(No Model.) 2 Sheets—Sheet 1.

J. A. MALONEY.

BOILER CLEANER.

No. 496,318. Patented Apr. 25, 1893.

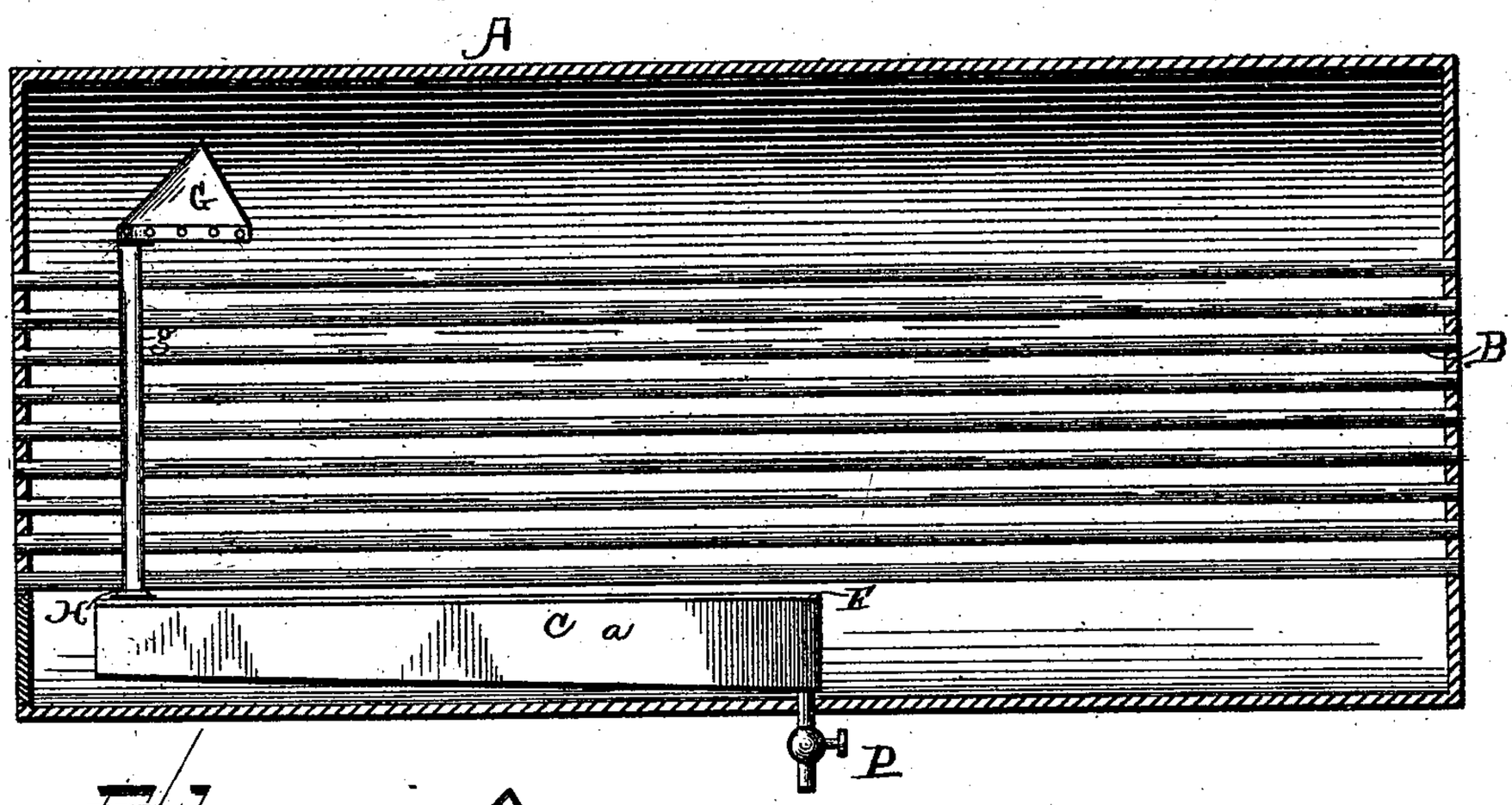


Fig. 1.

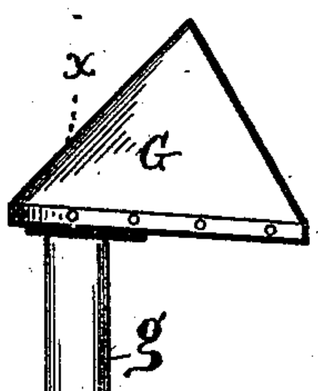


Fig. 2.

