Oct. 13, 1931. H. J. KERR 1,827,201

ECONOMIZER WITH OVERLAPPING PLATES

Filed Oct. 5, 1928

Fig 1

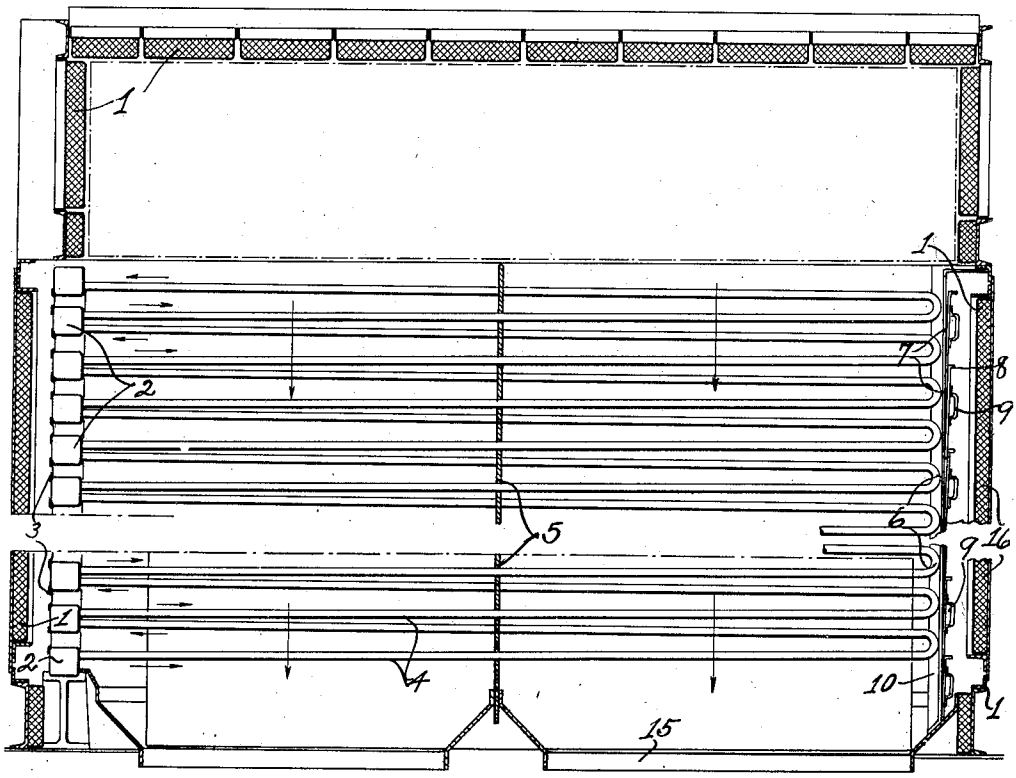


Fig 3

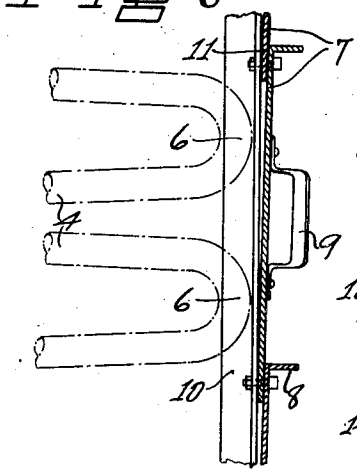
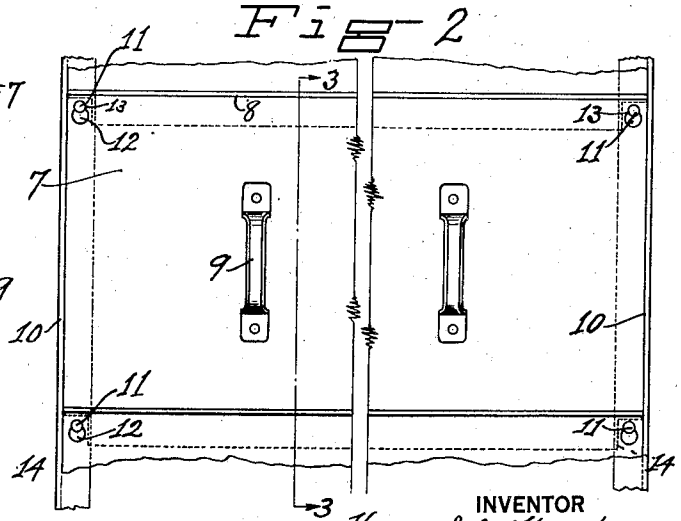


Fig 2



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Patented Oct. 13, 1931

1,827,201

UNITED STATES PATENT OFFICE

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ECONOMIZER WITH OVERLAPPING PLATES

Application filed October 5, 1928. Serial No. 310,510.

