

(No Model.)

G. M. BRAUNINGER.

2 Sheets—Sheet 1.

BOILER WATER PURIFIER.

No. 294,754.

Patented Mar. 11, 1884.

Fig. 1.

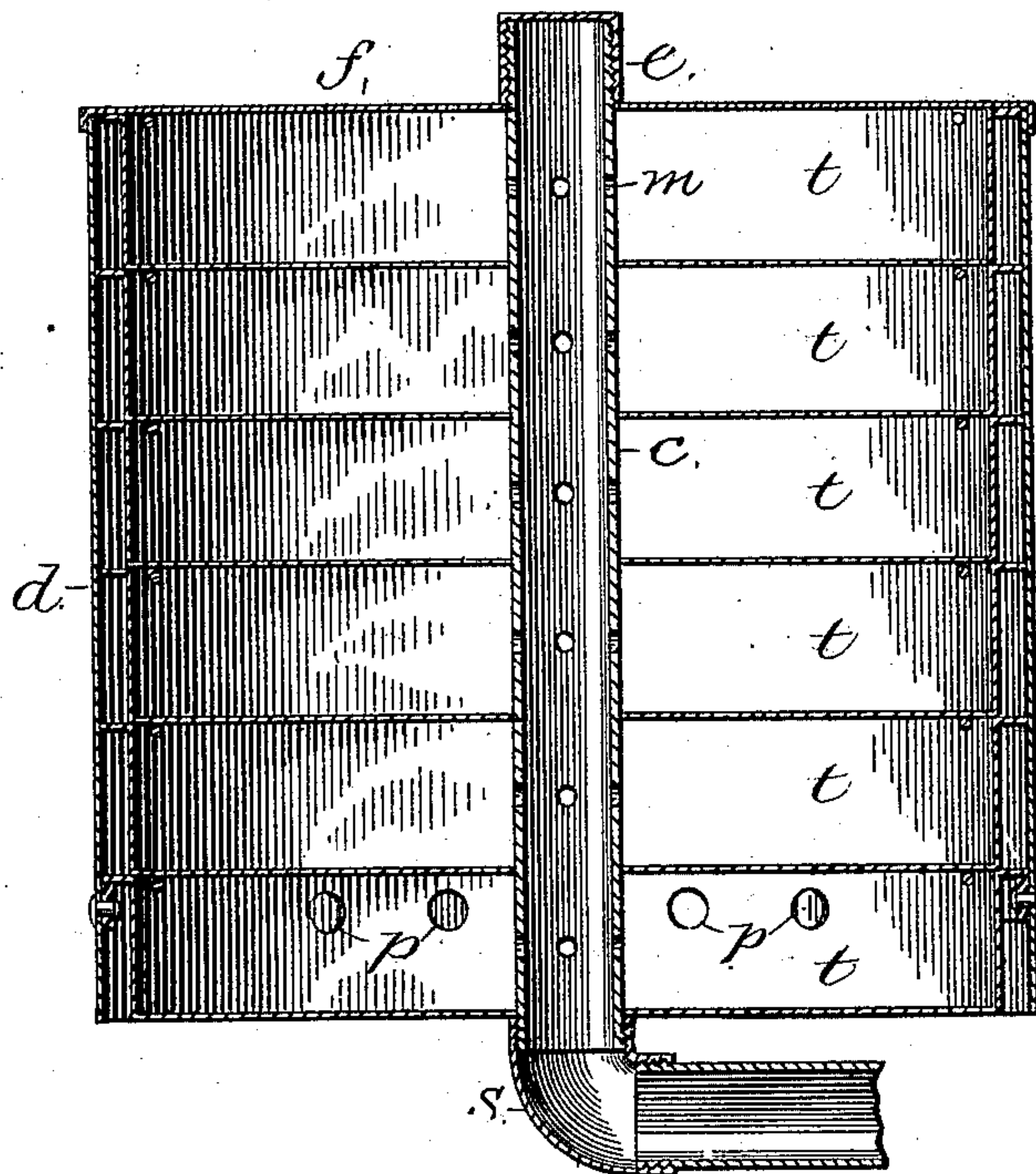


Fig. 2.

