

(No Model.)

**J. D'VEORA.**  
**BOILER CLEANER.**

No. 552,406.

Patented Dec. 31, 1895.

Fig. 1

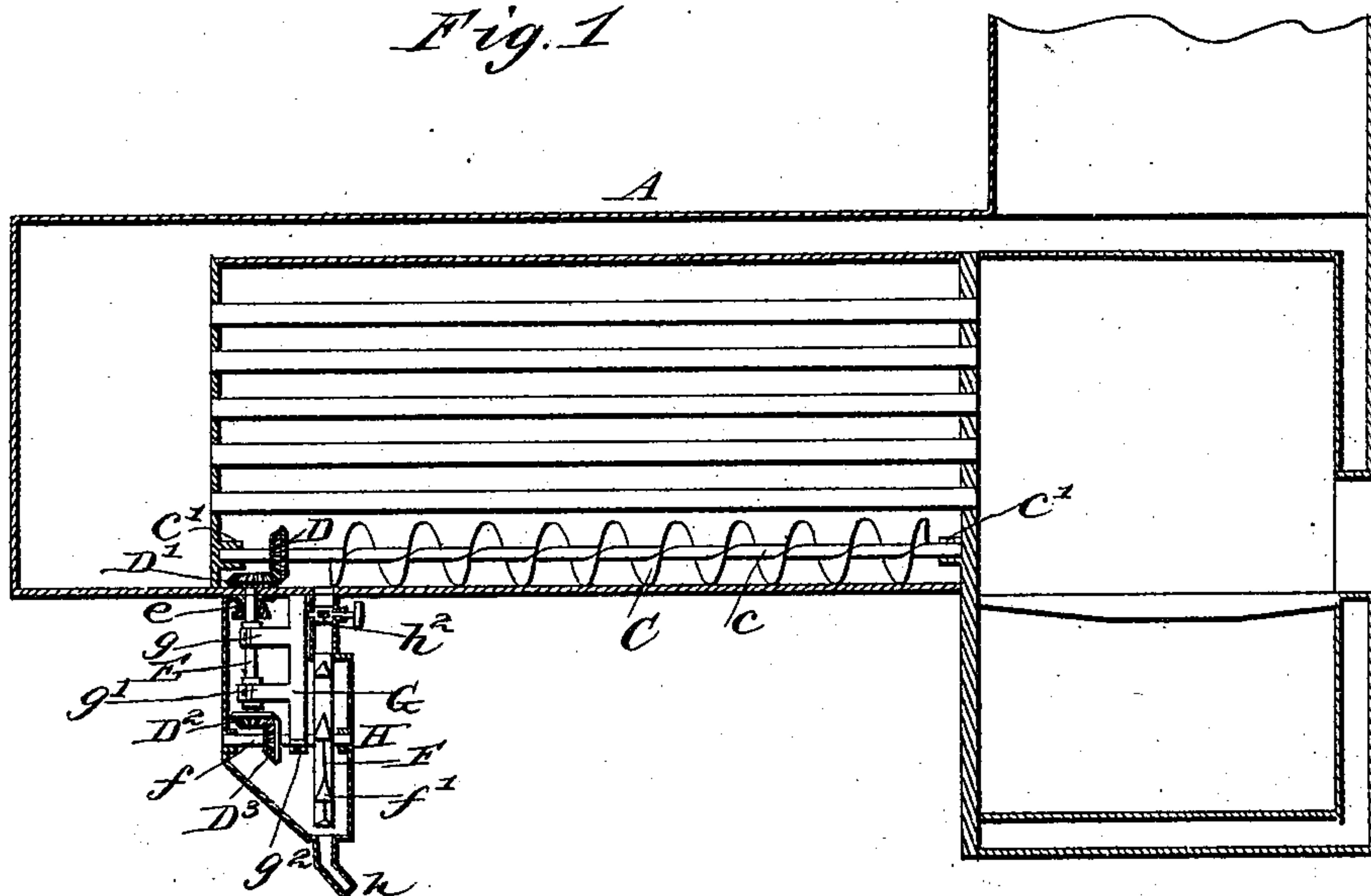
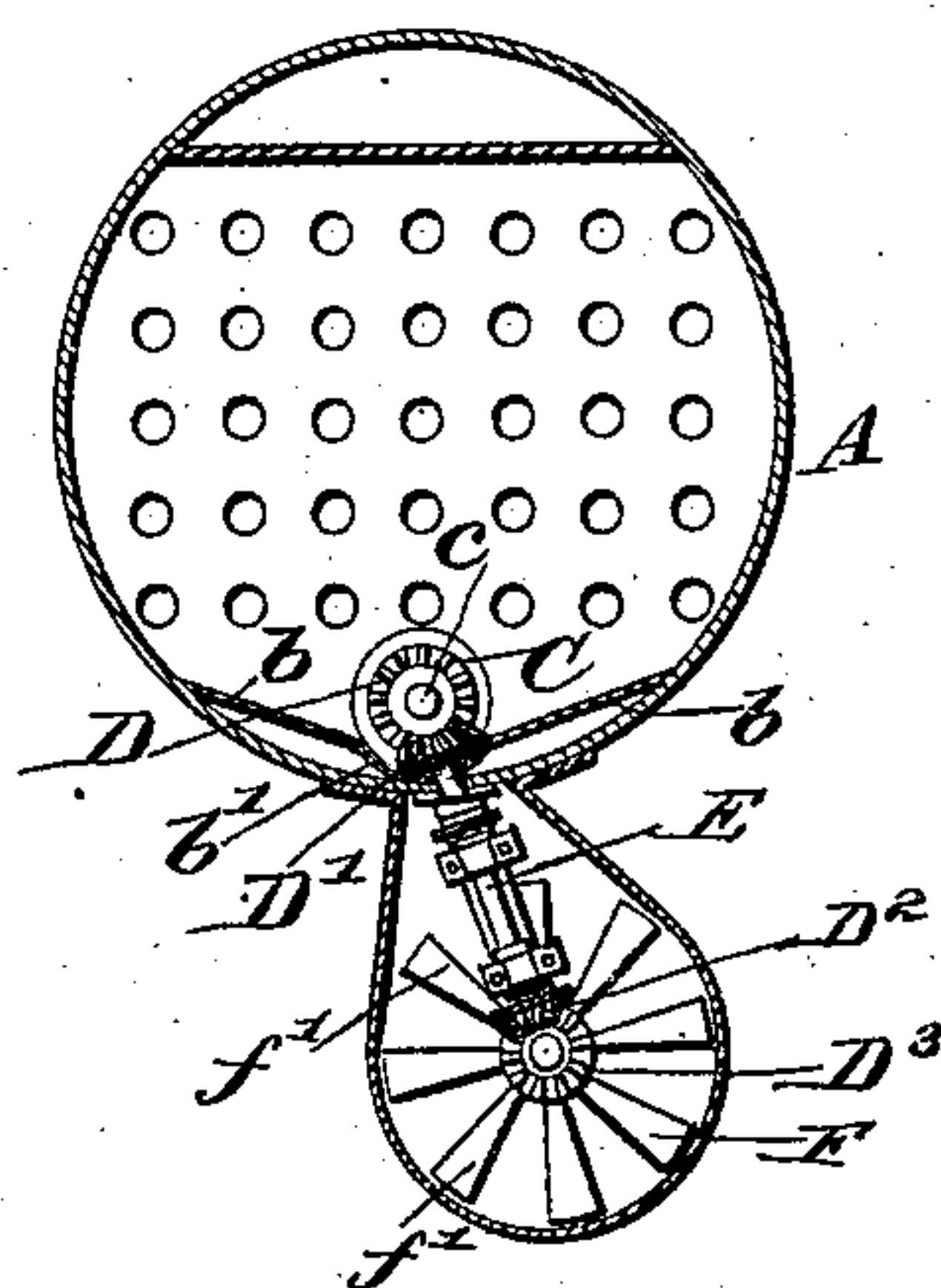
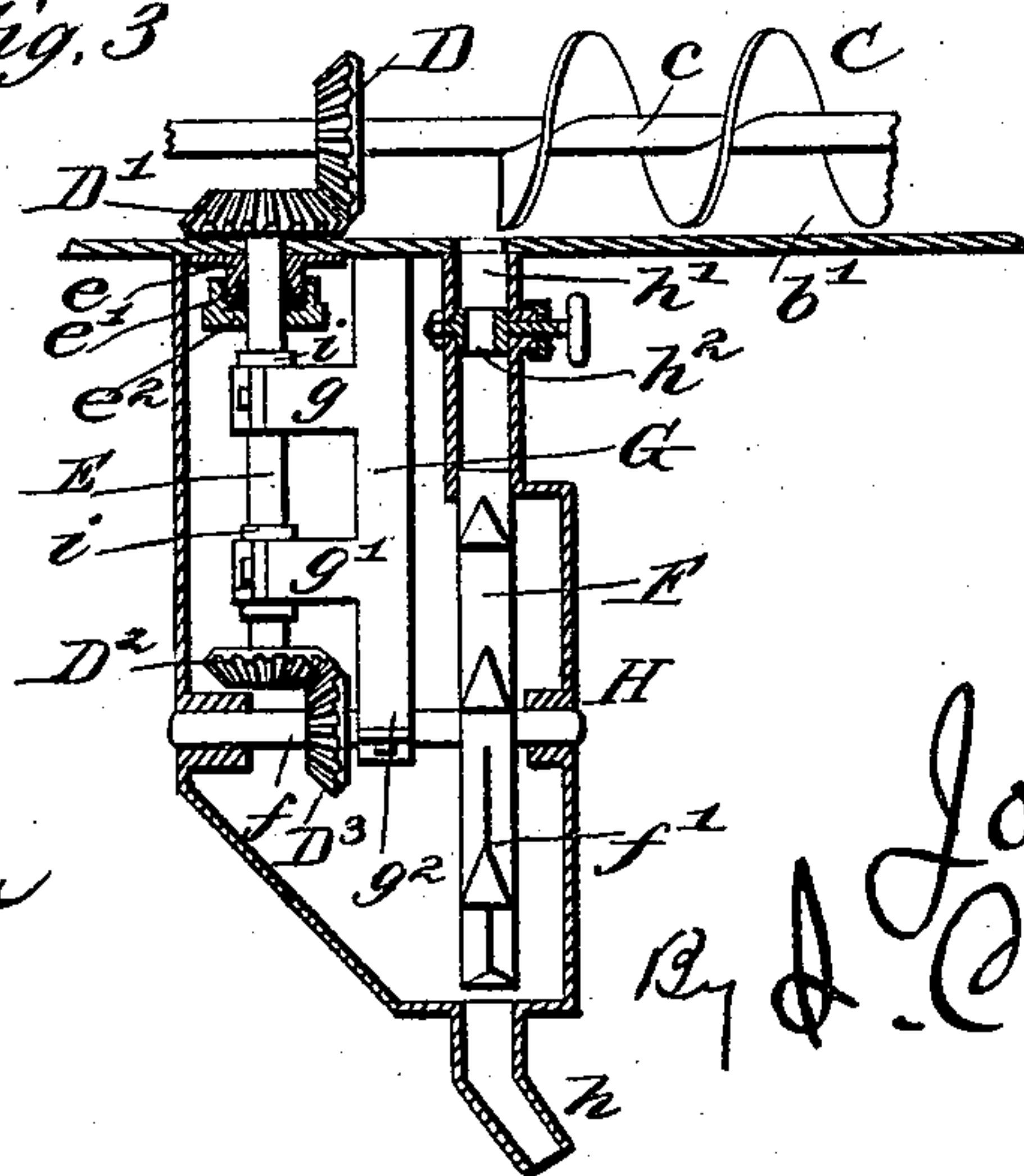