This invention relates to an economizer setting in which headers and tubes of an economizer are located with removable overlapping plates along one side of the gas pass so that water which may be used for washing the tubes will not escape along the side of the setting. The invention will be understood from the description in connection with the accompanying drawings, in which Fig. 1 is a vertical sectional view partly broken away through an illustrative embodiment of the invention; Fig. 2 is a side view partly broken away on an enlarged scale showing some of the details; and Fig. 3 is a section along the line 3—3 of Fig. 2.

In the drawings reference character 1 indicates an economizer setting, the walls of which may be provided with the usual layer of heat insulating material. A row of superposed headers 2 of an economizer is located near one side of the setting and plates 3 bridge the spaces between the economizer headers 2 so that the headers and plates make up one side or wall of the gas pass. The headers 3 are connected by rows of U-tubes 4 in a manner already known.

Water to be heated may be introduced into the lowermost header 2 and passes through the U-tubes 4, as indicated by the arrows, and successive headers 2 to the uppermost header from which the water can be taken away by the usual well known connections (not shown). The gases for heating the water pass downwardly across the tubes, as indicated by the vertical arrows.

A support 5 is provided for the tubes 4 and other supports may be provided as may be found necessary. A wall making up the side of the gas pass opposite the headers 2 is installed in proximity to the curved ends 6 of the tubes 4. This wall is made up of a number of overlapping metal plates 7 each one of which has an outwardly extending flange 8 at its upper edge. The plates 7 are also provided with handles 9 for convenience in removing and replacing same. Vertical supports 10 are provided at opposite ends of the wall that is made up of the plates 7. The supports 10 are provided with bolts 11 at intervals in a vertical direction slightly less than the width of the plates 7. The plates 7 are provided with holes 12 near their upper corners which holes are slightly larger than the heads of the bolts 11 so that the plates can be slipped over the bolt heads and moved downwardly short distances to cause the slots 13 extending from the upper edges of the holes 12 to fit upon the bolts 11, thus facilitating assembly or removal of the plates and preventing their displacement when in position. The lower corners of the plates 7 are cut away as indicated at 14 to accommodate the bolts 11 at the lower edges of the plates.

The plates 7 are installed so that the lower edge of each plate is inside the upper edge of the succeeding plate below it. In this way the water that is used for washing the outside of the tubes 4 trickles down along the inside of the wall made up of the plates 7 and does not escape to the outside of the economizer setting. The water passes out through the outlet 15 at the bottom through which outlet the gases for heating the tubes pass during the normal operation. The overlapping plates 7 not only prevent the wash water from striking the outer casing of the economizer, but they also form a gas seal independently of the outer casing.

The section 16 of the setting near the wall that is made up of the plates 7 is made removable. The section 16 and the plates 7 can be removed for the purpose of withdrawing the tubes 4 in case repairs are needed.

Changes and modifications can be made without departing from the scope or spirit of the invention.

I claim:

1. In an economizer setting, a wall comprising overlapping plates, a support for said plates, and means whereby said plates can be readily removed from said support.

2. In an economizer setting, a wall comprising overlapping plates, a support for said plates, and means whereby said plates can be readily removed from said support, said means comprising bolts on said support and holes in said plates.

3. An economizer comprising headers and U-tubes connecting said headers, said tubes being subjected to a washing operation, one

side of the gas pass in said economizer being made up of overlapping plates uncalked between the joints.

4. An economizer comprising headers and U-tubes connecting said headers, said tubes being subjected to a washing operation, one side of the gas pass in said economizer being made up of overlapping plates uncalked between the joints and in proximity to the bends in said tubes.

5. An economizer comprising headers and U-tubes connecting said headers, one side of the gas pass in said economizer being made up of overlapping plates in proximity to the bends in said tubes and the other side thereof comprising said headers.

6. In combination, an economizer setting, parts within said setting which are subjected to a washing operation, a wall of said setting being lined with overlapping plates having uncalked joints therebetween, whereby the washing fluid trickles down along the inside of said wall.

7. In combination, an economizer setting, parts within said setting which are subjected to a washing operation, a wall of said setting being lined with overlapping plates having uncalked joints therebetween, whereby the washing fluid trickles down along the inside of said wall, and a support for said plates.

HOWARD J. KERR.