July 30, 1940. A. C. SARGENT 2,209,580

WALL STRUCTURE

Filed Oct. 19, 1939 2 Sheets-Sheet 1

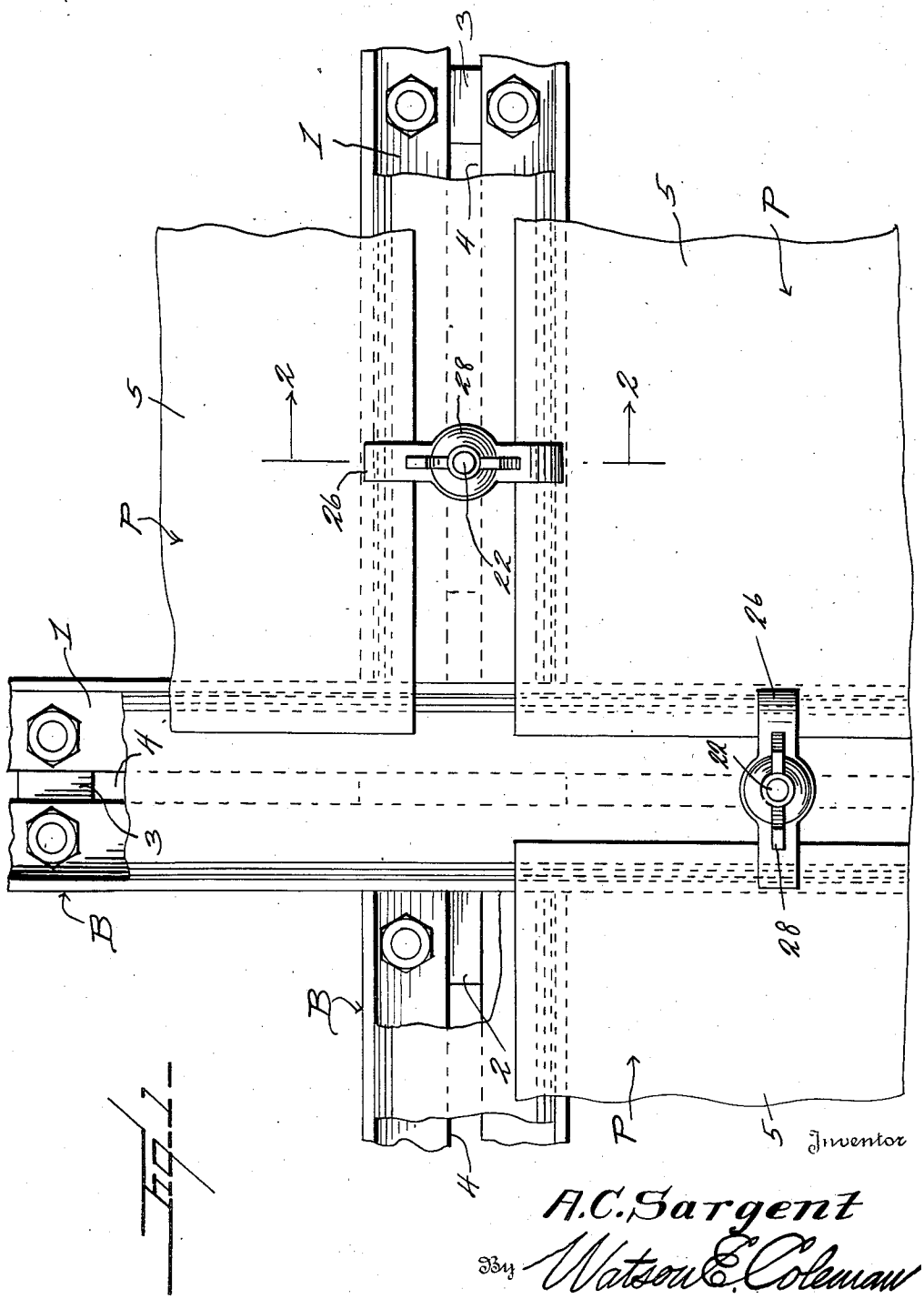


Fig. 1

Inventor

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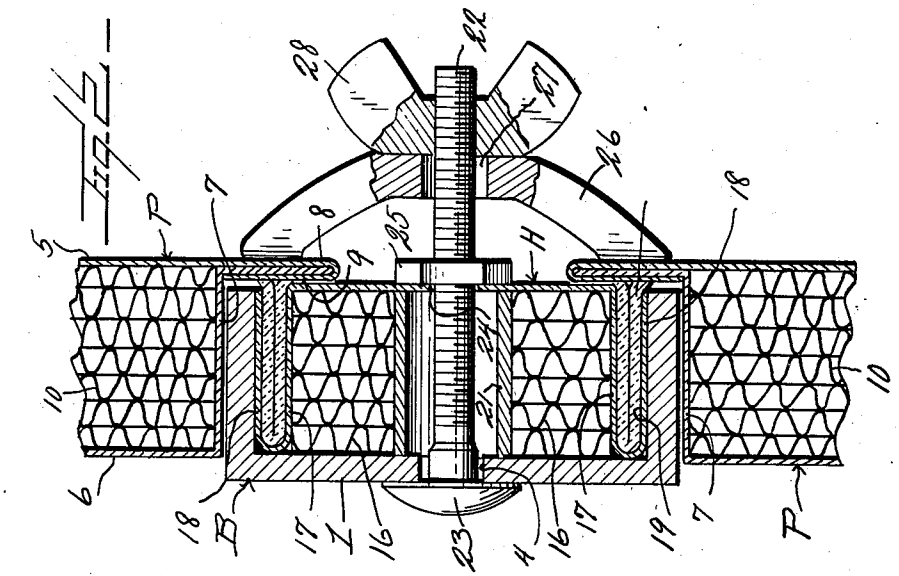
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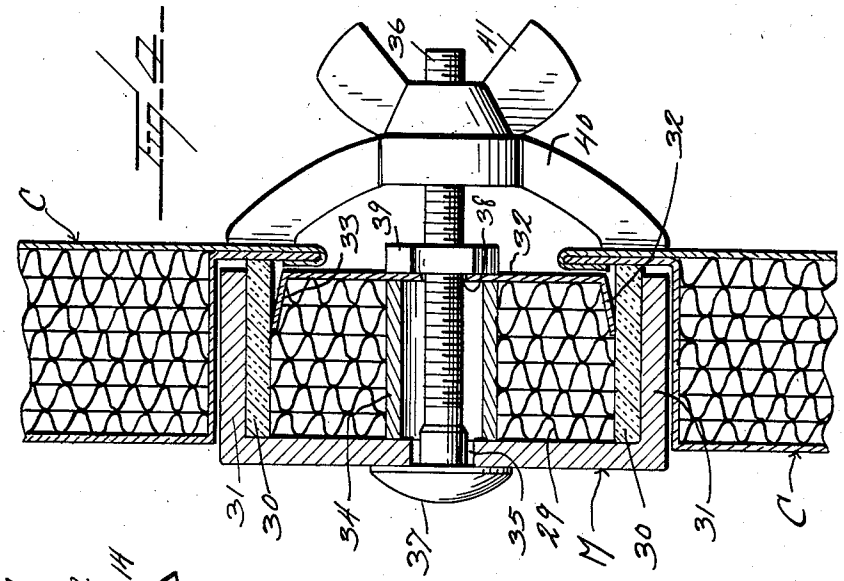
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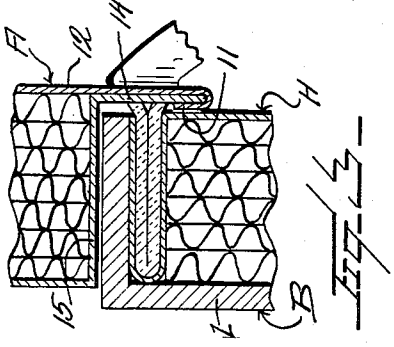
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WALL STRUCTURE

Filed Oct. 19, 1939 2 Sheets-Sheet 2







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2,209,580

WALL STRUCTURE

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Application October 19, 1939, Serial No. 300,272

9 Claims. (Cl. 189—34)

This invention relates to a wall structure and has relation more particularly to a structure of this kind for use in connection with drying apparatus or the like for preventing heat from radiating through the structure.

