United States Patent

Goggins

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[45] **Aug. 8, 1972**

[54] WALL COVER ASSEMBLIES

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[52] **U.S. Cl.** **52/288**, 52/462, 52/469, 52/478, 52/506, 52/573

[51] **Int. Cl.** **E04b 2/88**

[58] **Field of Search**.....52/573, 463, 460, 461, 471, 52/470, 469, 508, 484, 489, 487, 288, 284, 478, 523, 524, 512, 506, 462, 464, 465, 466, 468

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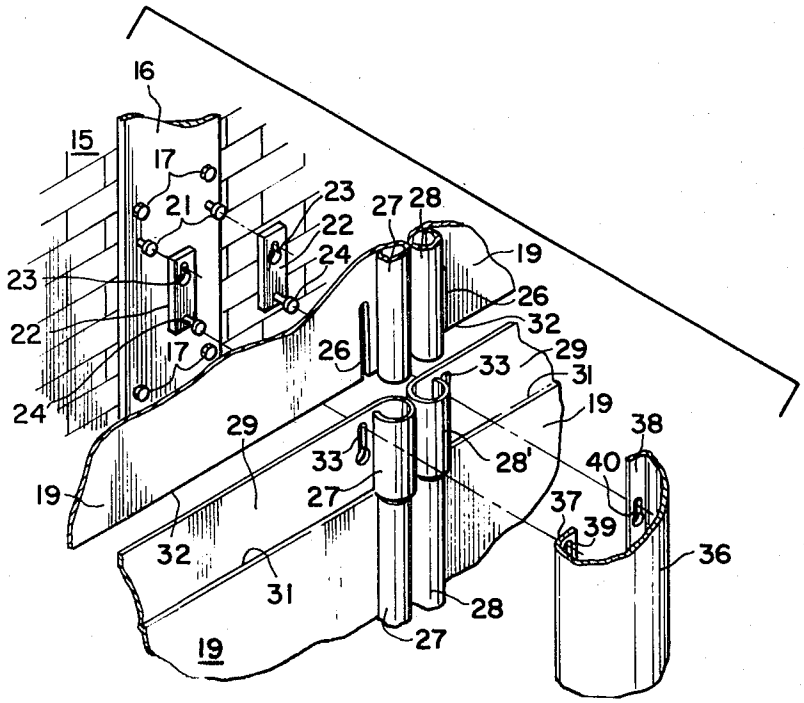
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Attorney—Polachek, Saulsbury & Hough

[57] **ABSTRACT**

By this invention, a wall cover assembly is provided for finishing off and enclosing an old building wall structure, framework, bridgework or any other construction where a full closed wall is needed. This wall assembly is formed to accommodate for expanison and contraction of the wall itself on a change of temperature and to permit the working under expansion and contraction of the wall assembly and relative to the structure upon which the assembly is mounted. The assembly of the wall cover pieces is made upon the wall or framework by means of vertically extending supports readily and easily secured to the already established wall structure or framework and to these vertical supports, the wall assembly is attached either through pendulum-like attaching members or by transversely extending enlargements formed in the upper ends of vertical mounting slots. Headed mounting bolts are provided upon the vertical supports and the wall parts are assembled by their slots over these headed bolts and rolled resilient joints between the cover pieces are covered by vertically-extending rolled joint cover strips secured by their inturned flanges to the same bolts.

