

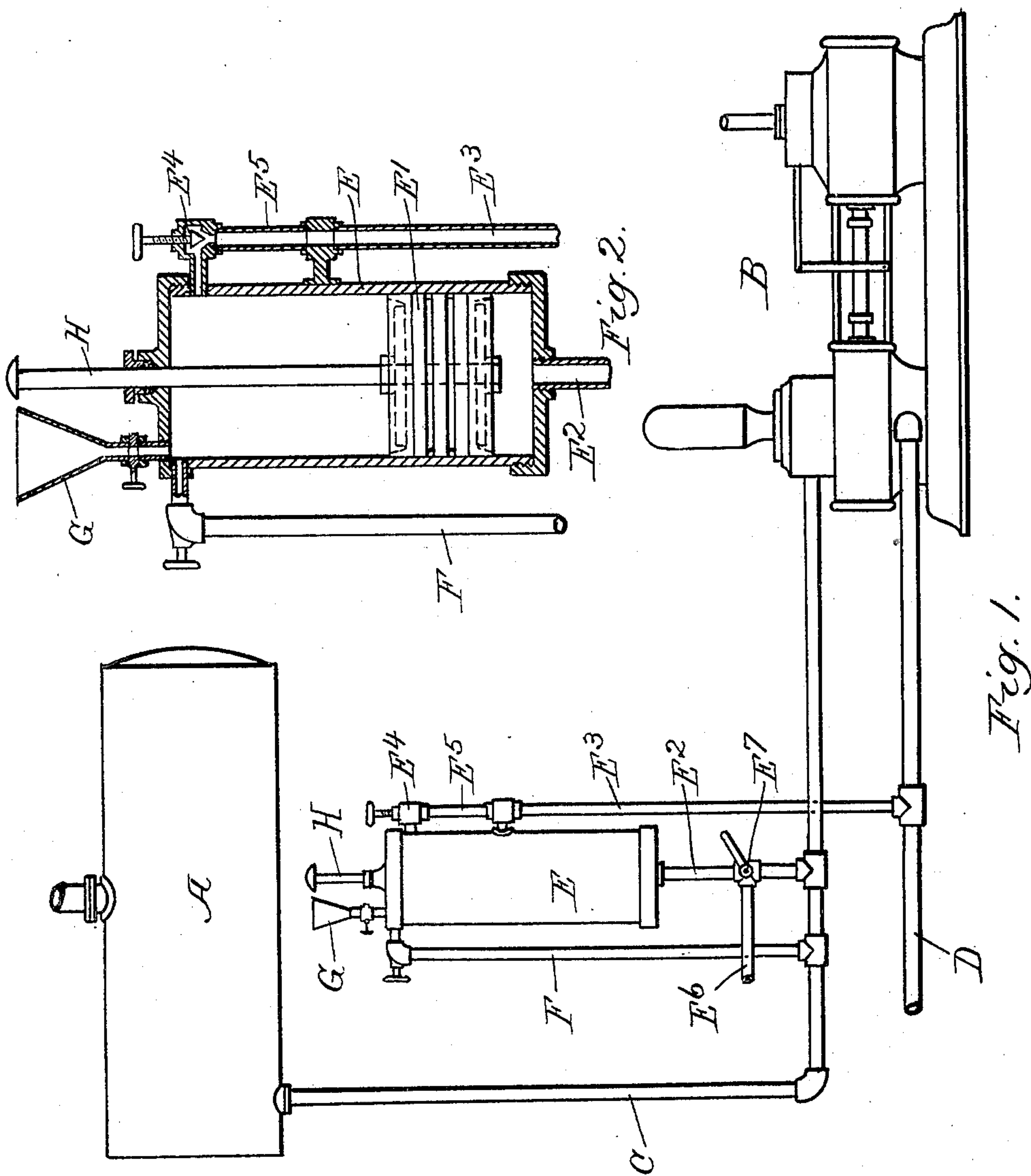
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Patented May 28, 1901.

C. J. REILLY.
ATTACHMENT FOR BOILERS.

(Application filed May 15, 1899.)

