

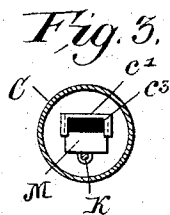
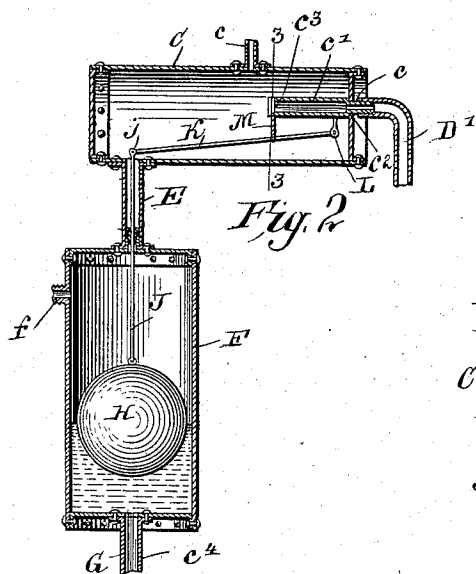
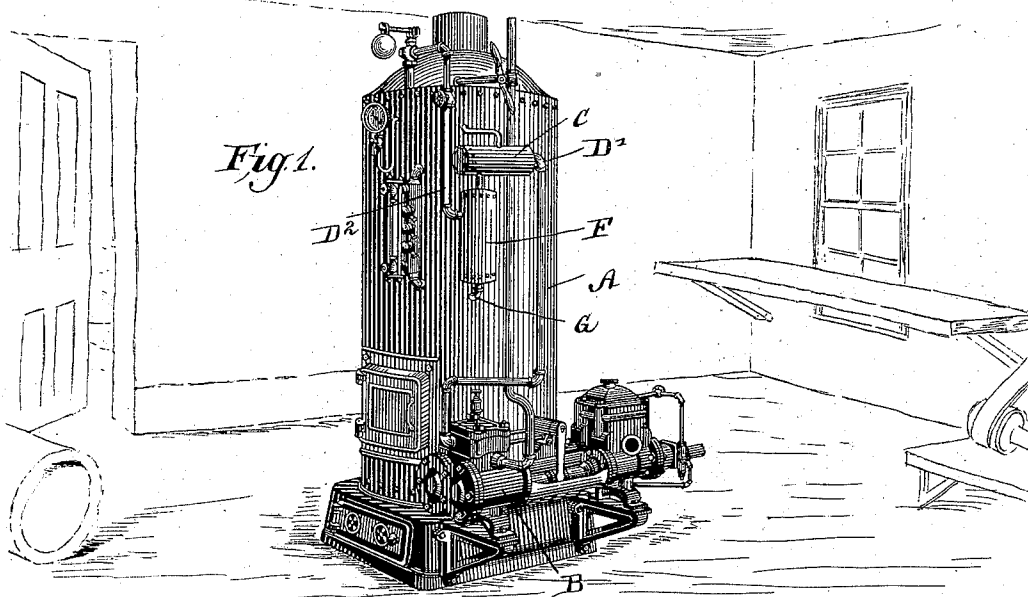
(No Model.)

E. E. ROW.

AUTOMATIC STEAM FEED FOR BOILER PUMPS.

No. 565,798.

Patented Aug. 11, 1896.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ELMER E. ROW, OF GREENSBURG, PENNSYLVANIA.

AUTOMATIC STEAM-FEED FOR BOILER-PUMPS.

SPECIFICATION forming part of Letters Patent No. 565,798, dated August 11, 1896.

Application filed September 13, 1895. Serial No. 562,438. (No model.)

To all whom it may concern:

Be it known that I, ELMER ELLSWORTH ROW, residing at Greensburg, in the county of Westmoreland and State of Pennsylvania, have invented a new and Improved Automatic Steam-Feed for Boiler-Pumps, of which the following is a specification.