7 Claims, 11 Drawing Figures



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SHEET 1 OF 2

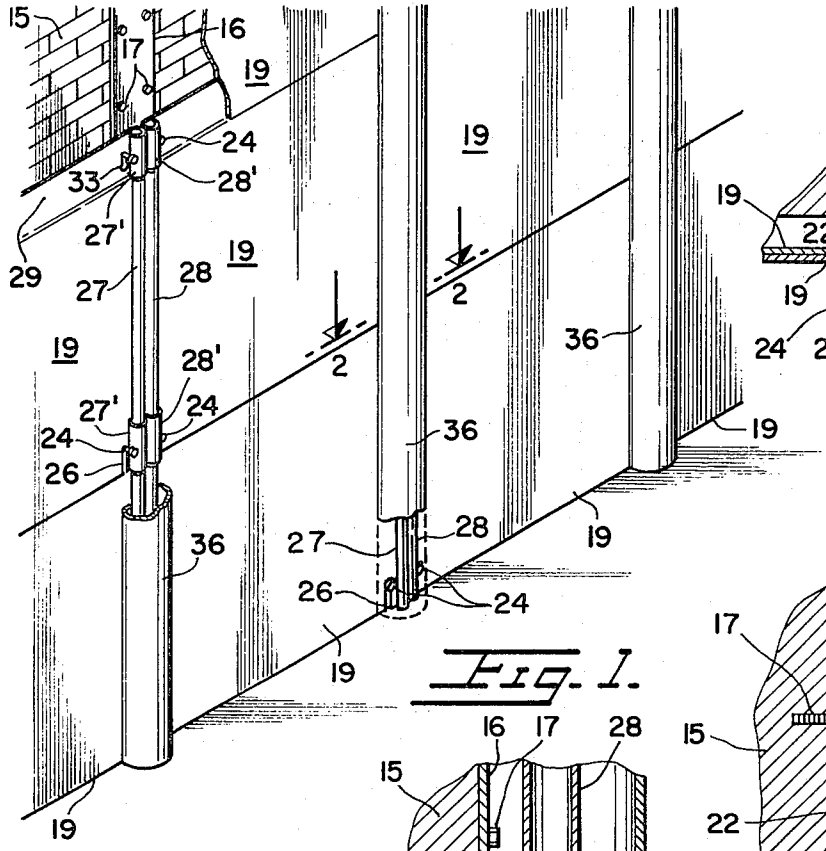


Fig. 1.

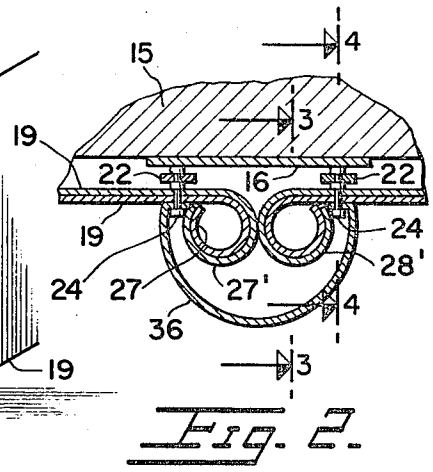


Fig. 2.

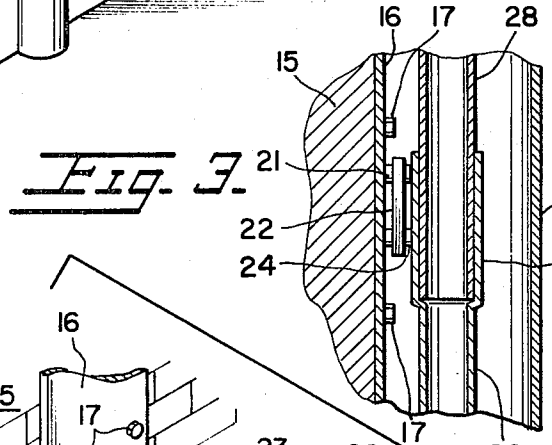


Fig. 3.

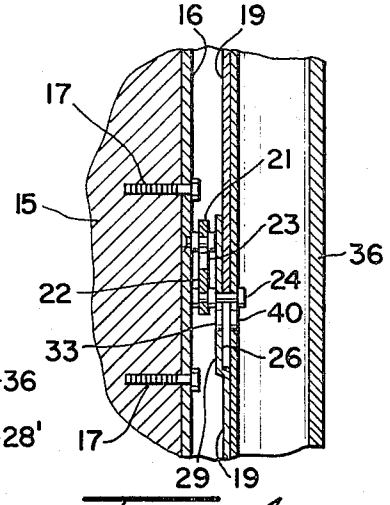


Fig. 4.

