June 10, 1958 A. S. MACDONALD 2,838,144

METAL PLANKS

Original Filed Nov. 23, 1948

Fig. 1.

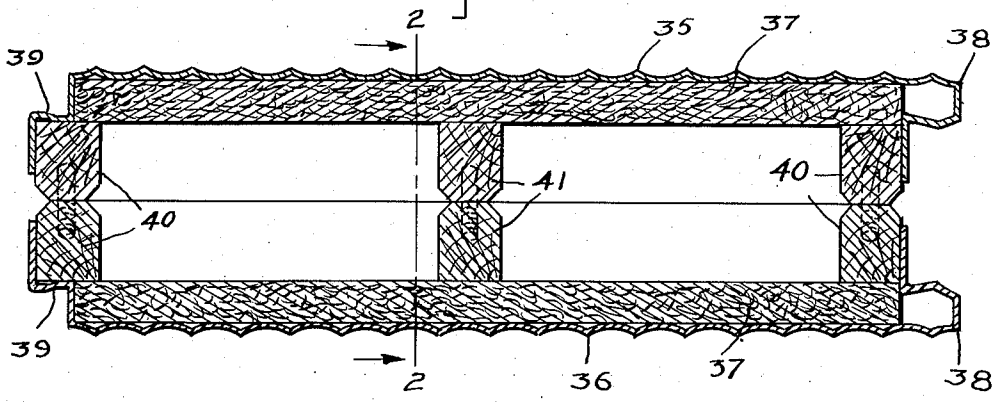


Fig. 2.

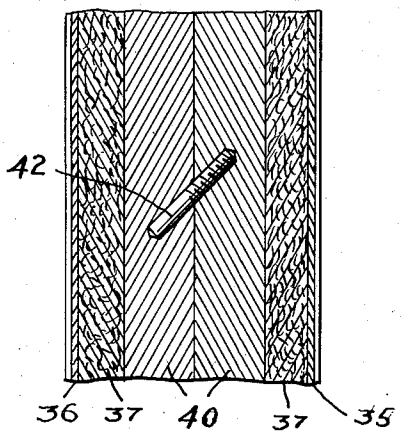


Fig. 3.

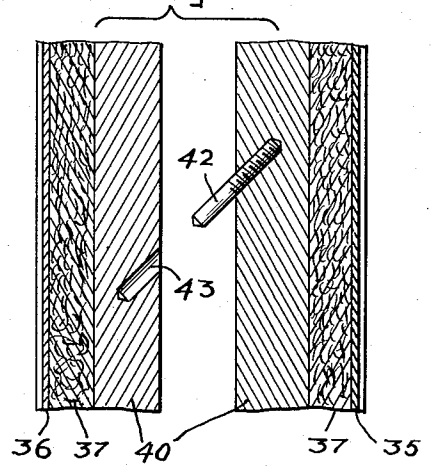
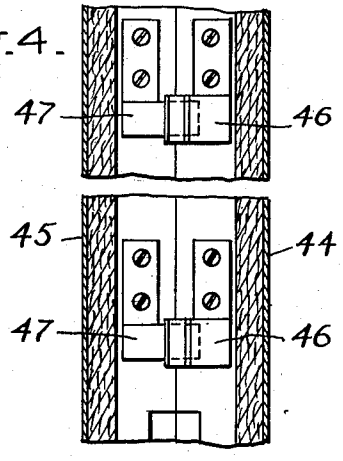


Fig. 4.



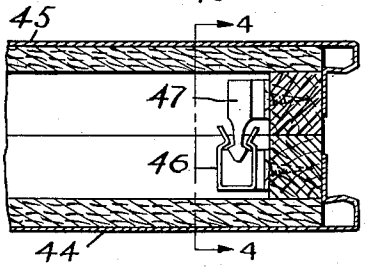


Fig. 5.

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METAL PLANKS

Angus Snead Macdonald, near Rapidan, Va.

Original application November 23, 1948, Serial No. 61,588, now Patent No. 2,682,938, dated July 6, 1954. Divided and this application October 21, 1953, Serial No. 387,455

5 Claims. (Cl. 189—34)

This invention relates to improvements in metal planks of the character used in building construction to provide a building unit therefor, either for partitions, inside or outside building walls, panels, floors, roofs, or other parts of the building, and this application for patent is a division of my prior application for metal planks, Serial No. 61,588, filed November 23, 1948, now Patent No. 2,682,938, granted July 6, 1954.

In the construction of buildings, it has been the practice generally heretofore to form the wall or floor units of studding or sills with plaster or wood covering applied thereover, in a fabricated structure. Some attempts have been made to provide panel units, especially for pre-fabricated buildings, but these have not been entirely satisfactory, because of the considerable weight that is objectionable in transportation and handling, or the complexity of structure that renders the units expensive to manufacture and use. Furthermore, such panels usually have required nailing or other fastenings at the joints thereof, which did not facilitate the assembly and connection of the panel units in a simple and expeditious manner.