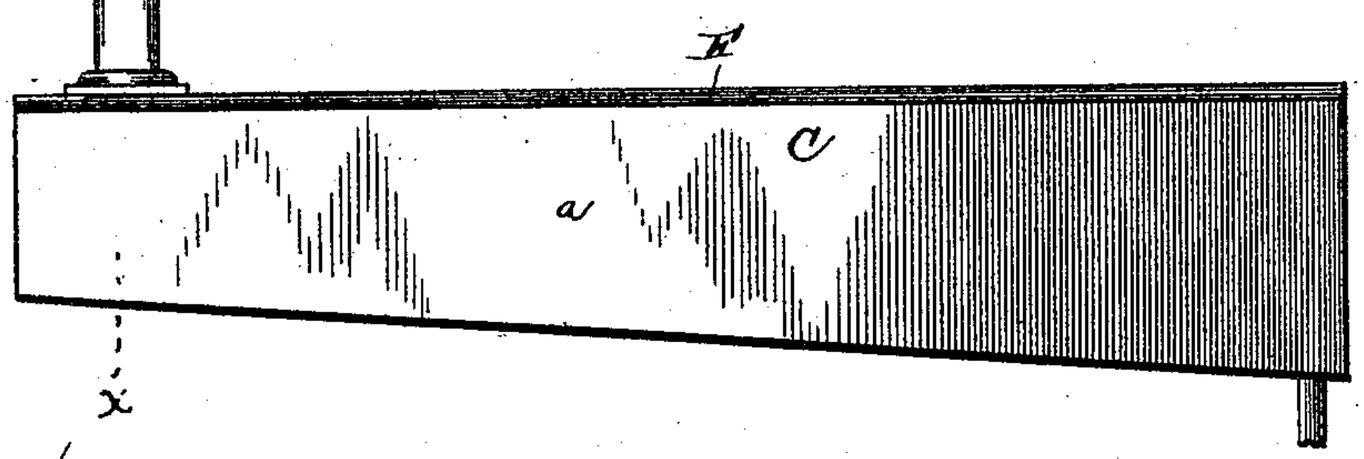
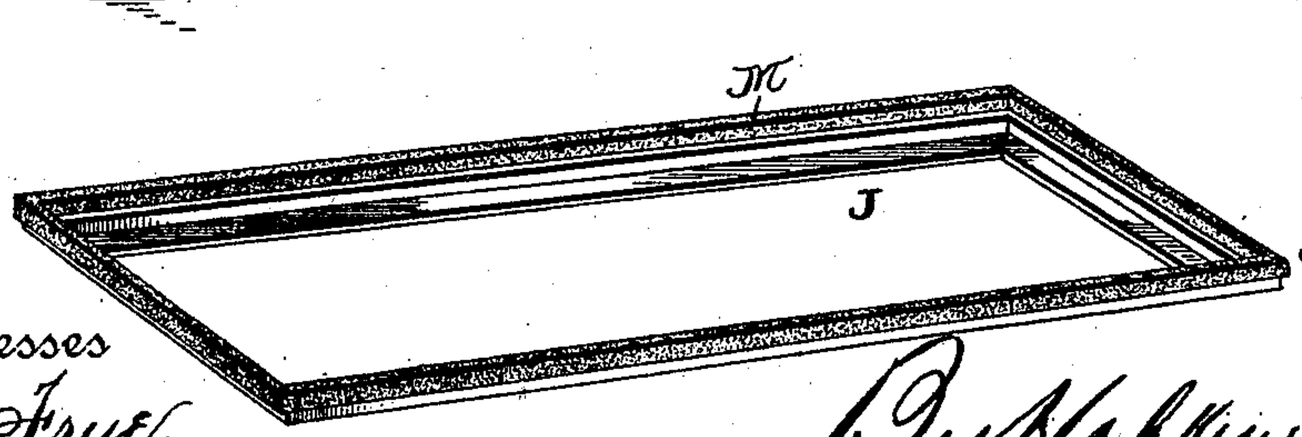


Fig. 3.



Witnesses
C. S. Frye.
G. T. Myers

J. A. Maloney
Inventor
By Hopkins & Atkins
Attorneys

(No Model.) 2 Sheets—Sheet 2.

J. A. MALONEY.

BOILER CLEANER.

No. 496,318. Patented Apr. 25, 1893.

Fig. 4.