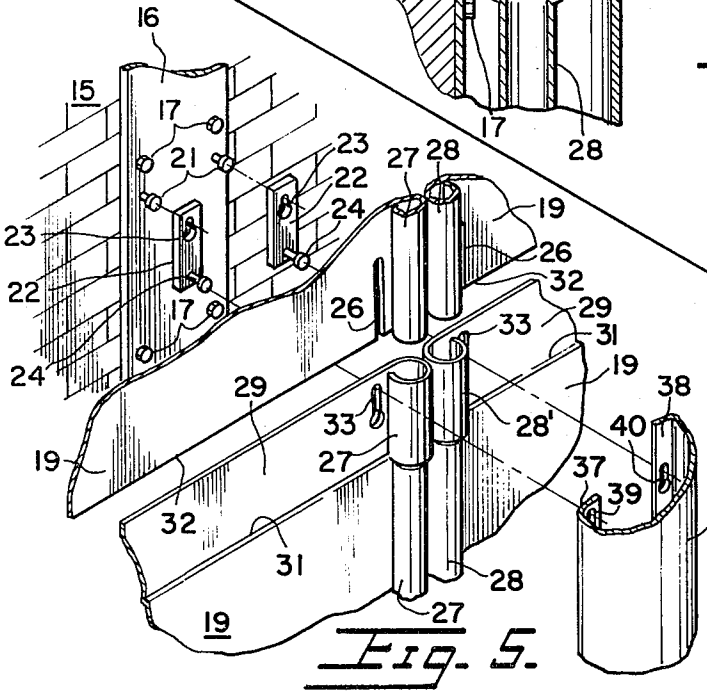


Fig. 5.

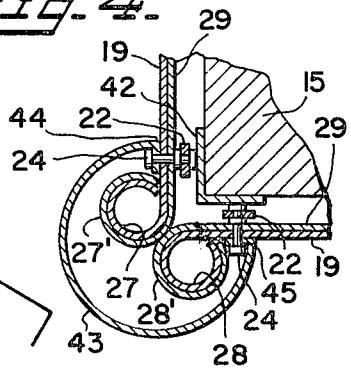


Fig. 6.

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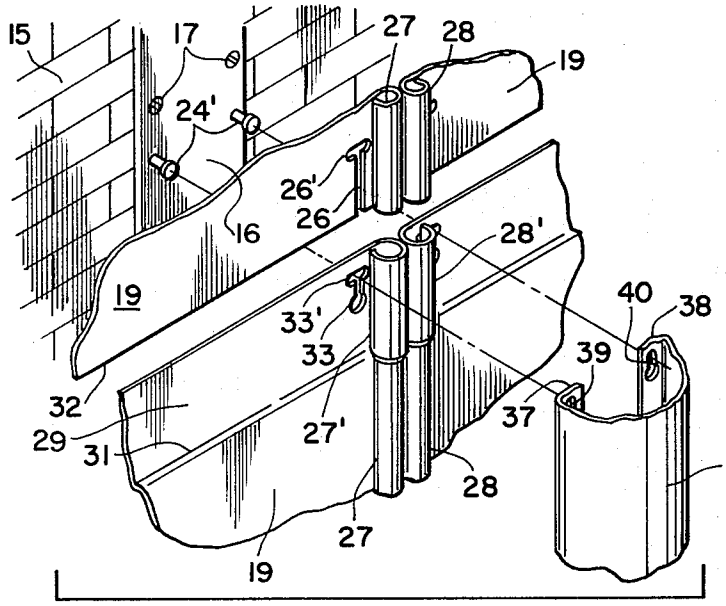


Fig. 7.

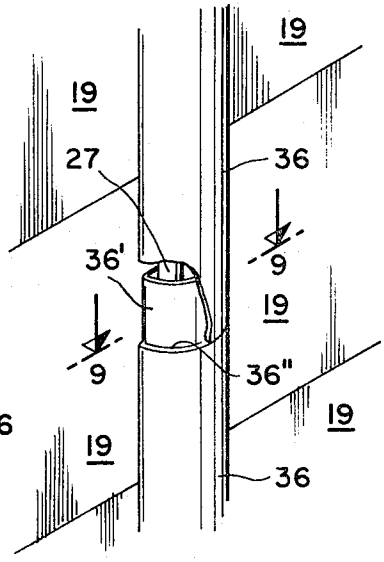


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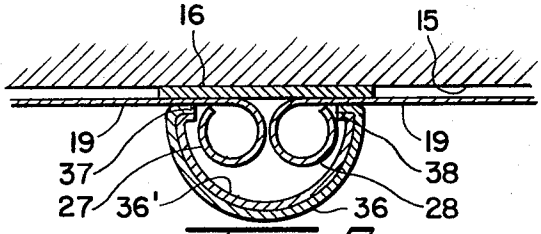


