

(No Model.)

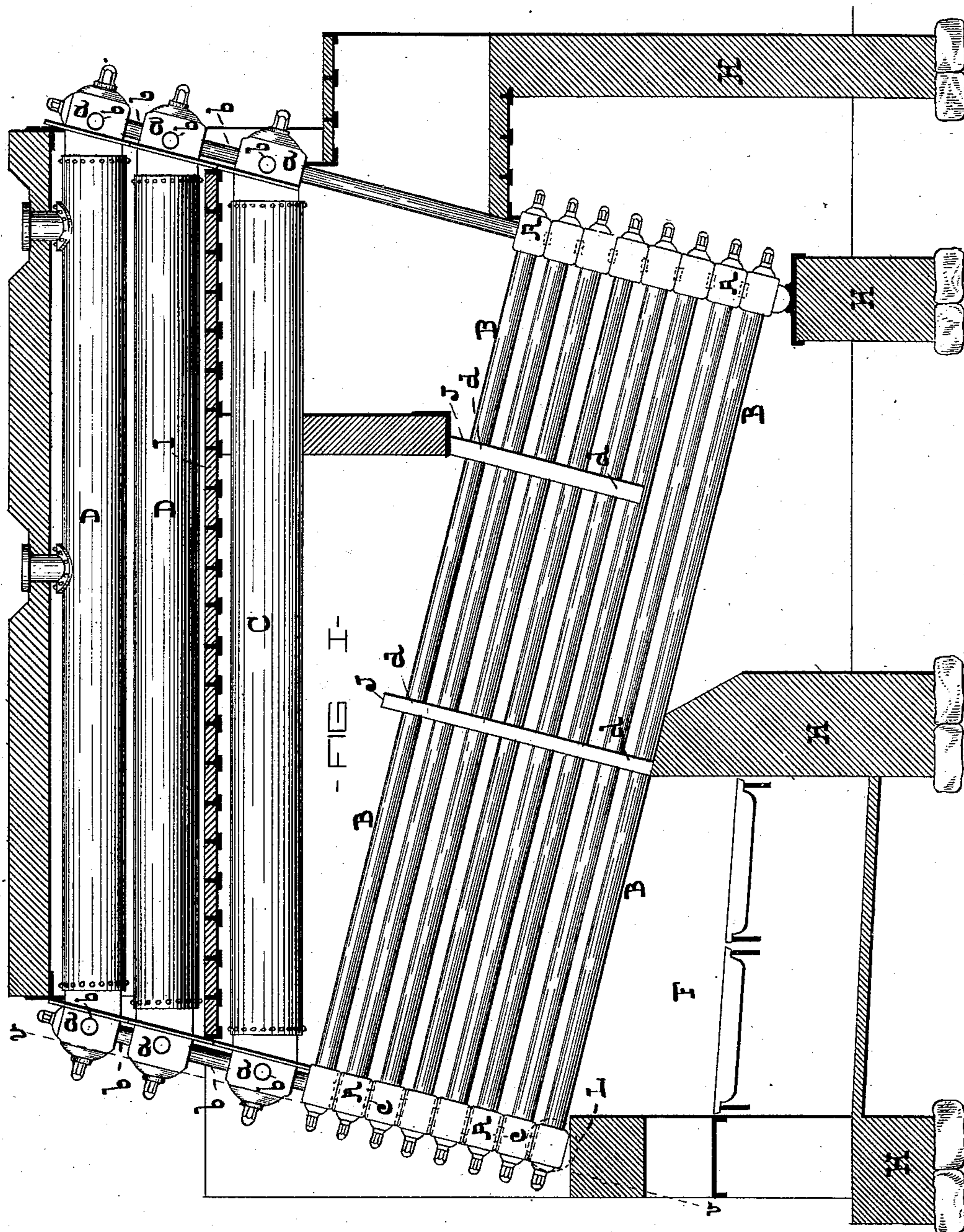
2 Sheets—Sheet 1.

E. J. MOORE.

SECTIONAL WATER TUBE BOILER.

No. 376,483.

Patented Jan. 17, 1888.



