

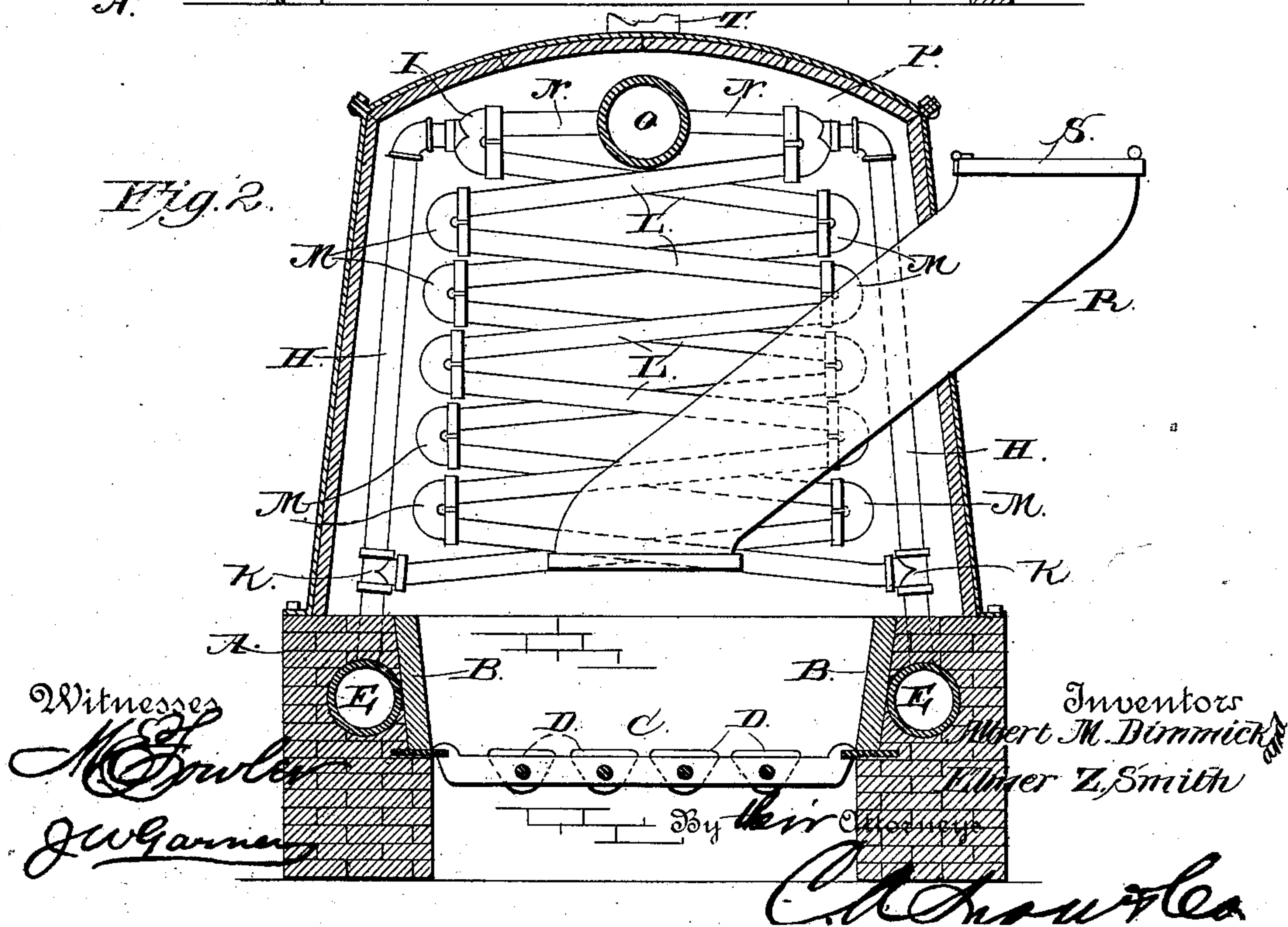
