

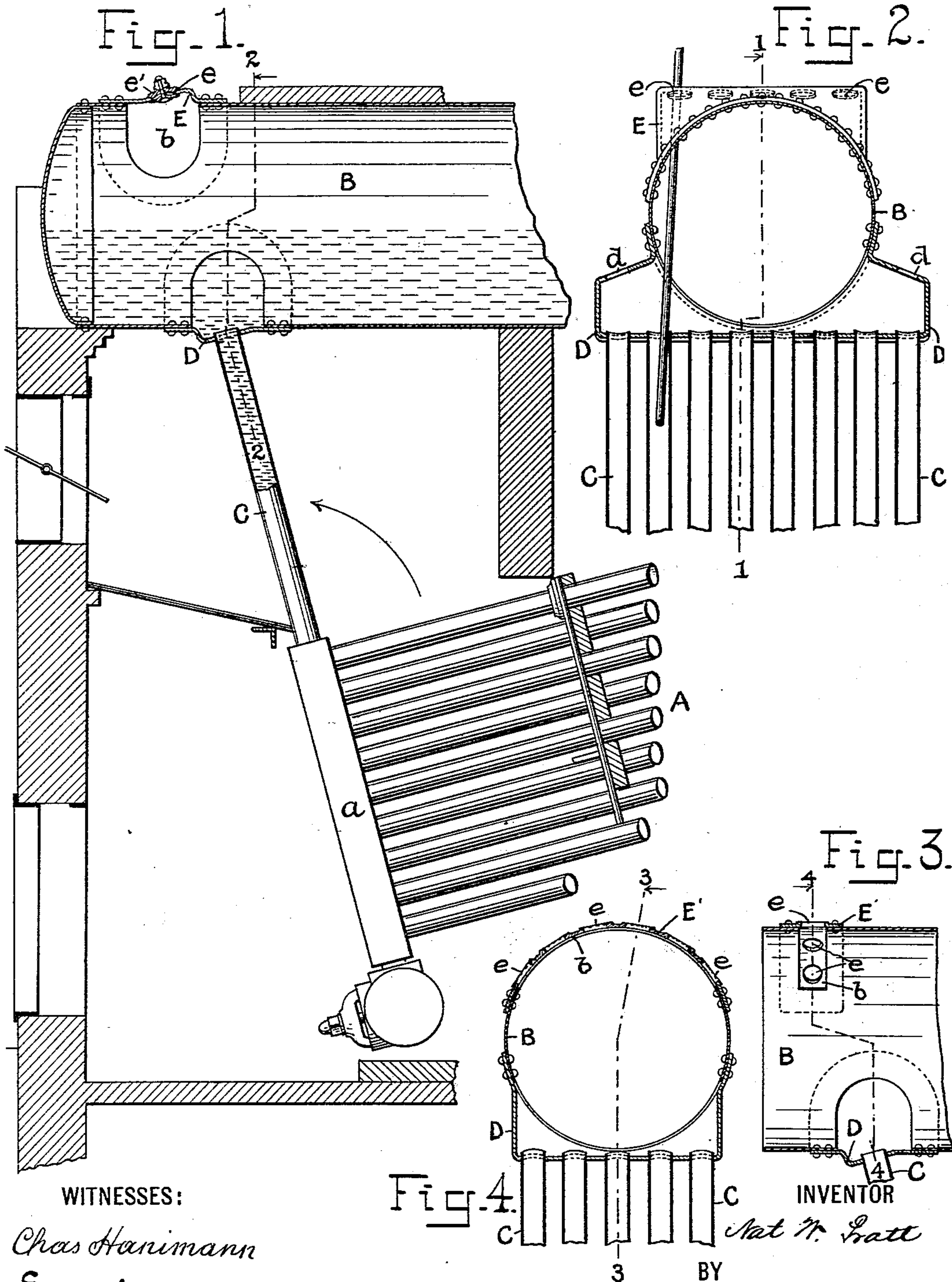
(No Model.)

2 Sheets—Sheet 1.

N. W. PRATT.
SECTIONAL STEAM BOILER.

No. 557,700.

Patented Apr. 7, 1896.



WITNESSES:

Chas Hanimann

Edson Salisbury Jones.

INVENTOR

Nat W. Pratt

BY

Chas W. Forbes
ATTORNEY

(No Model.)