-WITNESSES-

Don't Fisher
Frank Hodges

-INVENTOR-

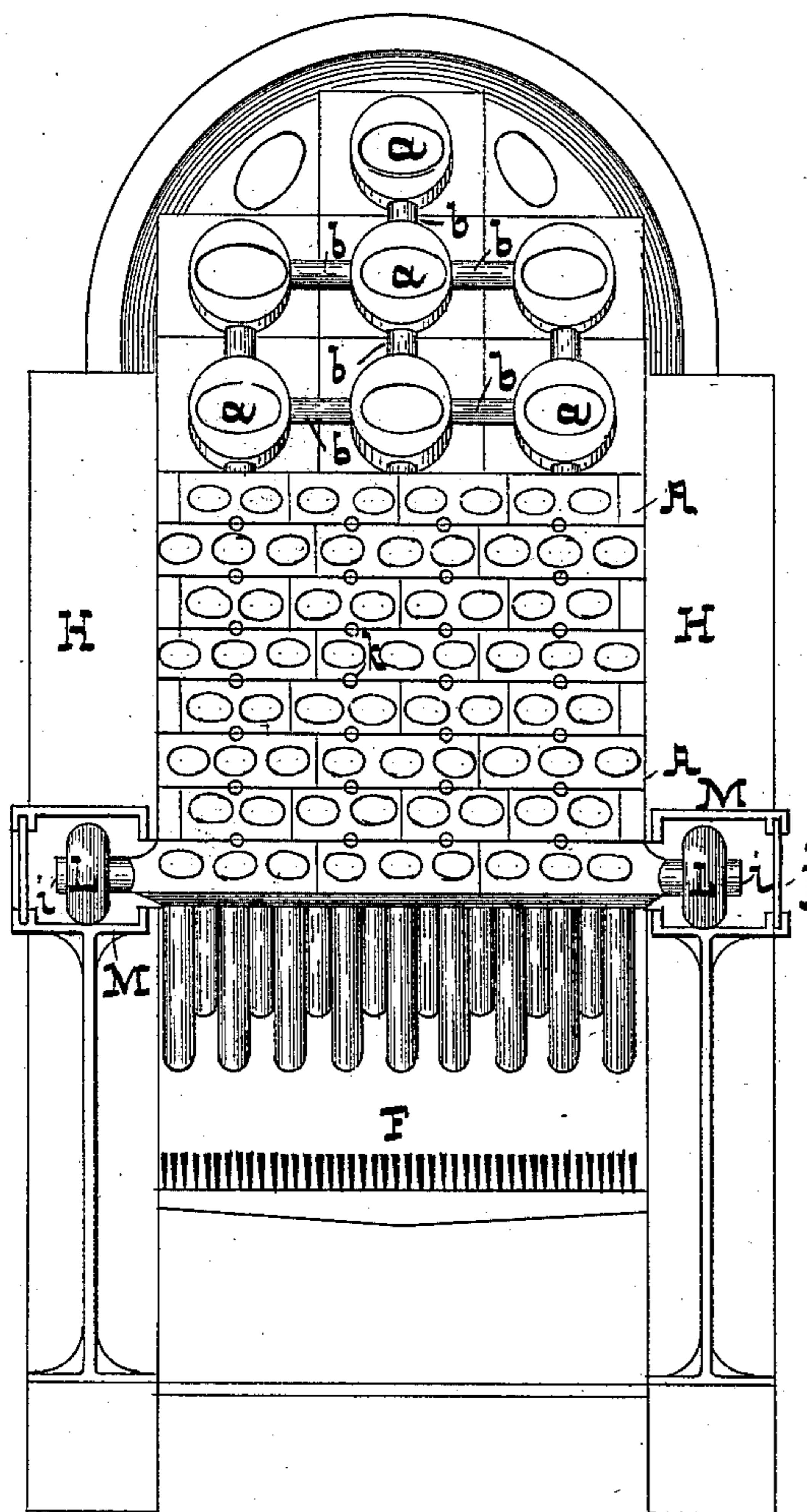
Edward J. Moore
by G. H. H. Howard
Atty.

