

Sept. 1, 1936.

C. G. DUFFY
WALL CONSTRUCTION
Filed June 23, 1934

2,052,755

2 Sheets-Sheet 1

Fig. 1.

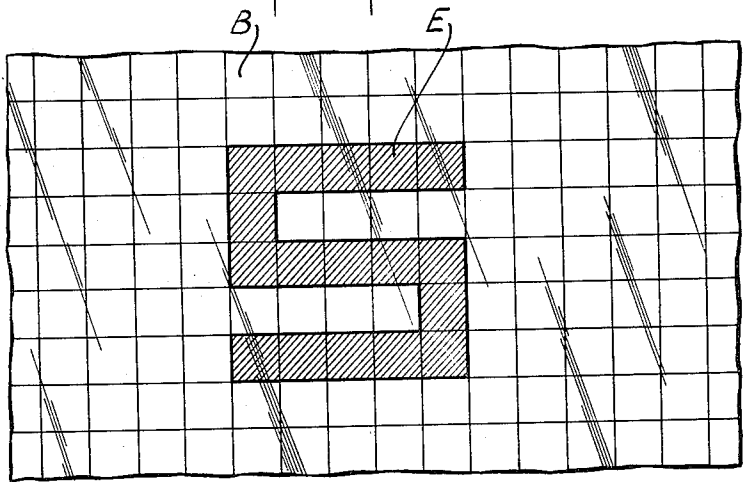
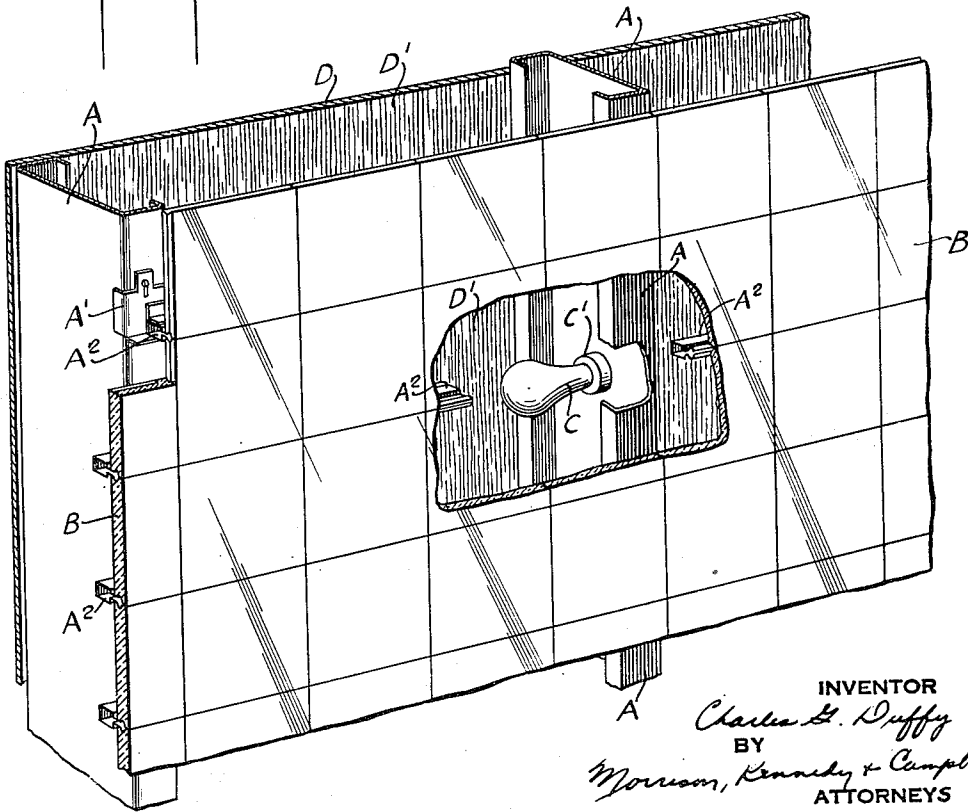


Fig. 2.



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Fig. 3.

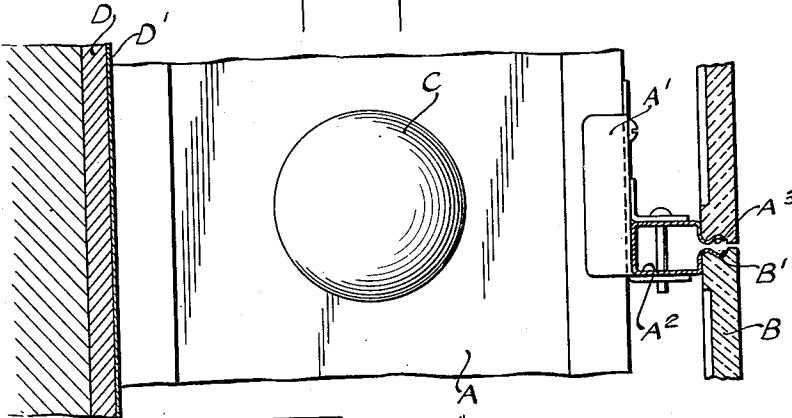


Fig. 4.

