

E. G. BUDD.
METALLIC SHEATHING.
APPLICATION FILED JUNE 23, 1908.

973,622.

Patented Oct. 25, 1910.

Fig. 1.

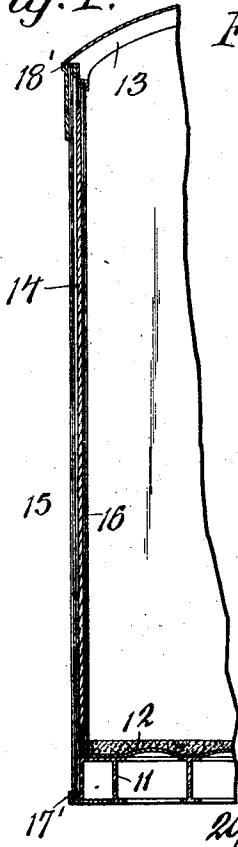


Fig. 2.

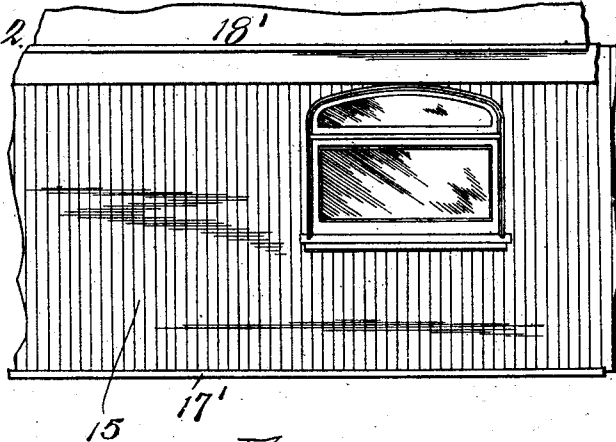


Fig. 3.

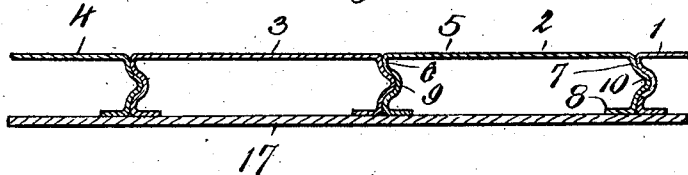


Fig. 4.

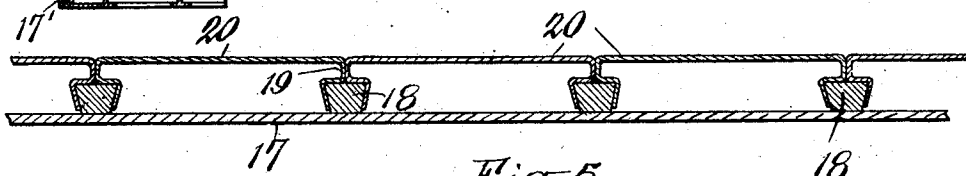


Fig. 5.

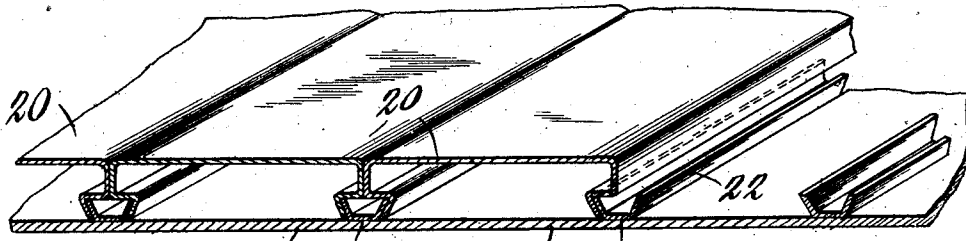
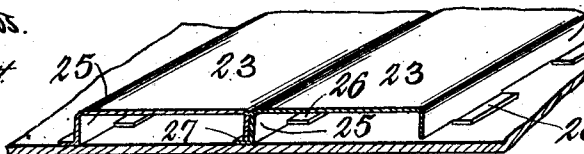


Fig. 6.



