

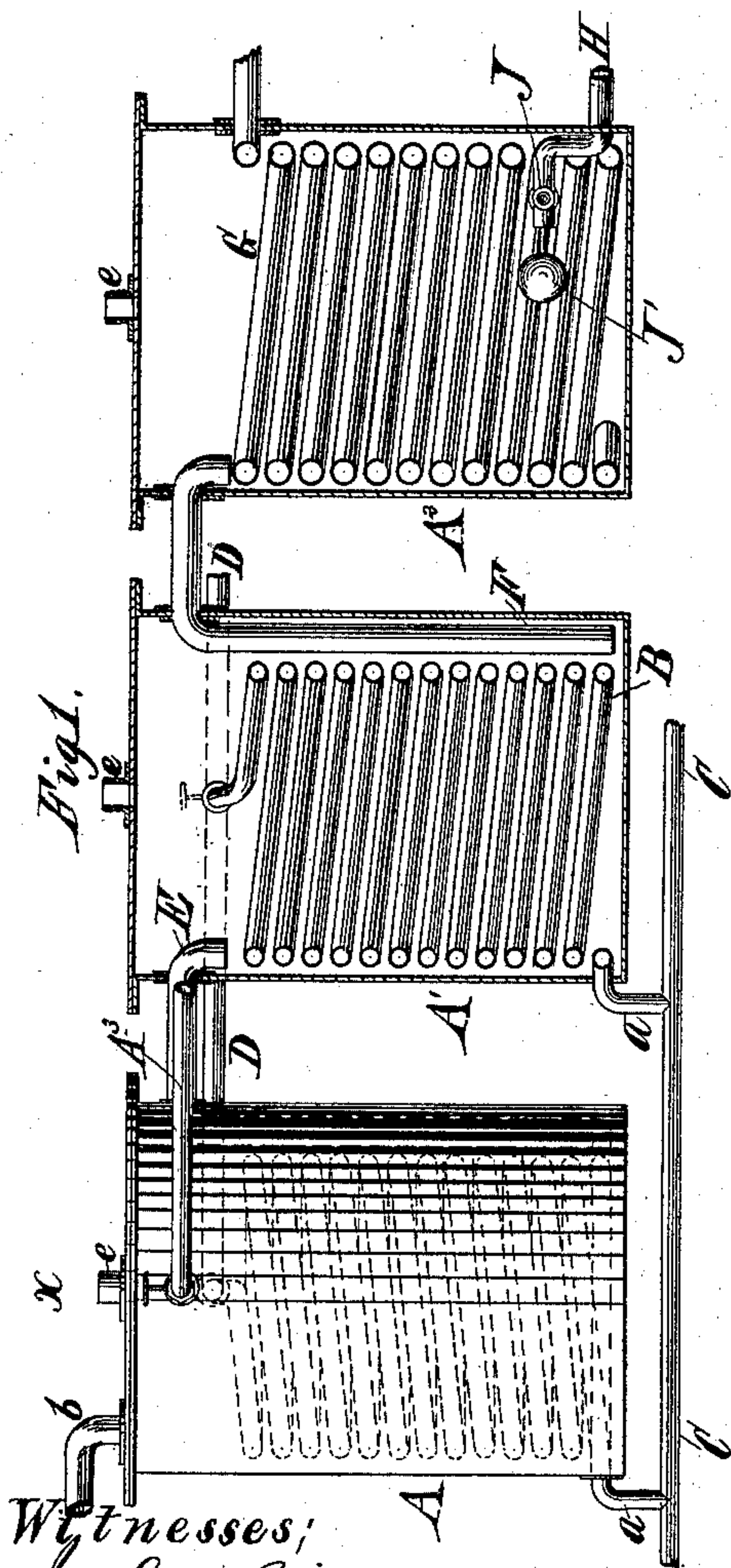