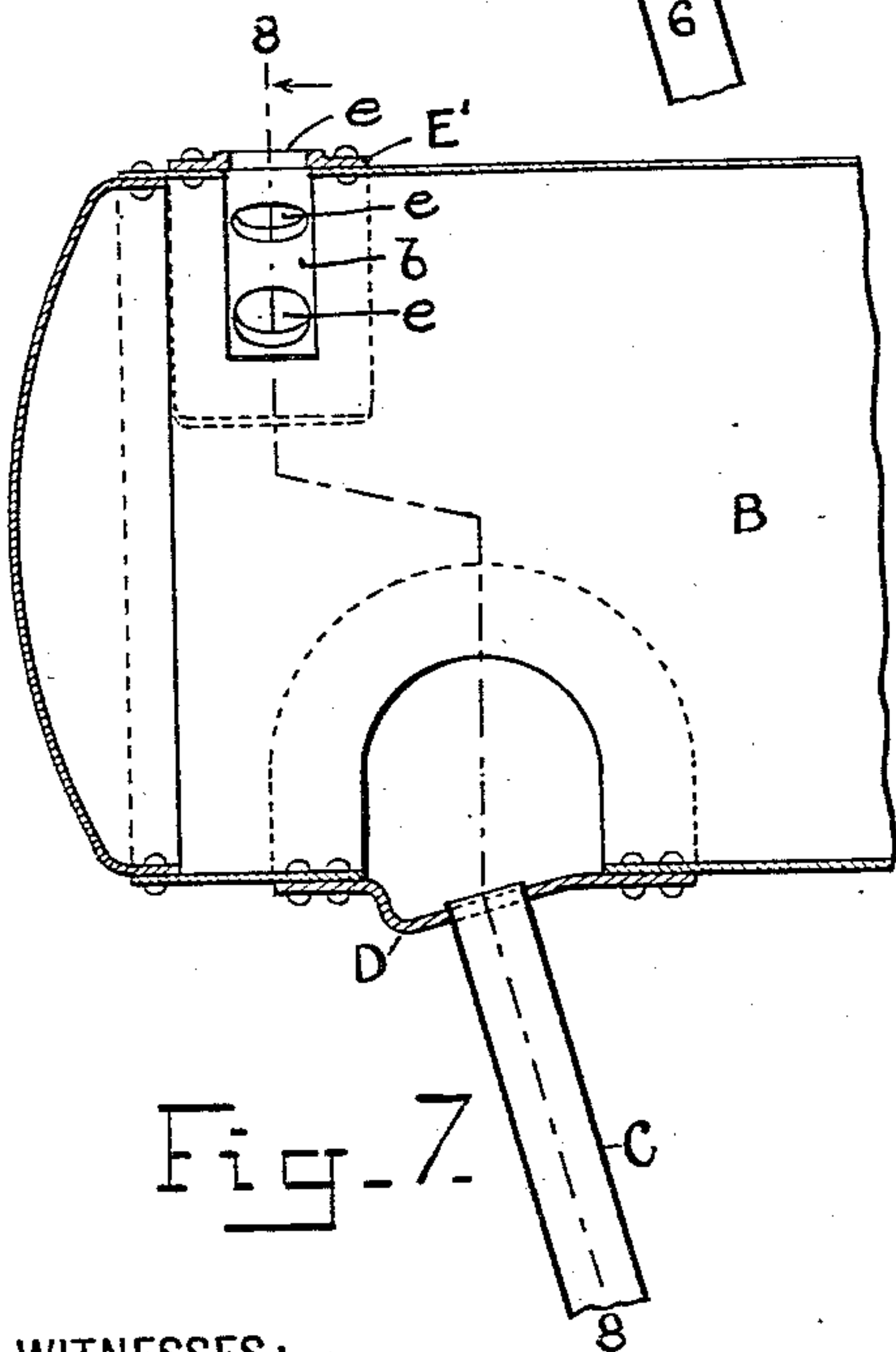