WITNESSES:

H. Edwards
J. Bartlett

INVENTOR

Edward G. Budd

BY

J. P. Edwards
ATTORNEY

UNITED STATES PATENT OFFICE.

EDWARD G. BUDD, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HALE-KILBURN METAL COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

METALLIC SHEATHING.

973,622.

Specification of Letters Patent.

Patented Oct. 25, 1910.

Application filed June 23, 1908. Serial No. 439,907.

To all whom it may concern:

Be it known that I, EDWARD G. BUDD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Metallic Sheathing, of which the following is a specification.

This invention relates to metallic sheathing of the type disclosed in an application for Letters Patent filed by me August 20th, 1907 and serially numbered 389,325.

My improved sheathing is of particular utility as a lining for the interior and exterior of railway cars, although it is, of course, susceptible of use in other relations as well.

The invention is directed to the provision of an improved sheathing consisting of a multiplicity of metallic sections adapted to be assembled edge to edge and provided with interlocking parts which position the sections relatively, these sections being individually removable so that in case of local damage such sections as may be necessary may be withdrawn and new ones substituted in their places. These sections of the sheathing are made of sheet-metal pressed to the desired form so that they may be manufactured at very low cost, and because of the fact that the sections are quite narrow, although metal of light weight is employed, the completed structure will possess ample stiffness and rigidity. The several sections of the sheathing are each provided with a body portion and edge portions at the lateral edges thereof so constructed as to provide for the interlocking of the several sections with each other or with the supporting structure, these interlocking parts being arranged to hold the sections in position with the body portions thereof forming a substantially unbroken wall. The spaces behind this wall and between the edge portions of the sections may form dead air cells which prevent radiation of heat to a very large extent, or if desired, these spaces may be filled with a heat insulating material as cork or asbestos. Such a sheathing is of great utility as a lining for the exterior of a railway car as a substitute for the large sheet-metal plates now employed for this purpose, particularly as in case of damage only such sections of the sheathing as may have been damaged need be withdrawn and replaced by new

ones, whereas, when the large sheet-metal plates are employed a comparatively small injury to the car necessitates the removal of at least one such large sheet, if not the covering for the entire side of the car. Furthermore, with the sectional sheathing as herein disclosed, a more attractive appearance is presented since no rivets show upon the exterior of the car, radiation of heat is reduced to a large extent, rattling and reverberation of sound are minimized and a considerable reduction in the cost of construction is effected.

I have illustrated embodiments of my invention by which these objects are attained in the accompanying drawings in which—

Figure 1 is a vertical section through the side of a car, Fig. 2 is an elevation of a portion of the side of a car, Fig. 3 is a section through the sheathing, Fig. 4 is a view similar to Fig. 3 illustrating a modified form of sheathing, Fig. 5 is a perspective view illustrating a form of sheathing closely similar to that illustrated in Fig. 4 and Fig. 6 is a view similar to Fig. 5 illustrating a further modification of the invention.

Referring to these drawings, 1, 2, 3 and 4 indicate sections of the sheathing, each formed of a strip of sheet-metal, preferably steel, pressed to provide a body portion and edge portions 6 and 7 at the lateral edges of and integral with the body portion 5, these edge portions being turned at an angle of ninety degrees to the body portion. At the extreme edges of the strips for the sections, flanges 8 may be provided turned toward each other, as shown, and disposed parallel to the body portion 5. In pressing the sections into form a rounded groove 9 is formed in the edge portion 6 preferably at about the center thereof and in the edge portion 7 a corresponding bead 10 is formed, these grooves and beads extending throughout the length of the sections. The sections thus constructed are assembled edge to edge as shown with the bead of each section entering the groove in the adjacent section and when thus positioned the body portions 5 of the several sections lie in the same plane so as to form a wall which is unbroken except for the slight depressions at the joints between the sections which extend across the sheathing in parallel lines as shown in Fig. 2.