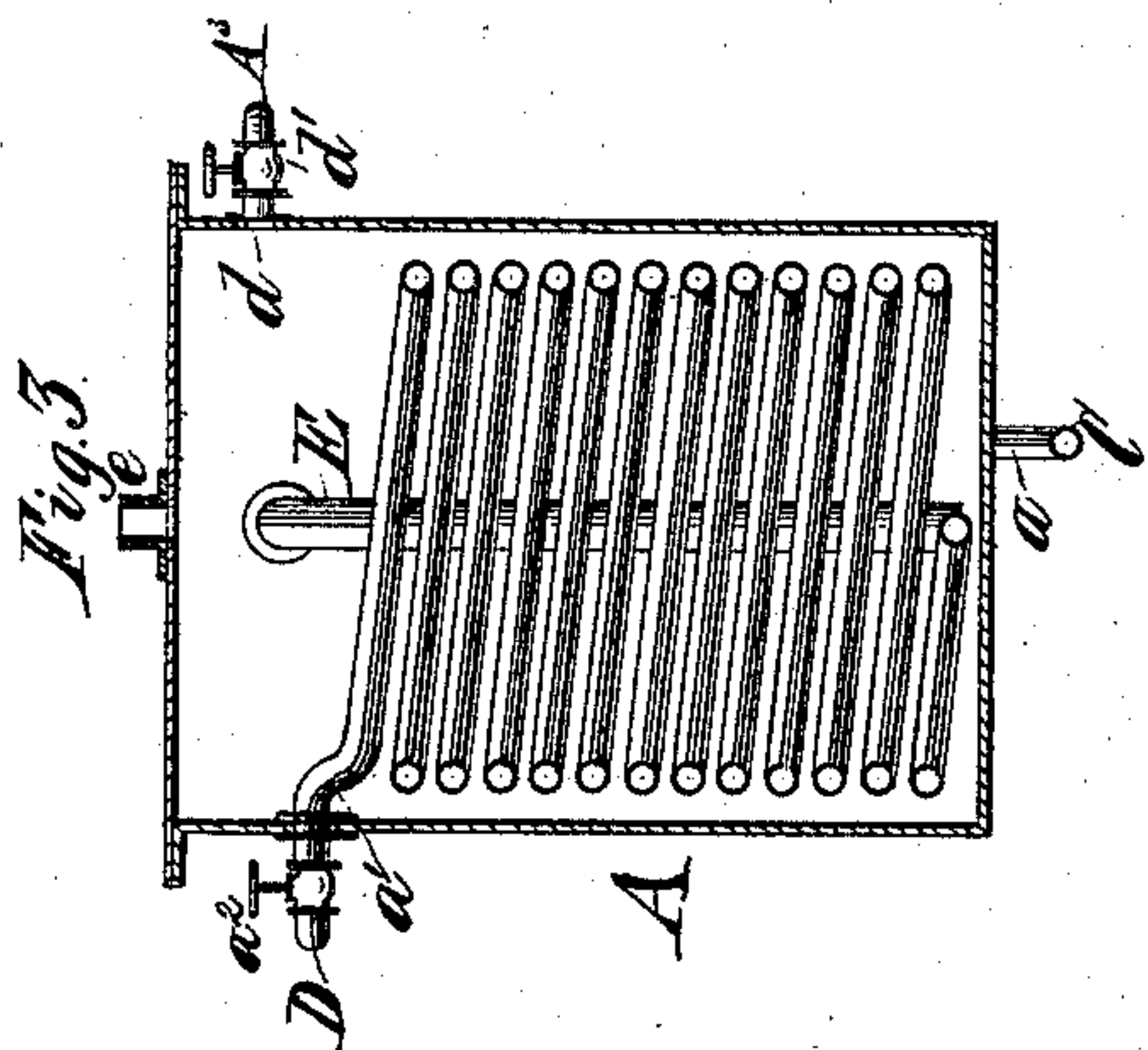
(No Model.)