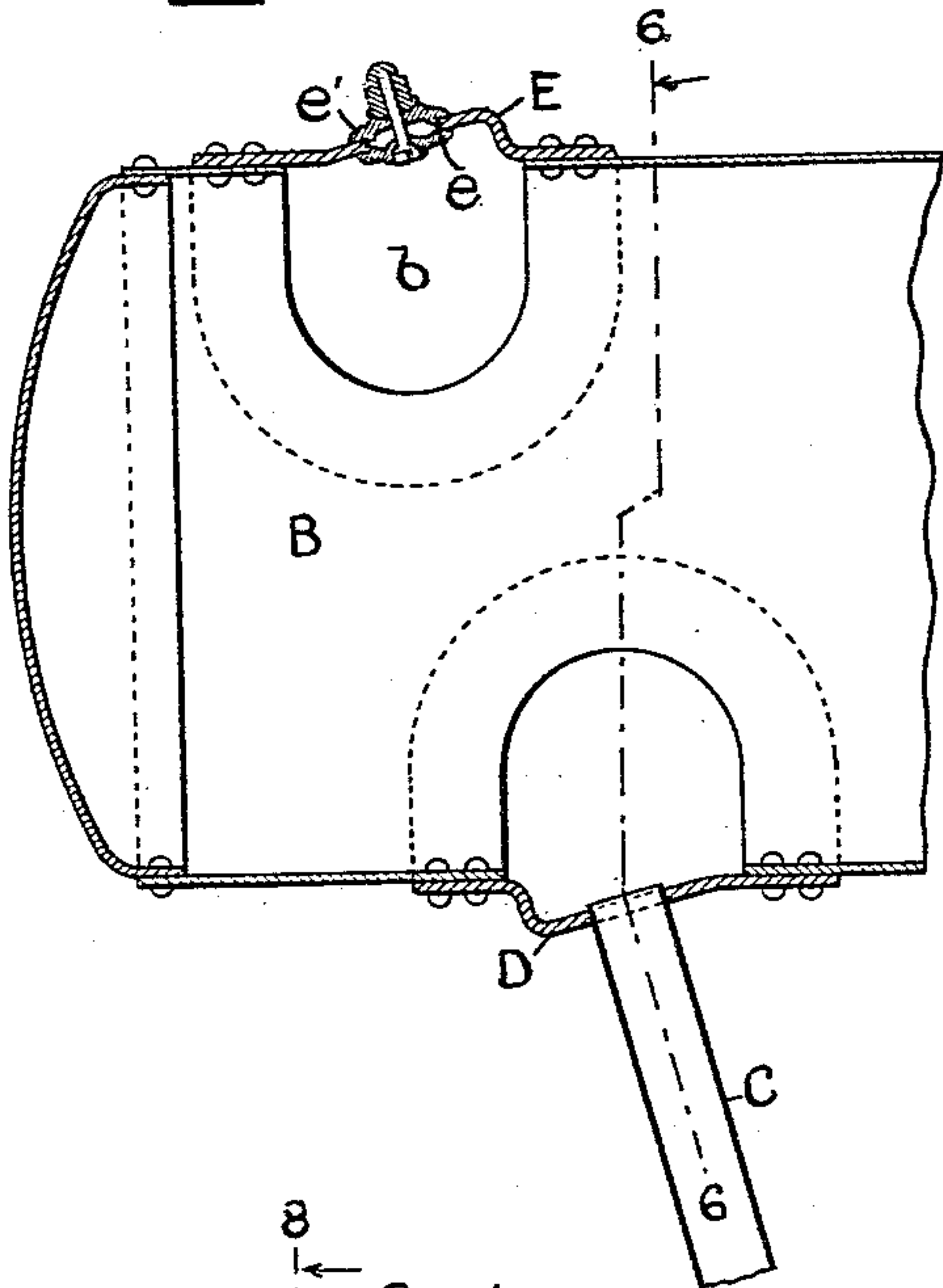
2 Sheets—Sheet 2.

