

Feb. 12, 1963

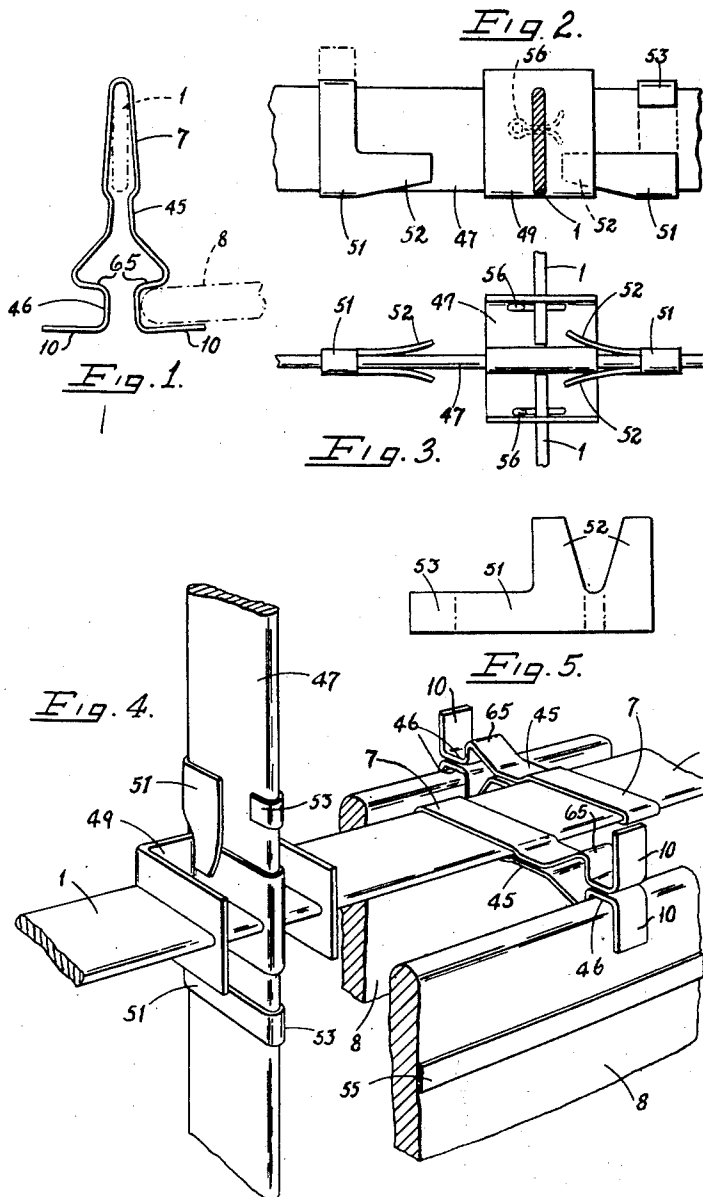
M. FORKIN

3,077,057

CONSTRUCTION OF WALL, CEILING AND LIKE SURFACES

Filed April 21, 1958

2 Sheets-Sheet 1



Inventor
Matthew Forkin

By
Watson, Cole, Gindoff & Watson
Attorney

Feb. 12, 1963

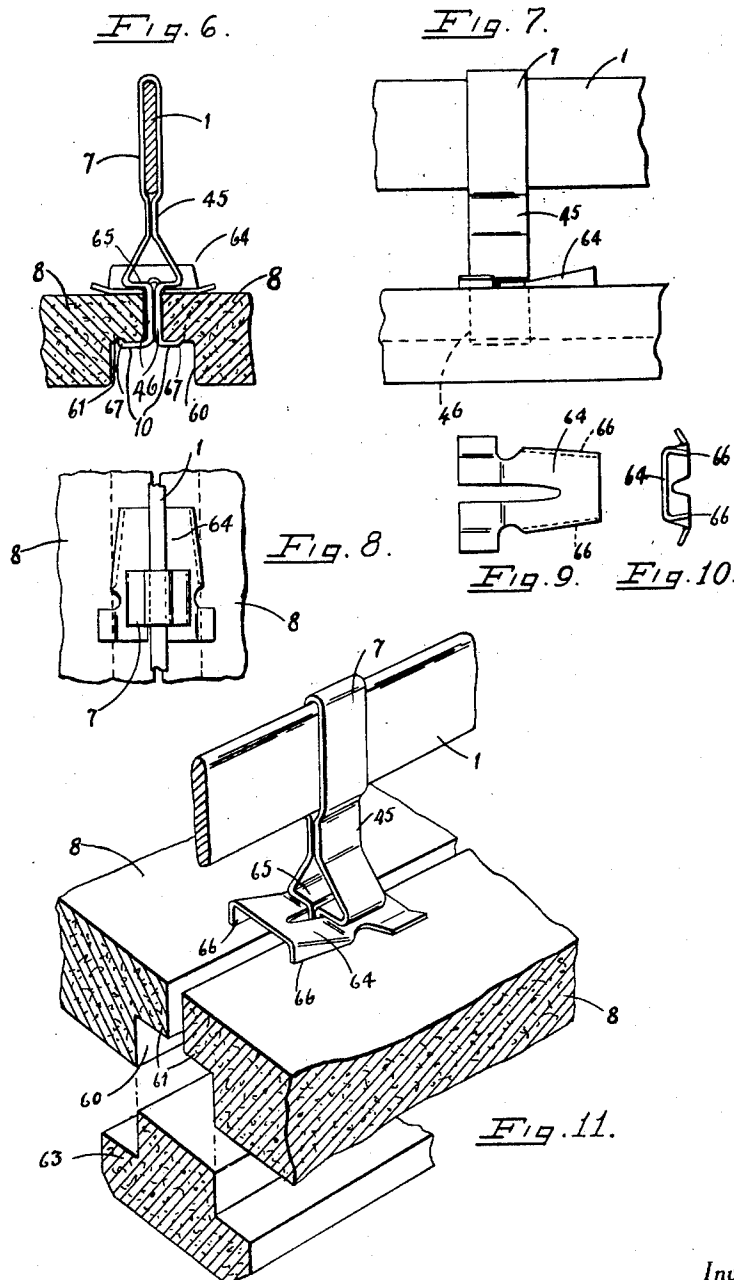
M. FORKIN

3,077,057

CONSTRUCTION OF WALL, CEILING AND LIKE SURFACES

Filed April 21, 1958

2 Sheets-Sheet 2



Inventor
Matthew Forkin
By
Nathan, Cal, Shindle & Watson
Attorney

1

2

CONSTRUCTION OF WALL, CEILING AND LIKE SURFACES

Matthew Forkin, 138 Capel St., Dublin, Ireland

Filed Apr. 21, 1958, Ser. No. 729,750

Claims priority, application Ireland May 4, 1957

1 Claim. (Cl. 50—313)

This invention relates to a structure of a wall, ceiling and like surfaces of the so-called "suspended" type, wherein plaster boards or similar preformed surface elements are secured to battens suspended or supported in spaced relation to a wall, roof or other supporting structure which said surface is intended to cover and conceal. The invention is also applicable to the construction of partition walls.

More particularly the invention concerns constructions of the kind referred to wherein the battens consist of flat metal bars presented edge-wise to the surface elements, and the latter are secured thereto by the aid of U-shaped saddle pieces which sit upon the battens and engage the marginal portions of the surface elements with their outwardly flanged extremities. After erection the surface elements are usually plastered over to provide a smooth, unbroken surface.

The practical success of such a method of construction depends upon several factors. The construction must be simple and rapid to carry out. This is only possible if the surface elements can be mounted and held in proper position without the least difficulty or the complication of fitting a number of parts together. But at the same time a simple method of adjustment is necessary to enable the supporting framework of battens to suit exactly the width of the surface elements available. The construction when complete must be relatively firm, but must be relieved of stresses such as would arise in a rigid structure due to temperature variations, settlements and so forth, and which would lead to cracking of the plastered surface.