Figs. 1 and 2 show the sheathing as ap-

plied to the exterior or to both the exterior and interior of the side wall of a car. The car itself may be of the usual or any suitable construction, it being here shown as provided with an underframe 11 supporting the floor 12, a roof 13 and supports 14, as a suitable metallic truss-work, for supporting the roof 13 upon the under-frame 11. The sheathing is applied to the outer side of the car to cover this truss-work as at 15, and if desired, a similar sheathing 16 may be applied over the inner side of the truss-work.

Any suitable means may be employed for holding the sheathing in position. In Figs. 1 and 2 I have shown metallic pieces 17' and 18' of channel section extending along the bottom and top edges of the side of the car, these being adapted to receive the ends of the sections of the sheathing so as to retain them in position. When the sections are in position the body portions 5 thereof form an unbroken wall and movement of any section relatively to the sections adjacent thereto such as would carry the body portion 5 thereof out of the plane of this wall is precluded by the coaction of the beads 10 and grooves 9 of adjacent sections.

In Fig. 3 I have shown the sectional sheathing applied over the surface of a piece of sheet-metal 17 though it will be seen that the provision of such a sheet is by no means essential in this form of sheathing. When such a sheet is provided the flanges 8 on the sections of the sheathing, lie against the sheet 17 to assist in properly positioning the sections relatively.

In Figs. 4 and 5 I have shown a sheathing of a slightly modified construction the difference being that edge portions of the sections of these sheathings are shaped to coact, not with each other, but with parts mounted on the supporting structure. Referring to Fig. 4 it will be seen that a sheet 17 is provided as before and to this are secured a plurality of strips 18 of metal, fiber or any other suitable material, the sides of which diverge as shown. Each section of the sheathing is provided with body and edge portions and these edge portions are formed to coact with the strips 18. Thus it will be seen that the edge portions 19 of adjacent sections lie side by side and that beyond these portions the metal of the sections is bent to conform to the shape of the strips 18. The sheet 17 with the strips 18 attached thereto may be supplied in sizes as desired and in assembling the structure the sections of the sheathing are cut to the desired length and are forced lengthwise into position with the edge portions thereof coacting with the strips 18. It will be seen that because of the inclination of the sides of the strips 18 and the corresponding configuration of the edge portions of the sections of the sheathing, the latter will be held in position with the

body portions 20 thereof forming a substantially unbroken wall; also should any one or more of the sections become damaged it can be withdrawn lengthwise and a new one inserted in its place. Instead of employing solid strips 18 the same purposes may be served by the provision of strips formed of sheet-metal by bending the lateral edges of a sheet-metal strip upwardly from the portion lying between them so as to provide diverging flanges at the sides of the strip. Such a construction is shown in Fig. 5 in which the sheet 17 is shown as having a plurality of sheet-metal strips 21 secured thereto parallel to each other, each of these strips being provided with integral diverging flanges 22. In other respects the construction here illustrated is like that shown in Fig. 4, the change merely effecting a reduction in the cost of construction.

Referring to Fig. 6 a further modification of the construction of the sectional sheathing is illustrated. Each of the sections of this sheathing is provided with a body portion 23 and integral edge portions 24 and 25, and these edge portions are constructed to provide the desired interlock of adjacent sections. On each edge portion 24 are a plurality of extensions or tongues 26 disclosed in a plane parallel to the plane of the body portion 23. Between these extensions the metal of the edge portion 24 is cut away slightly as shown at the right of Fig. 6. On each of the edge portions 25 are a plurality of similar extensions 27, each of these extensions being located opposite the space between adjacent extensions 26 on the edge portion 24 and the edge portion 25 being similarly cut away between the extensions 27. In assembling this sheathing, one section is mounted in position and then the tongues 27 on another section are inserted in the spaces formed by cutting away the metal of the edge portion 24 of the section first positioned between the extensions 26 of that section and the section is then moved sidewise bodily until the edge portion 25 thereof abuts against and lies parallel to the edge portion 24 of the section first positioned. Other sections are then assembled in the same manner.

