

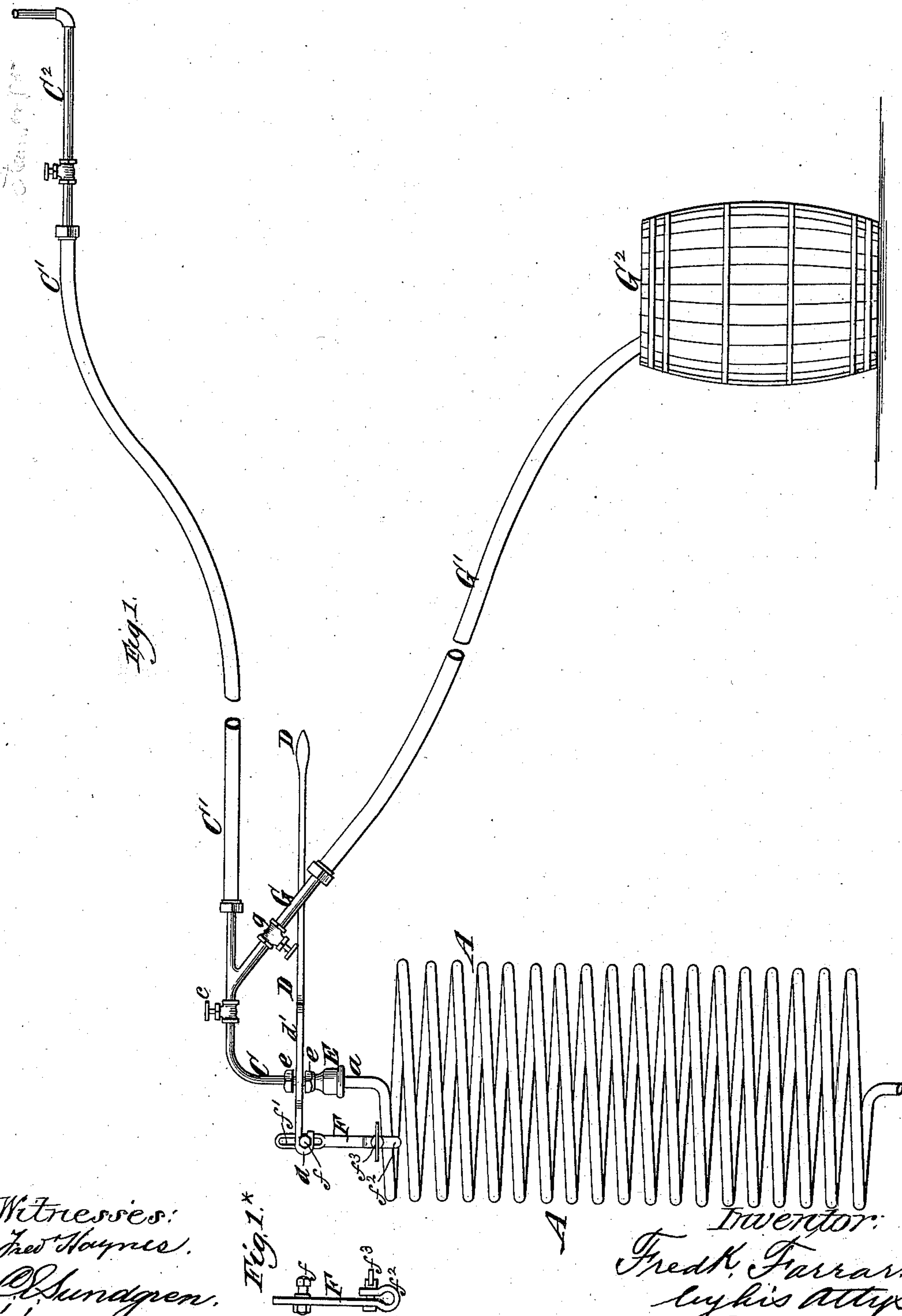
(No Model.)

2 Sheets—Sheet 1.

F. FARRAR.
APPLIANCE FOR CLEANING PIPE COILS.

No. 382,147.

Patented May 1, 1888.



Witnesses:
Fred Haynes.
O. Sundgren.

