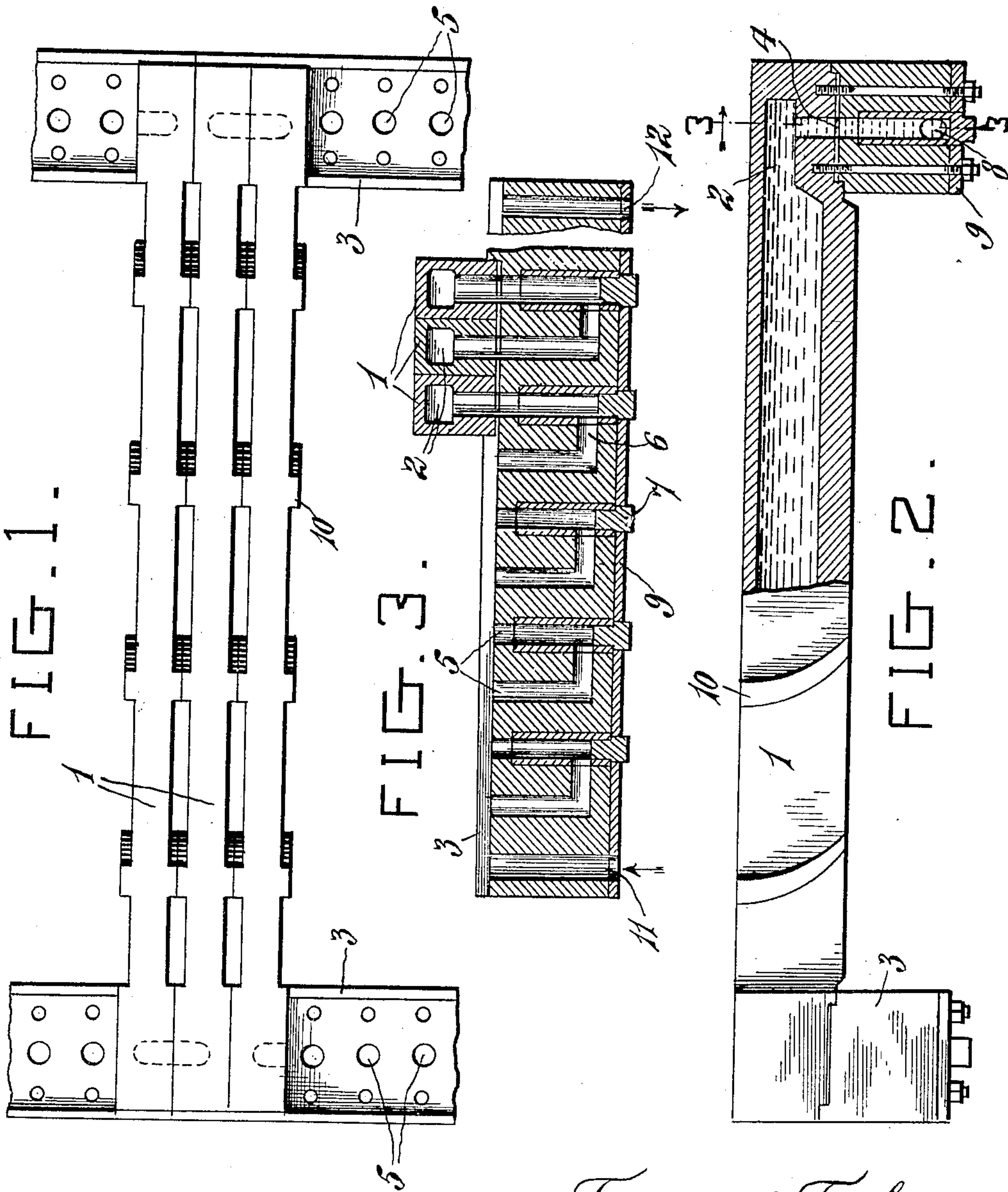


F. FRÉCHETTE.
GRATE.

APPLICATION FILED FEB. 7, 1908.

906,521.

Patented Dec. 15, 1908.



Witnesses:

C. Faconprez
W. S. Babcock

Ferdinand Frechette

Inventor,

By

Marion & Marion

Attorneys

UNITED STATES PATENT OFFICE.

FERDINAND FRÉCHETTE, OF NOTRE DAME DE CHARNY, QUEBEC, CANADA.

GRATE.

No. 906,521.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed February 7, 1908. Serial No. 414,806.

To all whom it may concern:

Be it known that I, FERDINAND FRÉCHETTE, a subject of the King of Great Britain, residing at Notre Dame de Charny, county of Levis, in the Province of Quebec, Canada, have invented certain new and useful Improvements in Grates; and I do hereby declare that the following is 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.