With the construction herein disclosed numerous and important advantages are secured. A sheathing is provided which consists of a multiplicity of comparatively narrow sections so that in case of local damage any one or more sections, as may be necessary, can be withdrawn and perfect ones substituted in place thereof; the securing means for holding the sections in position is concealed so that a more attractive appearance is presented particularly as the employment of rivets which would show on the exterior of the sheathing, is avoided; as the sections of the sheathing are quite

narrow and as the body portions thereof are braced by the edge portions which are disposed at an angle thereto, thin, light metal may be employed in the manufacture of the sheathing without a sacrifice in the stiffness of the completed structure; the spaces within the sections aid materially in precluding the radiation of heat, these spaces merely forming dead air cells or being filled with powdered cork, asbestos or like heat insulating material.

For securing the sheathing in position, the channel bars 17', 18' may be relied on to hold the ends of the sections and if desired the sections may be bowed somewhat to place them under tension as disclosed in my application above referred to. Instead of or in addition to the channel bars, the sheet 17 may be employed to which the sections of the sheathing are affixed; these sheets 17 may be supplied in such sizes as may be required by the use to which the sheathing is to be put. With sheathing of the forms shown in Figs. 3 and 6, the flanges 8 may be affixed to the sheet 17 in any suitable manner, though with this sheathing I find it preferable to rely on the channel bars for holding the sections in place. With sheathing of the forms shown in Figs. 4 and 5, the large sheets 17 are provided with the strips 18 or 21 attached thereto so that when secured in position, the sections of the sheathing can be readily mounted thereon.

Having described my invention what I claim as new therein and desire to secure by Letters Patent of the United States is:

1. The combination of a support, a plurality of strips having diverging side walls secured thereto, a sheathing consisting of a plurality of sheet-metal sheathing sections each having a body portion and edge portions turned at an angle to the body portion, said edge portions coacting with the side walls of said strips to hold the sections in position with said body portions forming a substantially unbroken wall, and end strips of angular cross-section extending transversely to said sections and receiving the ends thereof, substantially as set forth.

2. The combination of a support, a plurality of sheet-metal strips secured thereto having the lateral edge portions thereof bent to form diverging side walls, and a sheath-

ing consisting of a plurality of sheet-metal sections coacting at their lateral edges with the side walls of said strips to hold the sections in position, substantially as set forth.

3. The combination of a support, a plurality of sheet-metal strips secured thereto having the lateral edge portions thereof bent to form diverging side walls, and a sheathing consisting of a plurality of sheet-metal sheathing sections each having a body portion and edge portions lying at an angle to the body portion, said edge portions coacting with the side walls of said strips to hold the sections in position with said body portions forming a substantially unbroken wall, substantially as set forth.

4. The combination of a support, a plurality of strips secured thereto, a sheathing consisting of a plurality of sheet-metal sheathing sections each having a body portion and edge portions lying at an angle to the body portion, said edge portions coacting with said strips to hold the sections in position with said body portions forming a substantially unbroken wall, said sections being individually removable in the direction of their length and formed to provide spaces between them and said support, and end strips of angular cross-section extending transversely to said sections and receiving the ends thereof, substantially as set forth.

5. The combination of a support, a plurality of strips having diverging side walls secured thereto, a sheathing consisting of a plurality of sheet-metal sheathing sections each having a body portion and edge portions turned at an angle to the body portion, said edge portions being so formed that when the sections are assembled the edge portions of adjacent sections abut throughout a portion of their area and coact with the diverging walls of one of said strips throughout a portion of their area, and end strips of angular cross-section extending transversely to said sections and receiving the ends thereof, substantially as set forth.

This specification signed and witnessed this 11th day of June, 1908.

EDWARD G. BUDD.

Witnesses:

R. M. FRIES,
P. N. TUCKER.