

No. 614,301.

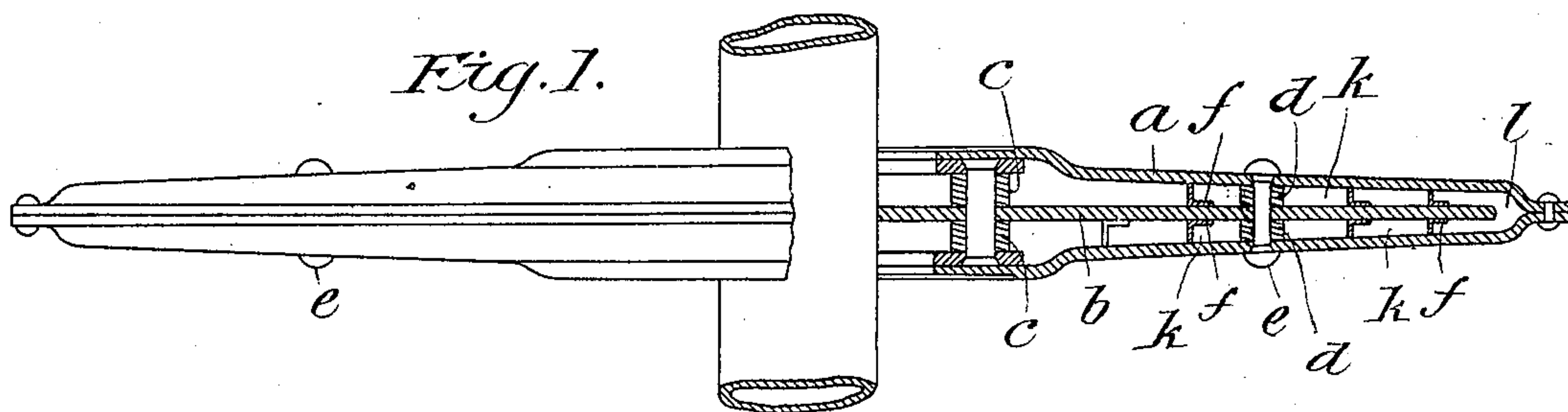
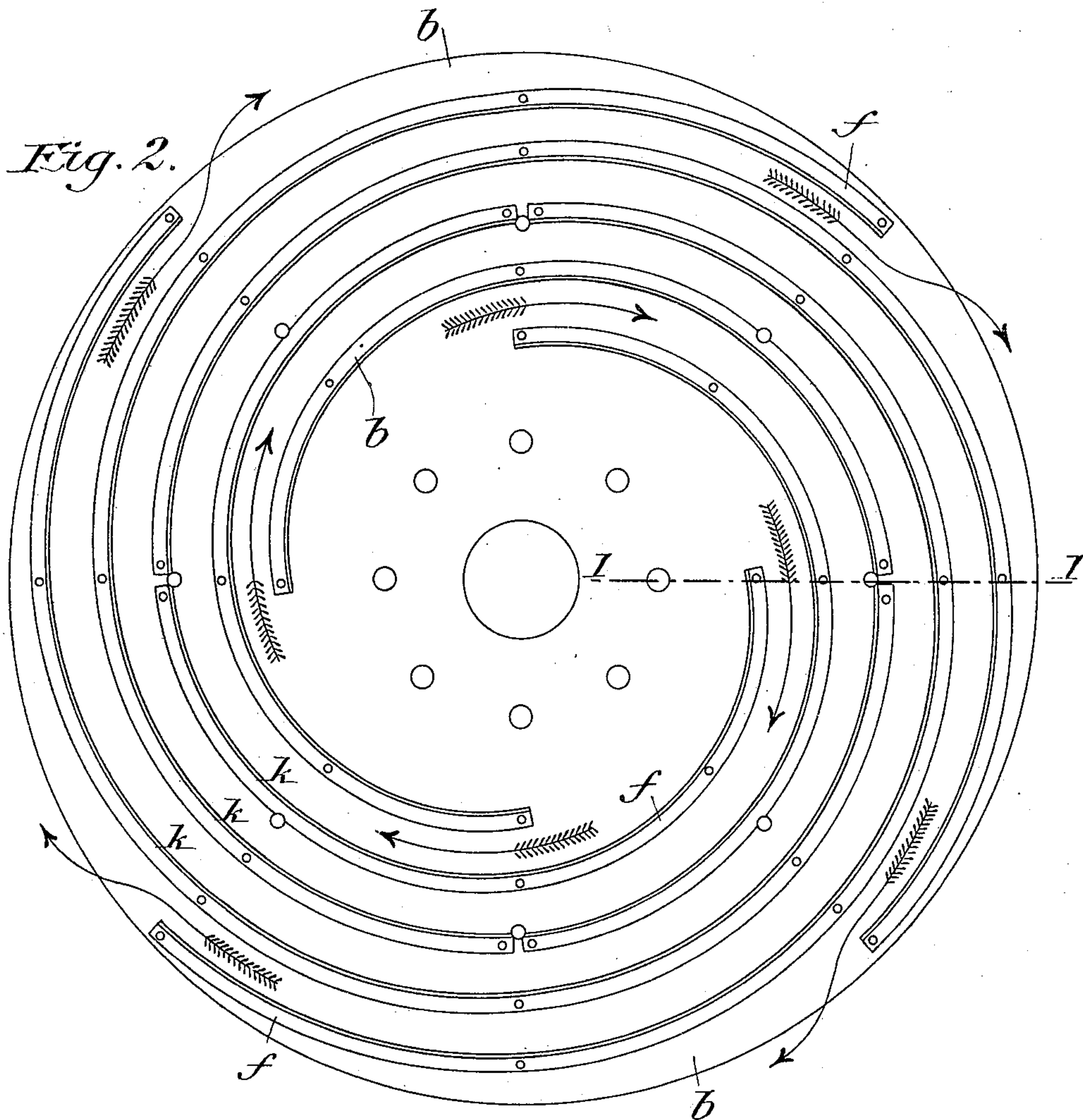
Patented Nov. 15, 1898.