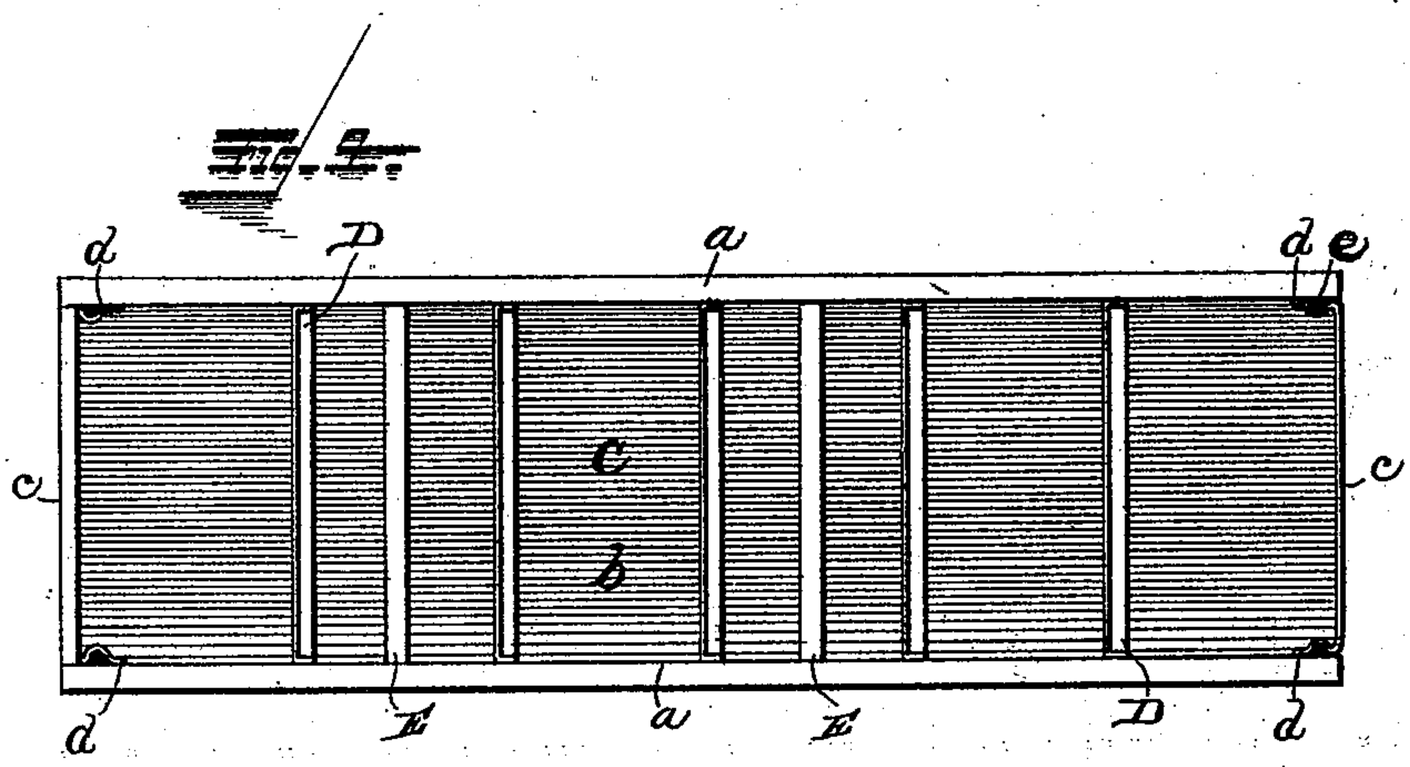


Fig. 5.

