Oct. 22, 1935. S. A. JENKINS 2,017,973

STEEL BUILDING UNIT

Filed July 16, 1934 3 Sheets-Sheet 1

Fig. 1.

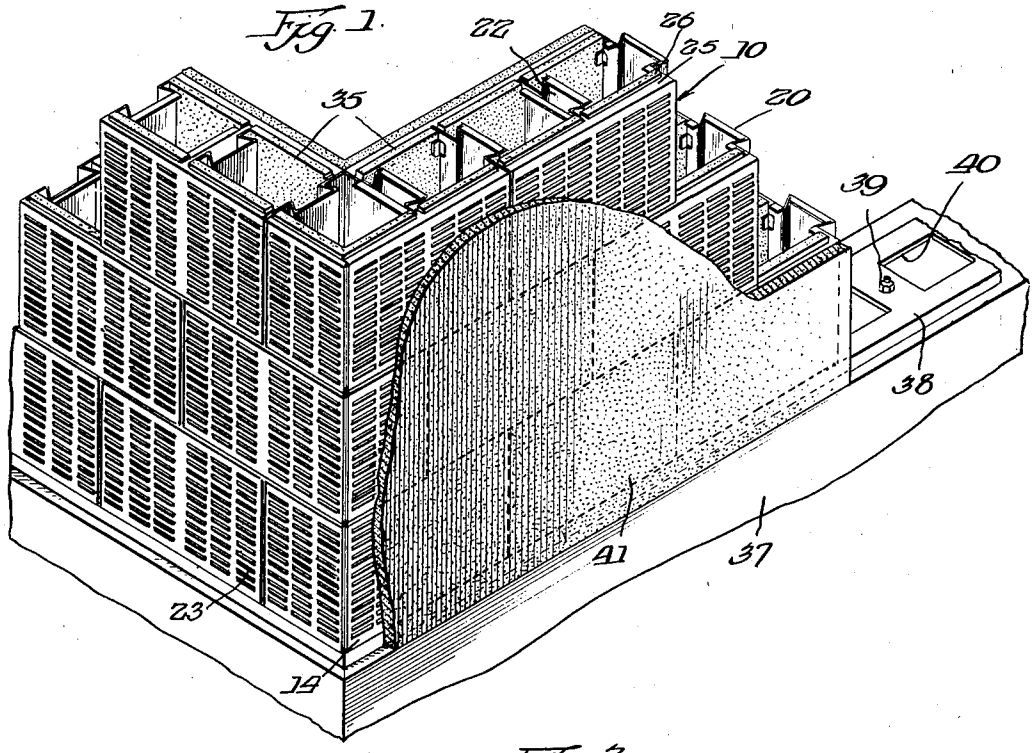
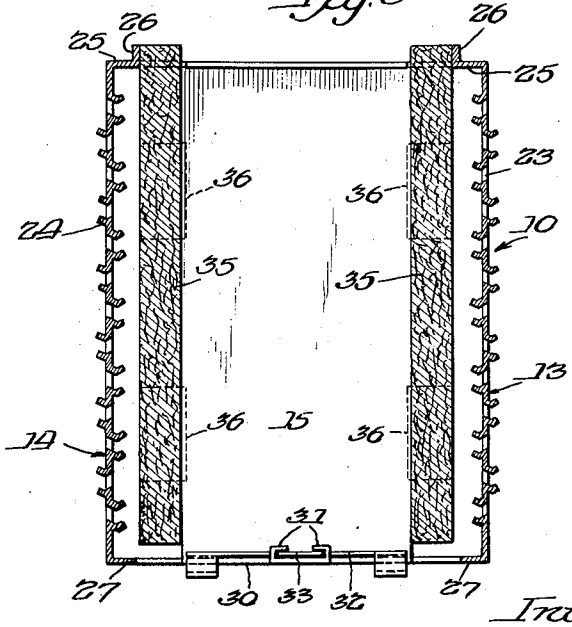


Fig. 3



Witness:
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Fig. 6.