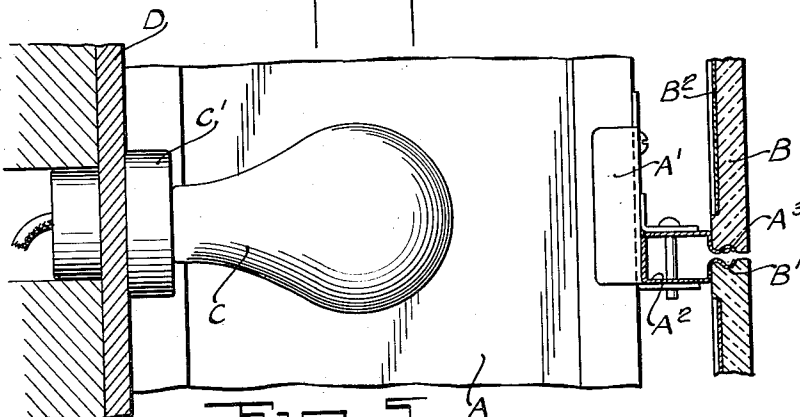
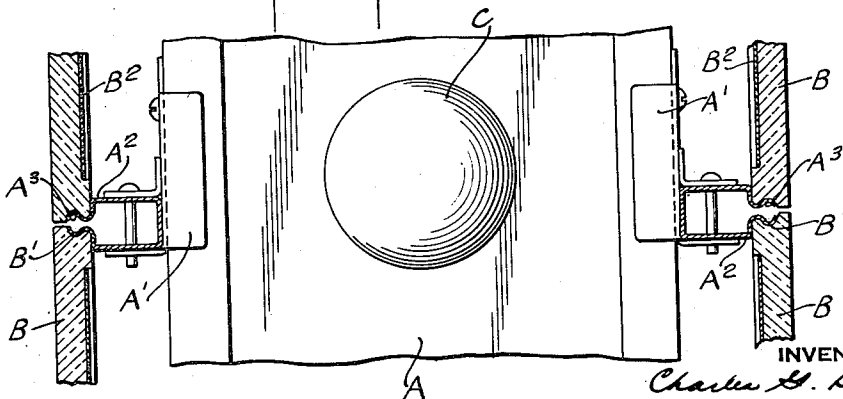


Fig. 5.



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WALL CONSTRUCTION

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Application June 23, 1934, Serial No. 732,044

14 Claims. (Cl. 240—1)

This invention relates to wall construction of the type illustrated in my Patent No. 1,991,550, issued February 19, 1935, and which was copending with the instant application, and certain clearly indicated parts of the subject matter of this application are found in the patent referred to. More particularly, it relates to self-sustained wall sections formed of building units composed of glass or light transmitting material, and to an arrangement whereby such walls may be illuminated by lighting means enclosed within the wall structure.

In the different embodiments of the invention disclosed herein, a wall is constructed of studding members arranged at suitably spaced intervals to which purlins are secured in parallel spaced relation to accommodate building units which are inserted between adjacent purlins in a suitable manner and held in place, as for instance, by means similar to those disclosed in my patent above alluded to, or in my Patent No. 1,997,092, filed February 7, 1934, and issued April 9, 1935.

With the construction I employ in building up a wall section, building units may be inserted one at a time and may be of various colors so that in the completed wall any desired design may be formed or any suitable word spelled out. Furthermore, the construction is such that both faces of the building units in the completed wall are exposed and, by positioning lighting means adjacent one face of the wall section, the light therefrom will pass through the light transmitting material, of which the building units are composed, giving the opposite face of the wall section an illuminated effect. The arrangement is such that entire buildings may be constructed of glass or light transmitting material, and the wall surfaces thereof illuminated without the use of flood lights to give the effect of a glowing building and, by the use of different colored tiles, as previously mentioned, any suitable name or advertising material may be built in and form part of the building wall, a result which is very desirable in many types of commercial buildings, gasoline stations, for instance.

Although the invention is applicable to a construction wherein but a single wall section or facing of building units is employed, perhaps the most efficient results from the instant method of illuminating the walls of buildings are obtainable by providing a second wall section or backing member spaced somewhat from the outer wall section or facing of building units and preferably secured to the inner faces of the studding members, producing in effect a hollow wall con-

struction with lighting means arranged in the intermediate space. The inner wall section will serve as a reflector for the lighting means and, in order to make it perform this function more efficiently, it is proposed to coat the face of the inner wall section which is adjacent the outer wall section, with a film of light reflecting material.