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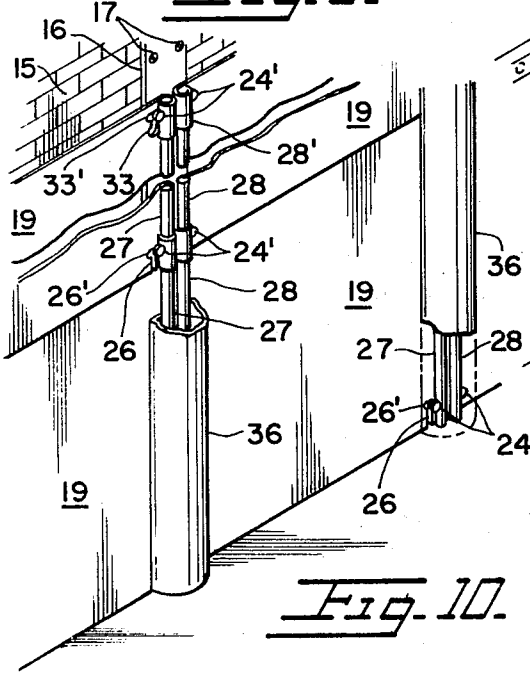


Fig. 10.

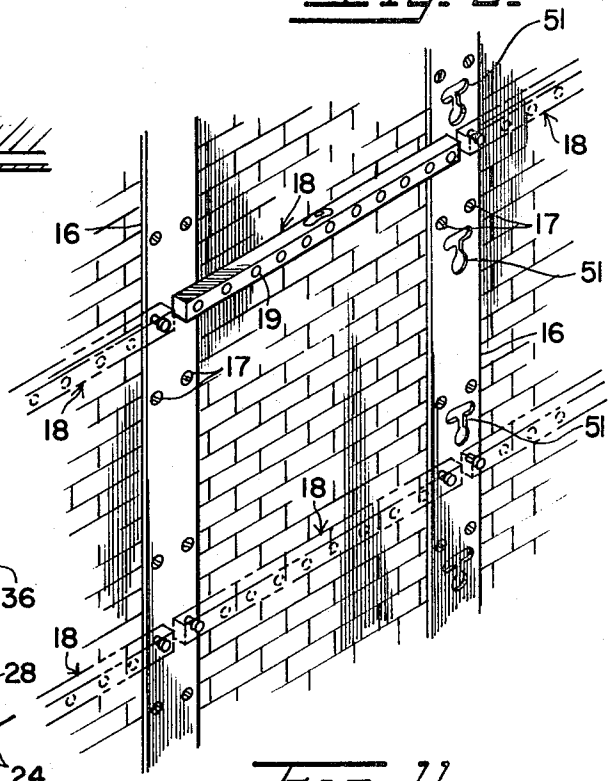


Fig. 11.

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WALL COVER ASSEMBLIES

This invention relates to a wall cover assembly adapted to be assembled upon already constructed building walls or frame structures.

It is a principal object of the present invention to provide a wall cover assembly which can be readily assembled upon a building wall or frame structure by first securing to a wall or frame structure, vertical support plates having devices for the easy assembly of cover sheet pieces or panels thereupon and of joint cover members for closing the joints between the wall pieces and wherein the wall cover pieces and the joint cover members will be secured to the vertical supports upon common mounting bolts or devices disposed thereupon.

It is another object of the present invention to provide a wall panel or cover assembly that can be attached to an already constructed wall without need of ordinary loose fastening elements and wherein the fastening is effected by already prepared parts ready to be fastened to the wall surface and to each other.

It is another object of the invention to provide a wall cover assembly which is adapted to permit free expansion and contraction of the cover sheet parts relative to each other and the entire assembly relative to the wall surface and the vertical mounting plates or supports used for the securement of the assembly to the wall.

Other objects of the invention are to provide a wall cover assembly, having the above objects in mind, which is of simple construction, easy to assemble, has long life, durable, waterproof, pleasing in appearance, produced at little expense, efficient in operation and effective in use.

For a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawings, in which:

FIG. 1 is a fragmentary perspective view of a brick wall being covered with the wall cover assembly embodying the features of the present invention.

FIG. 2 is an enlarged sectional view taken through the two wall cover pieces at their rolled end joint and of the vertical joint cover member as viewed on line 2—2 of FIG. 1.

FIG. 3 is an enlarged fragmentary vertical sectional view as viewed on line 3—3 of FIG. 2 and looking upon the pendulum-like support attaching members of the assembly.

FIG. 4 is an enlarged fragmentary vertical sectional view taken through the pendulum as viewed on line 4—4 of FIG. 2.

FIG. 5 is a fragmentary and perspective exploded view of the wall assembly parts separated from one another, and from the vertical wall support plates and illustrating the manner in which the parts are assembled upon each other and upon the wall.