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Fig. 5.



WITNESSES:

Chas. Hanemann
Edson Salisbury Jones.

Fig. 6.

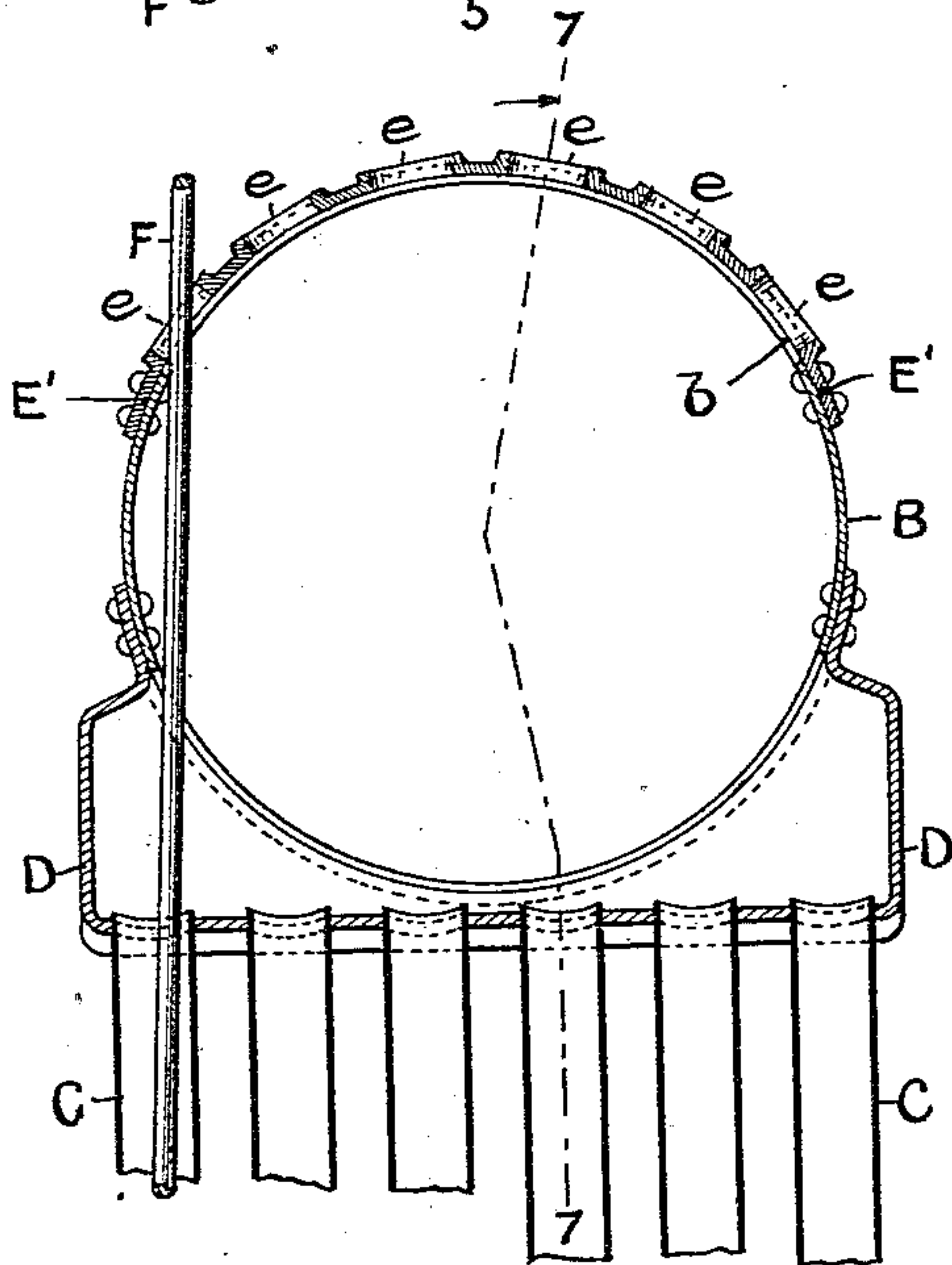
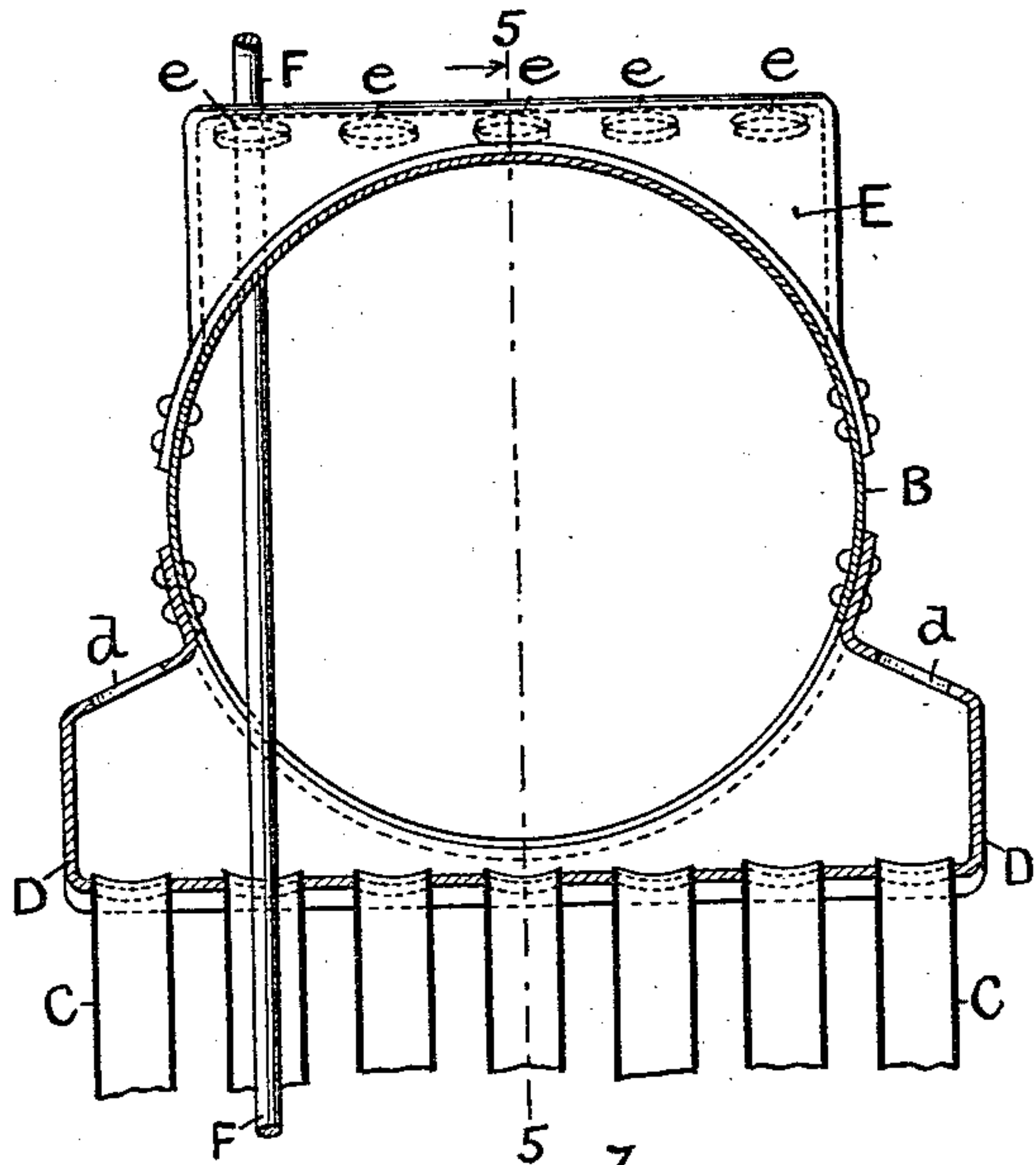


