

(No Model.)

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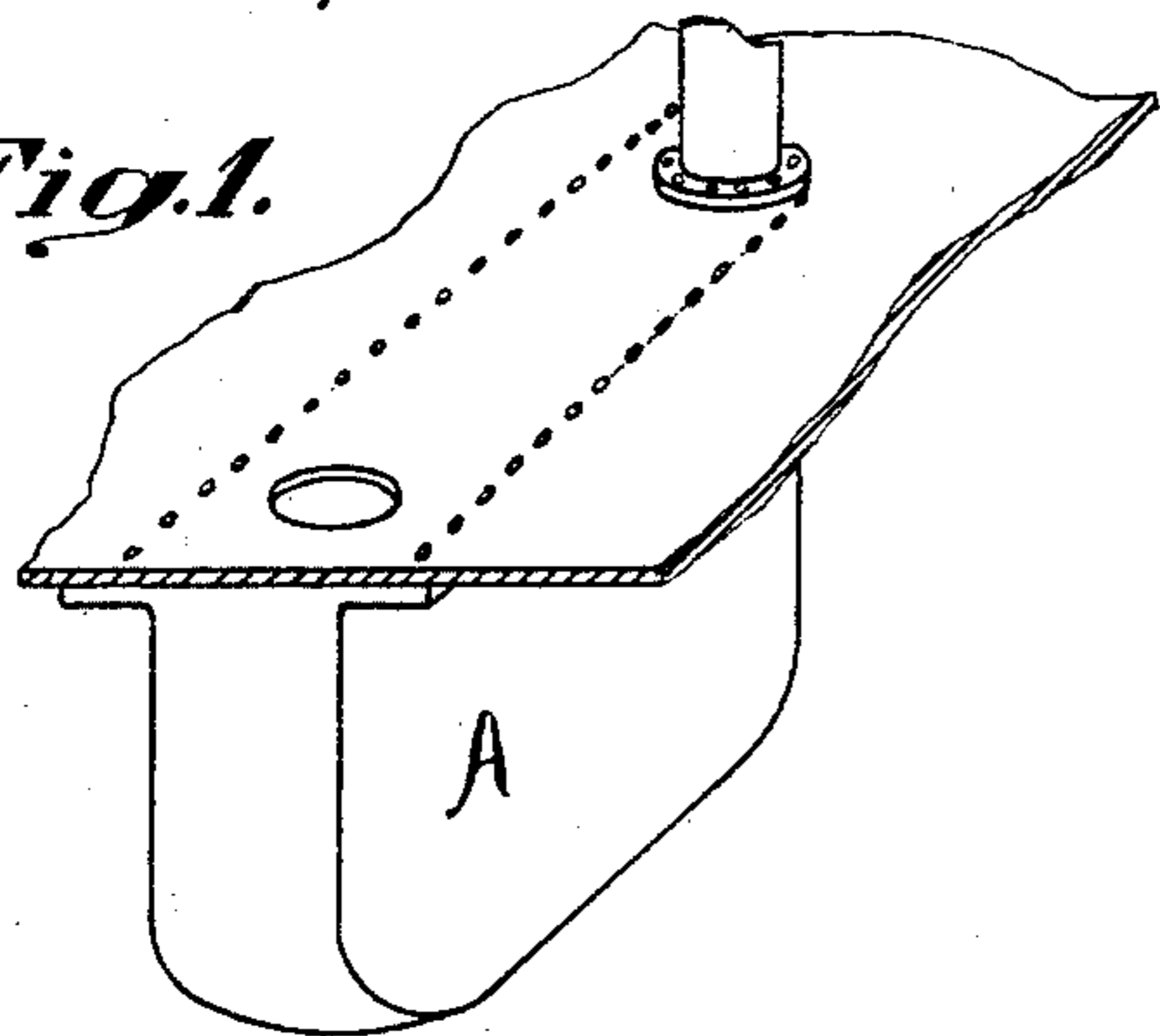
C. G. COMEGYS.

ATTACHMENT FOR STEAM BOILERS.