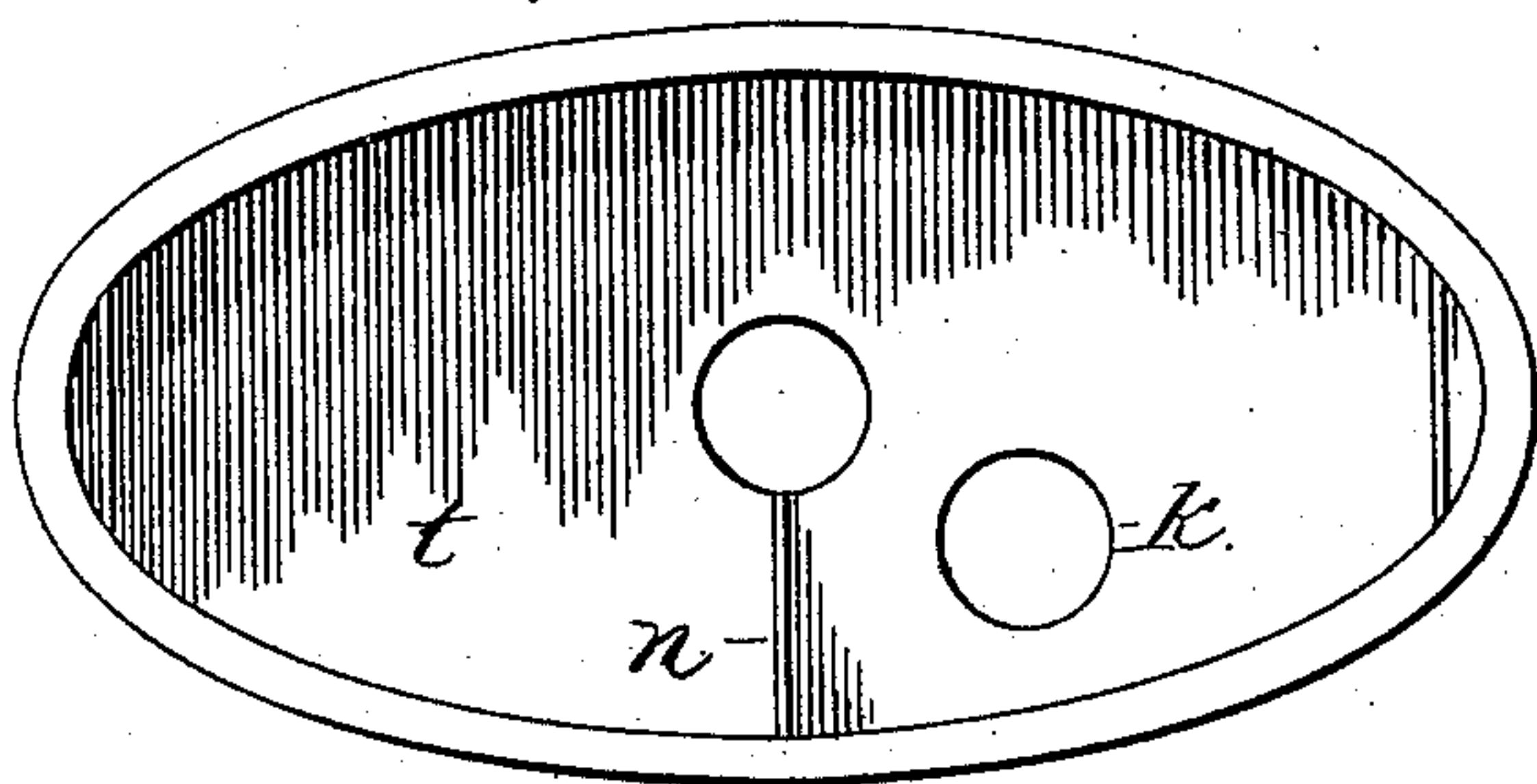
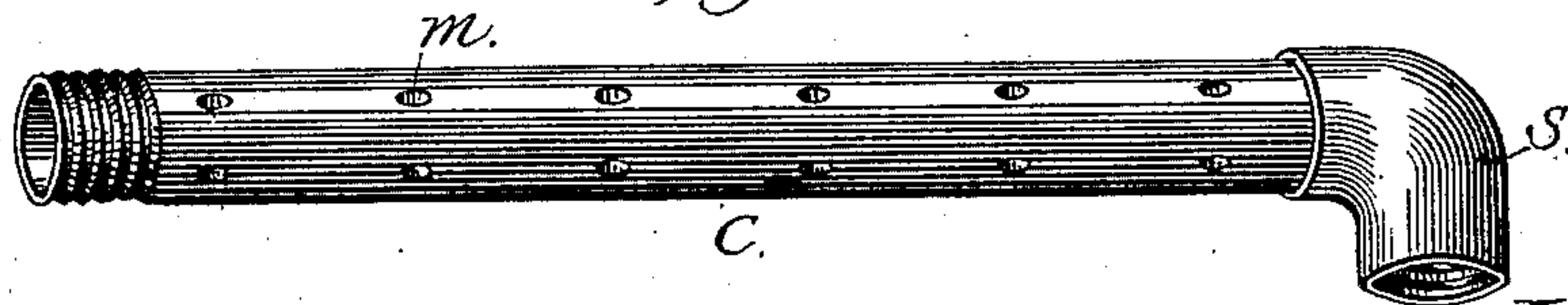