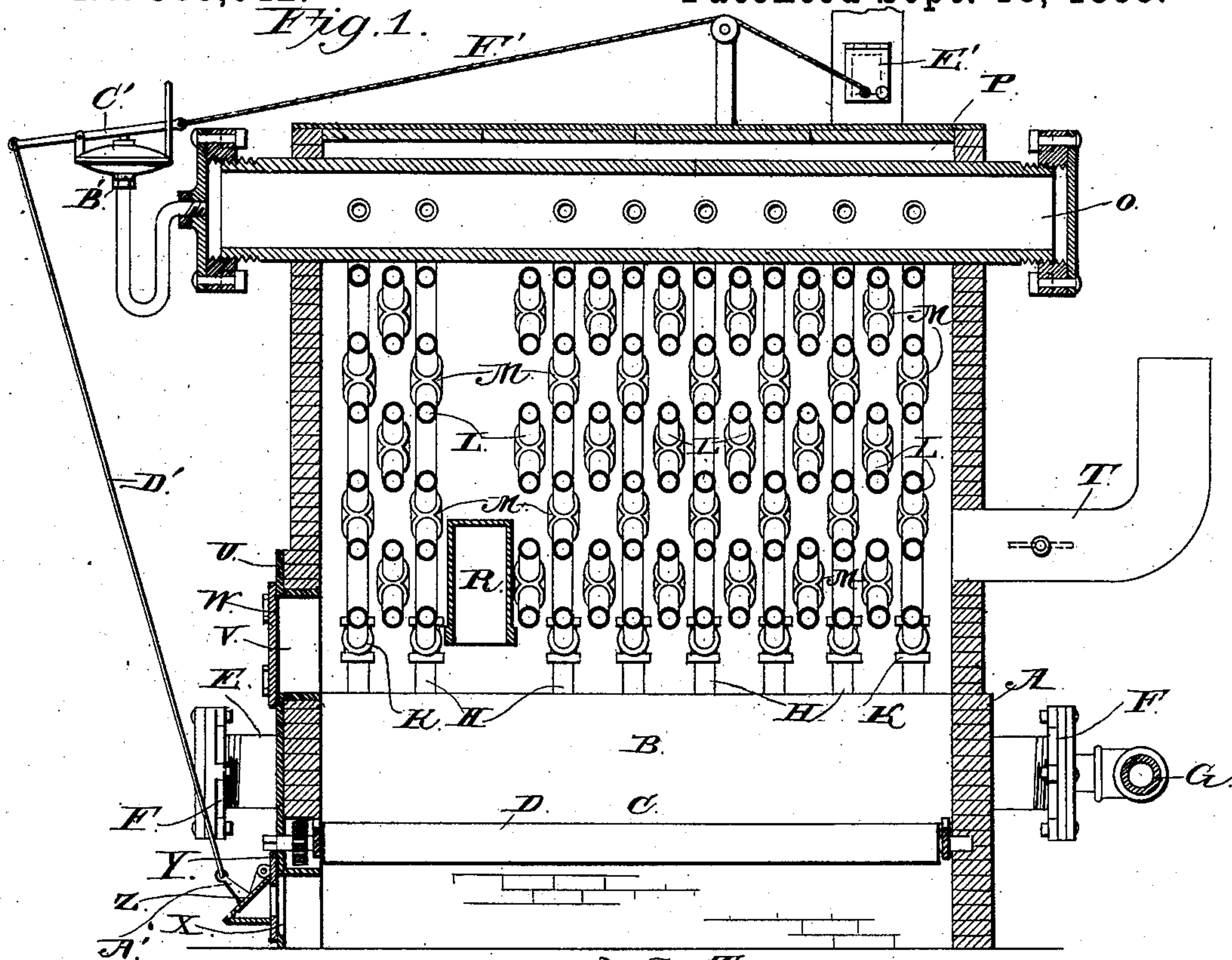
(No Model.)