In accordance with the invention, the film of reflecting material preferably consists of highly reflecting metal foil, since this serves not only as a good reflecting medium for the light, but also acts as a heat insulator due to its heat reflecting properties as well. Thus, during the day the building will be effectively insulated from the rays of the sun, while at night, when the building is illuminated, transmission of the heat from the lighting means to the interior of the building will be diminished.

Also, if desired, a film of light reflecting material may be applied to the inner surfaces of the building units to enhance the heat insulating effect, the film, of course, being made so thin as not to detract materially from the ability of the building units to transmit light therethrough.

Referring to the drawings:

Figure 1 illustrates a portion of a wall section wherein building units of a color different from that of the background have been used to form a letter "S" by way of illustrating a design;

Fig. 2 is a view in perspective of a portion of a wall section employing the invention with some of the building units broken away to expose the lighting means;

Fig. 3 is a partial section through a wall employing the invention, and showing lighting means carried by studding members and a foil of reflecting material applied to the rear or inner section of the wall;

Fig. 4 is a section similar to Fig. 3, showing a foil of reflecting material applied to the inner face of the building units, and showing also a different arrangement of the lighting means; and

Fig. 5 is a section similar to Fig. 3, illustrating a wall formed with building units of light transmitting material arranged at both sides of the studding members and having a foil of reflecting material applied to the building units at the inner faces thereof.

As shown in Fig. 2, and as more fully described in my application, Patent No. 1,997,092, there is provided a wall support formed of studding members A arranged in parallel spaced relation and which may be in the form of channel sections, at

the outer edges of which are secured clips A¹ to support parallel spaced purlin members A². The purlins at their outer edges are provided with opposed projections A³ to serve as a means for securing the building units in position in the wall section. In the embodiment illustrated, the building units have been illustrated in the form of tiles B provided in their peripheral edges with grooves B¹ which are adapted to cooperate with the opposed projections A³ on the purlins, the arrangement being such that as the tile units are sprung into place between a pair of adjacent purlins, the opposed projections A³ will yield bodily to permit the insertion of a tile unit and thereafter return to engage in the grooves B¹ to secure the tile units firmly in position.

The tile units, being insertable individually as they are, permits a design E of any desired character to be wrought in the wall by using tile units of various colors. By way of illustration in Figure 1, the letter "S" is shown and, when the wall is illuminated in the manner about to be described, the insignia will be visible for considerable distances, from which it will be apparent that the advertising possibilities inherent in applicant's invention are large indeed.

As a result of the arrangement hereinbefore described, a reinforced self-sustained wall structure is produced, wherein not only the outer surface of the tile facing is completely exposed, but wherein the inner surface is likewise substantially fully exposed with the exception, of course, of a small region adjacent the edges of the tile units in the vicinity of the purlins, a construction which lends itself readily to the method of illumination hereinafter described.

In order to illuminate the wall of a building, there are provided between the studding members A, a series of lamps C which may be arranged in suitable sockets C¹ secured either to the studding members themselves, as shown in Figs. 2, 3 and 5, or to a rear wall section D (see Fig. 4) secured at the rear edges of the studding members A, and which, together with the facing of tile or building units B, form a hollow wall, with the lamps units C positioned in a space intermediate the two wall sections.

In order to obtain the utmost in lighting efficiency, it is preferred to apply a film D¹ of suitable reflecting material to the rear wall section D. It has been found that metal foil is very advantageous for this purpose, since it not only serves to reflect the light uniformly against the building units of the outer wall section, but in addition serves as a very efficient heat insulating medium due to its ability to reflect heat as well as light. Thus, during hot summer days, the reflecting medium serves as a protection against the hot rays of the sun, whereas in winter it will act to prevent the outward passage of heat from the interior of the building. Likewise, it would serve as a medium to prevent an excessive transfer of heat from the lighting units C into the building when the latter is illuminated. If a heat insulating medium only is desired, a film of metal foil B² may be applied to the inner face of the tile units B and can be made so thin as not to interfere with the passage of light through the tile units to any great extent, or, if desired, the insulating reflecting medium may be applied both to the tile units and to the rear wall section D as well.

In some instances a wall structure may be desired having both faces formed of building

units of light transmitting material so as to facilitate the illumination of the exterior wall of the building as well as provide indirect lighting for the interior thereof. Such a construction is shown in Fig. 5, wherein there is applied a facing of tile units at the opposite edges of the studding members in the manner previously described, with lighting means C positioned between the wall sections. An insulating reflecting medium B² may or may not be used and if used may be applied to the building units of one or both of the wall sections as desired.