Inventor:
Fredk. Farrar.
by his attys
Brown & Hall

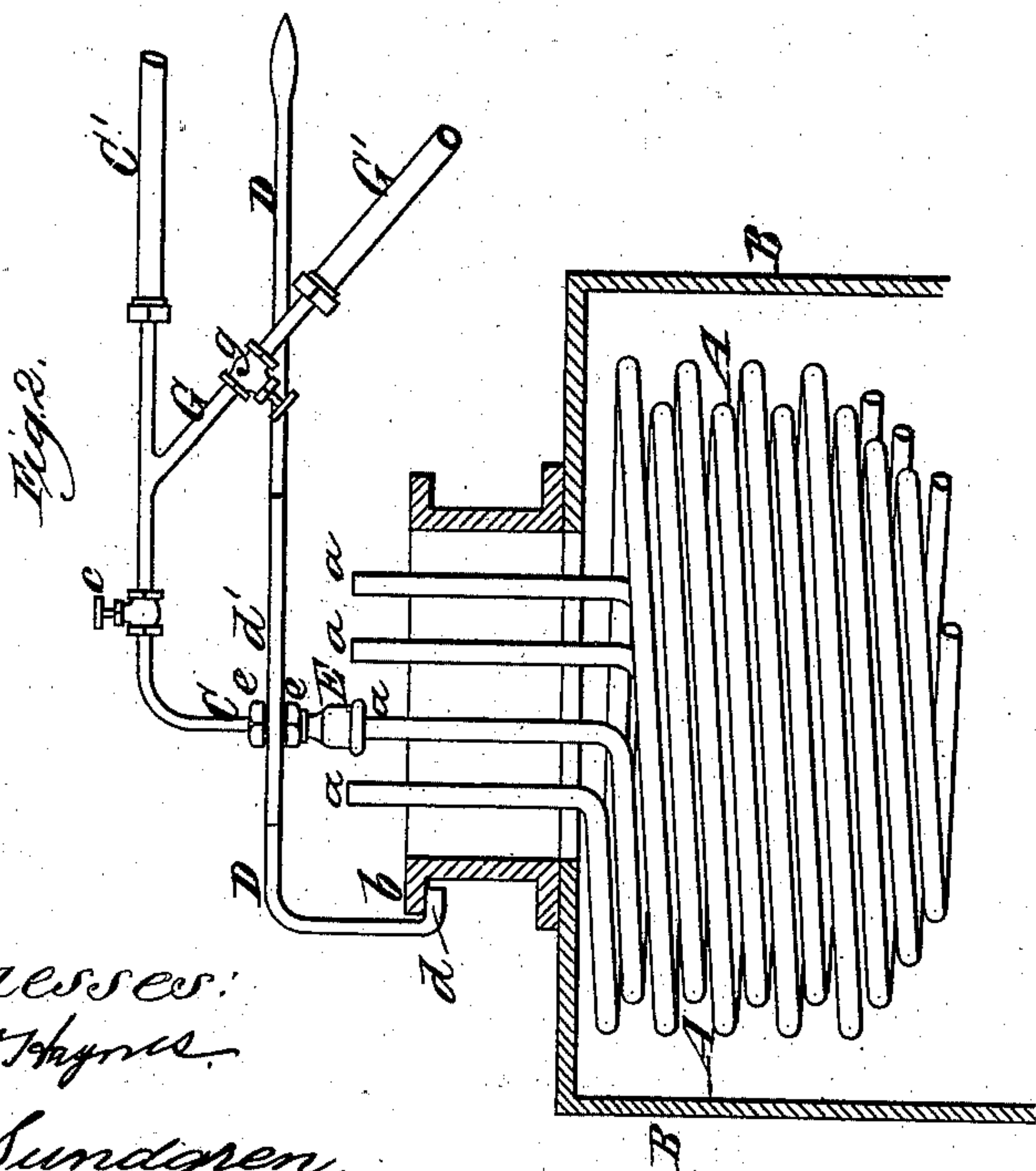
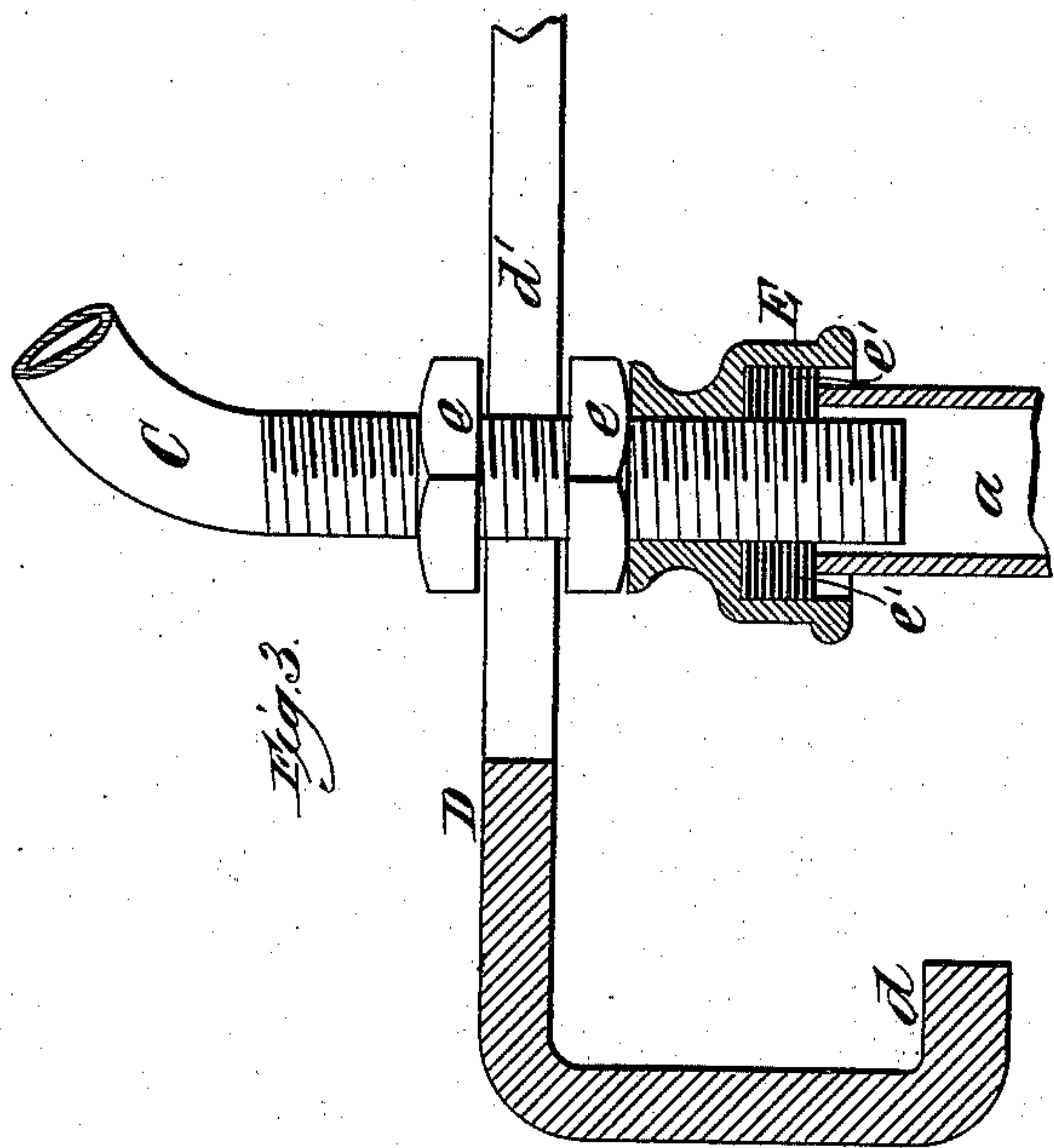
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2 Sheets—Sheet 2.