H. PINDAR.

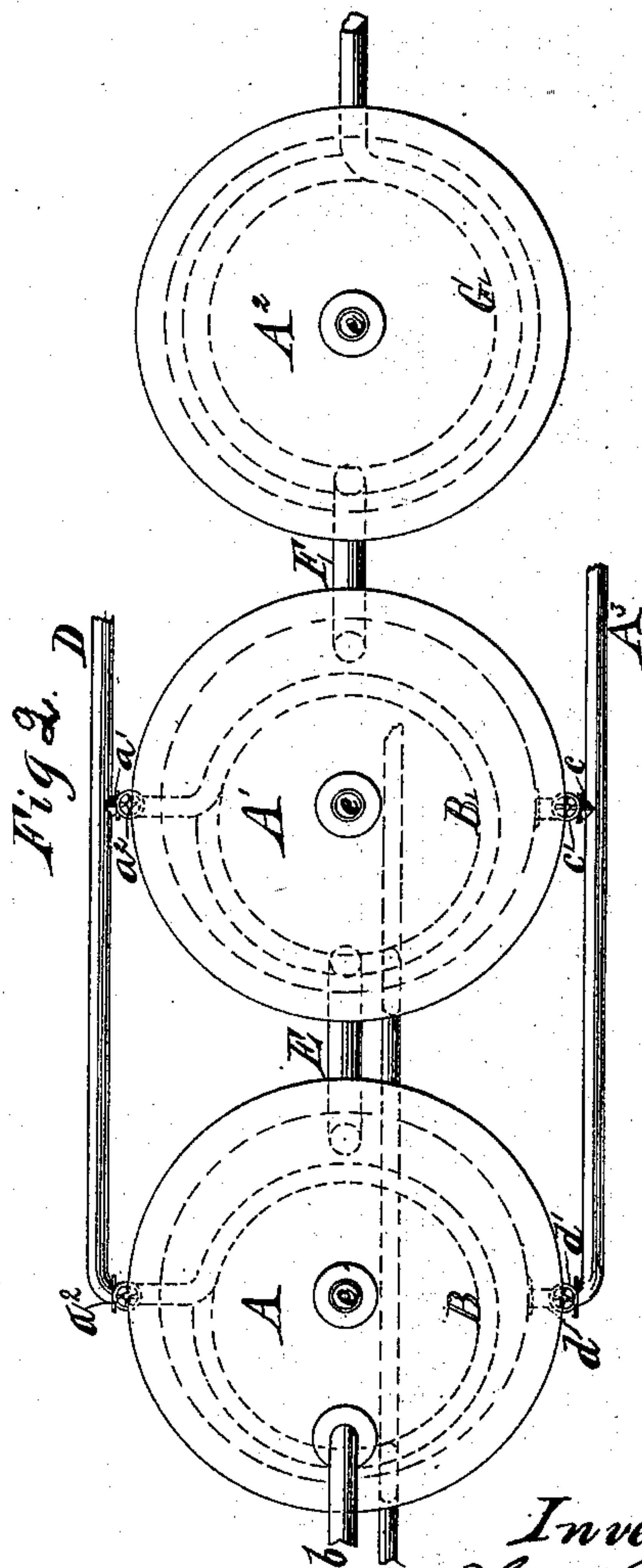
APPARATUS FOR EXTRACTING GREASE FROM WATER.

No. 410,291.

Patented Sept. 3, 1889.



Witnesses:  
John Ricker  
P. Meissner



Inventor:  
Henry Pinder  
by his Attorneys  
Brown & Griswold



# UNITED STATES PATENT OFFICE.

HENRY PINDAR, OF NEW YORK, ASSIGNOR OF ONE-HALF TO ENOCH RUTZLER, OF BROOKLYN, NEW YORK.

## APPARATUS FOR EXTRACTING GREASE FROM WATER.

SPECIFICATION forming part of Letters Patent No. 410,291, dated September 3, 1889.

Application filed April 4, 1889. Serial No. 305,977. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY PINDAR, of the city, county, and State of New York, have invented a certain new and useful Improvement in Apparatus for Extracting Grease from Water, of which the following is a specification.

My improvement may be applied to the extraction of grease from water from any source, but is particularly adapted for the extraction of grease from the waters of condensation from the condenser operating in conjunction with a steam-engine.

I will describe my improvement in detail, and then point out the novel features in claims.

In the accompanying drawings, Figure 1 is an elevation, partly in section, of an apparatus embodying my improvement. Fig. 2 is a plan or top view of the same. Fig. 3 is a transverse section of one of the separating-tanks, taken on the line  $x x$ , Fig. 1.

Similar letters of reference designate corresponding parts in all the figures.

A A' A<sup>2</sup> designate a series of tanks, which may be cylindrical and made of metal. Within the tanks A A' are arranged coils of pipe B. Through these coils of pipe cold water is caused to circulate. The cold water is introduced by means of a supply-pipe C, from which branch pipes  $a$  communicate with the coils B near the lower extremity of said coils, as here shown, or, in other words, near the bottom of the said tanks. The cold water after having been received in the coils circulates through them and passes outwardly through passages  $a'$  (shown as provided with cocks  $a^2$ ) and into a cold-water overflow-pipe D.

