

W. F. EDWARDS.
CONDENSER.
APPLICATION FILED APR. 24, 1911.

1,017,519.

Patented Feb. 13, 1912.

FIG. 1

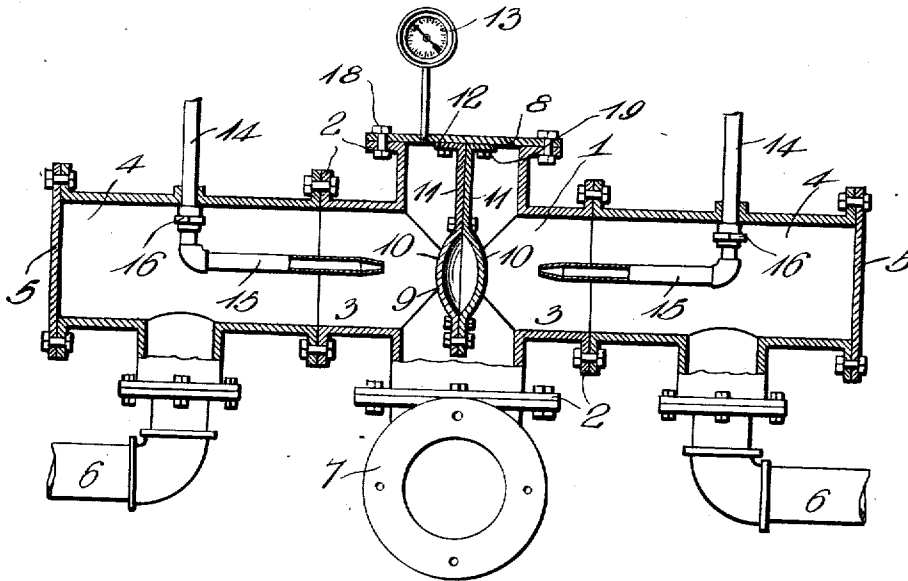


FIG. 2

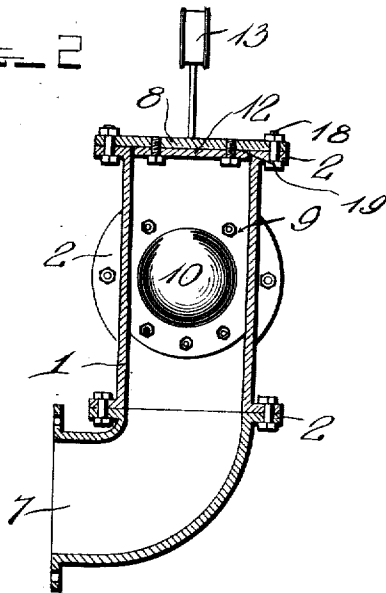
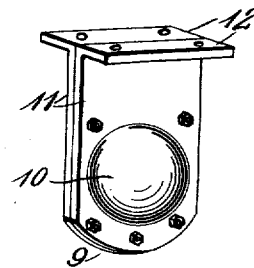


FIG. 3



Witnesses
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UNITED STATES PATENT OFFICE.

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CONDENSER.

1,017,519.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM F. EDWARDS, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Condensers; and I do 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.

This invention relates to improvements in condensers.

One object of the invention is to provide a condenser which will do away with the hammering in heating systems where live steam is employed and by means of which a building located at a considerable distance from an engine may be heated by the exhaust steam from the engine without causing back pressure on the latter.

Another object is to so construct the casing of the condenser as to render the baffle bodily removable from a position between and at right angles to the length of the nozzles and without interrupting their adjustment.

Another object is to provide a condenser of this character which will be simple, strong and durable in construction, efficient and reliable in operation, and which may be readily cleaned out and repaired.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings: Figure 1 is a central vertical longitudinal section of my improved condenser; Fig. 2 is a central vertical cross section thereof; Fig. 3 is a detail perspective view of the baffle plate employed in connection with the condenser.