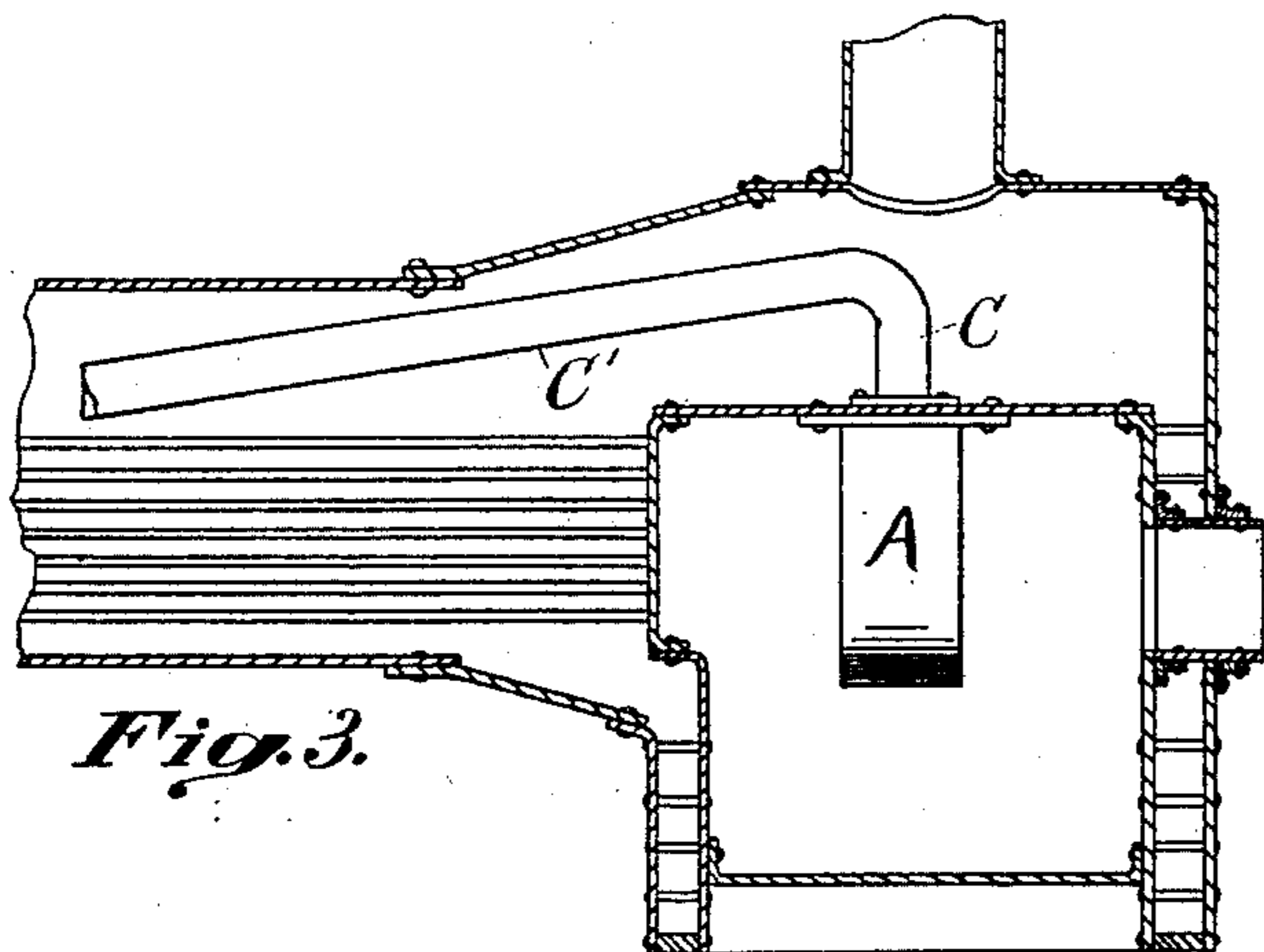