Fig. 3.



Witnesses;
Daniel Olm
Stella Stafford.

Inventor

George Michael Brauning

(No Model.)

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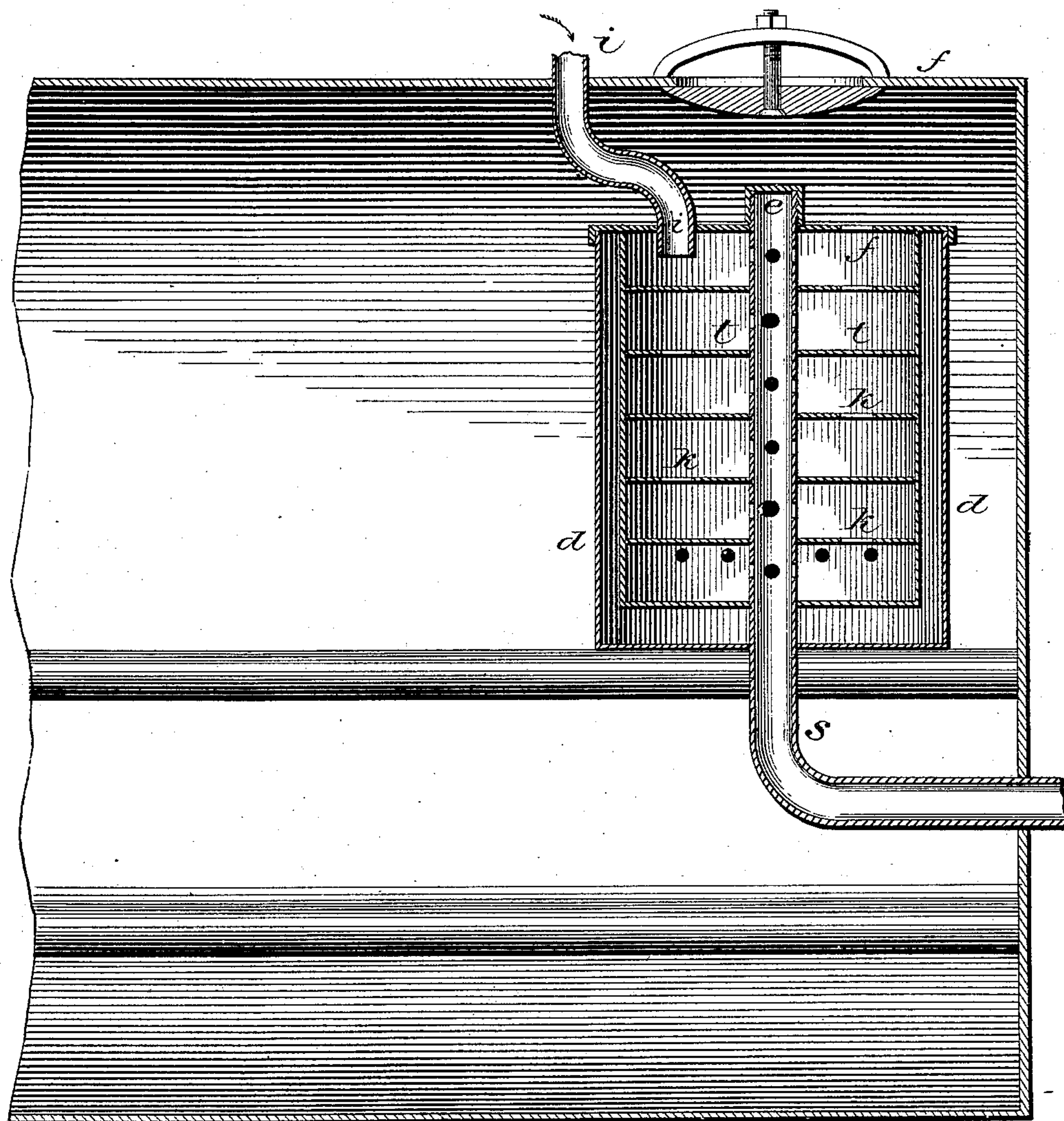
2 Sheets—Sheet 2.

