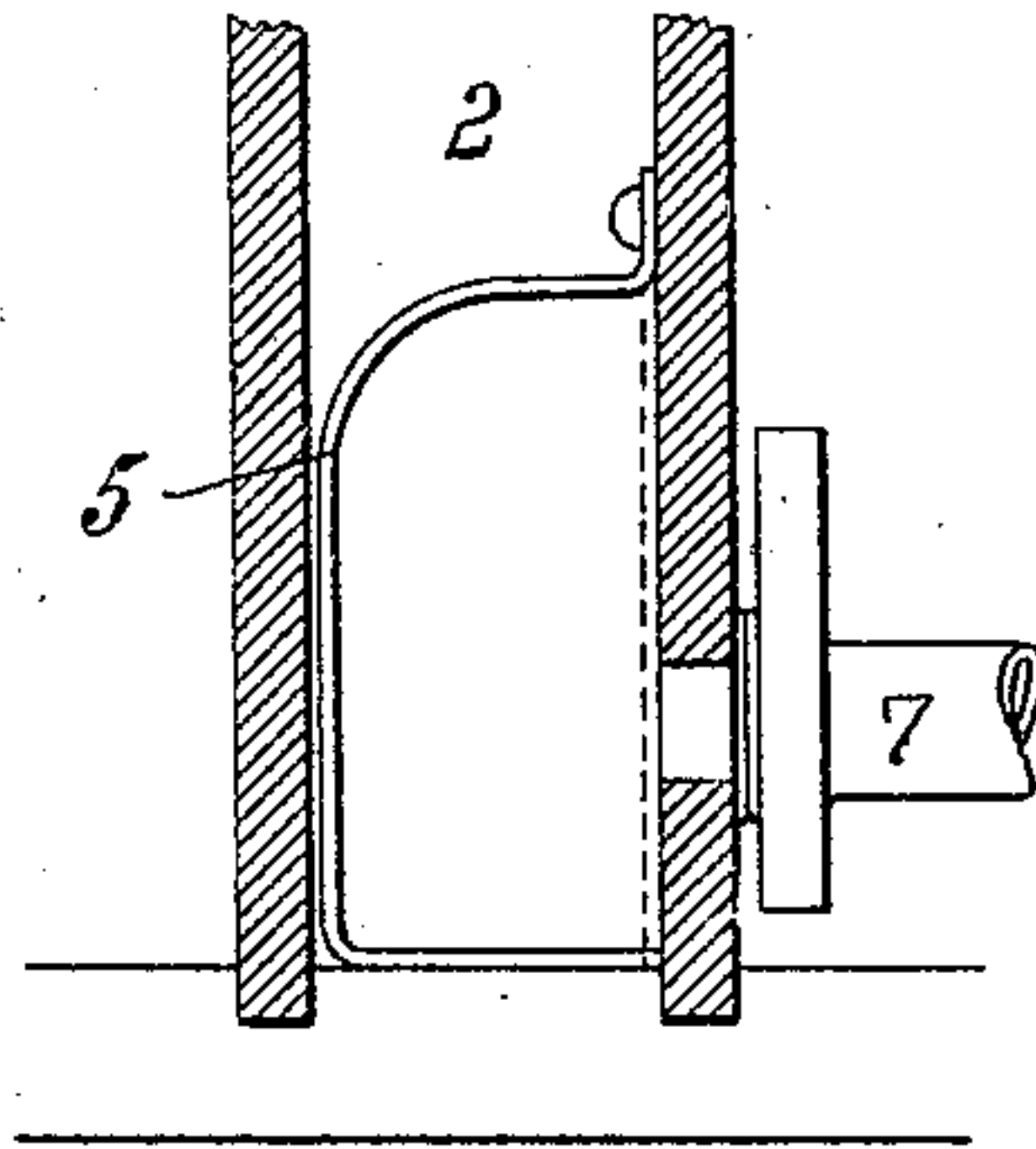


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