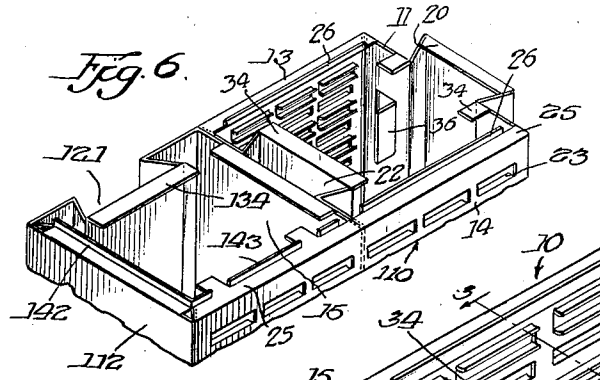


Fig. 7

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STEEL BUILDING UNIT

Filed July 16, 1934 3 Sheets-Sheet 3

Fig. 4

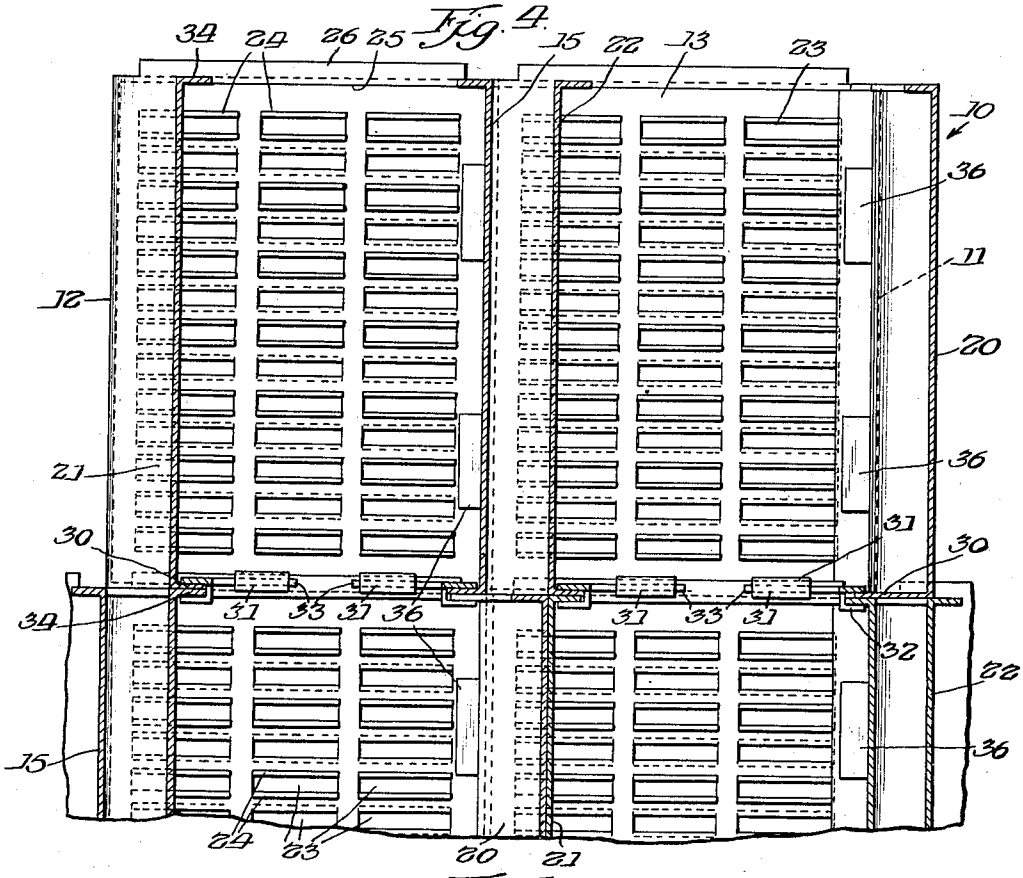
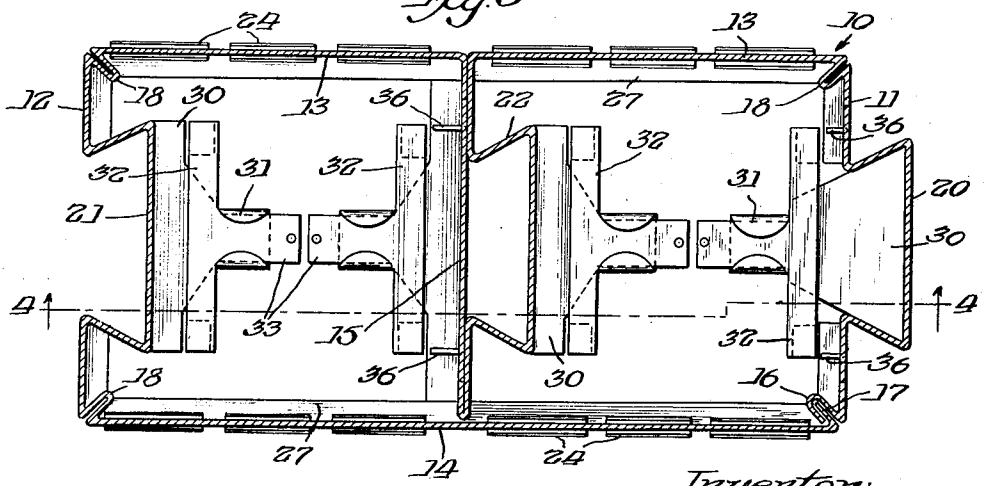