2 Sheets—Sheet 1.

A. M. DIMMICK & E. Z. SMITH.  
SECTIONAL STEAM BOILER.

No. 389,642.

Patented Sept. 18, 1888.



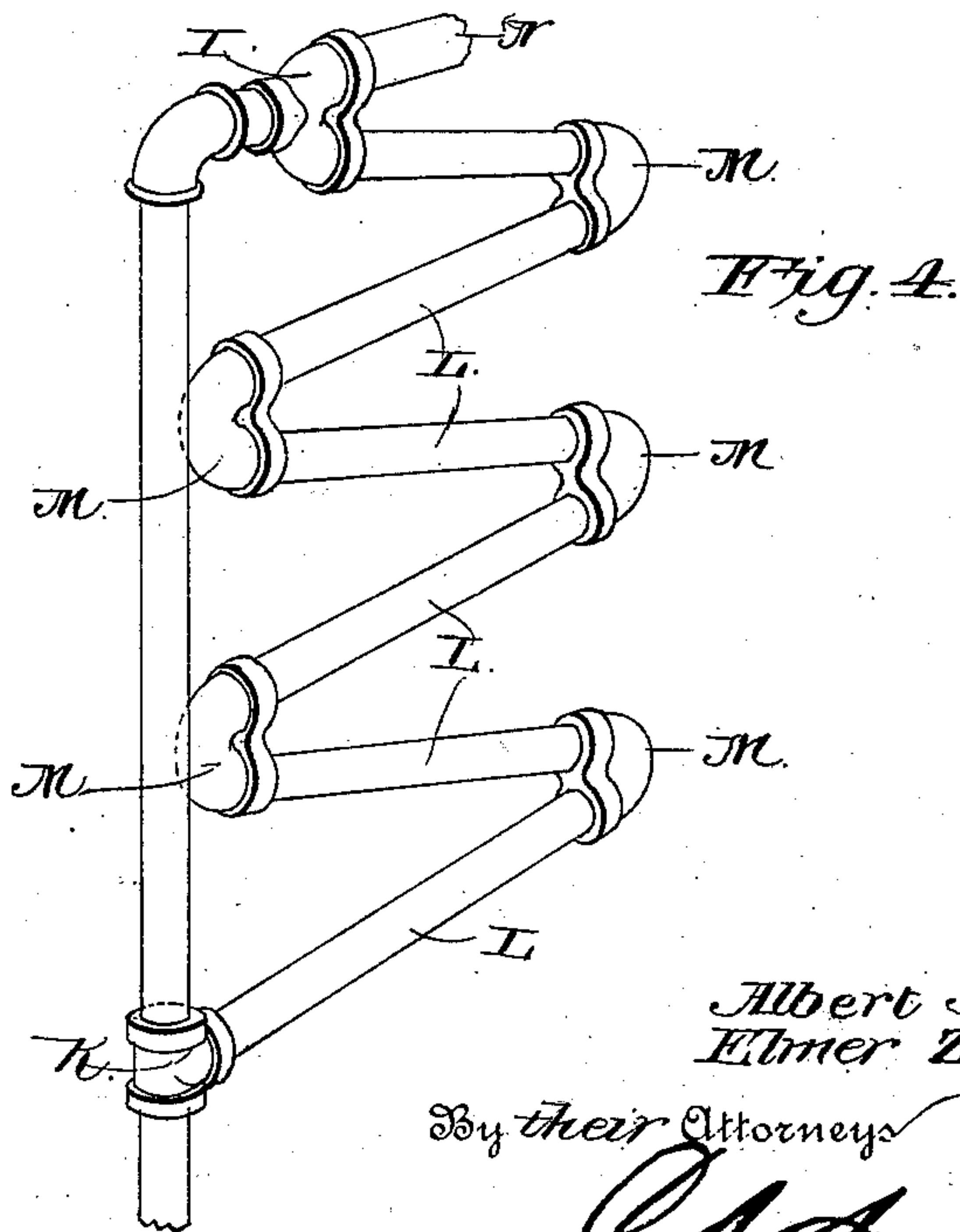
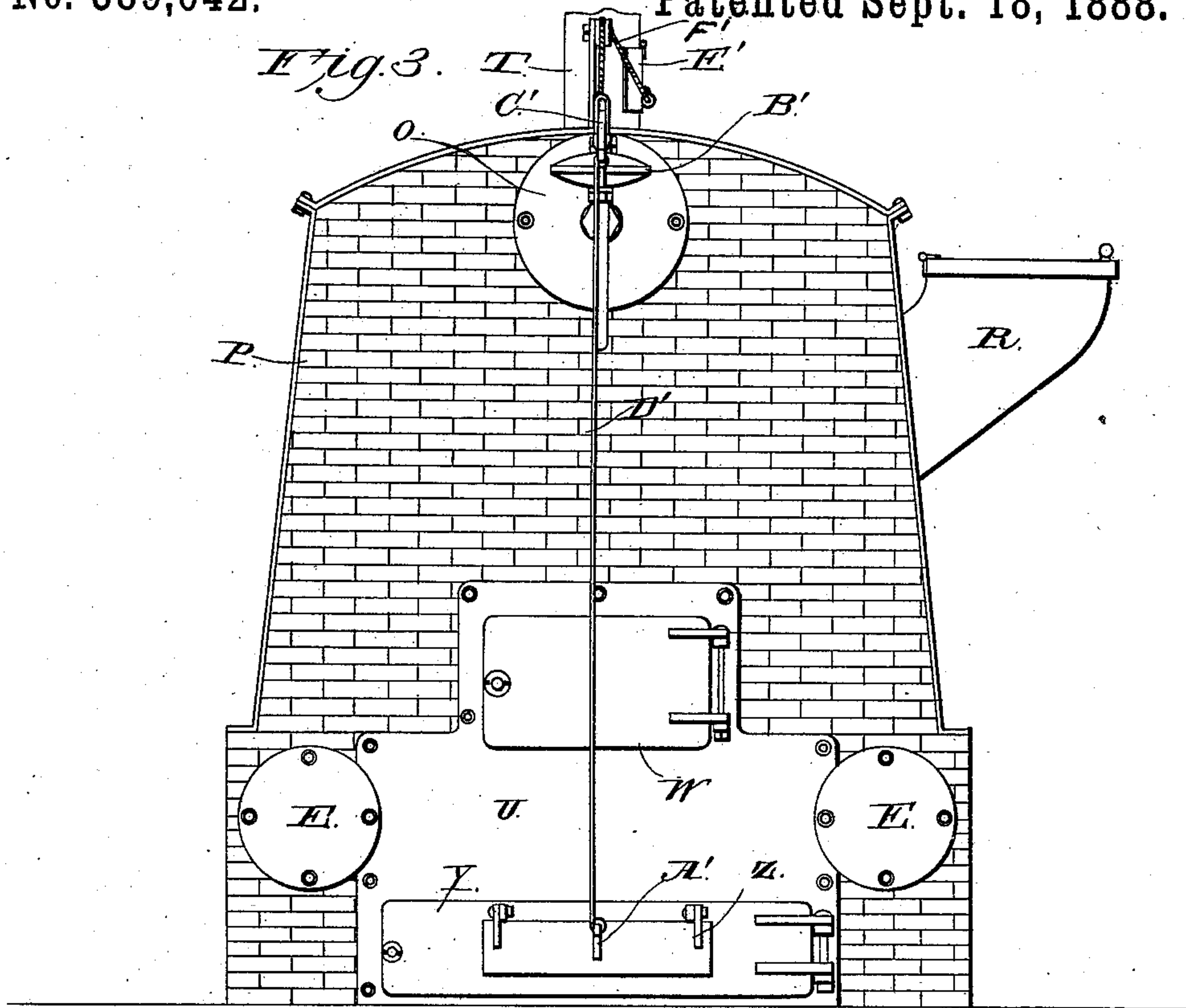
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Witnesses  
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*J. C. Garner*

Inventors  
*Albert M. Dimmick and*  
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By their Attorneys

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

ALBERT MELLVILLE DIMMICK AND ELMER Z. SMITH, OF WILKES-BARRÉ,  
PENNSYLVANIA.