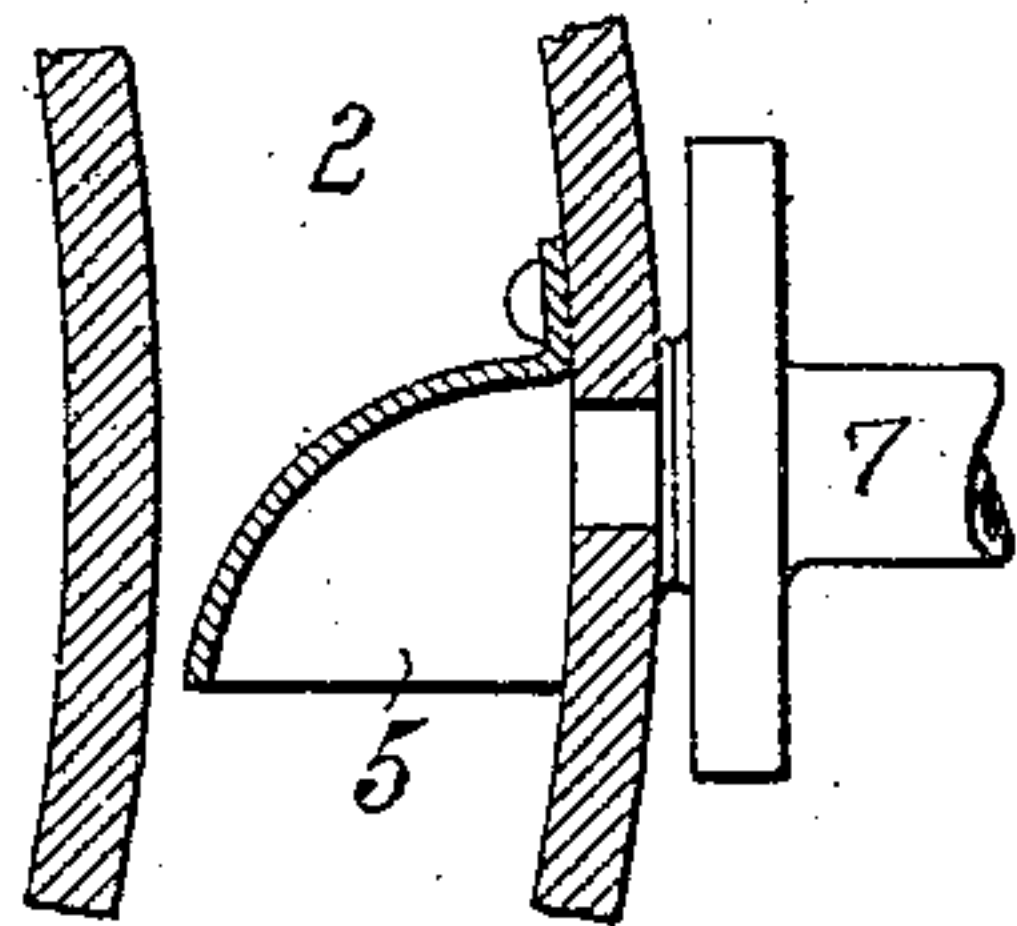
PATENTED OCT. 10, 1905.