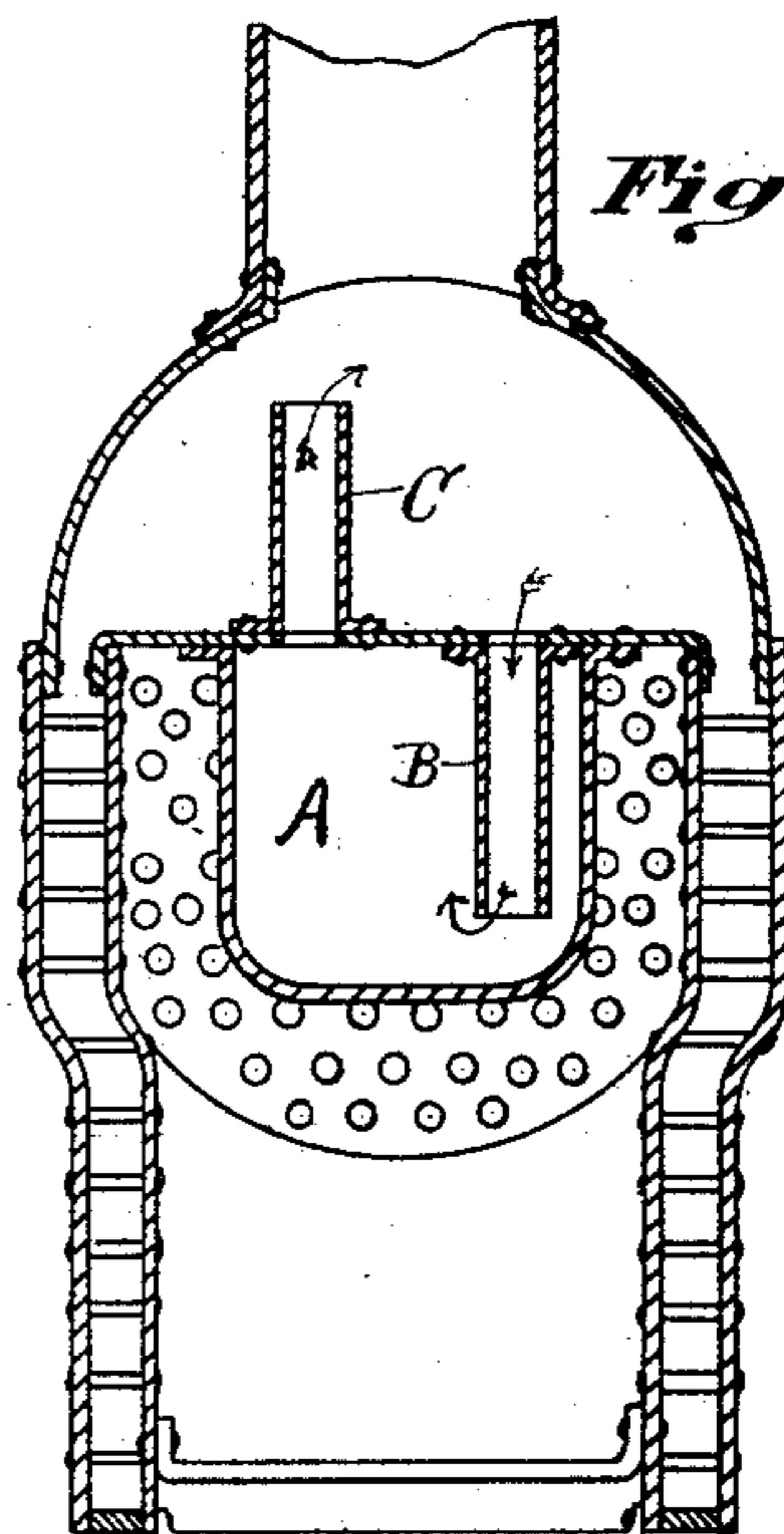
No. 348,546.