My improved condenser comprises a central cross shaped body or four way coupling member 1 having on the ends of its arms or branches annular attaching flanges 2. To the side arms or members 3 are attached flanged T couplings 4 the outer ends of which are closed by caps or closing plates 5 bolted to the flanges of said ends as shown. To the lower ends or branches of

the couplings 4 are connected the return steam pipes 6 from the heating system.

To the lower arm or branch of the body 1 is connected the discharge pipe 7 for the condensed steam and water, said pipe being connected to the suction end of any suitable form of pump (not shown) whereby the water from the condenser is returned to the boiler. The upper arm or branch of the body 1 is closed by a top plate or cap 8 secured to the flange 2 by bolts 18.

To the lower side of the cap or plate 8 is attached a baffle member or deflector 9, said member comprising a hollow body formed from two convex plates 10 bolted together around their edges, as shown. On the plates 10 are formed extensions 11 which are bolted together and form a hanger. The upper ends of the extensions 11 are bent laterally in opposite directions to form attaching flanges 12 which are bolted or screwed as at 19 to the inner side of the closing plate or cap 8 for the upper branch of the body 1. When thus attached to the plate 8, the baffle member or deflector 9 will be disposed crosswise through the center of the body 1, as shown. Supported on and opening through the cap or plate 8 and connected with the interior of the body 1 is a vacuum

Extending through the upper sides of the T couplings 4 are water supply pipes 14 having on their inner ends right angularly projecting nozzles 15, the ends of which extend into the body 1 and terminate a suitable distance from the opposite sides of the baffle or deflector 9. Through these nozzles water from the pipes 14 is discharged against the opposite sides of the deflector. The nozzles 15 are connected to the main pipes 14 by coupling nipples 16 which also serve as lock nuts when screwed up into engagement with the inner sides of the T couplings 4 to prevent the pipes 14 from coming loose.

The water in the pipes 14 is under such pressure that when discharged against the convex sides of the baffle or deflector 9 the water will be broken up into a fine spray or mist which coming into contact with the steam rapidly chills and condenses the same, thus preventing the steam from producing any back pressure on the engine. The con-

densed steam and the water discharged from the pipes 14 are pumped back into the boiler or into a tank through the suction pipe connected with the lower branch of the body 1 as hereinbefore described.

It will be noted that the extensions 11 of the plates 10 fit snugly against the inner walls of the body 1 and close the upper portion thereof so that the steam ejected against one side of the deflector will not interfere with the steam ejected against the opposite side. By this arrangement low pressure can be used in one side of the condenser, and high pressure in the other thus permitting the use of a smaller stream of water on the low pressure side than on the high pressure and reducing the expense of operating the condenser.

A practical advantage which results from the above construction is that, when it becomes desirable to gain access to the baffle, it is only necessary to loosen the bolts 18 and then the entire top or cap plate 8 and with it the baffle and the gage can be bodily withdrawn. Such withdrawal is upward out of the top of the casing or body 1, when the extensions 11 slide upward within the same and the entire baffle or deflector passes out of its upper end without altering the position of the nozzles or jets 15 in the least.

While the condenser is herein shown and described as being of double form, it is obvious that I may employ a single form of the condenser, the body portion of which would be constructed in the form of a T instead of cross-shaped as shown in Fig. 1 of the drawings.

From the foregoing description taken in

connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the claimed invention.

Having thus described my invention, what I claim is:

The herein described condenser comprising a body consisting of a four-way member having annular attaching flanges on its arms, two of the latter being horizontal and the other two upright, steam pipes connected with the horizontal arms, a discharge pipe connected with the lowermost upright arm and adapted to be led to the suction end of a pump, water pipes opening through the upper sides of the horizontal arms and having nozzles at their inner ends directed toward each other, a top plate removably bolted to the flange of the uppermost upright arm, and a deflector or baffle having flanges secured to the lower side of said plate, said deflector depending into the uppermost arm and filling it laterally and standing between said nozzles, all substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM F. EDWARDS.

Witnesses:

JASON D. BRANDT,
AUSTIN R. EDWARDS.