Aug. 15, 1939. G. F. KOTRBATY 2,169,254

COMPOSITE STRUCTURAL MEMBER AND BUILDING UNIT

Original Filed Oct. 1, 1935

Fig. 1.

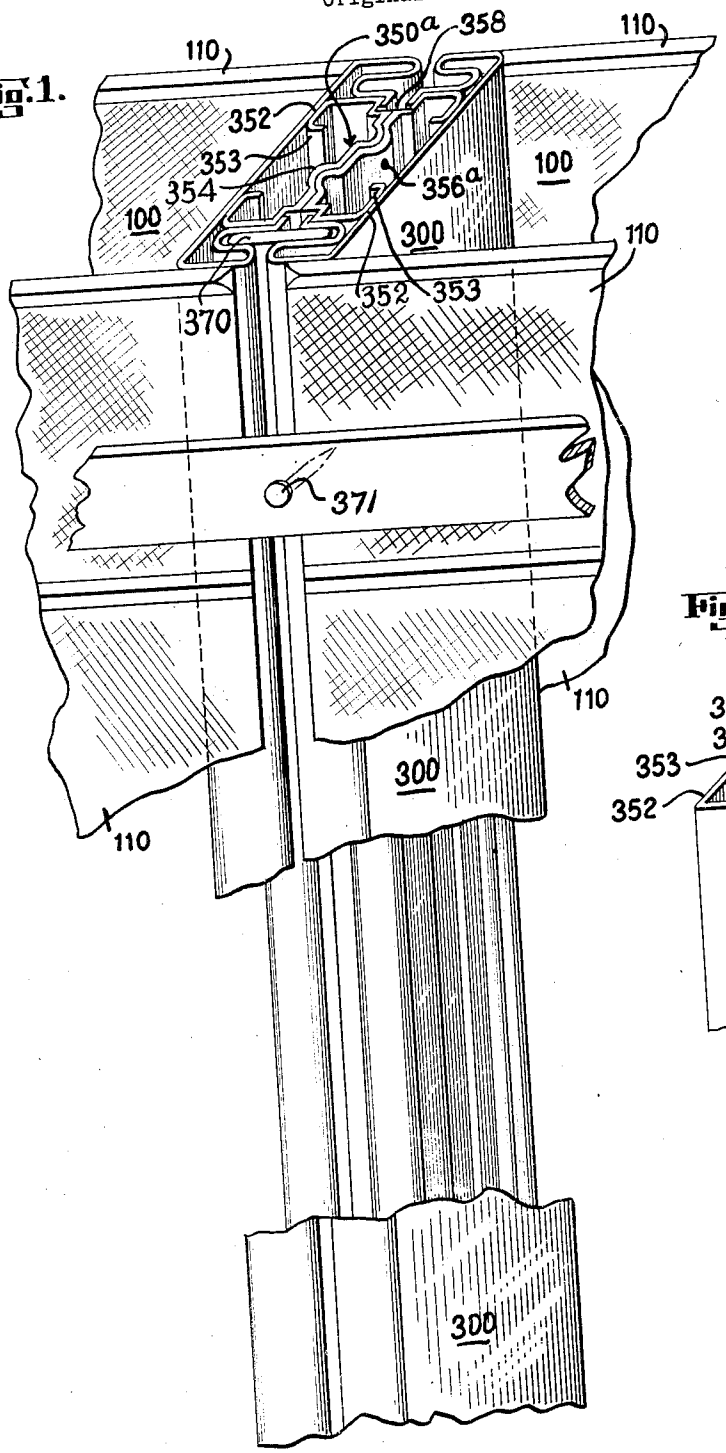
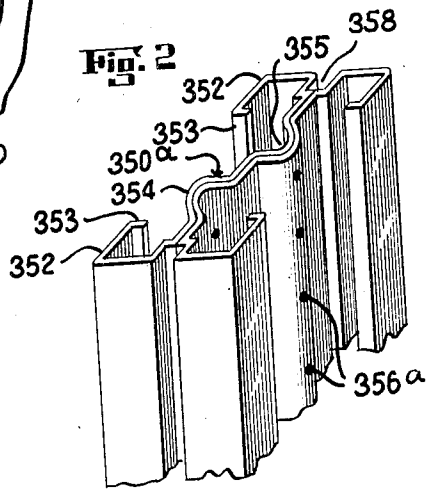


Fig. 2



INVENTOR
Guy F. Kotrbaty
BY
Frederick A. Norton
ATTORNEY

Patented Aug. 15, 1939

2,169,254

UNITED STATES PATENT OFFICE

2,169,254

COMPOSITE STRUCTURAL MEMBER AND BUILDING UNIT

Guy F. Kotrbaty, Chestnut Hill, Pa., assignor to Ferrocon Corporation, Bryn Mawr, Pa., a corporation of Delaware

Original application October 1, 1935, Serial No. 43,017. Divided and this application October 4, 1937, Serial No. 167,246

2 Claims. (Cl. 189—34)

This invention relates to improvements in building construction systems and elements therefor.

This application is a division of my application Ser. No. 43,017, filed Oct. 1, 1935, for Composite building construction units and supporting members, allowed Jan. 21, 1937, and issuing as Patent No. 2,094,607, on Oct. 5, 1937.

