

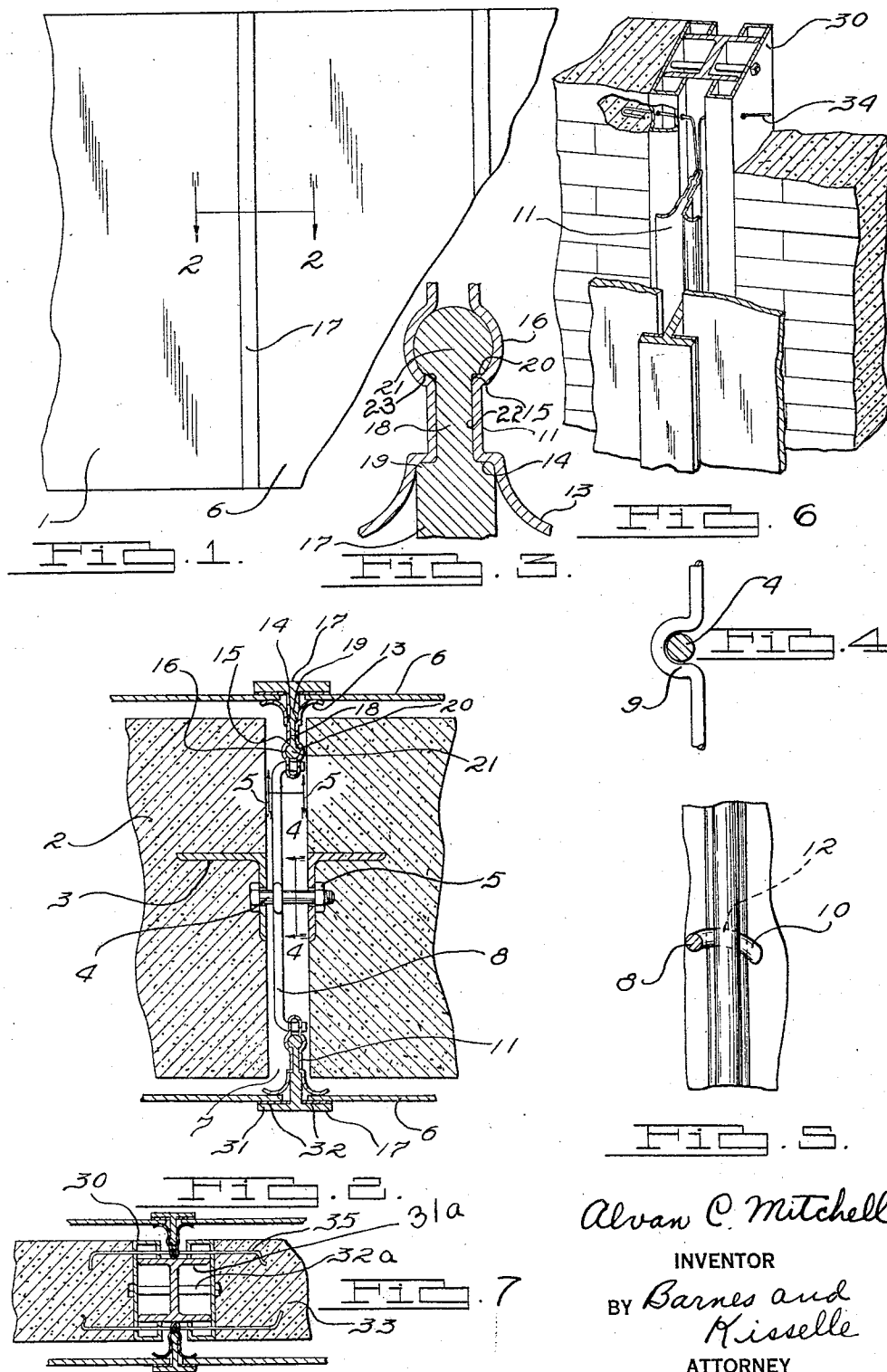
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BUILDING STRUCTURE

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BUILDING STRUCTURE

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This invention relates to building structure.

This invention is particularly applicable to the partition type of building which is readily assembled and disassembled. In this type of building it is common to provide a suitable sheet material coating therefor either or both on the outside and/or on the inside. It is the object of this invention to provide a novel securing means for the sheet material coating for this type of structure which securing means will permit the ready assembly to and disassembly from, the structure of the sheet material coating.

In the drawing:

Fig. 1 is a fragmentary side elevation of a building structure showing the sheet material and the securing means therefor.

Fig. 2 is a section along the line 2—2 of Fig. 1.

Fig. 3 is a detail of the securing device.

Fig. 4 is a section along the line 4—4 of Fig. 2.

Fig. 5 is a section along the line 5—5 of Fig. 2.

Fig. 6 is a fragmentary elevation showing a portion of the wall structure with a modified form of the means for securing the spring clip to the inner wall structure.