2 Sheets—Sheet 2.

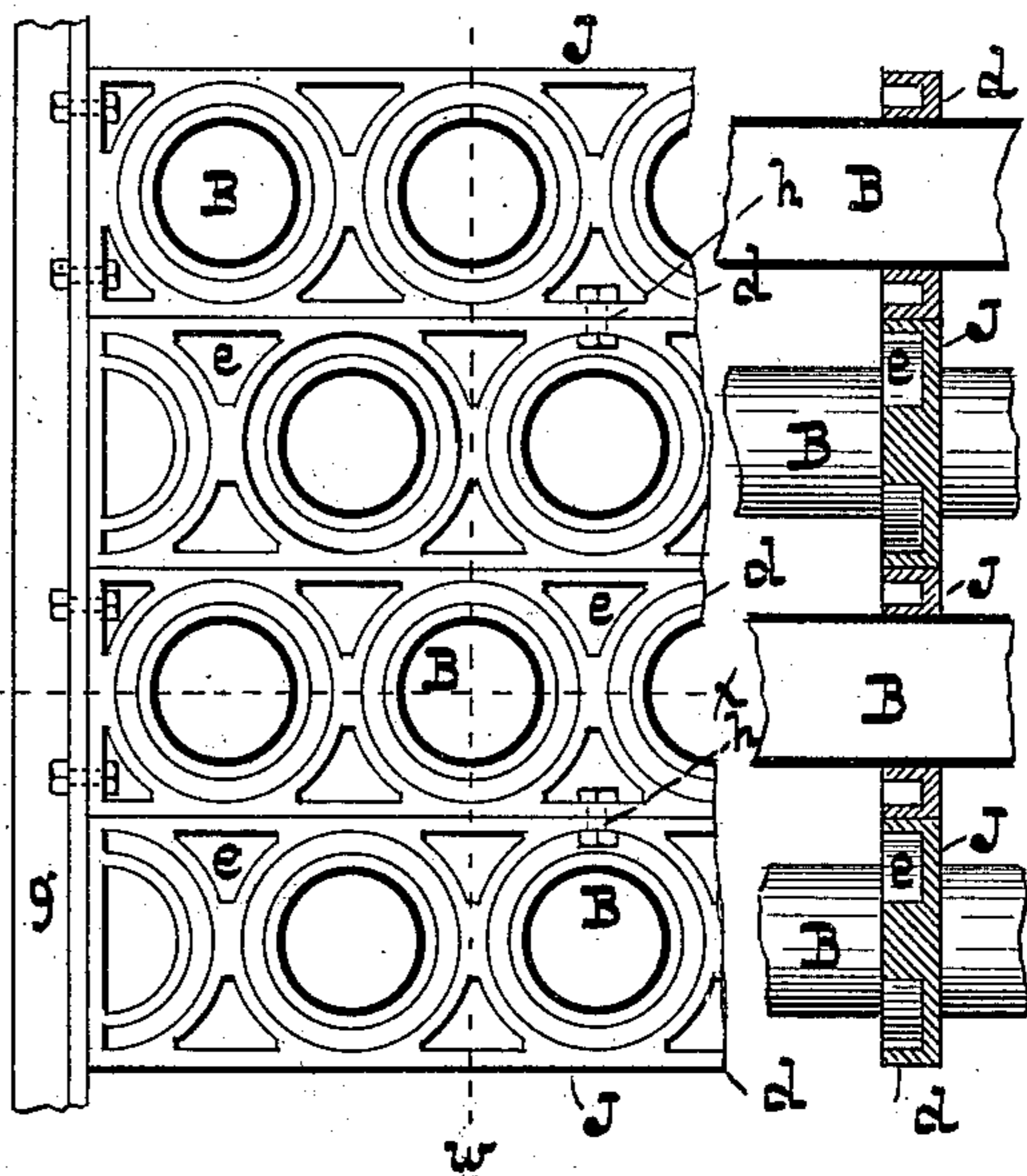
SECTIONAL WATER TUBE BOILER.

Patented Jan. 17, 1888.