My invention is in the nature of an automatic steam-controlling means for pumps used for feeding boilers; and it primarily has for its object to provide a mechanism for this purpose automatic in operation, simple and cheap in construction, and effective for its desired purpose.

My invention also has for its object to provide a device of the character stated which can be quickly and conveniently attached to any of the ordinary styles of boilers having feed-pump connections.

With other minor objects in view, which hereinafter will appear, my invention consists in such novel features of construction and peculiar combination of parts as will be first described in detail, and then be specifically pointed out in the appended claim, reference being had to the accompanying drawings, in which—

Figure 1 illustrates my invention as applied for use. Fig. 2 is a vertical longitudinal section of the automatic feed mechanism detached from the boiler, and Fig. 3 is a transverse section taken on the line 3 3 of Fig. 2.

Referring to the accompanying drawings, A indicates the boiler, and B the pump, which may be of any ordinary construction.

C indicates a chamber formed, preferably, of a six-inch pipe capped at the ends and having at the top an inlet *c*, which connects with the branch pipe *D'* of the pump feed-pipe D, which connects with the boiler. (See Fig. 1.)

The chamber C has at one end a discharge or feed pipe *c'*, which extends into the said chamber, as at *c''*, and terminates at the end in a valve-seat *c''*, while its outer or feed portion *c''* connects with the pump, as shown.

The chamber C, which is held horizontal, is joined by the tubular connection E, in practice about six inches long, with a vertically-disposed chamber F, which in the preferred form is made up of an eight-inch pipe-section, also capped at the ends. This cham-

ber F has a steam-inlet *f* near the top, which connects with the branch pipe *D''* of the main feed-pipe D, and at the bottom it has an inlet *f''*, which connects by the feed-pipe G with the water-jacket of the boiler. Such chamber F, it should be stated, in practice is so disposed relatively to the boiler that the water-level therein will be the same as the water-level in the boiler.

H indicates a float-valve held in the chamber F, which is attached to a rod J, which passes up through the tubular connection and through a steam-tight joint at the top of the chamber F, the upper end *j* of such rod being pivotally connected to one end of a lever-rod K, pivoted at the other end to a bracket L, projected down from the pipe member *c'*.

M indicates a slide-valve connected to the rod J, which is held to travel over the valve-seat *c''* on the pipe-section *c'*, as most clearly shown in Fig. 3.

From the foregoing description, taken in connection with the accompanying drawings, it is thought the operation and advantages of my improvement will be readily apparent and appreciated by those skilled in the art to which it appertains.

By the arrangement shown the water will be practically kept at the same level at all times.

The steam which operates the pump first passes into the chamber C, and whence, through the valved pipe *c'*, it passes to the pump. At the same time steam from the boiler also passes into the chamber F and serves to balance the float H from the top, which is balanced below by the water held in the said chamber F. Now should the water fall below a predetermined level the float will also fall, and as the float falls the slide-valve will move down and increase the inlet-opening to the pipe *c'*, and in consequence permit an increased or full head of steam to pass to the pump, which will then increase the feed to the boiler and bring the water back to the normal level. In case the water rises above its normal level the float will rise and in consequence cut off or decrease the supply to the pump, thereby keeping the water at a predetermined level.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

The combination with the boiler and pump of the horizontal steam-chamber arranged upon the side of boiler above the normal water-line and connected at its upper side with the steam-space of boiler, a pipe leading from one end of said chamber to the pump, said pipe projecting some distance inward, the valve-slideways arranged at the end of said pipe, the vertical water-chamber connected with the water-space at its lower end and with the steam-space near the upper

end, the tubular connection extending from the top of vertical chamber into the lower side of the horizontal chamber, the vertically-sliding gate-valve the lever pivoted to the steam-discharge pipe and connected to the valve a float in the water-chamber, a rod extending therefrom and connected to the end of the valve-lever all arranged substantially as shown and described.

E. E. ROW.

Witnesses:

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