Patented Sept. 7, 1886.

*Fig.1.*

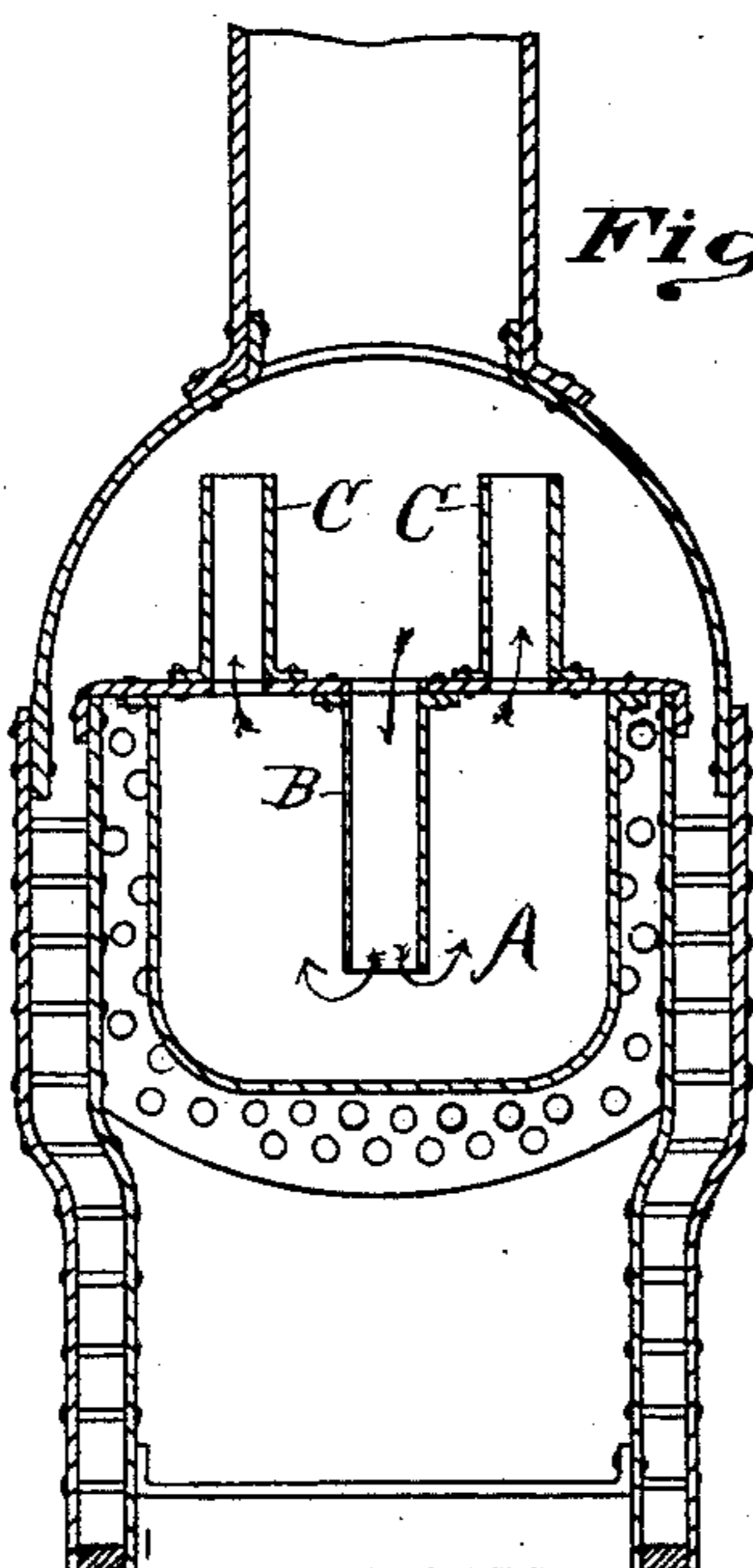


*Fig.2.*



*Fig.3.*

*Fig.4.*



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(No Model.)