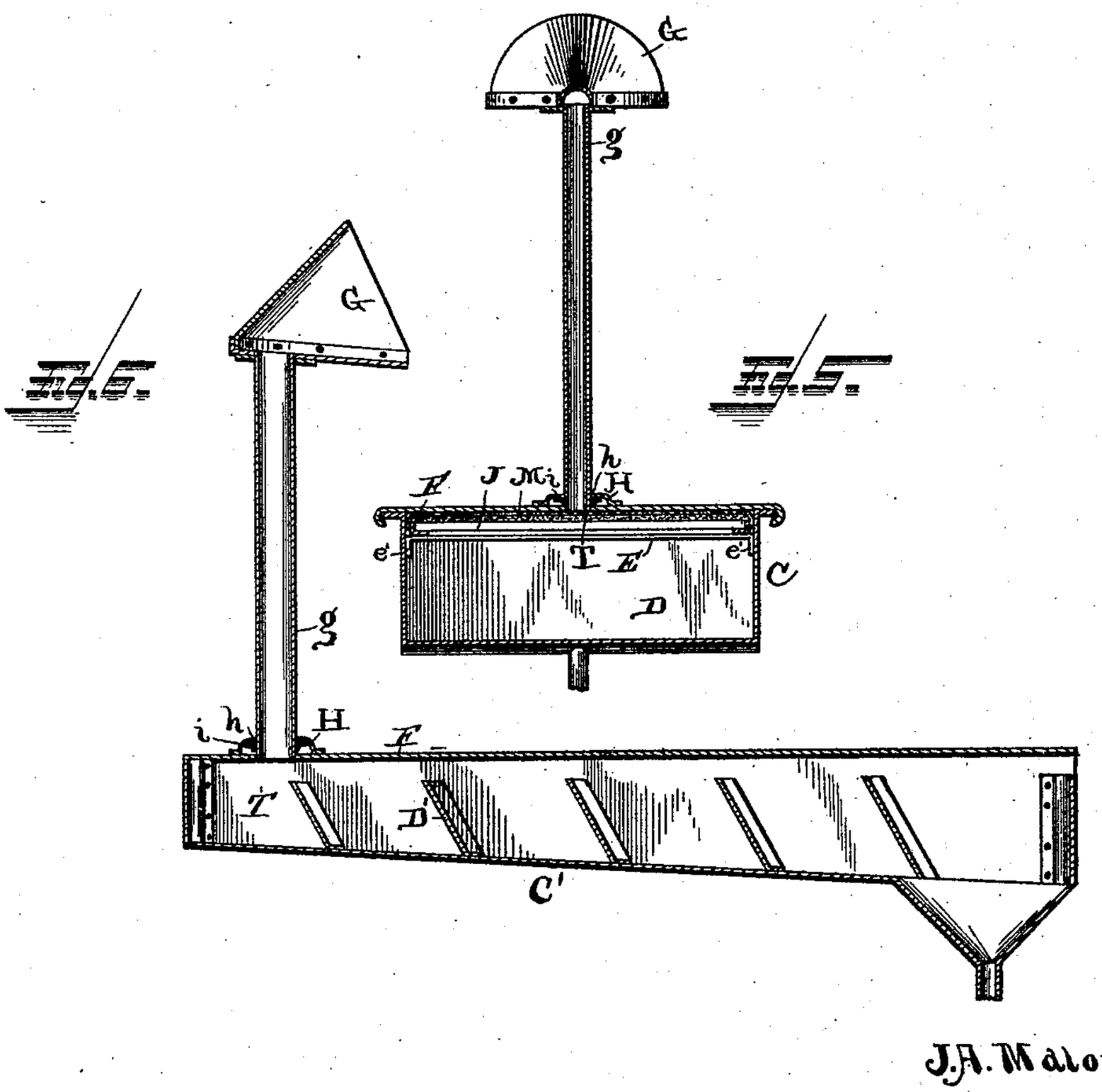


Fig. 6.

Witnesses
C. S. Fryer
E. G. Myers

J. A. Maloney.
Inventor
By Hopkins & Atwell
Attorneys.

UNITED STATES PATENT OFFICE.

JOSEPH A. MALONEY, OF LEAVENWORTH, KANSAS.

BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 496,318, dated April 25, 1893.

Application filed July 14, 1892. Serial No. 440,024. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. MALONEY, a citizen of the United States, residing at Leavenworth, in the county of Leavenworth and State of Kansas, have invented certain new and useful Improvements in Boiler-Cleaners; 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 has relation to improvements in filters or devices for removing sediment and scale from water in steam boilers when in operation, and it has for its general object to provide a thoroughly efficient device of a cheap and compact construction adapted to be placed within a boiler.

With the foregoing end in view, the novelty of the invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which:

Figure 1, is a vertical longitudinal, diametrical section of a steam boiler with my improved filter in position therein. Fig. 2, is an enlarged side elevation of the filter removed. Fig. 3, is a perspective view of the filter frame removed. Fig. 4, is a plan view of the filter body with the frame and cover removed. Fig. 5, is an enlarged transverse section taken in the plane indicated by the line *x*, *x*, of Fig. 2, with the filter frame and cover in position, and Fig. 6, is a vertical, longitudinal central section of a modified construction.

Referring by letter to the said drawings and more particularly to Figs. 1, to 5, inclusive: A, indicates a steam boiler which may be of the ordinary or any approved construction, and B, indicates the hot air flues of the same.

