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TUBE SUPPORT

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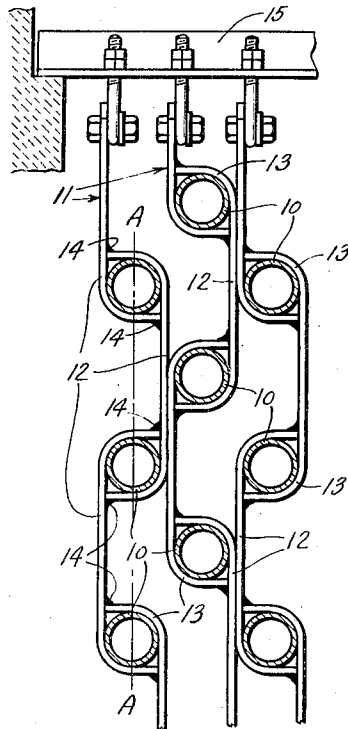


Fig. 1.

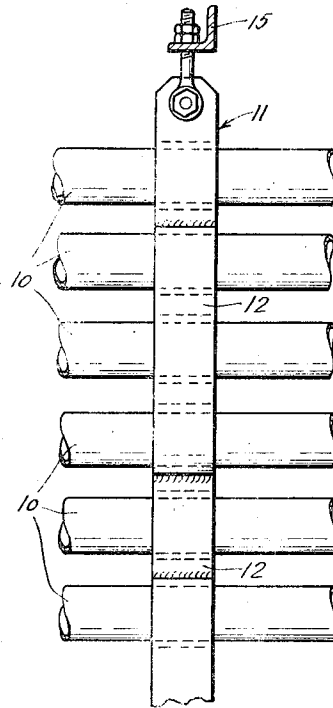


Fig. 2.

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TUBE SUPPORT

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3 Claims. (Cl. 248—68)

The present invention relates to improvements in supporting devices for the tubular elements of heat exchangers such as boilers, superheaters, economizers or the like.

It is known to support tubes located one above another in a tube bank by welding in stays. The direct welding of stays to the wall of the tubes may cause trouble, particularly where the stays, not being cooled by circulation of fluid there-through, are made of a different heat resisting material than the tubes. It is also known to place collars around the tubes to which stays are welded to interconnect and support the tubes. Such an arrangement has the advantages that when tubes are connected in series by return bends or the like the collars must be assembled on the tubes before the return bends are formed or attached.

According to the present invention it is proposed to weld together two arcuate pieces which embrace a tube and which have a connecting stay between superposed tubes so that the arcuate portions form a collar which envelops the tube. An advantage of the invention is that one welding operation forms a collar about the tube and at the same time makes a connection between the collar and the stay which is located between the tubes.

In the drawing:

Figure 1 is a transverse sectional view through part of a tube bank wherein the improved hangers of the present invention are employed.

Figure 2 is a side elevational view corresponding to Fig. 1.

In Fig. 1 the numeral 10 designates the fluid circulating tubes of a heat exchanger, the tubes being arranged in a number of vertical rows. Strap-like supporting and spacing members 11 have body portions 12 of a length substantially corresponding to the distance between tube centers in the vertical row and are formed with arcuate end portions 13 extending transversely of the tubes. The arcuate portion at one end freely engages the top side of one tube and the arcuate portion at the opposite end freely engages the underside of the tube below. Alternate hangers 11 are arranged in transverse alinement at opposite sides of the plane A—A including the axis of the tubes of a vertical row so that arcuate end portions at adjacent ends of two successive hangers form a collar about a tube, the end portion 13 of one hanger being connected to the body portion 12 of the other in any suitable manner as by weld joints 14 as illustrated in Fig. 1.

The body portion 12 of the hanger for the top-most tube in each row is suitably supported from above, as for example, by connection to a transverse bar 15 supported in any convenient way as on the framework of the heat exchanger.

As shown in Fig. 1 the body portions 12 of the hangers for a particular vertical row of tubes are transversely alined with the body portions of the hangers for tubes in adjacent rows and contact the latter. As a result the hangers 11 also act to space the tubes transversely and rubbing contact between hangers for a particular row and tubes of an adjacent row is thereby prevented. Consequently, when the tubes move there is no rubbing of the hangers on adjacent tubes and the contacting surfaces on the bodies 12 of the hangers are large so that wear is minimized.

What I claim is:

1. A hanger for suspending tubes arranged in a vertical row from tubes above comprising; a plurality of metallic strap-like members positioned at corresponding locations axially of the tubes and disposed in alternation at opposite sides of the plane including the tube axes, each member having end portions extending from the body portion thereof transversely of and freely engaging the upper side of one tube and the underside of the tube next below; and means connecting the end portions of each member to the body portions of the adjacent members.

2. A hanger for suspending tubes arranged in a vertical row from tubes above comprising; a plurality of metallic strap-like members positioned at corresponding locations axially of the tubes and disposed in alternation at opposite sides of the plane including the tube axes, each member having end portions extending from the body thereof transversely of and freely engaging the upper side of one tube and the underside of the tube next below; and weld joints between the end portions of each member and the body portions of the adjacent members.

3. In a tube bank comprising a plurality of tubes arranged in closely spaced vertical rows wherein each row has a hanger as recited in claim 1, the hangers for adjacent rows being transversely alined and the body portions of members forming a hanger for one tube row contacting the body portions of members forming hangers in adjacent rows for spacing the tube rows transversely and preventing contact between hangers for one tube row and tubes of adjacent rows.

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