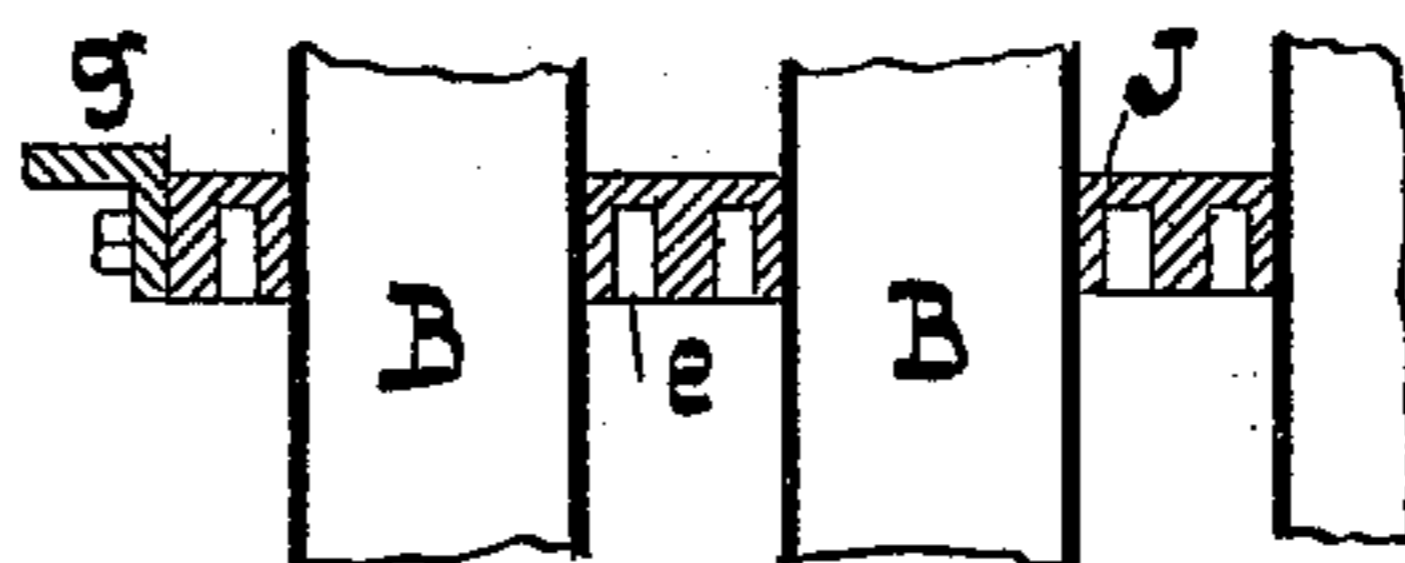
- FIG II -



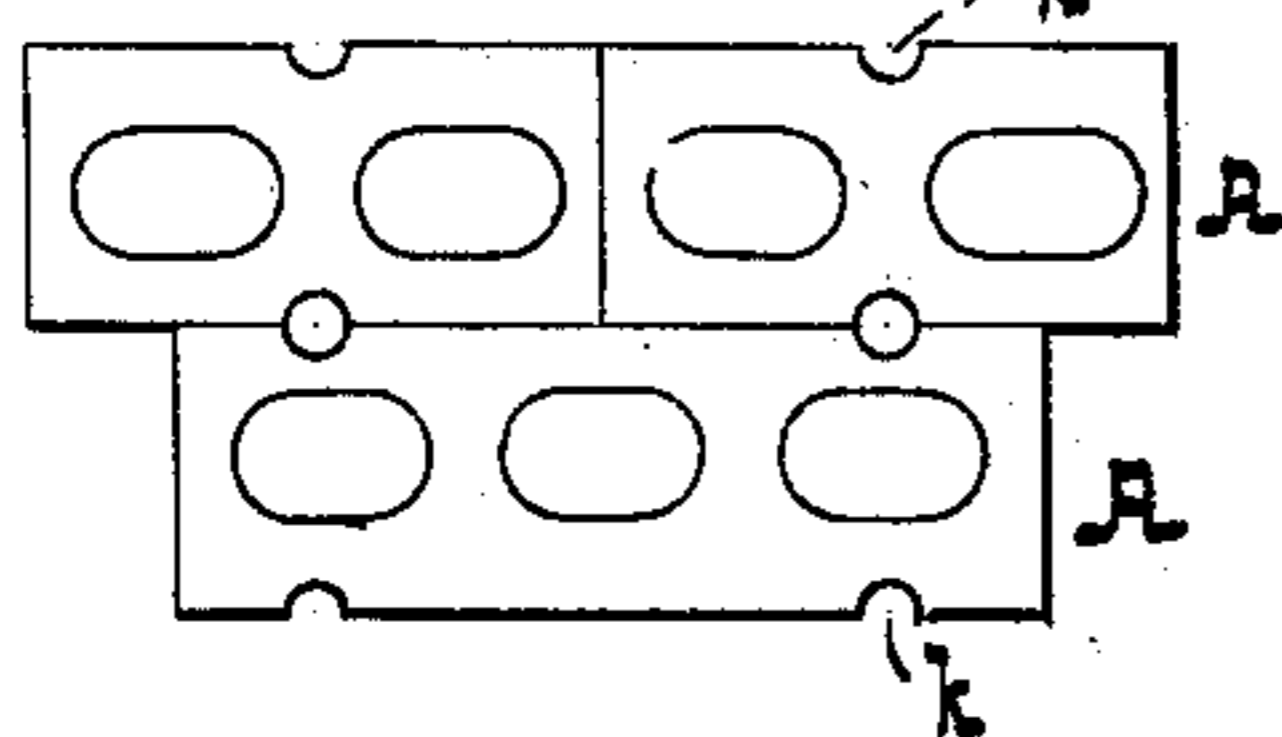
- FIG III- - FIG IV-



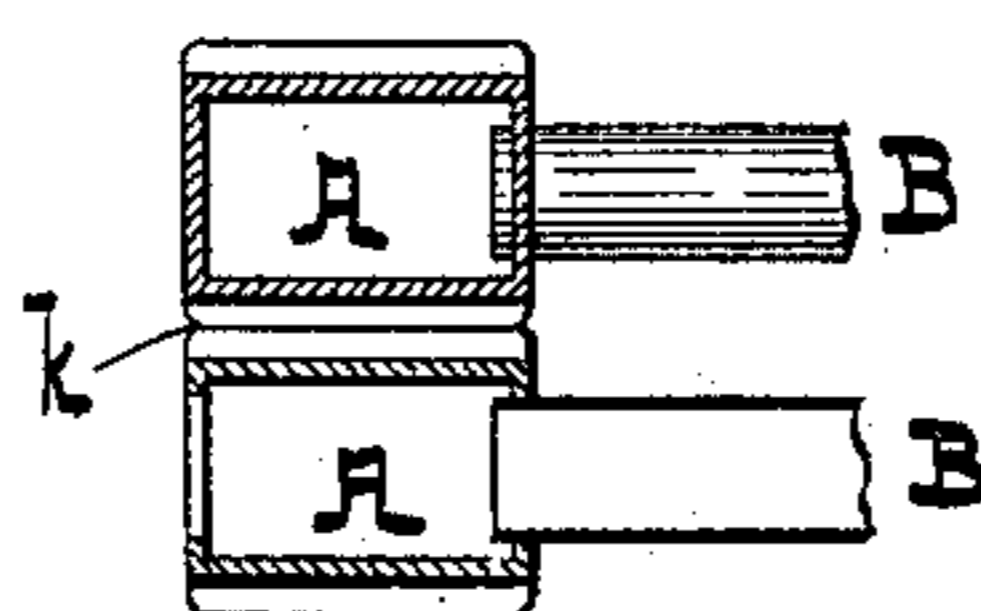
- FIG - -



- FIG VI-1



- FIG VII -



-WITNESSES-

Dan'l Fisher
of
Frank Hodges

-INVENTOR-

Edward J. Mone,
by E. W. T. Howard
att'y.

UNITED STATES PATENT OFFICE.

EDWARD J. MOORE, OF PHILADELPHIA, PENNSYLVANIA.

SECTIONAL WATER-TUBE BOILER.

SPECIFICATION forming part of Letters Patent No. 376,483, dated January 17, 1888.

Application filed March 25, 1887. Serial No. 232,393. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. MOORE, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain
5 Improvements in Sectional Water-Tube Boilers, of which the following is a specification.

The first part of the said invention relates to a peculiar arrangement of the connections between the steam and water drums and the
10 headers, whereby all the connecting-nipples are in common lines, and may be expanded from the upper ends of the said connections.