Fig. 5



Witness:

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Patented Oct. 22, 1935 2,017,973

UNITED STATES PATENT OFFICE

2,017,973

STEEL BUILDING UNIT

Samuel A. Jenkins, Hibbing, Minn.

Application July 16, 1934, Serial No. 735,456

13 Claims. (Cl. 72—48)

The invention relates to a building unit for use in constructing walls and has reference more particularly to a building unit of metal that can be mechanically bonded to other units to form walls of dwelling houses and the like and to which can be applied any kind of a surface such as stone, brick or stucco.

An object of the invention is to provide a metal building unit for constructing walls of dwelling houses and other buildings that can be manufactured in quantities to greatly facilitate the construction of said buildings and to reduce their cost, and which will provide for contrast and distinctiveness in their general appearance with simplicity in design.

A further object is to provide a building unit of novel construction having a shape to withstand the maximum load for the thickness of metal in the unit, which can be laid one on the other to form courses in which the joints will be staggered as in regular coursed masonry, and the ribs or load bearing studs will be in vertical alignment, and which will use simple fastening and anchoring means to allow speed in erection with corresponding reduction in labor costs.

A further object is to provide a metal building unit for constructing walls, which will have specially formed members for taking the load, wherein provision is made for lining the inside of the unit with insulation, and which will provide ample air space between the insulated linings.

Another object of the invention is to provide a building unit embodying the novel features of the invention and especially designed for corner construction to bond one course of building units to another course disposed at right angles thereto and lying in the same horizontal plane.

With these and various other objects in view, the invention may consist of certain novel features of construction and operation, as will be more fully described and particularly pointed out in the specification, drawings and claims appended hereto.

In the drawings which illustrate an embodiment of the invention and wherein like reference characters are used to designate like parts—

Figure 1 is a perspective view of a corner section of wall partly surfaced with a stucco finish and which embodies the building unit and constructional features of the invention;

Figure 2 is a perspective view of the building unit showing the inter-locking end members and apertured sides for receiving plaster or the like;

Figure 3 is a vertical sectional view taken transversely of the unit substantially on line 3—3 of Figure 2;

Figure 4 is a longitudinal vertical sectional view taken substantially through the center of the unit and showing several units in connected relation;

Figure 5 is a plan view of a unit showing the dove-tail shape of the end members and other locking means; and

Figure 6 is a perspective view of a corner building unit showing the interlocking end and side members.

The building unit 10 selected for illustration in the drawings, Figure 2, comprises end walls 11, 12, side walls 13, 14, and a partition 15 extending transversely of the unit and substantially parallel with the end walls. The unit is preferably formed from a single piece of sheet metal, by various bending and punching operations although welding or riveting of some of the parts to the main body is within the scope of the invention. As shown in Figure 5, one end of the sheet metal is provided with a hook 16 disposed at an angle to the walls 11 and 14, whereas, the other end of the length of sheet metal forming the unit is bent to provide a flange 17 which fits within the hook 16 to interlock the ends. For strengthening the corners of the unit the metal is bent back on itself, forming the ribs 18 which are disposed at an angle to the connecting walls.

The end walls 11 and 12 of the unit are provided with a vertical projection 20 and a vertical projection forming a recess 21, respectively, of dove-tail shape, which form interlocking means for joining the unit with adjacent units in end to end relation. As will be apparent from the drawings, the inside dimensions of the recess 21 are slightly larger than the outside dimensions of the projection 20 in order that the projection of one unit will fit within the recess of the other. The partition is formed from the metal of the side wall 13 which is bent back on itself to form a wall having a thickness equal to twice that of the sheet metal forming the unit. One thickness or side of the partition is used to strengthen the unit, being formed to provide a vertically extending dove-tailed shaped projection 22 which functions as a column when the units are laid in courses in the construction of a wall. This is also true of the interlocking projection 20 and recess 21 so that the formations given the end walls and partition provide strengthening columns and an interlock for the units.