## SECTIONAL STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 389,642, dated September 18, 1888.

Application filed February 23, 1888. Serial No. 264,882. (No model.)

*To all whom it may concern:*

Be it known that we, ALBERT MELLVILLE DIMMICK and ELMER Z. SMITH, citizens of the United States, residing at Wilkes-Barré, in the  
5 county of Luzerne and State of Pennsylvania, have invented a new and useful Improvement in Sectional Steam-Boilers, of which the following is a specification.

Our invention relates to an improvement in  
10 sectional safety steam-boilers; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

15 In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a sectional boiler embodying our improvements. Fig. 2 is a vertical transverse sectional view of the same. Fig. 3 is a front end elevation.  
20 Fig. 4 is a detail perspective view.

A represents the setting, which is made of brick-work and forms a support for the boiler and the sides of the combustion-chamber and ash-pit of the furnace. The sides of the fire-  
25 box or combustion-chamber are lined with fire-brick at B. The grate C of the combustion-chamber is composed of a series of revoluble parallel grate-bars, D, each of which is triangular in shape in cross-section, as shown.

30 E represents a pair of mud-drums, which are incased in the sides of the brick-setting and extend longitudinally through the same and have their ends projecting beyond opposite ends of the setting, as shown. The outer  
35 ends of the said mud-drums are provided with flange-heads F, which are bolted thereto, and are adapted to be removed therefrom at will to enable the mud and sediment to be cleaned from the drums when necessary. The rear  
40 ends of the mud-drums are connected by a pipe, G.

H represents a series of inclined tubes, which have their lower ends screwed to the upper sides of the mud-drums. To the upper end of  
45 each pipe H is screwed a three-way union, I, and near the lower end of each pipe H is a T-coupling, K.

L represents a series of oppositely-inclined branch pipes, which have their ends connected  
50 by semicircular couplings M. The extreme

upper end of the uppermost pipes L is connected to the lower branch or arm of the upper union I, and the lower end of the lowermost pipe L is connected to the pipe H by the  
55 T-coupling K. Each pipe H and its branch inclined pipes L constitutes a section of the boiler, and each of the said sections may be removed from the boiler by simply unscrewing the lower end of the pipe H from the mud-  
60 drum, with which it is engaged, and by unscrewing pipes N, which connect the unions I with a steam-drum, O, that is arranged in a horizontal position at the upper side of the boiler, as shown in Figs. 1 and 2. The ends  
65 of the said steam-drum O have removable heads and project beyond the ends of the shell P, which incases the said steam-drum and the section-pipes of the boiler, and has its lower  
70 flanged edges resting upon the walls of the brick-setting.

One of the sections on one side of the boiler is omitted to leave an open space, through which extends a coal magazine and chute, R, that passes through an opening in one side of the shell P, is secured to the said shell, has its  
75 lower end arranged directly over the fire-box, and has its upper end provided with a hinged lid, S. This magazine is filled with coal when the boiler is in operation, and forms a self-feeder of fuel to the fire-box, as will be readily  
80 understood.

T represents a smoke pipe or flue, which communicates with and extends from the rear side of the shell P.

U represents a metallic plate, which is secured  
85 to the front end of the casing. The said plate has an opening, V, through which fuel may be placed upon the fire, and a hinged door, W, for the said opening. In the lower side of the plate is an opening, X, which communicates  
90 with the ash-pit. This opening is covered by a hinged door, Y, which has a hinge draft-regulating door, Z, that is provided with an outwardly-extending arm, A'.