One object of this invention is to improve the construction of a building unit or plank to provide a sturdy and rigid construction which is, nevertheless, of light weight, that is adaptable to various finishes for an attractive appearance and yet is very practical to use because of its supporting qualities, as well as its insulating effect against heat or cold.

In accomplishing this object, I prefer to construct the plank or building unit with spaced walls joined together to provide an enclosure which will serve not only as a dead air space, but may receive therein insulating material that will insulate effectively the plank or building unit against the passage therethrough of heat or cold. Moreover, the insulation also interconnects the side walls of the plank, but without the direct transfer of heat through conduction through the plank or unit from one side wall to the other, thus further increasing the insulating effect of the unit. The side walls, being formed of sheet-metal on supporting or backing insulation, are capable of decoration to any desired extent without requiring the use of plaster or other supporting material for the decorating effect.

A further object of the invention is to improve the construction of the joint between adjacent planks or building units, whereby these may be interconnected readily and yet effectively, without the necessity for using fastenings for securing the parts in place. This is particularly important in the construction of pre-fabricated buildings where the wall and floor units should be fitted together without the necessity for cutting and fitting during the erection process.

Another object of this invention is to provide a plank construction in which the two side walls may be easily separated from each other and then reassembled to facilitate the positioning of the plank in a partition or wall.

When such separable planks are used, the assembly or disassembly of a partition need not proceed from one end of the partition to the other end. Planks in the middle portion of the partition may be removed if desired.

In constructing the plank or building unit of sheet-metal, provision may be made at the edges thereof for the interfitting of the adjacent planks in a simple and effective manner through a resilient connection between the edges that will make a tight joint, even without the necessity for the use of separate fastenings. This is made possible by providing spring connections and interfitting sockets on the respective opposite edges of the planks, whereby a spring tongue on one edge of one plank will interfit with a socket on the adjacent edge of the next adjacent plank. These tongues and sockets are provided preferably on both opposite sides of each plank, whereby the tongues on one plank will embrace the edge portion of the adjacent plank and hold it securely, that will be effective to provide a tight joint, but without the necessity for the use of fastenings therebetween.

The sheet metal side walls are secured on insulating panels which back up the relatively thin sheet metal to form relatively rigid opposite side walls of the board. The insulating panels are spaced apart by wooden braces or strips or other non-conducting material, to prevent through metal contact and to provide for heat insulation as well as structural members. The wooden braces or strips are split lengthwise along the central plane of the plank to allow separation of the side walls when desired, and securing means may be provided to hold the side walls together when in position in a partition or wall.

The invention is illustrated in certain embodiments thereof, in the accompanying drawings in which:

Fig. 1 is a horizontal cross section through one form of plank according to this invention;

Fig. 2 is a detail vertical section therethrough on the line 2—2 in Fig. 1;

Fig. 3 is a similar view with the parts detached and separated;

Fig. 4 is a vertical section through a modified form of plank; and

Fig. 5 is a horizontal section therethrough.

Referring more particularly to the drawings, the embodiment of the invention shown in Figs. 1 to 3 includes sheet metal sides 35 and 36, with backing panels of relatively thick light weight insulating material designated at 37, secured to the thin sheet metal sides. Tongues 38 on one edge thereof are adapted to fit with complementary grooves 39 on the opposite edge of an adjoining plank or board. The configuration of the tongues 38 and grooves 39 and the manner in which these elements cooperate to lock adjacent planks in edge-to-edge relation in a partition or wall are described in detail in the parent application, Serial No. 61,588, referred to above. Although it is believed that these features will be apparent to those skilled in the art from a study of the drawings herein, the parent application may be referred to as desired in order to supplement this disclosure.

The respective sides are separated by wooden strips designated at 40 and 41 at the opposite edges and intermediate portion of the board or plank, there being separate strips on opposite sides of the center plane of the plank or board and in abutting relation with each other, as shown particularly in Figs. 1 and 2, whereby the two halves of the plank or board may be separated from each other.

These sections are adapted to be joined by pins 42 secured to one section in position to engage recesses 43 in the other section, the pins 42 being secured in one of the wooden strips 40 and 41 and the holes 43 being provided in the adjacent opposed wooden strip 40. It is

preferred that a plurality of pins be provided spaced vertically along the length of each board or plank and on each of the strips of one section thereof for securing the sections together at intervals along their length. These pins preferably are downwardly inclined, as shown in Figs. 2 and 3, and engaged in similarly shaped and arranged recesses 43, so as to lock the sections securely together when the pins are in engaged positions.

This makes it possible to apply one of the sections in position in the wall or panel and then to slide the other preferably downward into place on an inward motion toward the first-mentioned section, substantially on the line of inclination of the pins which will enable the sections to be assembled in place where the room available for assembly of the boards into a wall is very restricted. At the same time the inclined pins will anchor the sections securely together and insure of these being retained in a secure structure.