The side walls 13 and 14 are provided with apertures or louvers 23, Figure 3, forming the

metal prongs 24, which comprise the metal punched from the side walls. These prongs are given a characteristic bend in order that the side walls of the unit will effectively retain surfacing material such as plaster, stucco and the like. It is within the aims of the present invention that the wall constructed of the building units may have a plastered interior and exterior such as stucco or surfaced to represent stonework, brick or cement stone. The openings in the side walls in combination with the projecting prongs provide a surface which will retain wall covering as described just as well as a lath surface, a surface formed by expanded metal lath, or a surface provided by terra cotta or other well known building block. To align the building units when placed one on the other, the upper edges of the side walls are provided with inwardly directed flanges 25 having the guide flanges 26. The base of the side walls are provided with inwardly directed flanges 27 which have an opening transversely of the unit to receive the guide flanges 26. The base of one unit therefore interfits with the top of the under unit and is prevented from side movement by the structure described.

In addition to the structure for associating the units in alignment one on the other to form courses, the invention provides means for securely fastening the units in this relation. As shown in Figure 5, the flanges 30 extending inwardly from the end walls and partition are provided with guide sleeves 31, which receive the interlocking members 32 by means of the extensions 33 of reduced width. The members therefore have movement within the guide sleeves 31 longitudinally of the unit from a position inwardly thereof to an interlocking position outwardly towards the end walls and partition, where the members engage with flanges 34, Figure 2, extending inwardly from the upper edge of the end wall 11, the respective sides of the partition and inwardly from the wall of the recess 21. When the locking members are in retracted position the units are laid one on the other and aligned by locating the guide flanges 26 within the opening between the base flanges 27. This will bring the interlocking members in association with the inwardly projecting flanges 34 and movement of the interlocking members in a direction toward said flanges will result in securing the units together. The position the parts assume when the units of two courses are interlocked is shown in Figure 4.

The building unit of the invention also provides an air space within the interior of the structure which is insulated from the side walls by the blocks of insulation 35. These blocks extend the height of the unit and from the partition to the end walls, being held in place by flanges 36 punched from the partition 15 and end wall 11, and by the projections 21 and 22, respectively.

For bonding the building units of the various courses with those in courses disposed at right angles thereto to form the corner of the structure the invention provides a special unit as shown in Figure 6. The same for half of its length is identical in construction with the unit above described and shown in perspective in Figure 2. This section has the vertical dove-tail shaped projection 20 formed on the end wall thereof and the projection 22 of similar shape located adjacent the center partition. The second half of the corner building unit, however, is modified to the extent of making the end wall 112 continuous and uninterrupted, the recessed or inwardly directed dove-tail shaped projection being formed on a side wall instead, as indicated at 121. The flange 134 is formed on the recess and it is proposed to provide the end wall 112 with louvers 23 so that it will be understood that the corner building unit has all those features described with respect to the unit of Figure 2. The location of a corner unit in a wall construction is clearly shown in the perspective view of Figure 1.

To illustrate an application of the invented units in the construction of a wall the drawings show in Figure 1 a corner wall structure mounted on foundation 37. The first course of building units are fastened to a bed plate or sill 38 which is anchored to the foundation by bolts 39. The bed plate is provided with a plurality of spaced openings 40 having a length in a direction longitudinally of the bed plate equal to the space between inwardly directed flanges 34 of the unit. The ledge provided by these openings receives the interlocking members to fasten the first layer of units to the foundation. On top of this course is laid a second course which is fastened to the base by the interlocking members described with the units in both courses being joined in end to end relation by the interlocking formations on the end walls. The operation of laying the building tile continues until a wall of desired height is secured. It will be noted that the resulting structure has the columns formed by the dove-tailed projections 20, 21 and 22 in vertical alignment and that the joints in any particular course are staggered with relation to the joints in an adjacent course. The exterior of the resulting wall is shown partly covered with stucco 41 although it is to be understood that the metal exterior may be finished to simulate stonework, brick or the like.