J. GRUBINSKI.

APPARATUS FOR SUPERHEATING STEAM.

(Application filed Feb. 28, 1898.)

(No Model.)



Witnesses:  
Erwing Loz.  
Hedra C. Kuper

Inventor:  
Jan Grubinski  
By Rudolph M. Loz  
Atty.



# UNITED STATES PATENT OFFICE.

JAN GRUBINSKI, OF WARSAW, RUSSIA.

## APPARATUS FOR SUPERHEATING STEAM.

SPECIFICATION forming part of Letters Patent No. 614,301, dated November 15, 1898.

Application filed February 28, 1898. Serial No. 671,956. (No model.)

*To all whom it may concern:*

Be it known that I, JAN GRUBINSKI, a subject of the Czar of Russia, residing at Warsaw, in the Province of Warsaw and Kingdom of Poland, Russia, have invented certain new and useful Improvements in Apparatus for Superheating Steam, (for which I have received patents in the following foreign countries: Germany, filed September 14, 1897, issued March 7, 1898, no number; France, filed February 7, 1898; Belgium, filed February 5, 1898, issued February 15, 1898, No. 133,578; Austria, filed February 5, 1898; Hungary, filed February 5, 1898; Italy, filed March 12, 1898; England, filed February 14, 1898, sealed April 2, 1898, no number; Switzerland, filed February 12, 1898; Sweden, filed February 24, 1898; Norway, filed March 1, 1898; Denmark, filed February 25, 1898, and Russia, filed February 17, 1898;) 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.

My invention relates to a novel construction in an apparatus for superheating steam, the object being to provide a simple, durable, and efficient device of this character; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a sectional view, partly in elevation, of a device for superheating steam constructed in accordance with my invention, taken on the line 1 1 of Fig. 2. Fig. 2 is a view in elevation of the center plate.

My device consists of a flat box or receptacle of circular form, composed of two dished heads *a*, adapted to be secured together by means of rivets or in any other suitable manner. The said box or receptacle is divided into two compartments by means of a plate *b*, mounted midway between said heads *a* and held equidistant therefrom by means of sleeves *c* and *d*, said sleeves *c* being riveted to said plate *b* only and adapted to abut against the inner faces of the heads *a*, while rivets *e*

pass through the heads *a*, the sleeves *d*, and the plate *b*. Mounted upon said plate *b* at regular intervals and extending spirally over both faces of the same are a plurality of angle-irons *f*, which are adapted to abut with the outer edges of their outwardly-extending flanges against the inner faces of the heads *a*, thus dividing said box or receptacle into a plurality of parallel spiral passages *k*, beginning at points about midway between the center and periphery of said plate *b* and ending at the periphery thereof. Said plate *b* is of less diameter than the inner diameter of said box or receptacle, so as to leave a passage *l* to receive the superheated steam. Steam is admitted to the middle portion of said box or receptacle and follows the passages *k* to the passage *l*, from which it is drawn off in any suitable manner. As the inlet and outlet for steam can obviously be provided at any desirable point and in any suitable manner, I have not shown the same.

My device is adapted to be placed where it is exposed to intense heat, and the steam admitted thereto being obliged to pass through the channels *k* will obviously become superheated.

Owing to the fact that I employ a large quantity of metal and provide a large heating-surface my device will become easily heated and its temperature will not vary to an appreciable degree.

I claim as my invention—

1. A device for superheating steam, comprising a flat box or receptacle divided into a plurality of spiral passages leading from a central to a peripheral chamber, substantially as described.

2. A device for superheating steam, comprising a box or receptacle divided between its ends into two compartments by means of a plate, each of said compartments being subdivided into spiral passages leading from central chambers to a peripheral chamber, substantially as described.

3. A device for superheating steam, comprising a flat box or receptacle, consisting of two dished heads secured together at their peripheries and divided into two compartments

by means of a plate interposed between the same and having a diameter less than the interior diameter of said box or receptacle, and said compartments being subdivided into a  
5 plurality of spiral passages by means of angle-irons secured to said plate and abutting with their outwardly-extending flanges against the inner faces of said heads, said passages ex-

tending from central chambers to a peripheral chamber, substantially as described. 10

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

JAN GRUBINSKI. [L. S.]

Witnesses:

W. F. ZANIAWSKI,  
BOLENDAW HARUDYUES.