FIG. 6 is a fragmentary and transverse sectional view taken of the parts as they are assembled and join one another at the corner of the wall structure and of the enlarged joint covering member.

FIG. 7 is a fragmentary perspective and exploded view of the wall cover assembly according to a modified form of the invention in which the cover pieces have transversely extending enlargement to accommodate the contraction and expansion of the wall

covering pieces relative to each other and to the vertical supports.

FIG. 8 is a fragmentary perspective view of the vertical joint cover members and broken away to show the overlapped shouldered joint of two of these members.

FIG. 9 is an enlarged transverse sectional view of the joint cover members as viewed on line 9—9 of FIG. 8.

FIG. 10 is a fragmentary perspective view of the wall assembly of FIG. 7, with the parts being broken away to show the parts as they are assembled under the joint cover members.

FIG. 11 is a perspective view of the vertical supports mounted upon a wall surface and illustrating how the measuring sticks are used to space the supports while they are being secured to the wall surface.

Referring now to the form of the invention shown in FIGS. 1 to 6, 15 represents a wall surface or any other structure upon which the present wall cover assembly is to be made. The parts of this wall assembly are made of material which is durable, of long-life and non-corrosive, such as metal or plastic, or a combination of an epoxy and metal, with the epoxy joined to the metal by extending through apertures of the metal sheet so that coatings lie on opposite sides faces of the metal. The cover pieces are made of different gauge thickness, having resiliency and the vertical joints between pieces are made by curled or rolled ends of the pieces abutting each other. The cover pieces are attached to the wall through vertical supports or plates 16 fixed to the wall surface 15 by anchor bolts 17 while held apart by two or three measuring sticks vertically-spaced and secured to the plate 16 and parallel to each other so that the plates 16 will accommodate the cover sheet pieces to be attached to the supports. When the vertical plates 16 are attached, the measuring sticks 18 placed on supporting plates 16 will have aligned the vertical plates to receive wall cover sheet pieces 19 in layers, as shown in FIG. 1, and fastened to the vertical supports plates in two different manners to be described and in which allowance is made for the expansion and contraction of the pieces 19.

It shall be understood that the vertical plates 19 may run any vertical height and that they can be spaced horizontally from one another any desired distance depending upon the sizes of the wall cover pieces 19 to be used.

The vertical attaching plates or supports 16 are provided with headed stud bolts 21 projecting outwardly beyond the heads of the plate securing bolts 17 that are arranged in pairs, with one stud bolt at each side of the metal support plate in vertical alignment with the plate securing bolts 17. These stud bolts 21 are spaced from one another upon the metal plates 16 depending upon the height of wall cover sheet pieces 19. In order to permit shifting of the wall assembly due to expansion and contraction of the assembled sheets relative to the vertical supports 16 and the wall 15, pendulum-like members 22 having slots 23 at their upper ends are placed over the headed studs 21 to depend therefrom for free lateral swinging movement and upon the lower ends of these members 22 are further headed stud bolts 24 extending outwardly therefrom to support the wall cover pieces 19. These stud bolts 24 are sufficiently long to accommodate three thicknesses of the sheet material as can be seen in FIGS. 2 and 5. Each wall sheet piece 19

is provided at its bottom edge with upwardly extending slots **26** that are extended over stud bolts **24** on the pendulum member and extend between vertical supports **16** so that the cover pieces will be assembled upon the vertical supports **16**. Outwardly beyond the slots **26**, the lateral ends of the cover pieces **19** are rolled outwardly to provide resiliently tight joint between the ends of the cover sheets **19**. These rolled or curved ends are provided as indicated at **27** and **28**, the curved end **27** being at the right end of the cover sheet piece **19** and the curved end **28** being at the left of the cover sheet **19** and adjacent to the respective slots **26**.

The upper edge of cover piece **19** is depressed or offset as indicated at **29** in order to provide a ridge or shoulder **31** upon which lower edge **32** of the upper layer cover sheet piece **19** will rest. The offset portion **29** of the wall piece **19** has keyhole slots **33** at the opposite ends thereof by which the pieces **19** are assembled upon the pendulum studs **24**.