These desiderata are attained, according to the invention, by the use of saddle pieces each consisting of a flat metal strip, the middle portion of which is bent to conform to the cross-sectional form of the metal batten on which it is to sit, the extremities are bent outwards to provide flanges while the sides are bent apart locally to form outwardly projecting abutments spaced from the flanges to permit the marginal portions of the surface elements to fit into the recesses formed between said flanged extremities and said abutments and are thereby firmly held at a predetermined distance from the battens. In some cases, however, it may be desirable to secure the surface element more firmly to the saddle pieces, and this may be effected, according to the invention, by inserting a bifurcated peg or wedge between the abutments on the saddle piece and the adjacent parts of the surface elements. Moreover such pegs may be so shaped as to bite into the surface elements and tend to force them more closely together.

In spite of their firm engagement with the marginal portions of the surface elements, due to their frictional engagement with the battens the saddle pieces are capable of longitudinal adjustment upon the battens. The latter are also connected to the bearers in a non-rigid manner, namely by the provision of W-shaped connecting members, the outer limbs of which are slotted to receive the ends of the battens, while the inner limbs engage the bearer between them. The connecting members may thus be adjusted longitudinally of the bearers and may then be keyed in position by a simple, novel form of key.

A constructional form of the invention is shown in the accompanying drawings, wherein:

FIG. 1 is an end elevation of the saddle piece according to the invention,

FIGS. 2 and 3 are respectively an elevation and plan views showing the method of connecting battens to a transverse bearer, as for example, when constructing a ceiling,

FIG. 4 is a perspective view showing the construction of a partition wall employing horizontal battens connected to vertical bearers,

FIG. 5 is a plan view showing a sheet metal blank for the keys employed in FIG. 2,

FIGS. 6, 7 and 8 are respectively an end sectional elevation, a side elevation and a plan view showing the method of attaching surface elements to a batten according to the invention,

FIGS. 9 and 10 are respectively a plan and end elevations of a peg or wedge employed in FIGS. 6 to 8, and

FIG. 11 is a perspective view of the construction shown in FIGS. 6 to 8.

As shown in FIG. 1, the saddle piece 7 according to the invention consists of a strip of sheet metal which is bent like a hair-pin so that its middle portion will fit upon the batten 1 consisting of a flat metal bar forming the supporting frame on which the surface elements 8 are to be mounted. It will be understood that the supporting frame is made up of flat metal strips erected in parallel spaced relation, with battens also formed of flat metal strips mounted between the bearers in the manner of spacing members. The saddle pieces are shaped to conform to the profile of the battens on which they are to sit and the extremities of the saddle pieces are bent outwardly to provide flanges 10, while the intermediate portions 45 are bent apart to form abutments 65. A recess 46 is thus formed into which the marginal portions of the surface elements are inserted when constructing a wall, ceiling or the like. The saddle pieces 7 are of resilient material, and when the extremities are pressed together by applying the surface elements 8, the sides of the saddle pieces exert a frictional grip upon the flat sides of the battens 1. Thus as will be apparent from FIG. 4, which shows a partition wall in course of construction, the surface elements 8 are firmly held at a definite distance from the batten 1.

In order to secure the batten 1 to a bearer 47 perpendicular thereto, a W-shaped connecting member 49 is provided. The member 49 sits upon the bearer 47 and its outer limbs are slotted to receive the ends of the battens 1. After insertion in the slots the ends of the battens 1 may be prevented from withdrawal by applying a split pin 56 or in any other simple manner, for example by deforming the end of the batten.

Thus the battens 1 are capable of longitudinal displacement upon the bearers 47 during construction, and this is extremely important, as it enables the saddle pieces 7 to engage the surface members 8 accurately and without distortion, notwithstanding possible variations in the widths of the surface elements available for use. After being correctly positioned the connecting members may be secured by keys 51. The latter may be stamped from sheet metal to the form shown in FIG. 5, bent along the dotted lines and applied to the bearers as shown in FIGS. 2, 3, and 4, the end portion 53 being clinched round the bearer. The wedge-shaped portions 52 engage the web portions of the connecting members 49 and securely hold same when lightly tapped into position. It will be understood that, when building a partition as shown in FIG. 4, as each course of surface elements is placed in position, commencing from the bottom, the next higher course is added in a similar manner.