B' represents a safety-valve, which is attached  
95 to the front end of the steam-drum and has a lever, C', which is connected to the arm A' of the draft-regulator by means of a rod, D'.

In the smoke-pipe is a hinge weighted draft regulator or damper, E', which is connected to  
100



the lever of the safety-valve by a flexible cord, F', that passes over suitable pulleys. By means of this construction the draft-regulator and the damper will be closed when the steam-pressure is so great as to raise the lever-arm of the safety-valve and thereby automatically regulate the draft.

By reference to Fig. 2 it will be understood that the pipes H are inclined toward each other, and that this arrangement of said pipes, together with the inclined position of the branch pipes L, which connect therewith, serve to maintain a constant circulation of water to all parts of the boiler.

A steam-boiler thus constructed is extremely cheap and simple, may be set up or taken to pieces by one man, is not liable to explode with such violence as to endanger life or destroy property, is very easily operated, and is capable of maintaining a maximum head of steam with a minimum consumption of fuel.

Changes in the form, proportion, and details of construction of the several parts may be made without departing from the spirit or sacrificing the advantages of our invention.

Having thus described our invention, we claim—

1. In a sectional steam-boiler, the combination of the mud-drum, the steam-drum O, the pipes H, communicating with said mud-drums and steam-drums, and the branch pipes L, arranged at suitable angles supported over the fire-box and communicating at their upper and lower extremities with pipes H, substantially as described.

2. In a sectional steam-boiler, the combination of the mud-drums, the steam-drums, and the sections connecting the same, the said sections comprising each a pipe, H, and the oppositely-inclined branch pipes L, communicating with each other and communicating with the section-pipes near the upper and lower ends thereof, substantially as described.

3. The combination, in a sectional steam-boiler, of the pipe H and the branch pipe L, having their opposite ends connected to and communicating with each other, and their extreme upper and lower ends communicating with the pipes H near the upper and lower ends thereof, substantially as described.

4. The combination of the mud-drums, the steam-drum, the inclined pipes H, having their lower ends detachably secured to the

mud-drums, the three-way union I, detachably secured to the pipes H, the pipes N, connecting the upper branches of said unions I to the steam-drum, the couplings K, connected to pipes H near the lower ends thereof, and the communicating branch pipe L, connected to couplings K and the lower branches of unions I, substantially as described.

5. In a sectional steam-boiler, the shell P, the steam-drum therein, the mud-drums, the section-pipes connecting the steam and mud drums, and the magazine-chute extending through the shell, passing down between the pipes, and having its lower end arranged over the fire-box, substantially as described.

6. In a sectional steam-boiler, the combination of the mud-drums, the steam-drum, the section-pipes H, extending up from the mud-drums and having the coupling K near their lower ends and the unions I at their upper ends, the pipes N, attached to the steam-drum and to the unions I, and the opposite inclined branch pipes L, connected together by couplings M, and connected to the section-pipes by couplings K and unions I, substantially as described.

7. In a sectional steam-boiler, the mud-drums E, the steam-drum O, and the sections connecting the same, said sections each comprising a pipe, H, and the oppositely-inclined branch pipes L, communicating with each other and with the pipes H, said branch pipes being connected together by couplings M and connected to the pipes H by coupling K and union I, as set forth.

8. In a sectional steam-boiler, the mud-drums E, the steam-drum O, and the boiler proper made in sections, each comprising a pipe, H, and inclined branch pipes L, the lower end of the pipe H being detachably secured to the drums E, and the upper ends being detachably connected to the steam-drums by means substantially as described, as set forth.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

ALBERT MELLVILLE DIMMICK.  
ELMER Z. SMITH.

Witnesses:

E. G. SIGGERS,  
R. J. MARSHALL, Jr.