Fig. 8.

INVENTOR

Nat. W. Pratt

BY

Chas. N. Forbes
ATTORNEY

UNITED STATES PATENT OFFICE.

NAT. W. PRATT, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE BABCOCK & WILCOX COMPANY, OF NEW YORK, N. Y.

SECTIONAL STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 557,700, dated April 7, 1896.

Application filed July 24, 1895. Serial No. 556,976. (No model.)

To all whom it may concern:

Be it known that I, NAT. W. PRATT, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Sectional Steam-Generators, of which the following is a specification.

This invention consists in a steam and water drum which is so constructed that the tubes which connect the drum with the boiler can be reached through the drum from the exterior of the same, so that the ends of said tubes can be expanded to secure them in place or the tubes can be cleaned, as hereinafter described and claimed.

In the accompanying drawings, Figure 1 represents a portion of a sectional boiler in side elevation with the steam and water drum and a portion of the tubes which connect the drum with the boiler in section on line 1 1 of Fig. 3. Fig. 2 shows a transverse section of said drum and tubes on line 2 2 of Fig. 1. Fig. 3 represents a longitudinal section of the drum and tubes on line 3 3 of Fig. 4, the construction being slightly modified. Fig. 4 shows a transverse section, on line 4 4 of Fig. 3, of a portion of the drum with this modified construction. Fig. 5 represents, on a larger scale, a longitudinal section, on line 5 5 of Fig. 6, of a portion of a drum constructed as shown in Fig. 1. Fig. 6 shows, on the same enlarged scale, a transverse section of said drum on line 6 6 of Fig. 5. Fig. 7 represents, on an enlarged scale, a longitudinal section, on line 7 7 of Fig. 8, of a portion of a drum constructed as shown in Fig. 3. Fig. 8 shows, on the same scale, a transverse section of said drum on line 8 8 of Fig. 7.

A denotes a portion of a sectional steam-generator of an ordinary type, the header *a* of which is connected to the steam and water drum B by tubes C, the upper ends of which tubes are to be expanded to connect the tubes with and fasten them to the drum.

As shown in all the figures, there is attached to the lower surface of the drum a transverse box D, which receives the tubes C, the length of this box being determined by the number of tubes employed to connect the header and

drum, eight of such tubes being shown in Fig. 2, seven in Fig. 6, six in Fig. 8, and five in Fig. 4.

It is desirable that the expanding of the ends of the tubes C shall be performed after said tubes and the drum have been assembled and are in place; but with constructions heretofore existing this has not been practicable unless the box to which the tubes are attached projected beyond the end of the drum and had an open top, which arrangement necessitated the use of a shorter drum and one with less steam capacity than can be employed with the present invention.

With my improvement an opening *b* is made in the top of the drum in alinement with the longitudinal axes of the tubes C, and over this opening a transverse covering or box E is secured to the drum, as by rivets, the said box being provided with a series of holes *e*, Figs. 1, 2, 5, and 6, which can be closed by plates *e'*, as shown in Figs. 1 and 5. Through the holes *e* a cleaning-rod F, Figs. 2 and 6, or an expanding-tool can be conveniently inserted to operate upon the tubes C.

When the length of the box D is not greater than the diameter of the drum, all the tubes C can be reached through the holes *e*; but in cases where the number of tubes employed necessitates a lower box longer than the diameter of the drum such box may be provided with openings *d*, Figs. 2 and 6, through which the two outer tubes of the series can be operated upon, the said holes *d* to be closed by plates.

Although substantially the form of box or covering E shown in Figs. 1, 2, 5, and 6 is preferred, yet the construction illustrated in Figs. 3, 4, 7, and 8 may be used. In these figures the drum has an opening *b* in its top surface, over which is a covering E' in the form of a plate having holes *e* therein, through which a cleaning-rod or expanding-tool may be inserted. This covering is secured to the drum, as by rivets, and the openings therein are to be closed by plates similar to *e'*.

It is obvious that instead of the perforation *b* in the top surface of the drum being a continuous one, such surface may be perforated

by a series of openings sufficient in number and size and in such relation to the holes *e* and tubes *C* that the latter can be operated upon through such openings. It is also obvious
5 that without departing from the spirit of the invention the equivalents of the holes *e* may be made in the top surface of the drum and in proper relation to the tubes *C*, upon which
holes closing-plates can be secured.

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

1. A steam and water drum having its top surface perforated in alinement with the tubes connecting the drum with the boiler,
15 whereby the said tubes may be reached through such perforated surface for expanding their ends, or for cleaning them, substantially as set forth.

2. A steam and water drum having its top
20 surface perforated and provided with a covering having openings therein in alinement with the tubes connecting the drum with the

boiler, substantially as and for the purposes specified.

3. A steam and water drum having its top
25 surface provided with an opening, *b*, and a box, *E*, covering said opening, the said box being furnished with holes, *e*, in alinement with the tubes connecting the drum with the boiler, substantially as set forth. 30

4. A steam and water drum provided on its lower surface with a box of greater length than the diameter of the drum, for receiving tubes to connect the drum with the boiler, and having its top surface perforated in aline-
35 ment with the outer of said tubes, the top surface of the drum being perforated in alinement with the other tubes, substantially as and for the purposes specified.

NAT. W. PRATT.

Witnesses:

CHAS. W. FORBES,
CHAS. HANIMANN.