The rigidity of the construction may be further enhanced, but without destroying the ability of the supporting structure to expand and contract without crack-

3

ing the plastered surface of the wall or ceiling, by providing means for tightening the engagement of the saddle pieces with the surface elements. As shown in FIGS. 6 to 11 such means consists of a bifurcated peg or wedge 64 formed from sheet metal or the like. The thin edge of the wedge 64 may be inserted beneath the abutment 65 of the saddle member 7, at the same time engaging and tending to press together the inwardly bent end portions 46 of the saddle member. By lightly tapping the wedge pieces 64 into firmer engagement, not only are the end portions 46 pressed more firmly together, but the surface members 8 are forced downwards relatively to the saddle members 7, while the thin edges 66 of the wedges 64, which are slightly inwardly inclined as indicated in FIGS. 8 and 9, bite into the surface of the members 8 as the wedges are driven into position. The wedges 64 thus also tend to draw the members 8 together and hold them firmly against separation. Advantageously the extremities 67 (FIG. 6) of the saddle members 7 may be turned up so that their sharp edges also bite into the members 8 and thus assist in locking same firmly in position.

When it is desired to employ surface elements of substantial thickness (e.g. for additional insulation qualities), as shown for example in FIGS. 6, 7, 8 and 11, the marginal portions of said elements may be formed with a rebate or recess 60, permitting same to fit between the abutments 65 and the flanges 10 of the saddle pieces.

After the surface elements 8 have been erected the recesses 60 may be filled with suitable heat and/or fire-resisting material, for example vermiculite plaster. The latter may comprise pre-formed plugs or strips, such as the strip 63 shown in FIG. 11, shaped to fit into the recess 60 into which it may be cemented. The strip 63 may advantageously be of equal thickness to the surface elements 8 so that the insulation property of the wall or ceiling is uniform throughout and the efficiency of the surface as a heat-barrier is not impaired by reason of the saddle pieces.

It will be understood that in carrying out the invention all metal parts are preferably protected from rust. The battens and bearers are preferably galvanised, while the saddle pieces and other parts of flexible material are plated or otherwise provided with a non-flaking protective coating for example, by cadmium plating. Welding of the parts together, which it is desirable to avoid as far as possible may be substantially eliminated by the use

4

of saddle pieces and connecting elements such as shown.

By means of the invention a very strong construction of light weight which can be easily and quickly built is provided for covering walls, ceilings, partitions and roofs, the construction also having excellent heat insulating and fireproof properties. Moreover, expansion and contraction in accordance with moderate changes of temperature may take place without risk of cracking of the plaster surface.

I claim:

In a building construction, a plurality of rectangular surface elements mounted in edge-to-edge planar relation upon elongated, flat metal battens, an edge of each said flat metal batten being disposed toward corresponding first faces of said surface elements, U-shaped saddle pieces mounted on the batten with the bight portions of the saddle pieces engaging the opposite edges of the battens, each saddle piece having oppositely projecting outwardly disposed flanges at the extremity opposite said bight portion, said flanges engaging second faces of said surface elements on the side remote from the battens, each saddle piece further including oppositely projecting abutments intermediate the surface elements and said battens, and a bifurcated wedge engaging each saddle piece between the abutments and the first faces of said surface elements pressing said surface elements against said oppositely directed flanges.

References Cited in the file of this patent

UNITED STATES PATENTS

733,671	Murray	July 14, 1903
1,073,134	Jester	Sept. 16, 1913
1,579,377	Makowski	Apr. 6, 1926
1,669,730	Walper	May 15, 1928
1,815,075	Sersen	July 21, 1931
1,864,965	Venzie	June 28, 1932
1,988,147	Voigt	Jan. 15, 1935
2,075,955	Parsons	Apr. 6, 1937
2,086,288	Van Uum	July 6, 1937
2,197,749	Lagaard	Apr. 16, 1940
2,822,584	Urbain	Feb. 11, 1958
2,904,870	Hillberg	Sept. 22, 1959

FOREIGN PATENTS

622,156	Great Britain	Apr. 27, 1949
---------	---------------	---------------