It is a particular object of the invention to provide a structure of this kind comprising a frame including beams or members constituting sealing elements together with panels coacting with said beams or members of the frame.

It is also an object of the invention to provide a structure of this kind wherein the beams or members of the frame included in the structure are effectually insulated against heat passing therethrough.

The invention consists in the details of construction and in the combination and arrangement of the several parts of my improved wall structure whereby certain important advantages are attained and the device rendered simpler, less expensive and otherwise more convenient and advantageous for use, as will be hereinafter more fully set forth.

The novel features of my invention will hereinafter be definitely claimed.

In order that my invention may be the better understood, I will now proceed to describe the same with reference to the accompanying drawings, wherein:

Figure 1 is a fragmentary view in elevation of a wall structure constructed in accordance with an embodiment of my invention;

Figure 2 is a sectional view taken substantially on the line 2—2 of Figure 1;

Figure 3 is a fragmentary sectional view illustrating a slightly modified form of the invention;

Figure 4 is a fragmentary view partly in section and partly in elevation illustrating another embodiment of the invention.

As disclosed in Figures 1 and 2 of the drawings, the wall structure comprises a frame formed of suitable fabricated beams or members B each of a U-shaped or channel type. Each of the members B as herein disclosed particularly consists of a pair of parallel L-irons 1 connected at desired points by the plates 2 and 3. These plates 2 and 3 maintain the irons 1 in parallelism and spaced apart a distance to provide along each of the beams or members B at the transverse center a slot 4. It is also to be pointed out that the plate 2 is used at the meeting or butting portions of the beams or members B to maintain the same in assembled relation.

The frame of the wall is of a skeleton type and defines open spaces in each of which is substantially snugly received a panel P. Each of the panels P comprises two sheet metal plates 5 and 6 and, as herein disclosed, the plate 5 is flat while the plate 6 is bent at each of its marginal portions to provide a wall 7 having its outer marginal portion outwardly bent, as at 8, to provide an outstanding flange for close contact with the adjacent marginal portion of the plate 5. The outer marginal portion of the plate 5 is returned, as at 9, to overlie the flange 8 from the outer longitudinal margin of the flange to its junction with the wall 7. The depth or thickness of the panel P is determined by the length of the wall 7 and the space between the plates 5 and 6 is filled with a suitable material 10 non-conductive of heat, such as plies of corrugated asbestos sheets.

In the embodiment of the invention as illustrated in Figure 3, the panel A is constructed substantially the same as the panel P except that the reverted portion 11 of each marginal portion of the sheet 12 of the panel also is returned to only partially overlie the upstanding flange 14 of the edge wall 15.

The marginal portions of the plates 5, flanges 8 and reverted portions 9 and also of the plate 12, reverted portion 11 and flange 14 are secured by spot welding or otherwise as may be preferred.

Each of the beams B is provided therein with a filler 16 of a material non-conductive of heat and also preferably sheets of corrugated asbestos. This filler 16 is of a width less than the width of the beam B but is snugly received within a filler holder H. This holder H is also of channel form or U-shaped in cross section and when applied within a beam or member B the beam or member is in reversed relation thereto. The holder H extends entirely along the beam or member B and the side walls 17 thereof have their outer or free marginal portions continued by the reverted walls 18. Between each pair of adjacent walls 17 and 18 is a space 19 in which is snugly fitted a packing 20. This packing 20 may be felt, rubber compound or other fabric non-conductive of heat and this packing 20, as illustrated in Figures 2 and 3, comprises a longitudinally folded sheet of material. This folded packing 20 is snugly engaged within each of the spaces 19 and has the outer free marginal portions of its folds extending slightly beyond the outer face of the holder H so that when a panel P is applied one of the outstanding flanged portions of the panel will have close contact with

said extended portion of the packing 20 and thus assure a sealed joint.