Fig. 7 is a section through the wall structure shown in Fig. 6.

Referring more particularly to the drawing I have shown a side wall of a building structure which may be generally designated 1 which comprises an inner and outer unit. The side wall structure may have an inner wall unit of any type but preferably the inner wall unit 2 is of brick or stone material which has set therein the angle iron supports 3 which are arranged to support the roof and window casements which are not shown since they are not a part of this invention. The angle irons 3 are secured together by any suitable means such as the bolt 4 and the nut 5. Although the wall structure preferably has the inner wall unit 2 of brick which brick serves as a heat insulator and to make a more substantial building it is understood that this inner wall portion of brick may be eliminated and the angle iron

supports 3 relied upon solely for supporting the roof and window casements.

The wall of the building structure is preferably provided on the inside and the outside with a sheet material coating 6 which forms the outer wall unit. This coating sheet material is preferably porcelain coated sheet metal which comes in sections as shown nicely in Fig. 1.

It is desirable that this sheet metal coating should be readily assembled to and disassembled from, the wall structure and it is also desirable that the coating sheet material should be so secured to the wall portion that it will not be dislocated by the ordinary strains and abuses to which such a wall coating will be subjected in the course of its usage. Hence, to this end the brick inner wall 2 is provided at the proper intervals adjacent the joint between each two successive sections 6 of porcelain sheet metal coating with openings 7 for the tie rods 8. The tie rod 8 is an elongated U-shaped rod having a central U-curve 9 therein to permit passage of the rod by the bolt 4. Each end of the tie rod 8 is curved as at 10 (Fig. 5) for purposes hereafter described.

The securing means at each end of the tie rod 8 are identical. Hence, the description will be limited to the securing means at one end of the tie rod 8. At the joint of each two successive sections 6 of the porcelain coated sheet metal coating there is provided a spring clip 11 which extends throughout the length of the porcelain coated sections 6. This spring clip 11 at suitable intervals is provided with openings 12 which openings receive the hooked ends 10 of the tie rods 8. Thus the tie rods 8 hold the spring clip members in proper position.

By referring to Fig. 3 it will be noted that the spring clip consists of the rounded spring ends 13 which terminate in the square shoulder portions 14. Opposite the square shoulders 14 the spring clip 11 is provided with the slightly rounded shoulders 15 and the cylindrical socket portion 16. The spring clip member 11 is arranged to receive the T-bar 17 which has the stem portion 18 and head portion 21. The stem portion 18 has

the slightly rounded shoulders 19 and square shoulders 20. The portion 21 of the T-bar 17 extending beyond the shoulders 20 is a portion of a true cylinder which has a socket engagement in the socket 16 of the spring clip 11. The porcelain sheet metal sections 6 are yieldably held between the spring ends 13 of the clip 11 and the head portion 21 of the T-bar 17. The inner face of the head portion 21 may have a facing 32 of rubber or other suitable material to prevent marring of the porcelain section 6.

After the inner brick wall 2 has been fabricated with the opening 7 the assembly of the porcelain sheet metal section 6 to the wall is substantially as follows:

Tie rods 8 are suitably positioned with the U-portion 9 about the bolts 4. Thereafter the spring clip members 11 are secured to the tie rods 8 by passing the curved ends 10 through the openings 12 in the clip members. Next the porcelain sheet metal sections are positioned adjacent the inner brick wall 2 with a sufficient wide joint therebetween to permit the passage of the stem of the T-bar 17 therethrough. The T-bar 17 is then snapped into position in the spring clip 11 as shown nicely in Fig. 3 and yieldably secures the porcelain metal sections 6 between the T-bar 17 and the spring clip ends 13.

Clearance between the wall 2 and the porcelain sheet metal section 6 is preferably about $\frac{3}{8}$ of an inch. Hence, in case pressure is applied to the section 6 alone the curved portion 13 of the spring clip 11 will be sprung inwardly and will tend to pivot about the square shoulder 20 of T-bar 17. Since the shoulder 20 extends outwardly from the flat face portion 22 of the T-bar 17 and since the stem 18 is provided with the shoulder 19 and the spring clip with the square shoulder 14 there will be a slight wedging action between that portion of the spring clip between the shoulders 14 and 15 and that portion of the stem 18 of the T-bar 17 between the shoulders 19 and 20 since the natural pivotal center will be the edge 23 of the square shoulder 20 of the stem portion 18 which will cause the shoulder 14 of the spring clip 11 to move a trifle outwardly radially from the pivot point 23 as the spring end 13 of the clip is moved inwardly by the pressure exerted on the section 6. Hence, to disassemble the section 6 it is necessary to exert not only an inward pressure on the section 6, but also an outward pressure on the T-rod 17 which causes the square shoulders 20 to slidably engage the rounded shoulders 15 of the spring clip with a camming action which spreads the spring clip apart which assists in releasing the engagement between shoulders 14 and 19 to in turn release the cylindrical portion 21 of the T-bar from the socket portion 16.