The present invention relates to grates and grate bars for furnaces, large heating plants and the like, and more particularly to grates and grate bars, such as are used in steam boiler furnaces and the like.

It is designed with the idea of having a plurality of hollow grate bars communicating with one another through passages in supports upon which the opposite ends of the bars are carried, the passages in the supports being provided with valves so disposed as to enable the ready removal of any one or more of the grate bars, while at the same time retaining a full amount of water in the remaining bars and in the passages of the supports. A grate so constructed acts both as a preliminary heater for water passing to the boiler, and as a cooler to prevent overheating of the separate parts.

In order to enable one skilled in the art to which the present invention relates to the more readily understand the construction, operation and use of the same, reference should be had to the accompanying drawings, forming part of the present application.

In the several figures, like reference characters designate the same parts throughout.

In the drawings: Figure 1 is a plan view of a section of a grate and its supports, showing the invention; Fig. 2 is a partial longitudinal section through one of the grate bars and one support, showing the circulation; and, Fig. 3 is a longitudinal section through a part of one of the end supports.

Each of the grate bars 1 is cast or bored to form a longitudinal conduit 2, through which water may pass freely from one support or head 3 at one end to a companion support at the opposite end. The under faces of these bars near their opposite ends are provided with vertical passages 4, which communicate with the conduits 2. The supports 3 are each provided with a plurality of wells or vertical bores 5, the bores being separated into pairs and the separate wells of each pair

being connected by horizontal passages 6, one well of each pair being provided with a tubular removable two-way valve 7. This valve is provided with an opening 8 adapted to register with the passage 6, and in this position to allow the free flow of water from one well of the pair to the next well. These valves are all held in place against the water pressure by means of the removable cap plate 9, which may be secured in any suitable way as desired.

One particular feature of the invention is the alternate arrangement of the valves 7 relatively to the opposite ends of the grate bars. Thus a valve in one support will be directly beneath and in communication with the vertical passage 4 of one grate bar, while the vertical bore in the opposite end of the same bar will be over a well 5 which does not contain a valve, but which communicates through a passage 6 with a well having a valve, which second well communicates through a second passage 4 with the conduit 2 of the next grate bar 1. Thus when a grate bar is broken or has to be removed for any reason, it is only necessary to turn the valve 7 at the opposite ends of the bar to be removed and the adjacent bar, so as to cut off passage of water between these two valves. Thus any one or more of the bars may be cut off from the circulation and removed and replaced by other bars. At the same time, the grate bars on either side of the one removed will be retained full of water, as will be readily understood.

In order to catch and direct the intruding air beneath the grate so that it will be evenly distributed instead of all rushing to the back and rising at one point, the bars are provided with vane sections 10, which curve downwardly and forwardly toward the front end of the grate to deflect the air as it rushes into the ash pit beneath the grate. These vane sections are so disposed as to aline themselves to form substantially parallel vanes extending across the under sides of the grate and running transverse to the grate bars.

The water may be let into one end of one of the supports through an inlet pipe 11 if desired, and after passing through the several grate bars and passages, may be drawn off through the outlet 12 coupled to a suitable pipe. If desired, the passage 12 may be connected to a boiler or heating system, the grate bars acting either as a main heating device or as a preliminary heating device,

and the water being passed continuously around through the system and grate. Or it may be used as a grate and the circulation of water maintained to keep the grate cool.

5 Many changes in the construction and re-
arrangements of these parts, and many other
applications of the device as a whole may be
had, without in any way departing from the
field and scope of the invention, and it is
10 meant to include all such within the present
application, wherein only one preferred form
has been shown to more clearly illustrate the
same.

Having thus fully described my invention,
15 what I claim as new, and desire to secure by
Letters Patent, is:—

In a grate of the character described, a
plurality of grate bars each provided with a
longitudinal conduit, supports upon which
20 the opposite ends of each grate bar are
adapted to be mounted, wells in said sup-

ports, passages in said grate bars communi-
cating with the aforesaid conduits therein
and with said wells, passages in the supports
connecting said wells in pairs, means for de- 25
livering water to and from said supports, and
a valve in one well of each pair of wells
adapted to control the flow of water through
each well of the pair, the valves in the two
supports alternating with one another in 30
such manner that the valve of one support
will lie beneath the end of one grate bar
while the valve of the opposite support will
lie beneath the opposite end of the next ad-
jacent grate bar. 35

In witness whereof I have hereunto set my
hand in the presence of two witnesses.

FERDINAND FRÉCHETTE.

Witnesses:

CLEMENT FRÉCHETTE,
BERTHELEMI COTE.