C. FELLNER.  
BOILER CLEANING DEVICE.  
APPLICATION FILED NOV. 3, 1904.

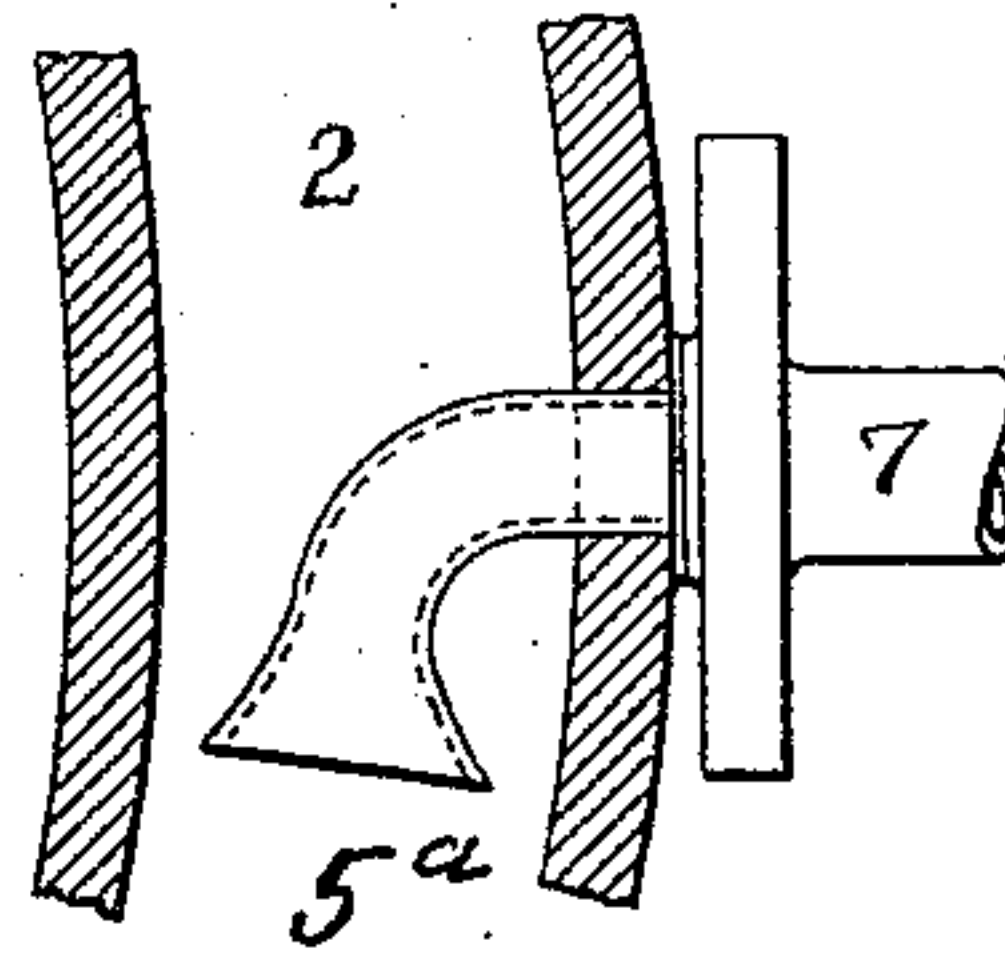
*Fig. 1.*



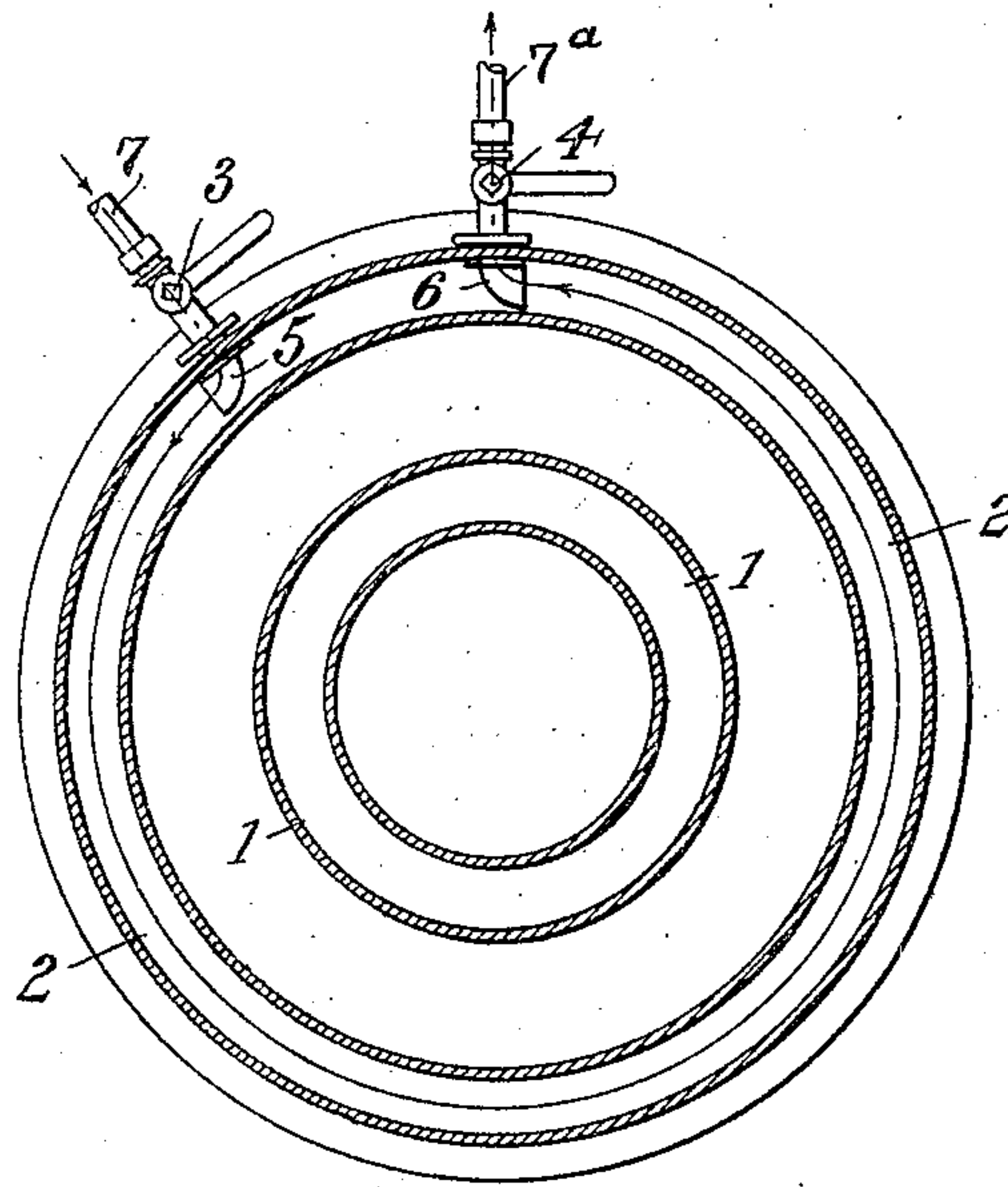
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Witnesses  
Walter C. Pauling  
C. J. Rathjen.

Inventor  
CHARLES FELLNER  
By his Attorneys Clifford & Melle



# UNITED STATES PATENT OFFICE.

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## BOILER-CLEANING DEVICE.

No. 801,447.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed November 3, 1904. Serial No. 231,319.

*To all whom it may concern:*

Be it known that I, CHARLES FELLNER, a sub-  
ject of the Emperor of Austria-Hungary, re-  
siding at VIII Barossutera 79 N., Budapest,  
5 in the Empire of Austria-Hungary, have in-  
vented certain new and useful Improvements  
in Boiler-Cleaning Devices, of which the fol-  
lowing is a specification.

My invention relates to boiler-cleaning de-  
10 vices; and it consists of certain novel parts  
and combinations of parts, particularly point-  
ed out in the claims concluding this specifica-  
tion.

In steam-boilers in which steam is rapidly  
15 generated if the water be not purified before  
it enters the boiler a sediment of slime or in  
the case of hard water of lime is formed which  
attaches itself to the boiler-surfaces, resulting  
in permanent injury by burning or blistering  
20 of the surfaces exposed to the action of the  
flames unless energetic means are employed to  
remove the sediment.

In the accompanying drawings I have shown  
my invention applied in forms which are at  
25 present preferred by me; but it will be under-  
stood that various modifications and changes  
may be made without departing from the spirit  
of my invention and without exceeding the  
scope of my claims.