A modified form of split plank is shown in Figs. 4 and 5. In this form, the plank is shown as made in two sections, generally designated at 44 and 45, each of which may be constructed substantially as described above.

This modification consists of interengaged spring catches, instead of the pins and recesses 42—43, to interlock the sections together. This avoids the necessity for continuous assembly from one end of the partition to the other. With split planks, the partition can be taken apart in the middle of the run to change the location of a door or other facility.

In the form shown in Figs. 4 and 5, spring catches 46 are attached to one of the sections, as the section 44, in position for interengagement with notched arms 47, attached to the other section 45, in position for alignment with the catches 46 when one of the sections is moved into place over the other. This makes it possible to split the plank lengthwise into sections, and yet these are securely anchored in unitary assembly when the sections are detachably connected together.

The sections of the plank or board member may be held together by the interengagement of the yieldable portions 38—39, either with or without the connecting means therebetween. If desired, the connecting means, such as the pins or spring catches, may be used at the intermediate portions of the sections while the interengaged means 38—39 hold the ends of the sections together.

The insulating panels 37 preferably are formed of relatively thick light weight material, as variously made for insulating or wall board or even for fiber board. A product of the character sold under the trademark, "Celotex," has been found very suitable for the purpose, although as indicated any other similar materials may be used, as desired.

While the invention has been illustrated and described in certain embodiments, it is recognized that variations and changes may be made therein, without departing from the invention, except as specified in the claims.

I claim:

1. A structural plank member comprising opposite side sections, one of said sections having a recess in the inner face thereof extending at an acute angle with respect to said inner face, and the other of said sections having a projection on the inner face thereof of a size less than that of the recess and extending at an acute angle to said other section equal to said first-named acute angle and fitting closely in said recess when said sections are brought together, locking means on opposite edges of said plank adapted to interlock with complementary locking means on adjacent planks when disposed in a wall, at least one of said locking means being resilient, whereby separation of an intermediate plank section may be effected only by moving said section relative to the other in a direction parallel to said projection.

2. A structural plank member comprising opposite side sections, a spring catch fixed to one of said sections, and a projection fixed to the other of said sections in engagement with said spring catch upon movement of said sections toward each other and detachably connecting said sections together, locking means on opposite edges of said plank adapted to interlock with complementary locking means on adjacent planks, when disposed in a wall, at least one of said locking means being resilient, whereby an intermediate plank section may be separated from said wall by pulling said section outwardly against the resilient locking means of an adjacent section.

3. A wall including more than two structural plank members aligned in edge-to-edge relation and secured together, an interior one of said plank members in said wall being formed as opposite side sections separably secured together, locking means on opposite edges of said one intermediate plank member interlocking with complementary locking means on adjacent plank members, one of said locking means being resilient, whereby a section of said one intermediate plank member may be separated from said wall by pulling said section upwardly against the resilient locking means on an adjacent panel member.

4. A wall including more than two structural planks locked together in edge-to-edge relation by resilient tongue and groove connections, an interior one of said planks comprising opposite side sections, one of said sections having a plurality of recesses in its inner face extending at an acute angle with respect to said inner face, and the other of said sections having a plurality of projections on the inner face thereof of a complementary size and at a complementary angle to that of the recesses and fitting closely in said recesses when said sections are brought together, whereby separation of said sections may be effected only by moving one of said sections relative to the other in a direction parallel to said projections against the resilient locking tongue of an adjacent plank.

5. A structural plank member comprising opposite side sections, each having inwardly extending transversely spaced longitudinal abutting strips, means connected with the sections detachably connecting said sections together to form said plank member, locking means on opposite edges of said plank member, adapted to interlock with complementary locking means on adjacent plank members when a plurality of plank members are disposed in a wall, at least one of said locking means being resilient, whereby one of said side sections may be separated from said wall by pulling said section outwardly against the resilient locking means of an adjacent plank member.

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UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 2,838,144 June 10, 1958

Angus Snead Macdonald

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

In the grant, lines 1 to 3, for "Angus Snead Macdonald, of near Rapidan, Virginia" read -- Angus Snead Macdonald, of near Rapidan, Virginia, assignor to The Globe-Wernicke Co., a corporation of Ohio, --; line 12, for "Angus Snead Macdonald, his heirs" read -- The Globe-Wernicke Co., its successors --; in the heading to the printed specification, line 3, for "Angus Snead Macdonald, near Rapidan, Va." read -- Angus Snead Macdonald, near Rapidan, Va., assignor to The Globe-Wernicke Co., a corporation of Ohio --.

Signed and sealed this 25th day of November 1958.

(SEAL)
Attest:

KARL H. AXLINE
Attesting Officer

ROBERT C. WATSON
Commissioner of Patents