Fig. 2



*Fig. 3*



*Witnesses.*

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# UNITED STATES PATENT OFFICE.

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## BOILER-CLEANER.

SPECIFICATION forming part of Letters Patent No. 552,406, dated December 31, 1895.

Application filed August 28, 1895. Serial No. 560,745. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN D'VEORA, a citizen of the United States, residing at Tower Hill, in the county of Shelby, State of Illinois, have invented certain new and useful Improvements in Boiler-Cleaners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in devices for blowing off the sediment in boilers.

The invention will first be described in connection with the accompanying drawings, and then particularly pointed out in the claims.

In the drawings, Figure 1 is a longitudinal central vertical section, partly in elevation, of a boiler provided with my improved device. Fig. 2 is a detail front view, partly in section, of the same. Fig. 3 is a detail view.

Referring to the drawings, A is a boiler-shell which may be of any usual construction, in the bottom of which is placed a false bottom B, comprising two wings or deflectors  $b$ , and a centrally-arranged trough or conveyer-box  $b'$ . In the latter is placed a spiral conveyer C, provided with a shaft  $c$ , which is journaled at each end in boxes  $c'$ , fixed inside the boiler-shell. On the conveyer-shaft  $c$  is fixed a bevel gear-wheel D, which meshes into a corresponding bevel gear-wheel D', secured on the end of the vertical shaft E, which projects through the bottom of the boiler-shell and is held by a bearing  $e$ , riveted to the boiler-shell, the bearing having a packing-ring  $e'$  and a gland  $e^2$ , the latter threaded onto the bearing, whereby all leakage around the shaft is prevented.