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Fig. 4.



Witnesses

Daniel Blow

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Inventor:

George M. Brauminger

UNITED STATES PATENT OFFICE.

GEORGE MICHAEL BRAUNINGER, OF JANESVILLE, WISCONSIN.

BOILER-WATER PURIFIER.

SPECIFICATION forming part of Letters Patent No. 294,754, dated March 11, 1884.

Application filed April 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEO. MICHAEL BRAUNINGER, of Janesville, Wisconsin, have invented a new and useful Boiler-Water Purifier, of which the following is a specification.

My invention relates to improvements in boiler-water purifiers, in which a series of purifying-pans are arranged one above another in a vertical position, and lying one upon another in the order of the arrangement. These are perforated or pierced with a hole in the center thereof, in which a tubular shaft or coupling-rod is inserted, and operates as a binder to hold the said pans in their proper place, and other things more fully explained in another connection.

The object of my improvement is to provide a device for separating and secreting the lime and sediment from the water to be used in the boiler to which my device is applied, whereby such lime and sediment are prevented from being precipitated upon the inner surface of the boiler. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the entire apparatus. Fig. 2 is a top view of one of the open pans separated from the others, which separation is easily accomplished after taking off the cover. Fig. 3 is a perspective view of the said shaft or coupling-rod. Fig. 4 is a vertical section of my device in the boiler, showing among other things the holes in the bottom of the several pans communicating between the pans, arranged alternately on the respective sides of the connecting-shaft.

Similar letters refer to similar parts throughout the several views.

The jacket *d* constitutes the outer framework of the apparatus, and operates as a shield to the inner work. The said tubular shaft *c* is used as a blow-off pipe. The upper end thereof is closed with a screw-cap, *e*, which cap retains the top plate, *f*. The lower end of the said shaft *c* is furnished with an elbow-coupling, *s*, to which may be added other pieces of pipe of any length desired, and arranged at any particular angle, so as to connect with the outside of the boiler, and when thus arranged may be used to blow off the said purifier. The water is forced into the purifier, in the ordinary way, through the pipe *i* in the top plate, *f*, and in its course down through the several pans *t t* it changes from right to left, and vice versa, according to the

arrangement of the holes *k k* in the bottom of the pans. The bottom pan is perforated with holes *p* in the rim thereof, through which the purified water passes into the boiler. The said shaft *c* is also perforated or pierced with holes from the chamber of each pan, so that when the outer end of the shaft *c* below the elbow *s* is opened to the outer air the steam will rush into the pans through the openings *p*, and up through the openings *k* into the several pans, and out through the shaft *c*, carrying with it the water and sediment in the several pans. It is obvious, therefore, that the boiler is protected from the damaging effect of impure water, as it is thoroughly purified in passing over a heated surface of some twelve or fifteen feet.

The object of the partition *n* in each pan is to cause the water to pass over a larger bottom surface.

It is obvious that I am enabled to blow off and renovate this apparatus from time to time as desired without disturbing the water in the boiler or stopping the engine. Also, it is obvious that, my apparatus being made in detachable sections, I am enabled to remove them one at a time from the boiler through the man-hole for cleaning or repairing whenever required.

I am aware that prior to my invention boiler-water purifiers have been used with shelves and pans and blow-off pipes. I therefore do not claim such a combination, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in a boiler-water purifier, of a series of pans forming chambers, and a central column or shaft, *c*, pierced with holes *m m*, communicating with each chamber, all arranged to operate in the manner and for the purpose herein described.

2. The combination of the inclosing-case *d*, the series of pans *a a*, provided with the partition *n* and holes *k k*, and central tubular shaft, *c*, provided with cap *e* and the holes *m m* in each succeeding chamber, said partition *n* being adapted to cause the water to flow over the entire surface of the pans while flowing from one to the other, all substantially as and for the purpose specified.

GEO. MICHAEL BRAUNINGER.

Witnesses:

DANIEL CLOW,
R. W. KING.