It is to be understood that I do not wish to be limited by the exact embodiment of the device shown, which is merely by way of illustration and not limitation, as various and other forms of the device will of course be apparent to those skilled in the art without departing from the spirit of the invention or the scope of the claims.

I claim:

1. A building unit formed from a continuous length of sheet metal, comprising end and side walls, certain of said walls having interlocking means formed therein for joining the unit to adjacent units, and a partition integral with one side wall and extending transversely for the full width of the unit.

2. A building unit formed of sheet metal, comprising end and side walls, one end wall having a projection of interlocking shape, another end wall having a recess of complementary shape, and a partition integral with one side wall and extending transversely for the full width of the unit.

3. A building unit formed from a continuous length of sheet metal, comprising end and side walls, one end wall having a projection of dovetail shape for joining the wall to an adjacent unit, another end wall having a recess of complementary shape for a similar purpose, and a partition integral with one side wall and extending transversely for the full width of the unit.

4. A building unit formed from a continuous length of sheet metal, comprising end and side walls, one end wall having a projection of dovetail shape for joining the wall to an adjacent unit, another end wall having a recess of complementary shape for a similar purpose, and a parti-

tion formed of two thicknesses of metal extending transversely for the full width of the unit.

5. A building unit formed of sheet metal, comprising end and side walls, one wall having a projection of dovetail shape for joining the wall to an adjacent unit, another wall having a recess of complementary shape for a similar purpose, a partition formed of two thicknesses of metal and extending transversely for the full width of the unit, and a projection formed from one thickness of metal of the partition for strengthening purposes.

6. A building unit formed of sheet metal, comprising end and side walls, said end walls having interlocking means for joining the unit to adjacent units, louvers provided in the side walls of said unit for retaining wall covering, and a partition extending transversely for the full width of the unit and formed by bending a length of sheet metal back on itself.

7. A building unit formed of sheet metal, comprising end and side walls, certain of the walls having interlocking means for joining the unit to adjacent units, louvers provided in the side walls of said unit for retaining wall covering, a partition extending transversely of the unit and formed by bending a length of metal from one side wall back on itself, and strengthening flanges provided on the end and side walls and extending inwardly of the unit.

8. A building unit formed of sheet metal, comprising end and side walls, said end walls having interlocking means for joining the unit to adjacent units, louvers provided in the side walls of said unit for retaining wall covering, a partition extending transversely of the unit and formed by bending a length of metal from one side wall back on itself, whereby the partition comprises two thicknesses of metal, a strengthening projection formed from one thickness of metal of the partition, and flanges provided on the top and bottom of the end and side walls and extending inwardly of the unit.

9. A building unit, comprising end and side walls, said end walls adapted to have interfitting engagement with the end walls of adjacent units to connect the same in end to end relation, and said unit having means for locking the unit to the lower adjacent units to form courses.

10. A building unit comprising end and side walls, certain of the walls having means for connecting with units of similar construction, and inwardly directed flanges formed on the top and bottom of the end and side walls, said flanges providing means for maintaining the units in interfitting relation to form courses.

11. A building unit formed of sheet metal, comprising end and side walls, one end wall being bent inwardly forming a projection to provide a recess of dove-tailed shape for joining the wall to an adjacent unit, the other end wall being bent outwardly to provide a projection of complementary shape for a similar purpose, a partition formed of two thicknesses of metal and extending transversely for the full width of the unit, the metal comprising one thickness of the partition also being formed to provide a projection for strengthening purposes, and flanges provided on the side walls and extending inwardly of the unit, the spaces between said flanges and the inwardly directed projection on one end wall and the projection on the partition being adapted to receive and retain insulating material.

12. A building unit formed of sheet metal, comprising end and side walls, one end wall being bent to provide a recess of dove-tailed shape for joining the wall to an adjacent unit, the other end wall being bent to provide a projection of complementary shape for a similar purpose, a partition formed of two thicknesses of metal and extending transversely for the full width of the unit, one thickness of the partition being formed to provide a projection for strengthening purposes, and flanges provided on the top and bottom of the side walls and extending inwardly of the unit, the flanges on the top of the unit having an upwardly directed portion adapted to fit within the flanges on the bottom of another unit associated therewith.

13. A building unit formed from a continuous sheet of metal, comprising end and side walls, certain walls having interlocking means for joining the unit to adjacent units, diagonal ribs projecting inwardly from the corners and formed by bending the metal back on itself, and a partition extending transversely for the full width of the unit and joining with one side wall.

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