F. FARRAR.
APPLIANCE FOR CLEANING PIPE COILS.

No. 382,147.

Patented May 1, 1888.



Witnesses:
J. H. Myers.
C. Sundgren.

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UNITED STATES PATENT OFFICE.

FREDERICK FARRAR, OF BROOKLYN, NEW YORK.

APPLIANCE FOR CLEANING PIPE-COILS.

SPECIFICATION forming part of Letters Patent No. 382,147, dated May 1, 1888.

Application filed November 19, 1887. Serial No. 255,608. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK FARRAR, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful Improvement in Appliances for Cleaning Pipe-Coils, of which the following is a specification.

Pipe-coils used for heating and cooling or other purposes, and through which water or other liquids or gases flow, become foul or partly obstructed internally by deposit from the liquid or gas after a time, varying with the character of the liquid or gas used; and the object of my invention is to provide means or appliances whereby a jet of steam or other gas or a liquid may be passed alone through a coil for cleaning it, or whereby a jet of fluid may be caused to induce the flow of another fluid through the coil for a like purpose.

In carrying out my invention I employ a section of pipe having a cap or stopper upon it for closing the end of a coil, so that the pipe may deliver into the coil without leakage. This pipe is for supplying the cleaning-fluid, and I shall hereinafter term it the "injector-pipe." It is often desired to induce the flow of potash solution or other cleansing-liquid through the injector-pipe by the flow of steam or other fluid, and a branch joins the injector-pipe at an acute angle, through which the flow of the cleansing-liquid will be induced into and through the injector-pipe by the passage of steam or other fluid through the injector-pipe. The sources of supply may be connected by hose with the injector-pipe and inducing-pipe. For holding the injector-pipe with its cap or stopper tightly upon the end of the coil to be cleaned, I employ a lever having a hook or portion to engage any suitable abutment to form a fulcrum—as, for example, to engage a post temporarily attached to the coil—and said lever acts against a bearing on the injector-pipe. The bearing on the injector-pipe may be formed by a nut adjustable thereon; and to provide for variations in the distance between the coil's end and the abutment or lever-fulcrum I make the lever with a long slot, through which the injector-pipe is received.