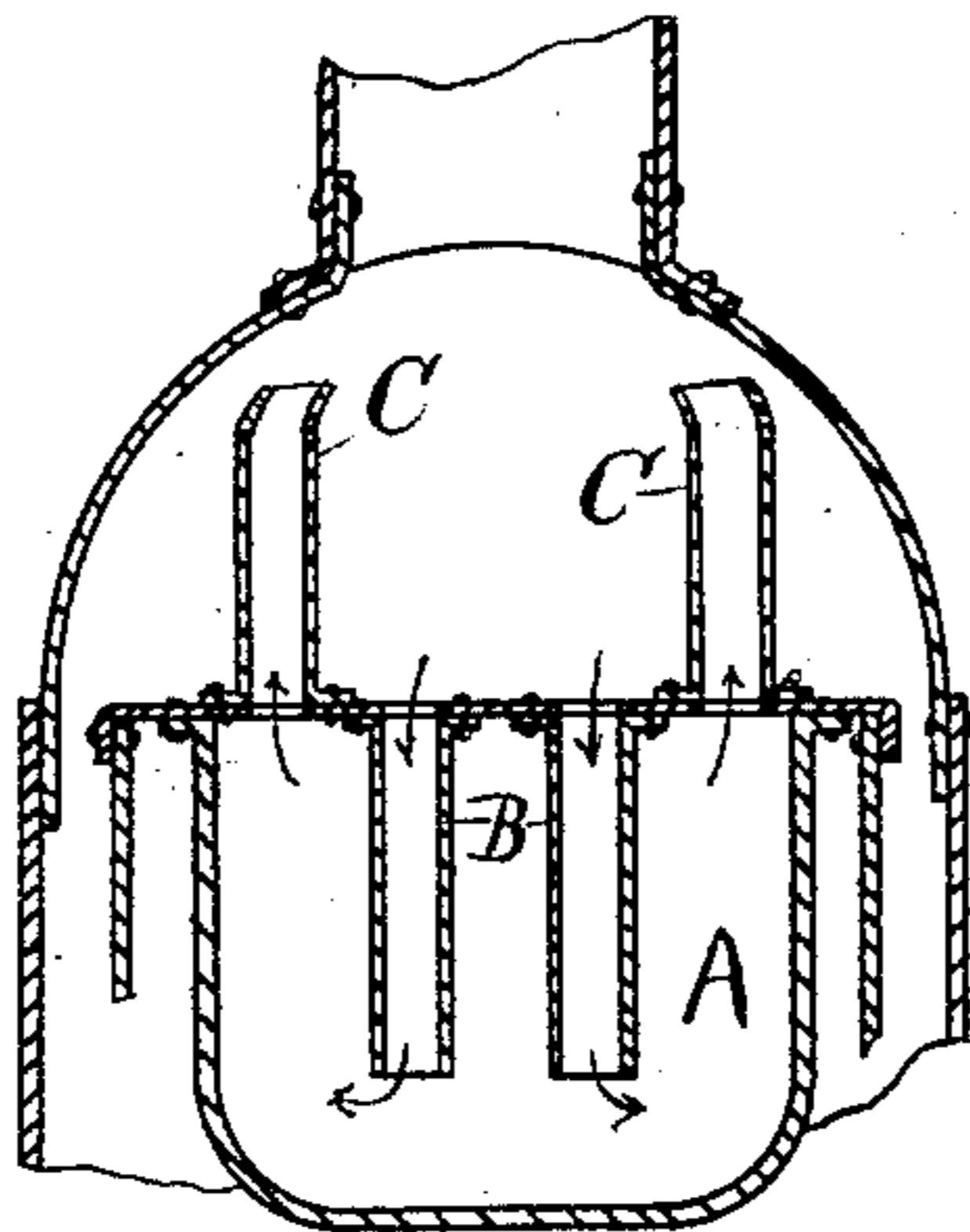
2 Sheets—Sheet 2.