At one or more points therealong the holder H has positioned therein a spacer tube or sleeve 21 of a length to bridge the space between the intermediate portion of the holder H and the intermediate portion of the beam or member B and of a diameter to extend beyond the opposite sides of the slot 4 of the beam or member B. This tube or sleeve 21 is also disposed through the filler 16 as clearly illustrated in Figure 2 of the drawings. Disposed through the slot 4 and extending through the tube or sleeve 21 is an elongated bolt or threaded shank 22 having a head 23 of a diameter greater than the width of the slot 4 and which head contacts with the outer face of the intermediate portion of the beam or member B. The intermediate portion of the holder H is provided with a properly positioned opening 24 through which this bolt or shank 22 substantially snugly passes and threading upon the bolt or shank 22 outwardly of the holder H is a nut 25 for contact with the holder H whereby the holder H together with its associated parts are effectively held clamped within the beam or member B.

As illustrated in Figures 1 and 2, the flanged portions of the panels P are of a length to extend inwardly of the beam or member B beyond the packings 20 and these flanged portions are effectively held in desired contact with such packings through the medium of a clamping yoke 26. The central portion of this yoke 26 is provided with an opening 27 through which the bolt or shank 22 is freely disposed and threading upon the shank or bolt 22 outwardly of the yoke 26 for contact with the central portion of the yoke 26 is the wing nut 28. With the parts in the position shown in Figure 2, the wing nut 28 may be turned to cause the yoke 26 to bear against the flanged portions of the panels P and force the same against the packings 20 and to hold the panels firmly in position.

In the embodiment of my invention as illustrated in Figure 4, the panels C are each of a construction similar to the panel A although they may, if desired, be built the same as the panels P. In this embodiment of the invention the beam or member M of the frame structure is similar to a beam or member B and is provided therein with a filler 29 of heat insulating material and also preferably corrugated asbestos. This filler is also of a width slightly less than the interior width of the beam or member M so that the packing strips 30 may be placed between the side walls 31 of the beam or member M and the applied filler 29. As is clearly illustrated in Figure 4, these packing strips 30 extend outwardly beyond the free longitudinal edges of the side walls 31 of the member or beam M so that the flanged portions of the applied panels C may have direct contact therewith. Disposed over the outer face of the applied filler 29 is a holding plate 32 the longitudinal side marginal portions of which are provided with the inwardly directed flanges 33. As herein illustrated, these flanges 33 extend inwardly of the beam or member M in divergence and are positioned between the applied packings 30 and filler 29. Each of the packings 30 is of a material nonconductive of heat and possessing required strength.

The filler 29 also has disposed therethrough at one or more points along the beam or member M a spacer tube or sleeve 34 which bridges the space between the intermediate portion of the beam or member M and the applied holding plate 32. This tube or sleeve 34 is also of a diameter in excess of the width of the slot 35 disposed lengthwise of the beam or member M at its transverse center. Extending through the slot 35 and the tube or sleeve 34 is a bolt or shank 36 having a head 37 contacting with the outer face of the intermediate portion of the beam or member M at opposite sides of the slot 35. This bolt or shank 36 extends out through an opening 38 in the spacer tube or sleeve 34 and threading upon the bolt or shank 36 outwardly of the holding plate 32 and for coaction therewith is a clamping nut 39.

This bolt or shank 36 also extends through the central portion of a yoke 40, the extremities of which contact with the flanged portions of adjacent panels C to maintain said flanged portions in tight contact with the packings 30 and also to clamp the panels C in applied position.

From the foregoing description it is thought to be obvious that a wall structure constructed in accordance with my invention is particularly well adapted for use by reason of the convenience and facility with which it may be assembled and operated, and it will also be obvious that my invention is susceptible of some change and modification without departing from the principles and spirit thereof and for this reason I do not wish to be understood as limiting myself to the precise arrangement and formation of the several parts herein shown in carrying out my invention in practice except as hereinafter claimed.