(No Model.)



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ATTACHMENT FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 674,987, dated May 28, 1901.

Application filed May 15, 1899. Serial No. 716,888. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. REILLY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Attachments for Boilers, of which the following is a specification.

My invention relates to attachments for boilers, and has for its object to provide a new and improved attachment for mixing material with the feed-water or other substance fed to the boiler.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a diagrammatic view showing a construction embodying my invention. Fig. 2 is an enlarged view, in part section, of the receptacle containing the material to be mixed with the feed-water.

Like letters refer to like parts throughout both figures.

For purposes of illustration I have shown my invention in connection with a fluid-receiver, which may be an ordinary boiler. In view of the impurities in the water ordinarily used in boilers it is often customary to mix with this water some compound or material which prevents the impurities from being deposited upon the inner surfaces of the boiler, and thus obviates the evils resulting therefrom. Many compounds or kinds of material are used for this purpose, and I have therefore not described such material, as the various kinds are known to those versed in the art. It is of course evident that my invention may be applied to other constructions and for other purposes, and I have not endeavored to set out such constructions or such purposes, as they are not necessary to a proper understanding of my invention.

Referring now to the drawings, I have shown a fluid receiver or boiler A and a pump B, connected together by a suitable conductor or pipe C. I have shown the pump as an ordinary steam-pump; but it is of course evident that any fluid-moving device may be used, such as an injector or the like, and by the word "pump" I mean to cover all such devices. The pump B is connected with a source of fluid-supply by a suitable pipe D. The material to be mixed with the feed-water is contained in a reservoir E. This res-

ervoir is provided with a suitable piston or movable partition E' and is connected at one end by means of the pipe E² with the pipe C, leading from the fluid-moving device to the boiler. A pipe E³ is connected with the reservoir E near one end thereof and is also connected with the pipe D, leading to the fluid-moving device. This pipe E³ is controlled by a suitable valve E⁴ and is preferably provided with a transparent or glass portion E⁵, so that the material passing therethrough may be observed. The pipe E² is preferably provided with a drain E⁶, and a suitable two-way valve E⁷ of any ordinary construction is provided, so that the reservoir may be disconnected from the pipe C and connected with the drain-pipe or disconnected from said drain-pipe and connected with the pipe C. A pipe F is also connected with the upper end of the reservoir E and with the pipe C. This pipe is to permit the cleaning of the reservoir. A suitable opening is provided in said reservoir for the admission of the material, and a funnel G or the like may be attached thereto, as shown.

I have described in detail a construction embodying my invention; but it is of course evident that the parts may be varied in form, construction, and arrangement without departing from the spirit of my invention, and I therefore do not wish to be limited to the construction shown.

I prefer to provide the piston E' with a piston-rod H, which projects from the reservoir E. This piston-rod permits the piston to be pushed downwardly when it is desired to refill the reservoir. The position of the piston in the reservoir will be indicated by the amount the rod projects from said reservoir, and hence an observer can easily tell when the reservoir needs refilling. Of course any suitable graduations to aid the observer may be placed upon the piston-rod.

The use and operation of my invention are as follows: When the device is used for mixing material with the feed-water of the boiler, such material is placed in the reservoir E above the piston E', the piston being at the bottom of the reservoir and all the valves being closed except the valve controlling the opening through which the material is inserted. The valve E⁷ is then moved to connect the lower end of the reservoir with the pipe