C. G. COMEGYS.

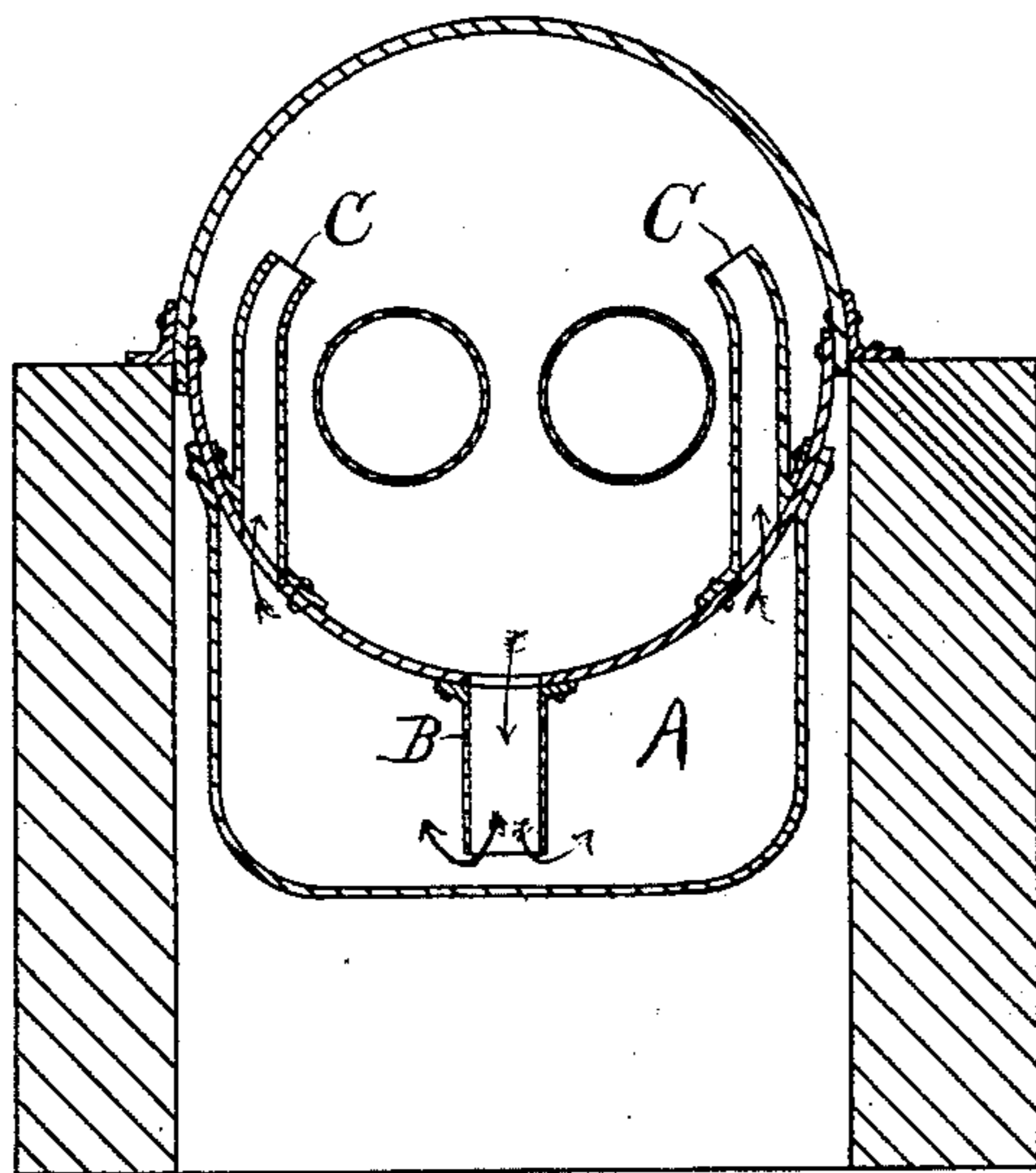
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*Fig. 5.*



*Fig. 6.*

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# UNITED STATES PATENT OFFICE.

CORNELIUS G. COMEGYS, OF CINCINNATI, OHIO.

## ATTACHMENT FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 348,546, dated September 7, 1886.

Application filed July 3, 1886. Serial No. 207,122. (No model.)

*To all whom it may concern:*

Be it known that I, CORNELIUS G. COMEGYS, a resident of Cincinnati, Hamilton county, State of Ohio, have invented certain new and  
5 useful Improvements in Attachments for Steam-Boilers, of which the following is a specification.

The object of my invention is to provide an attachment to be used with steam-boilers of  
10 any description, by the aid of which steam may be produced of uncommon intensity much more quickly, economically, and safely than in boilers not provided with my improvement.

The attachment consists, essentially, of a  
15 tank provided with an outlet-pipe, and an inlet-pipe hung from the crown-sheet of the boiler into the fire-box.