I claim:

1. A wall structure for dryers and the like comprising a skeleton frame including suitably fabricated channel members, a filler of heat insulating material within each of said members, a holding plate disposed over the applied filler of each member, means for maintaining said holding plate in position, packing elements within each of the members at opposite sides of the filler and extending outwardly beyond the holding plate, panels fitting between adjacent members and having flanged portions overlying said members for engagement with the extended portions of the packing elements, and means for clamping the panels to the frame with the flanged portions of the panels in tight engagement with the packing elements.

2. A wall structure for dryers and the like comprising a skeleton frame including spaced channel members, a filler of heat insulating material within each of the channel members, a holding plate disposed over the filler, a bolt carried by each of the members and extending through the filler and holding plate, means on the bolt for clamping the plate on the filler, panels fitting between adjacent members and having flanged portions each of which portions overlies a member, packing elements carried by the members and with which the flanged portions of the panels contact, and means carried by the bolts of the members for clamping the flanged portions of the panels against the packing elements of the members.

3. A wall structure for dryers and the like comprising a skeleton frame including spaced channel members, a filler of heat insulating material within each of the channel members, a holding plate disposed over the filler, a bolt carried by each of the members and extending through the filler and holding plate, means on

the bolt for clamping the plate on the filler, panels fitting between adjacent members and having flanged portions each of which portions overlies a member, packing elements carried by the members and with which the flanged portions of the panels contact, means carried by the bolts of the members for clamping the flanged portions of the panels against the packing elements of the members, and spacing members interposed between the channel members and holding plates, said spacing members being directed through the fillers.

4. A wall structure for dryers and the like comprising a skeleton frame including spaced channel members, a filler of heat insulating material within each of the channel members, a holding plate disposed over the filler, a bolt carried by each of the members and extending through the filler and holding plate, means on the bolt for clamping the plate on the filler, panels fitting between adjacent members and having flanged portions each of which portions overlies a member, packing elements carried by the members and with which the flanged portions of the panels contact, means carried by the bolts of the members for clamping the flanged portions of the panels against the packing elements of the members, and spacing members interposed between the channel members and holding plate, said spacing members being directed through the fillers, said spacing members being tubular and the bolts being directed therethrough.

5. A wall structure for dryers and the like comprising a skeleton frame and removable panels coacting with the frame, a channel member for the frame, a filler of heat insulating material within said member, a holding plate disposed over the filler, means for clamping the holding plate to the member, and packing elements carried by the member at opposite sides of the filler and extending beyond the holding plate, the marginal portion of a panel to have tight contact against each of said packing elements.

6. A wall structure for dryers and the like comprising a skeleton frame and removable panels coacting with the frame, a channel member for the frame, a filler of heat insulating material within said member, a holding plate disposed over the filler, means for clamping the holding plate to the member, and packing elements carried by the member at opposite sides of the filler and extending beyond the holding plate, the marginal portion of a panel to have tight contact against each of said packing elements, said packing elements being carried by the holding plate.

7. A wall structure for dryers and the like comprising a skeleton frame and removable panels coacting with the frame, a channel member for the frame, a filler of heat insulating material within said member, a holding plate disposed over the filler, means for clamping the holding plate to the member, and packing elements carried by the member at opposite sides of the filler and extending beyond the holding plate, the marginal portion of a panel to have tight contact against each of said packing elements, the holding plate having means for coaction with the packing elements for maintaining said elements in place.

8. A wall structure for dryers and the like comprising a skeleton frame and removable panels coacting with the frame, a channel member for the frame, a filler of heat insulating material within said member, and a packing element carried by the member at one side of the filler and extending beyond the channel member, a marginal portion of a panel to have tight contact against said packing element.

9. A wall structure for dryers and the like comprising a skeleton frame and removable panels coacting with the frame, a channel member for the frame, a filler of heat insulating material within said member, a packing element carried by the member at one side of the filler and extending beyond the channel member, a marginal portion of a panel to have tight contact against said packing element, and a holding plate for maintaining the filler within the member, the packing element being carried by such plate.

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