C. The valve E^4 is also opened. When the fluid-moving device B is in operation, it will be seen that there is a difference of pressure between the pipe C and the pipe D, for the reason that they are on opposite sides of the fluid-moving device. The water therefore passes through the pipe E^2 and beneath the piston E' , the pressure of said water forcing said piston upward. This pressure tends to force the material in the reservoir E through the pipe E^5 into the pipe D, where it is mixed with the incoming fluid before being forced into the boiler. The quantity of material mixed with the water is regulated by the valve E^4 and is observed through the glass tube E^5 . It will be seen that by this means any desired rate of feed may be obtained. When the material has all been forced out of the reservoir, the valve E^7 is moved so as to disconnect the pipe E^3 from the pipe C and connect it with the drain E^6 . This permits the water below the piston to escape and allows the piston to move to the lower end of the reservoir. The reservoir may be then again filled. It often happens that the material used in the reservoir becomes thick or forms a deposit on the top of the piston. In this event the valve in the pipe F is opened when the piston is at the top of the reservoir, so as to permit the water to flow through the reservoir and clean it out, the valve E^4 being also open to permit the free flow of the water. It will be seen that I have here a feeding device which acts through the difference of pressure between the two pipes leading to and from the fluid-moving device or pump.

I claim—

1. A device for mixing material with the feed-water of a steam-boiler, comprising a reservoir adapted to receive the material and provided with a piston having a projecting rod which projects beyond the reservoir, said material being received above said piston, a pump provided with two connections, one leading to the source of water-supply and the other to the boiler, a pipe below said piston and communicating with the connection leading from the pump to the boiler, a second pipe above the piston and communicating with the connection leading from the pump to the source of water-supply.

2. A device for mixing material with the feed-water of a steam-boiler, comprising a reservoir adapted to receive the material and provided with a piston having a projecting rod which projects beyond the reservoir, said material being received above said piston, a pump provided with two connections, one leading to the source of water-supply and the other to the boiler, a pipe below said piston and communicating with the connection leading from the pump to the boiler, a second pipe above the piston and communicating with the connection leading from the pump to the source of water-supply, said latter pipe provided with a transparent portion through

which the rate at which the material is being fed may be noted, and a controlling device for controlling the rate of feed.

3. A device for mixing material with the feed-water of a steam-boiler, comprising a reservoir adapted to receive the material and provided with a piston, said material being received above said piston, a pump provided with two connections, one leading to the source of water-supply and the other to the boiler, a pipe below said piston and communicating with the connection leading from the pump to the boiler, a second pipe above the piston and communicating with the connection leading from the pump to the source of water-supply, said latter pipe provided with a transparent portion through which the rate at which the material is being fed may be noted, and a controlling device for controlling the rate of feed.

4. A device for mixing material with the feed-water of a steam-boiler, comprising a reservoir adapted to receive the material and provided with a piston, said material being received above said piston, a pump provided with two connections, one leading to the source of water-supply and the other to the boiler, a pipe below said piston and communicating with the connection leading from the pump to the boiler, a second pipe above the piston and communicating with the connection leading from the pump to the source of water-supply, said latter pipe provided with a transparent portion through which the rate at which the material is being fed may be noted, a third pipe connected with the reservoir above the piston and leading to the connection from the pump to the boiler, and a controlling device for controlling the rate of feed.

5. In a device for supplying feed-water to a steam-boiler and mixing anti-incrustation compound therewith, the combination of a fluid-moving device with a pipe leading therefrom to the source of water-supply and normally open throughout its length and serving solely as an inlet-pipe, a pipe leading from said pump to the steam-boiler and normally open throughout its length and used solely as a discharge-pipe, a reservoir for the anti-incrustation compound, a vertically-movable piston in such reservoir, a connection from the lower part of the reservoir to the pipe leading from the fluid-moving device to the boiler, said connection normally open throughout its length, and a connection from the upper part of the reservoir to the pipe from the fluid-supply to the fluid-moving device, said connection normally open throughout its length.

6. In a device for supplying feed-water to a steam-boiler and mixing anti-incrustation compound therewith, the combination of a fluid-moving device with a pipe leading therefrom to the source of water-supply and normally open throughout its length and serving solely as an inlet-pipe, a pipe leading from

said pump to the steam-boiler and normally open throughout its length and used solely as a discharge-pipe, a reservoir for the anti-in-crustation compound, a connection from the
5 lower part of the reservoir to the pipe leading from the fluid-moving device to the boiler, said connection normally open throughout its length, and a connection from the upper part of the reservoir to the pipe from the fluid-supply to the fluid-moving device, said connection normally open throughout its length.

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