In Figs. 6 and 7 I have shown a modified

form of my wall structure. In this form I propose to use the same outer wall structure including the sheet material, spring clip and T-bar. Instead of using the angle iron 3 for the inner wall structure I propose to use the vertically positioned C-channel bars 30 which enclose the H-bar 31a. The C-channel bars are secured together by the bolts 32a. The C-channel bars are bounded on each side by the inner wall unit 33 which may be made of any suitable brick or stone material. The spring clip 11 is secured to the inner wall unit by means of the continuous strand of wire 34 which is passed upwardly through the spring clip 11 and projected through suitable openings at various intervals along the spring clip and through the C-channel bars into the initially plastic stone material 33 as at 35. The wire is then doubled back upon itself and again passed through the C-channel bar and the spring clip and then passed upwardly through the spring clip and again outwardly through the channel bars into the plastic stone wall material. Thus by passing a continuous strand of wire upwardly through the spring clip, outwardly through the suitable openings in the spring clip and channel bars, into the stone material and then re-doubling the wire upon itself and again passing it through the channel bars and spring clip, the spring clip is firmly secured in position to the inner wall unit as soon as the plastic stone wall material sets. As the wire is passed upwardly and outwardly through the spring clip, it can be alternated so that it will project into the stone material of the wall on each side of the spring clip as is nicely brought out in Figs. 5 and 7.

It is evident from the above description that I have produced a novel means for securing sheet material sections to a wall that are essentially characterized in that they permit the ready assembly and disassembly of the sections to the wall by a spring clip action and yet at the same time have sufficient locking action to prevent dislocation of the sections from the wall by the ordinary forces and abuses to which such sheet material sections will be subjected during their normal use.

What I claim is:

1. In a wall structure of the type having an inner wall unit and an outer wall unit comprising sections of sheet material which form a joint, a spring clip and a T-bar, the said spring clip and T-bar being substantially co-extensive with the joint formed by said sections of sheet material whereby the sections are yieldably held between the T-bar and the spring clip, and tie means removably securing the spring clip to the inner wall section whereby the outer wall is secured to the inner wall.

2. In a wall structure of the type having an inner wall unit and an outer wall unit com-

prising sections of sheet material which form a joint, a T-bar having a stem portion projecting through the joint and a head portion for engaging the abutting sections adjacent the joint, and means including a spring clip for removably securing the said outer wall unit to the inner wall unit, the said spring clip engaging the sections adjacent the joint on the face opposite to that engaged by the head of the T-bar.

3. In a wall structure of the type having an inner wall unit and an outer wall unit comprising sections of sheet material which form a joint, the said outer wall unit being spaced from the inner wall unit, resilient means removably secured to the inner wall unit, and securing means arranged to be yieldably held by the said resilient means, the said resilient means and the securing means engaging the sections to removably secure the same to the inner wall unit whereby the sections can be removed by inward pressure applied to the said sections and at the same time by outward pressure applied to the securing means.

4. In a wall structure of the type having an inner wall unit and an outer wall unit comprising sections of sheet material which form a joint, a spring clip arranged to be removably secured to the inner wall unit and having a plurality of shoulders, a securing member having a plurality of complementary shoulders arranged to engage the said spring clip to removably secure the outer wall unit to the inner wall unit, the complemental shoulders of the spring clip and the securing member being such that inward pressure on the outer wall section tends to increase the locking engagement between the spring clip and the locking member.

5. In a wall structure of the type having an inner wall unit and an outer wall unit comprising sections of sheet material which form a joint, spring means removably secured to the inner wall section, and a securing member arranged to engage the sections adjacent the said joint throughout the length of the joint and to removably engage the said spring clip whereby the joint is closed and the outer wall unit removably secured to the inner wall unit.

6. In a wall structure of the type having an inner wall unit and an outer wall unit comprising sections of sheet material which form a joint, a spring clip member removably secured to the inner wall unit substantially V-shaped in cross section and having flared ends which yieldably engage the abutting sections adjacent the joint, the said clip having a pair of rounded shoulders and a pair of square shoulders, a T-bar having a head arranged to engage the sections adjacent the said joint and a stem provided with a plurality of square shoulders whereby inward movement of the T-bar is prevented by one

of its square shoulders abutting a square shoulder of the spring clip and whereby outward pressure on the T-bar causes another of its square shoulders to engage a rounded shoulder of the spring clip with a camming action which tends to open the same to release the T-bar therefrom.

7. In a wall structure of the type having an inner unit and an outer unit comprising sections of sheet material which form a joint, a T-bar having a stem portion projecting through the joint and a head portion for engaging the abutting sections adjacent the joint, on the face opposite to that engaged by the head of the T-bar, and a continuous strand of wire for securing the said spring clip to the inner wall unit.

In testimony whereof I affix my signature.
ALVAN C. MITCHELL.