The rolled ends **27** and **28** of the cover sheet piece adjacent the top of the piece, for the height of the inwardly offset portion **29**, will be enlarged as indicated at **27'** and **28'** to receive the rolled lower ends of the upper layer of the sheet pieces **19**. A tight fit of the rolled ends of the pieces **19** is thus obtained as the pieces **19** are overlapped with one another and joined over the stud bolts **24**.

The joined rolled or curved end joints of the wall pieces **19** are covered by rolled joint cover members **36** that have inturned opposing flanges **37** and **38** respectively, having keyhole slots **39** and **40** for receiving the pendulum bolts **24** to finally assemble the parts on the vertical supports. The length of these stud bolts **24** are such that under the heads thereof are tightly secured the three thicknesses of the assembled three parts, in common thereon. The rolled joint cover member **36** is made tight by aligning the slots **39** and **40** over the head pendulum bolts **24** after a complete assemblage of upper and lower layers of wall sheet pieces **19**, and forcibly sliding downwardly the cover members, so that the bolts **24** will lie in the narrow portions of the keyhole slots **39** and **40**. The joint cover pieces **36** can be of any length and inwardly offset for joining together in a flush type manner but with their ends overlapping one another and joined in common to the bolts **24** and over the overlapped wall piece **19** that will have been similarly joined together and with the stud bolts **24**.

While there has been described the assembly of the wall sheet pieces at their ends to one wall surface of the building, it should be apparent that the wall pieces **19** can be joined at the corners of the building and the wall assembly extended at an angle to the first assembly around the corner of the building as best seen in FIG. **6**. A vertical corner plate or support **42** is provided for this purpose which will be mounted with vertical plate **16** upon the walls by the use of the measuring sticks **18** in the manner above mentioned. These corner supports **42** will similarly have pendulum members **22** and the pendulum studs **24** to which the wall cover pieces **19** will be assembled by means of their slots **26** and **33** except at an angle to one another rather than in the same plane and in which the curved ends will be similarly interlocked to layers and lie in tight abutting relationship with one another, and without having altered the shape of the end wall sheet pieces **19**. A more fully rolled corner joint cover piece **43** is applied around the corner of the assembled structure and attached by its flanges **44** and **45**, with their keyhole slots to the corner plate studs **24**.

With the full wall attached to the building structure **15** in this manner by pendulum-like connections or members **22**, the assembly can expand and contract relative to the building structure **15** and by means of the rolled resilient joined ends **27** of the respective wall sheet pieces, the pieces **19** can expand and contract relative to each other. It should now be seen that buckling or distortion of the wall assembly upon a wall, roof or frame structure due to expansion and contraction of the parts of the assembly should be substantially eliminated.

Referring now particularly to FIGS. **7** to **11**, there is shown a modification in which the lateral expansion and vertical contraction of the cover sheet pieces **19** can be accommodated with the pendulum members **22** but through the attaching slots being transversely widened at their closed upper ends to allow movement over the stud bolts on the vertical supports to which the pieces **19** are attached.

The shifting of the assembly parts resulting from expansion and contraction is effected by transverse enlargement of the upper ends of the bottom and upper slots **26** and **33** of the cover sheet piece **19** as indicated respectively at **26'** in the bottom slot **26** and at **33'** of the upper slot **33**. Vertical supports **16** are provided with the stud bolts **24'** that may be adjusted in the vertical support **16** to be suitable for receiving directly the wall sheet pieces **19** and the rolled joint cover members **36** by their flanges will be tightly retained by the stud bolts **24'**.

All parts will be assembled in the same manner as above described in connection with the first form of the invention. By the transverse elongation of the upper ends of the slots **26** and **33** at **26'** and **33'** respectively, the entire wall cover assembly can by expansion and contraction be laterally accommodated as well as vertically upon the wall **15**. There has been mentioned above, the manner in which the rolled joint cover members **36** can be assembled one on top of the other and in FIG. **8**, this is clearly seen and can be applied to this second form of the invention. The cover member **36** at its upper end is inwardly struck to provide a narrowed upper end to accommodate the unstruck lower end of the member **33** so that the ends of two joint cover members **36** will overlap one another and provide thereby for a flush watertight connection between the cover members **36** when joining of the joint cover members **36** has been effected at the same elevations that the wall cover pieces are joined and the inwardly struck portions **36** of the members **36** will include flanges with the keyhole slots as best seen in FIG. **7**, which keyhole slots will overlie the bottom keyhole slots in the flanges of the upper joint cover members **36** and the inwardly struck end of the lower member **36** will provide for a shoulder **36''** on which the lower end edge of the upper member **36** will be rested when the upper member **36** is brought home vertically downwardly over the support stud bolts **24** or **24'**.