C, indicates the settling chamber of my improved filter which is preferably of a general rectangular form as shown and is designed to rest within the boiler beneath the flues B, thereof, and adjacent to the lower manhole as shown in Fig. 1, of the drawings. The side walls *a*, of the chamber C, are preferably formed integral with the bottom *b*, as are also the end walls *c;* and these end walls *c*, the rearward one of which is of a less height than the walls *a*, are provided with the inwardly bent flanges *d*, which are riveted or otherwise connected to the side walls *a*, and are bent over a form or the like so as to afford the pockets *e*. These pockets *e*, are preferably of a semi-circular form in cross-section as shown and they are designed to receive cotton-waste, asbestus or other packing, whereby it will be seen that a thoroughly tight joint will be effected between the side and end walls.

D, indicates the transverse partitions of the settling chamber which are arranged at suitable intervals in the length thereof and are designed to divide the same into several compartments adapted to receive the sediment, scale, &c. These partitions D, which are preferably of the proportional height illustrated, may be connected to the side and bottom walls of the chamber in any approved manner and they are preferably braced by the metal straps E, which are connected to their upper edges and are provided at their ends with the downwardly disposed angular branches *e'*, designed to be riveted or otherwise connected to the side walls *a*. Thus it will be readily perceived that the partitions will be fixedly held in position.

Mounted in longitudinal ways or grooves upon the inside of the side walls *a*, adjacent to the upper edges thereof, is the removable cover F, which is provided adjacent to its forward end with an aperture T, which is preferably of an oval form and is designed to receive the preferably oval tube *g*, of the receiver G. This receiver G, which is angularly disposed with respect to the tube *g*, as shown, is of a general funnel shape and is designed to rest above the flues B, with its lower side submerged so that it will skim the water and receive the sediment and scale which are raised to the surface of the water by the circulation of the same incidental to the boiling process.

Suitably connected to the cover F, by rivets or the like is a packing cap H, which is provided with a central aperture *h*, for the passage of the tube *g*, and with a depending skirt *i*, of felt or the like which latter impinges against the tube *g*, and is designed to insure a tight joint of the same to the cover.

As better illustrated in Fig. 5, of the drawings a sufficient space is afforded between the upper edges of the partitions D, and the cover F, to receive the filtering frame J, which is

preferably formed of angle iron and is of such a size that it will take loosely into the chamber C.

Connected to the vertically-disposed branches of the frame J, is the filter strip or strips M, of felt or other suitable material, which strip is bent inwardly by the cover when the same is placed in position, whereby it will be seen that a chamber will be formed between the filtering strip and the walls and cover of the chamber C entirely around the upper part of said chamber, the inwardly bent edges of the filtering strip forming a substantially tight joint, by reason of which the passage of the water will be retarded and the sediment and scale will be allowed to settle in the compartments formed by the partitions D.

In operation the water in the boiler takes into the receiver G, and passes through the tube *g*, into the forward compartment of the settling chamber from whence it passes successively through the several compartments and back again into the boiler through the opening formed between the rear end wall *c*, and the cover F. It will be perceived that in order for the water to pass through the sediment chamber into the boiler, it will have to pass through the filtering strip M, by means of which it will be thoroughly filtered from all sedimentary substances.

P indicates a blow off cock for cleaning the filter.

In Fig. 6, of the drawings I have illustrated a settling chamber C′, which is similar to the chamber C, before described, with the exception that it does not embody a filtering frame, and has its partition walls D′, inclined instead of perpendicular as illustrated in Figs. 1 to 5.

Although I have in some respects, specifically described the construction and relative arrangement of the several elements of my improved device, I do not desire to be confined to the same, as such changes or modifications may be made as fairly fall within the scope of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a filter or device for removing sediment, scale, &c., from the water in boilers, the settling chamber described, comprising the bottom, the side walls, and the end walls having the inwardly bent flanges connected to the side walls and bent to form pockets adapted to receive cotton-waste, asbestus or other packing substantially as and for the purpose set forth.

2. In a filter or device for removing sediment, scale, &c., from the water in boilers, the combination with the settling chamber having a series of transverse partition walls and the cover of the filter frame located in the upper part of the chamber, and having a strip or strips of felt or equivalent material substantially as and for the purpose set forth.

3. In a filter or device for removing sediment, scale, &c., from the water in boilers, the combination with the settling chamber, and the tube connecting the settling chamber and the receiver; of the packing cap connected to the settling chamber and having an aperture for the passage of the connecting tube, and a skirt of felt or equivalent material connected to the packing cap and impinging upon the connecting tube, substantially as and for the purpose specified.

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

JOSEPH A. MALONEY.

Witnesses:
JNO. W. BRANDON,
GEO. M. BOWEN.