The improvements of the present invention relate to modified structural supporting and keying members and self-supporting structural wall members of the type described generally in my Patent No. 1,968,045 of July 31, 1934, and Patent No. 1,965,601, of July 10, 1934, and cognate patents and applications, Patent No. 2,017,441, of Oct. 15, 1935; Patent No. 1,987,115, of January 8, 1935; Patent No. 1,995,477, of March 26, 1935; Patent No. 1,993,791, of March 12, 1935, and application Ser. No. 29,820, allowed April 30, 1937.

The present invention relates more particularly to composite structural stud members for use with structural self-supporting building units, and including abutted channel elements with pleated locking flanges in juxtaposition and joined by keying members, and including nail-receiving elements disposed in the pleats of the juxtaposed units.

In addition, the novel improvements of the present invention include provision for the utilization of preformed panelling of various types, with or without the use of associated structural hardenable plastic materials bonded and applied to supporting panel members.

It is another feature of this invention to provide improved structural elements, including stud members adapted to receive structural keying members and form composite supporting members therewith.

Other features of novelty of the present invention include self-supporting building construction units adapted to be associated with other like units and separate members to form composite building supporting members provided with panel-receiving means for securing panellings or surfacings to the walls thereof.

These and other desirable features will be described in the accompanying specification and illustrated in the drawing, certain preferred forms being shown by way of illustration only, for, since the underlying features may be incorporated in other specific structures and assemblies, it is not intended to be limited to the ones here shown, except as such limitations are clearly imposed by the appended claims.

In the drawing like numerals refer to similar parts throughout the several views, of which

Fig. 1 is an elevation, partly in section, of a composite stud connection for wall units, including nail-receiving and holding members in the channels of the stud elements and showing fragmentary surfacings in phantom;

Fig. 2 is a fragmentary detail, in perspective, of the key member of Fig. 1.

In the particular description of the improvements herein, reference is made to self-supporting building units, **100**, which are keyed and locked together by the novel key members **350***a*. The structural units **100** comprise spaced panels, **110**, spaced apart and secured to stud elements or sections, **300**. The elements **300** comprise channel-shaped members having sides **301** terminating in accordion-pleated or roll spring edges **302** disposed inwardly of the edges or sides **301**. The convolutions thus formed define auxiliary channels **303** whose function will be adverted to more in detail hereinafter. The spring sections or flutes **302** terminate, in their turn, in locking flanges or lips **304** which are adapted to be engaged by locking channels **358** of the key members **350***a*. The panel members **110** of the building units **100** may be secured to the end stud members as by means of welding, rivets, bolts and nuts, and by any other suitable means, all as indicated generally at **305**. The so-formed building units are structurally stable and can be assembled readily to form walls and other structural systems, which are adapted to be permanently in place by the novel keying means herein. The panels may be made of any suitable structural material, including ribbed lath, as shown, as well as including panelings of various materials comprising wood and wood base materials, asbestos, cement, and their products, artificial resins and plastics, in sheet form, sheet metals, and hardenable plastics.

Considering the novel key structures more in detail, it is to be noted that they comprise opposed channel members **351** having lateral inturned flanges **352** with reinforcing lips or edges **353**. The central or body portion of these key members **350** are fluted or convoluted, as indicated at **354** and **355**. The parts or halves of the key member may be secured together, as by welding or riveting, as indicated at **356**. When abutted building units **100** are locked together by improved key members of the type of member **350***a*, the channels **358** formed in the sides of the keys receive the locking flanges **304** of the stud elements **300**.

The auxiliary keying channels 303 of the stud elements 300 are provided with metal or wooden fillers or inserts 370. These members serve to receive and hold nails or other driven members 371 which may be driven through boards or plaster or lath 372, and hold the latter firmly in place. These structural features permit the application of a variety of finishes to walls, floors, roofs and other exposed building surfacings or areas, when made with the improve self-supporting construction units and composite nail-receiving structural members of the present invention.

It will be appreciated now that there has been provided an improved building construction and elements thereof, including novel composite stud and support members having means incorporated therein to receive nails and other driven securing means for holding wall surfacings thereon and thereover. In addition there have been provided novel mechanical means for keying and joining wall members together in a mechanically tight joint and in a simple and efficient manner, and in which various parts are adapted to be abutted and quickly and permanently secured. The improvements of the present invention also include an improved method for assembling novel structural parts of the building features hereinabove described.

The various features and combinations of structural parts have been shown herein by way of illustration only, and it is intended to claim all parts as broadly novel, particularly in their new combinations, insofar as the state of the art will allow.

What is claimed is:

1. A wall construction formed of self-supporting building units, each unit having spaced panels secured to and spaced by channel members formed with locking pleated sections terminating in locking flanges and forming auxiliary keyways, key members between abutted units and holding contacting locking flanges thereof in locked relation, nail-receiving and gripping members in said auxiliary keyways, nailable surfacings over the units, said surfacings being secured to and on the said units by nails driven therethrough and into the nail-receiving and gripping members disposed in the auxiliary keyways.

2. A composite structural member comprising a pair of abutted channel members having inturned spring gripping flanges in juxtaposition, the spring gripping flanges including sections forming auxiliary keyways, nail-receiving and locking means disposed in and retained in the auxiliary keyways, and keying members between the channel members, the keying members spacing the channel members and including keying channels engaging the spring gripping flanges.

GUY F. KOTRBATY.