When the wall assembly is made, it will be understood that the lowermost layer of wall pieces **19** will

be applied first to wall supports **16** and that the other layers will be built on each lower layer of wall pieces until the full height of the building structure **15** has been covered. Thereafter, the rolled joint cover members **36** and the more rolled corner joint cover members **43** will be mounted thereover and to the same studs so that they expand and contract. A complete finished wall assembly will have thus been provided upon the old wall structure **15**, and will have improved the appearance thereof.

It should be apparent now that such a wall cover assembly can be put to many uses and applied to many different wall and frame structures, and by the way that it is provided with the vertical supports, it can be readily attached to any type of wall surface, roof structure and even upon bridges or open frame structure that needs to be enclosed, by simply adapting the vertical supports for attachment to these structures prior to the assembly of the wall sheet cover pieces and the joint cover pieces onto the structure.

Where long wall sheet cover pieces are used there may be provision made for the support of the cover piece intermediate their length upon vertical supports and yet allow for expansion and contraction of the cover pieces by providing vertically spaced keyhole slots **51** in the vertical supports, FIG. **11** similar in shape to the slots **33** provided in the cover pieces **36** as shown in FIG. **7** and provides stud bolt projections from the rear face of the wall cover pieces intermediate their length that will be extended into the keyhole slots **51** in the vertical supports at spaced locations along the cover piece. The cover pieces will thus be supported intermediate their length as well as at rolled ends.

What is claimed is:

1. A wall cover assembly adapted for attachment to wall or frame structures comprising vertical support members adapted to be attached to the wall surface or frame structure at laterally spaced locations thereupon, said vertical support member having stud bolt means at spaced locations thereon and extending outwardly from the front surface thereof, wall sheet cover pieces having rolled side ends that are placed in joint connection with one another, overlying the vertical supports, said rolled ends being resilient and interfitted with one another at their upper and lower edges and the sheet pieces overlapping one another, said cover sheet pieces having vertically spaced openings for receiving the stud bolts upon the vertical supports and assemble one layer above the other upon the stud bolts to thereby connect the sheet cover pieces to the vertical supports said stud bolt connection means permitting expansion and contraction of the assembled cover sheets laterally and vertically relative to the vertical supports and to the wall surfaces to which the vertical supports are connected.

2. A wall cover assembly as defined in claim **1** and rolled joint cover members overlying the rolled ends of the wall sheet cover pieces and vertically spaced openings secured in common with the the wall cover pieces to the stud bolt means on the vertical supports.

3. A wall cover assembly as defined in claim **2** and said vertical supports including an angle support adapted to be united with a corner of the wall structure and the stud bolt means extending therefrom at an angle to one another, said rolled ends of said wall sheet pieces abutting one another at the corner and more fully rolled corner covers being attachable to the corner vertical support in common with the wall sheet pieces and upon the stud bolt means.

4. A wall cover assembly as defined in claim **2** and said common stud bolt means for the securement of the wall sheet pieces and the joint cover members to the vertical supports including further stud bolts pendulum-like members at the upper ends detachably secured and pivotally connected to the further stud bolts upon the vertical supports and said pendulum-like members having headed studs on their lower ends, said cover sheet pieces and joint cover members openings being of key hole shape to receive the headed studs, said headed studs being of such length as to receive tightly, the three thicknesses of the cover sheet pieces and joint cover members.

5. A wall cover assembly as defined in claim **1** and said wall cover pieces vertically spaced openings having widened upper ends receiving said stud bolts means whereby to permit lateral shifting of the assembly on the vertical supports.

6. A wall cover assembly as defined in claim **1** and said stud bolt means including pendulum-like members pivotally connected at their upper ends to the front surface of the vertical supports and having outwardly extending headed stud bolts on their lower ends, said cover sheet piece openings being of key hole shape to receive the headed stud bolts.

7. A wall cover assembly as defined in claim **1** and the upper edge of each sheet piece being depressed and providing a horizontally extending shoulder upon which the lower edge higher sheet piece is rested, the openings in the lower edge of the sheet pieces being slotted upwardly from the edge to accommodate the stud bolt means when assembling the higher sheet piece upon the shoulder of the lower one, the upper portions of the rolled ends being enlarged to telescopically freely accommodate the lower portion of the rolled end.

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