The second part of the said invention relates to an improved sectional flame-plate.

15 The third part of the said invention relates to improved means for supporting the front end of the boiler, whereby the same may move slightly in and independently of the wall as expansion and contraction of the various parts
20 of the boiler take place.

In the further description of the said invention which follows reference is made to the accompanying drawings, forming a part hereof, and in which—

25 Figure I is a sectional side elevation of the improved boiler, and Fig. II a transverse section of the same, taken on the dotted line *v v*, Fig. I. Fig. III is a front view of a part of the flame-plate; and Fig. IV, a section of the
30 same, taken on the dotted line *w w*, Fig. III. Fig. V is a section taken on the dotted line *x x*, Fig. III. Figs. VI and VII are details of the headers, showing the means whereby access is had to the water-tubes for cleaning purposes,
35 as hereinafter described.

Similar letters of reference indicate similar parts in all the figures.

A A are the headers, and B B the water-tubes.

40 C C are the water and D D the steam drums. The said drums have secured to their ends boxes *a a*, which are united by means of nipples *b b* in all directions.

By reference to Fig. I it will be seen that
45 the upright nipples *b b* are in alignment with those, *c c*, connecting together the headers; consequently the expanding-tool can be inserted from the upper boxes, *a a*, and worked therefrom in setting out the nipples of the
50 lowest headers.

The furnace of the boiler is denoted by F, and the walls of the setting are indicated by H.

I is a partition-wall placed over the water-drums C C and between them and the steam-drums D D. This partition-wall is supported
55 in any suitable manner, but in the drawings it is shown as sustained by means of T-irons, the ends of which rest in the side walls of the setting. The partition-wall I serves to protect the steam-drums from the direct action of
60 the fire, while sufficient heat is radiated from the partition to superheat steam contained in the steam-drums.

J J are flame-plates formed of the sections
65 *d d*. These sections consist of plates with holes therein for the water-tubes B, and provided with pockets *e e*, in which fire-clay or other indestructible material is placed. These sections of the flame-plates are of such length
70 as to take several of the tubes in a horizontal line, and they are bolted to irons *g*, built in the side walls of the setting. The sections are also bolted together to prevent their displacement by warping. The bolts used for this purpose are denoted by *h*. The pockets in the
75 flame plates can be of any shape; but it is desirable that they should be made so as to leave as little metal between them as possible, so as to lighten the plates to the fullest extent.

L L are rollers on trunnions *i*, formed on
80 the lowest horizontal line of headers. These rollers rest in boxes M built in the side walls of the setting, and admit of the movement of the front end of the boiler without injuring the walls. The boxes have doors *j*, which, when
85 opened, give access to the rollers and their trunnions.

The headers have semicircular depressions
90 *k* on the adjoining horizontal faces, which form holes through which steam-pipes may be inserted to clean off dust from the water-tubes. These holes are shown particularly in Figs. VI and VII, which are respectively a front and a sectional view of a part of the headers
95 on an enlarged scale.

I claim as my invention—

1. In a sectional water-tube boiler, the drums thereof connected by means of nipples and pipes to the headers, in alignment with the nipples which unite the said headers together in a vertical direction, substantially as
100 and for the purpose specified.

2. In a sectional water-tube boiler, a flame-plate formed of rectangular sections secured

together at their upper and lower edges by means of bolts situate wholly within the said sections, and thereby not exposed to the direct action of fire from the furnace, substantially
5 as and for the purpose specified.

3. In a sectional water-tube boiler, the flame-plate thereof supported at its ends by the side walls of the boiler-setting, whereby the weight of the tubes is to some extent carried by said
10 side walls, substantially as and for the purpose specified.

4. In a sectional water-tube boiler, the flame-plate bolted to bars built in the side walls of

the boiler-setting, substantially as and for the purpose specified. 15

5. In a sectional water-tube boiler, the front headers thereof provided with trunnions and rollers, combined with boxes built in the side walls of the setting, in which the said rollers are free to rotate, substantially as and for the
20 purpose specified.

EDWARD J. MOORE.

Witnesses:

WM. TOBIN,

JOHN BUTZ.