The invention consists in novel combinations of parts hereinabove referred to and hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is

an elevation of a coil and appliances arranged for cleaning it and embodying my invention. Fig. 1* is an elevation of a post, which may be temporarily secured to the coil to form a lever-fulcrum. Fig. 2 is a sectional elevation of a portion of a tank and portions of a nest of coils arranged therein, and illustrating how my appliances may be adjusted to clean any one of the coils. Fig. 3 is a sectional elevation, on a larger scale, of portions of the injector-pipe and its lever; and Fig. 4 is a plan of the lever.

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

A designates a coil, one only of which is shown in Fig. 1; but in Fig. 2 a number (four) of such coils are shown as nested together within a tank or chamber, B. The coil may have served any purpose in heating or cooling, or any other process by which use it has become foul within and requires cleaning.

My appliances for cleaning consist, mainly, of an injector-pipe, C, from which fluid, either gaseous or liquid, may be injected into and through a coil, and a lever, D, for applying the injector-pipe to the end of the coil. The injector-pipe C is armed near the end with a cap or stopper, E, for closing the end of the coil against leakage, and which is best shown in Fig. 3. As there shown, the end portion of the pipe is threaded, and the stopper E (shown as consisting of a simple cup-shaped nut) is screwed upon it and locked by a check-nut, e. The cap E may contain a rubber or other packing, e', for bearing against the end of the coil, while the pipe C extends slightly into the end of the coil. If the pipe C be held with the cap E pressed tightly against the end of the coil, no fluid will escape. To serve this purpose I employ the lever D, which is constructed at its end with a hook, d, or otherwise, to engage with any available part to form a fulcrum, and which bears against a suitable shoulder or bearing on the pipe C. As here shown, the lever D has a long slot, d', receiving the pipe C through it, and the lever is received between two nuts, e, one of which forms the check-nut, before described. Because of the slot d', the lever can be shifted lengthwise to vary its projection beyond the pipe C, according to the location of the part with which

it must engage to form a fulcrum. As shown in Fig. 1, the lever D has a simple hook, *d*, whereby it engages a pin or bolt, *f*, vertically adjustable in a slot, *f'*, in a post or upright, 5 F, having at the lower end a split eye, *f*², and a clamping-bolt, *f*³, whereby it may be secured on a convolution of the coil A, all as shown in Figs. 1 and 1*.

As shown in Figs. 2 and 3, the lever D has 10 a longer hook, *d*, and engages a flange, *b*, on the vat or chamber B to form a fulcrum. The slot *d'* in the lever provides for shifting the pipe C laterally to apply its cap E to any one of the nest of coils.

15 The injector-pipe C has a valve, *c*, for controlling the flow through it, and by a hose or flexible pipe, *C'*, is connected with a supply-pipe, *C*², for steam, gas, or other fluid.

By the arrangement of devices, as described, 20 I provide for injecting steam or any other fluid through a coil, A; but often it is desired to use the steam as an inducing-current to pass any cleansing-liquid through the coil. To provide for such use, I connect an inducing-branch, G, 25 at an acute angle to the injector-pipe C, and this branch G may have a valve, *g*, and be connected by a hose or pipe, *G'*, with a source of supply, as the barrel *G*².

For cleaning many coils, the barrel will be 30 filled with a potash solution, and the flow of steam through the pipe C will induce the flow of solution, which will be forced by the steam through the pipe C and coil A.

It will be seen that the simple appliances 35 described provide for cleaning coils rapidly

and without the necessity of great preparation.

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

1. The combination, with an injector-pipe, 40 C, having at its end a stopper for closing the end of a coil, of a lever, as D, constructed to engage an adjacent bearing to form a fulcrum, and adapted to act against a bearing on the said pipe, substantially as herein described. 45

2. The combination, with an injector-pipe, C, and the packed nut E, forming a cap to close the end of a coil, of the lever D, having a fulcrum-hook at the end and adapted to act 50 against a bearing, *e*, on the said pipe, substantially as herein described.

3. The combination, with the injector-pipe C, having the cap E for closing the end of a coil, of the lever D, having a fulcrum point or hook and a long slot, *d'*, receiving the said 55 pipe through it and adapted to bear against a shoulder on said pipe, substantially as herein described.

4. The combination, with the injector-pipe C, having an inducing-branch, G, and a cap 60 or stopper, as E, for closing the end of a coil, of a lever, as D, adapted to bear against a shoulder on said pipe for holding the cap or stopper tightly against the end of a coil, substantially as herein described.

FREDERICK FARRAR.

Witnesses:

FREDK. HAYNES,
JOSEPH W. ROE.