30 Figure 1 represents a vertical section  
through walls of the water-space of a boiler,  
showing the nozzle or mouthpiece for convey-  
ing a cleansing fluid, such, for example, as  
steam or water. Fig. 2 is a horizontal sec-  
35 tion through the walls of the water-space and  
the nozzle or mouthpiece shown in Fig. 1.  
Fig. 3 shows a modified form of nozzle or  
mouthpiece involving my invention. Fig. 4  
is a horizontal section through a boiler, show-  
40 ing in place the entrance and discharge noz-  
zles for conveying the cleaning fluid into and  
from the water-space.

Similar figures of reference indicate the  
same or corresponding parts in all the figures.

45 Referring to Fig. 4, 1 1 and 2 2 are the wa-  
ter-spaces of a steam-generator, which spaces  
are substantially annular in form. 5 is a fun-  
nel-shaped nozzle, and 7 is a supply-pipe there-  
for controlled by a cock 3. 6 is a similar noz-  
50 zle or mouthpiece turned in the opposite di-  
rection connected with the pipe 7<sup>a</sup>, which is  
controlled by a cock 4. Cleansing fluid (such

as steam or water) is introduced under pres-  
sure through the nozzle 5 and after circulat-  
ing around the water-space is discharged 55  
through the nozzle 6. Such nozzles may be  
placed at the points where the sediment col-  
lects—for example, in a vertical boiler near  
the bottom thereof—and the cleansing fluid  
when admitted violently agitates the water 60  
contained in the space and dislodges and car-  
ries off the sediment which it contains.

In Figs. 1 and 2 I have shown the funnel-  
shaped mouthpiece or nozzle 5 and 6 in detail  
in the form of a hood bolted to the wall of the 65  
water-space, while in Fig. 3 I have shown it  
in the form of a tube passing through the wall  
of the water-space and expanded at the end in  
funnel shape. Such nozzles can be placed at  
various points in the boiler, and the direction 70  
in which the nozzle or mouthpiece points can  
be varied or adjusted to direct the cleansing-  
stream in any desired direction.

The nozzles above described afford means  
for cleaning the boiler without interrupting 75  
its operation by connecting the entrance-pipe  
with the feed-water pump and working said  
pump rapidly while the exit-pipe is open to  
permit the sediment to be blown out.

It will be observed that owing to the annu- 80  
lar form of the water-space 2 and the expanded  
form of the inlet and outlet nozzles substan-  
tially the entire body of water contained in  
said water-space is by the action of the appa-  
85 ratus put into rapid motion and speedily ex-  
pelled from the boiler, so as to effect the clean-  
ing in a very short space of time.

Having thus described my invention, what  
I claim, and desire to secure by Letters Pat-  
ent, is— 90

1. The combination with a steam-boiler, of  
entrance-nozzle and discharge-passage located  
in substantially the same horizontal plane in  
the water-space of the boiler in such relation  
as to afford means for causing a rapid circu- 95  
lation of cleaning fluid therethrough.

2. The combination with a steam-boiler  
having an annular water-space, of entrance-  
nozzle and discharge-passage located in said  
space in such relation as to afford means for 100  
causing a rapid circulation of cleaning fluid  
therethrough.

3. The combination with a steam-boiler, of  
entrance-nozzle having an expanding section



and discharge-passage having a contracting section and being located in the water-space of the boiler in such relation as to afford means for causing a rapid circulation of cleansing fluid therethrough.

5 4. The combination with a steam-boiler having an annular water-space, an entrance-nozzle having an expanding section and a discharge-passage having a contracting section  
10 located in the water-space of the boiler in such relation as to afford means for causing a rapid circulation of cleansing fluid therethrough.

15 5. The combination with a steam-boiler having an annular water-space, of an entrance-nozzle and a discharge-passage located in substantially the same horizontal plane in the water-space of the boiler in such relation as

to afford means for causing a rapid circulation of cleansing fluid therethrough.

6. The combination with a steam-boiler having an annular water-space, of an entrance-nozzle having an expanding section and a discharge-passage having a contracting section both located in substantially the same horizontal plane in such relation as to afford means  
25 for causing a rapid circulation of cleansing fluid therethrough.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES FELLNER.

Witnesses:

ALFRED BRUNER,

ANDREW KELEMEN.