On the shaft E is fixed a second bevel gear-wheel D<sup>2</sup>, which meshes into a corresponding bevel gear-wheel D<sup>3</sup>, fixed on the shaft  $f$ , of a motor-wheel F, which is provided with suitable buckles or vanes  $f'$ .

The vertical shaft E and the motor-shaft  $f$  are carried by a hanger G attached to the under side of the boiler and provided with three bearings  $g$   $g'$   $g^2$ , the first two,  $g$   $g'$ , carrying the vertical shaft, the latter bearing,  $g^2$ , supporting one end of the motor-shaft  $f$ , whose other end is held by a casing H, which is secured to the boiler-shell and surrounds the motor, the vertical shaft, its attached gear-

wheel D<sup>2</sup>, and the gear-wheel D<sup>3</sup>. The casing H is provided with an outlet  $h$  and with an inlet-pipe  $h'$ , having a valve  $h^2$  and serving to convey water and steam from the boiler to the motor-wheel, the said inlet-pipe also serving as a blow-off pipe for the boiler, and being arranged at one end of the screw or conveyer and tangential to the motor-wheel.

In order to hold the vertical shaft E against longitudinal movement it is provided with collars  $i$ , as shown.

The operation of my device may be briefly described as follows: When it is desired to blow off the sediment from the boiler, the valve  $h^2$  is opened, whereupon the escaping water and steam strikes the buckets of the motor and rotates the same, thereby rotating the conveyer or screw through the medium of the gearing. The rotation of the screw draws the sediment which settles in the trough of the false bottom B toward the blow-off pipe  $h'$ , where it is forced out, passing the motor-wheel and escaping with the mingled water and steam at the outlet  $h$ . Furthermore, the rotation of the screw agitates the water and washes loose the sediment on the deflectors or wings  $b$ , which is thereby carried to the conveyer-trough and finally forced out through the blow-off pipe. By this construction all the sediment is carried off from the boiler with a minimum waste of water.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a boiler, of a conveyer device located at the bottom of the boiler, a blow-off pipe located near one end of the conveyer, and a motor located beneath the blow-off pipe, said motor being arranged to be driven by the fluid escaping through the blow-off, and serving to drive the conveyer, substantially as and for the purpose described.

2. The combination, with a boiler, of a false bottom located in the boiler and having a trough portion, a conveyer located in the trough, a blow-off pipe at the end of the conveyer, a motor beneath the blow-off pipe and arranged to be driven by the fluid escaping through the pipe, and means for transmitting motion from the motor to the conveyer, substantially as and for the purpose described.



3. The combination, with a boiler, of a false  
bottom located in the boiler and having a  
trough portion and a deflector at each side of  
the trough, a conveyer located in the trough,  
5 a blow-off pipe at the end of the conveyer, a  
motor beneath the blow-off pipe and arranged  
to be driven by the fluid escaping through  
said pipe, and means for transmitting motion  
from the motor to the conveyer, substantially  
10 as described.

4. The combination, with a boiler, a con-  
veyer located within the boiler and provided  
with a shaft, a pair of journal boxes secured  
within the boiler and supporting the conveyer  
15 shaft, a vertical shaft having one end pro-  
jecting into the boiler, a bearing provided  
with a packing device through which the ver-  
tical shaft passes, means for transmitting mo-  
tion from the vertical shaft to the conveyer  
20 shaft, a blow-off pipe at the end of the con-  
veyer, and a motor arranged to be driven by

the fluid escaping from the blow-off pipe, and  
transmitting motion to the vertical shaft, sub-  
stantially as and for the purpose described.

5. The combination, with a boiler, a con- 25  
veyer located at the bottom of the boiler, a  
blow-off pipe at the end of the conveyer, and  
a motor arranged beneath the blow-off pipe  
and adapted to be driven by the fluid escap-  
ing therefrom, of a valve in the blow-off pipe, 30  
mechanism for transmitting motion from the  
motor to the conveyer, and a casing surround-  
ing said mechanism and the motor, and pro-  
vided with an outlet, all operatively arranged  
as and for the purpose described. 35

In testimony whereof I affix my signature  
in presence of two witnesses.

JNO. D'VEORA.

Witnesses:

W. S. AMLIN,  
ED. R. ALLEN.