The mixed water and grease from the steam-engine condenser is introduced first into the tank  $a$  through a pipe  $b$ , the water and grease being, of course, quite hot. The circulation of cold water through the coils B within said pipe materially cools the grease and water, whereby the grease is caused by its much lighter specific gravity to quickly separate from the water and to accumulate upon the top of the same. From the tank A the accumulated grease is carried off through a grease-overflow pipe A<sup>3</sup>, connected with said tank by an outlet  $d$ , provided, as here

shown, with a cock  $d'$  to any suitable receptacle.

E designates a pipe extending into the tank A and to near the bottom thereof, and also communicating with the tank A' near the upper end of the latter. Through this pipe E water is carried from near the bottom of the tank A into the tank A'. Any grease or oil which may be still held in suspension in the water thus carried over from the tank A to the tank A' will accumulate upon the upper surface of the body of water in the tank A' and will be carried off by means of a connection  $c$ , provided, as here shown, with a cock  $c'$ , into the grease-pipe A<sup>3</sup>. The separation of the grease from the water in the tank A' is of course to be understood as being facilitated by the cooling of the body of water and grease in the tank A' by means of the circulation of cold water through the coils B therein. Although I have only illustrated two of the tanks A A', I wish it to be understood that I may use any desired number of said tanks which may be found essential to thoroughly separate the grease from the water. The grease having been thoroughly separated from the water, I reheat the pure or cleansed water in order to return it to a boiler. This I do by conveying the water from the last one of the series of tanks A A' to a tank A<sup>2</sup>, as here shown, constructed similarly to the tanks A A'. The water is conducted from the tank A' to the tank A<sup>2</sup> by means of a pipe F similar to the pipe E, and having its longer leg extending into the tank A', and to near the bottom thereof, while its shorter leg communicates with the tank A<sup>2</sup> near the upper end of the latter. In the tank A<sup>2</sup> is arranged a coil of pipe G. Through this pipe I cause steam to be circulated, so that the water in the tank A<sup>2</sup> will become heated. The steam from the pipe G may be conveyed away in any suitable manner, and the heated water in the tank A<sup>2</sup> may be conveyed away to a boiler by any suitable pipe or conduit. I have shown a pipe H for this purpose. I have shown upon the upper sides of each of the tanks A A' A<sup>2</sup> vents  $e$ , by which the tanks may be relieved of pressure.

By my improvement the extraction of the



grease or oil from the body of water is very quickly and effectively accomplished, while at the same time the water is returned in a heated condition to the boiler for further use.

5 In Fig. 1 I have shown a valve J controlled by a ball-float J', both of which may be of ordinary construction, whereby the flow of liquid through the pipe H of the boiler may be automatically controlled.

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

1. The combination, with a series of tanks, one of which is provided with an inlet for waters of condensation, of coils of pipe arranged in said tanks, a supply-pipe common to all said coils for conveying cold water thereto, an outlet-pipe for said cold water communicating with all said coils, pipe communications between said tanks for conveying waters of condensation from one to the other, and a pipe communicating with all said tanks for conveying away grease therefrom, substantially as described, whereby a constant circulation of water is maintained through said coils to cool the waters of condensation in the tanks and from one of said tanks to another to convey the waters of condensation to said tanks successively.

2. The combination, with a series of tanks, one of which is provided with an inlet for waters of condensation, of coils of pipe arranged in said tanks, a supply-pipe common to all said pipes for conveying water thereto, an outlet-pipe for said cold water communicating with all said coils, pipe communications between said tanks for conveying waters of condensation from one to the other, a pipe communicating with all said tanks for conveying away grease therefrom, a heating-tank, a pipe for conveying waters of condensation from the last of the tanks first named to the heating-tank, a steam-coil in said heating-tank for heating the water therein, and a pipe for conveying away the heated water from the heating-tank, substantially as described, whereby a constant circulation of water is maintained through the coils in the first-named tanks in order to cool the waters of condensation, and through all of said tanks from one to another in order to convey the waters of condensation to said tanks successively, substantially as specified.

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Witnesses:

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