In the accompanying drawings, forming part of this specification, Figure 1 is a perspective  
20 view of my improved attachment. Fig. 2 is an end elevation of a locomotive-boiler provided with my improvement. Fig. 3 is a longitudinal section of a locomotive-boiler provided with my improvement. Fig. 4 illustrates  
25 a modification of my device, the same being attached to a locomotive-boiler. Fig. 5 shows another modification of my device attached to a locomotive-boiler. Fig. 6 shows still another modification of my device attached to  
30 an ordinary two-flue boiler.

The tank A is suspended from the crown-sheet into the fire-box in such position as to be exposed on all sides to the fire. The tank is provided with a pipe or water-way, B, which  
35 extends downwardly from the top of the tank nearly to its bottom, connecting the cavity of the boiler with that of the tank, but lies entirely within the tank and is completely surrounded by water when the tank is filled there-  
40 with. The pipe C projects from the top of the tank to or above the water-line.

The pipe C may be made as shown in Fig. 2, but is preferably constructed as shown in Fig. 3, in which an extension, C', located in  
45 the steam-space, leads to the front of the boiler and opens in proximity to the mud-drum.

The water from the boiler fills the tank through the pipe B. The water in the tank being exposed to the very hottest of the fire  
50 is rapidly converted into steam, which escapes through the pipe C, carrying with it water from the tank, and the place of the steam and

water projected from the tank is taken by a fresh supply of water entering through the pipe B. In this way a continuous circulation  
55 is kept up. Moreover, the steam and water leave the pipe C with great force and induce rapid and tumultuous motion in the contents of the tank and of the boiler.

The mud which would have a tendency to  
60 collect in the tank A is prevented by the down current through the pipe B. Moreover, it is thrust out by the steam and water, and carried forward through the extension C' to be deposited in proximity to a mud-drum, thus  
65 facilitating the removal of mud from the boiler and preventing the accumulation of scale.

In the modification shown in Fig. 4 there are two exit-pipes and one inlet-pipe, and the device is attached to a locomotive-boiler.  
70

In Fig. 6 a device is shown similar to that of Fig. 4, but having the tops of the pipes C curved inwardly, and is applied to an ordinary two-flue boiler.

In Fig. 5 another modification of the device  
75 is shown applied to a locomotive-boiler. In this modification there are two inlet-pipes and two effluent pipes, the latter having their tops curved inwardly. These exit-pipes may be omitted, but it is more preferable to use them  
80 in connection with my device.

I am aware that tanks have been hung from the crown-sheet of boilers, and that these tanks have been provided with inlet and outlet pipes and have performed functions similar to my  
85 own device; but the inlet-pipe has heretofore been so made that three of its sides were made up by the shell of the tank itself, while in my device the inlet-pipe is entirely separated from the shell of the tank and is entirely surrounded  
90 by the water in the tank. This arrangement of the inlet-pipe in the tank is the essential feature of my invention, and for the following reason: When the influent water-way of such a tank has three sides of its structure exposed to the direct action of the fire  
95 and but one side in contact with the water of the tank, its contained water thus acted upon by the heat of the furnace is thrown into violent ebullition, and a column of steam thus  
100 formed arises with great physical power, and violently and mechanically not only hinders the descending current, but throws a current upward more or less strongly, so that the cir-

culatation of the water is so much impaired in the tank as to allow the deposit of mud and scales on its bottom, in this way leading to the overheating of the metal, and to its bulging, cracking, and leaking to such an extent as to require its removal. Such a disaster is not possible where the inlet-pipe, by reason of its being surrounded by water, is not interrupted in its function of circulation by the rising of a considerable column of steam within it. The interior of the tank is kept free from sedimentary accumulation, and it will last as long as the other parts of the boiler.

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

1. As an attachment to a steam-boiler, the tank A, provided with the inlet-pipe B, which

lies wholly within the tank, and the exit-pipe C, substantially as and for the purposes set forth.

2. As an attachment to a steam-boiler, the tank A, provided with the inlet-pipe B, which lies wholly within the tank, and the exit-pipe C, having forward extension C', as and for the purposes specified.

3. As an attachment to a steam-boiler, the tank A, provided with the inlet-pipe B, which lies wholly within the tank, as and for the purposes set forth.

CORNELIUS G. COMEGYS.

Attest:

O. M. HILL,  
W. P. GULICK.