In the foregoing description, the invention has been described in connection with a wall, but it is to be understood that the construction is equally applicable to ceilings, roofs, partitions, floors, or any other portions of a building, and indeed may be utilized in environments other than buildings, as, for instance, in large outdoor signs if desired. Also, the use of tiles only has been illustrated in the preferred embodiments, but it is to be understood that any suitable building units may be employed. In other words, the invention is susceptible of many modifications within its spirit and is to be limited only by the prior art and the scope of the appended claims. Having thus described my invention what I claim is:

1. A wall construction including, in combination, a wall section formed of building units arranged in courses and composed of light transmitting material, reinforcing means for the wall section arranged so as to be completely hidden by the building units viewing one surface of the wall section and so as to leave the opposite surface of the building units substantially fully exposed, and lighting means positioned adjacent one surface of said wall section and so arranged that light is transmitted through the building units to give the opposite surface of the wall section an illuminated effect.

2. A wall construction including, in combination, a support, purlins arranged in spaced relation on said support, a facing for said support formed of building units arranged in courses, means for securing said building units to the purlins in a manner completely to hide the purlins viewing the outer surface of the building units and leaving the inner surface of the building units substantially fully exposed, and a source of light arranged behind the building units, said building units being composed of a light transmitting material so as to permit the passage of light therethrough, whereby the outer surface of the building units appear illuminated.

3. A wall construction including, in combination, studding members constituting a support, purlins arranged in spaced relation on said support, a facing for said support formed of building units, means for securing said building units to the purlins in a manner completely to hide the purlins viewing the outer surface of the building units and leaving the inner surface of the units substantially fully exposed, and a source of light arranged behind the facing of building units and between adjacent studding members, said building units being composed of a light transmitting material so as to permit the passage of light therethrough to give the outer surface of the facing an illuminated effect.

4. A wall construction including, in combination, a self-sustained wall section comprising a support, purlins arranged in spaced relation on said support, and building units arranged in

courses and composed of light transmitting material, said building units being individually secured in position by said purlins in a manner completely to hide the purlins viewing the outer surface of the building units and leaving the inner surface of the building units substantially fully exposed, and lighting means positioned adjacent one surface of the wall section, whereby to give the opposite face of the wall section an illuminated effect.

5. A wall construction including, in combination, a wall section comprising building units arranged in courses and composed of light transmitting material, means for supporting the wall section in its erected condition and against lateral loads, a second wall section arranged in parallel spaced relation therewith, the two wall sections together forming a hollow wall, and lighting means arranged in the space defined by said wall sections, the supporting means and the building units being such that the supporting means are completely hidden from view by the building units in the exposed face of the wall section.

6. A wall construction in accordance with claim 5, wherein the second mentioned wall section acts as a reflector for the lighting means therein referred to.

7. A wall construction including, in combination, a wall section comprising building units arranged in courses and composed of light transmitting material, means for supporting the wall section in its erected condition and against lateral loads, a second wall section arranged in parallel spaced relation therewith, lighting means arranged in the space between said wall sections, and reflector means for said lighting means, the supporting means and the building units being such that the supporting means are completely hidden from view by the building units in the exposed face of the wall section.

8. A wall construction including, in combination, a wall section comprising building units arranged in courses and composed of light transmitting material, means for supporting the wall section in its erected condition and against lateral loads, a second wall section arranged in parallel spaced relation therewith, lighting means arranged in the space between said wall sections, and a film of light reflecting material applied to the surface of one of the wall sections, the supporting means and the building units being such that the supporting means are completely hidden from view by the building units in the exposed face of the wall section.

9. A wall construction including, in combination, a self-sustained wall section comprising building units composed of light transmitting material, a second wall section arranged in parallel spaced relation therewith, lighting means arranged in the space between said wall sections,

and a film of light transmitting heat reflecting material applied to the surface of one of the wall sections.

10. A wall construction including, in combination, a self-sustained wall section comprising building units composed of light transmitting material, a second wall section arranged in parallel spaced relation therewith, lighting means arranged in the space between said wall sections, and a film of light transmitting heat reflecting material applied to the surfaces of both wall sections.

11. A wall construction including, in combination, a pair of self-sustained wall section comprising building units composed of light transmitting material and arranged in parallel spaced relation to form a hollow wall, lighting means arranged in the space between said wall sections, and a film of light transmitting heat reflecting material applied to the inner surface of the building units forming said wall sections.

12. A wall construction including, in combination, a support, purlins arranged in spaced relation on said support, a facing for said support formed of building units, means for securing said building units to the purlins so as to leave both faces of the building units substantially fully exposed, a backing member enclosing said support, and lighting means arranged between the facing of building units and the backing member, said building units being composed of a light transmitting material so as to permit the passage of light therethrough, whereby the outer surface of the facing of the building units appears illuminated.

13. A wall construction including, in combination, a support, purlins arranged in spaced relation on both sides of said support, a facing on each side of said support formed of building units, means for securing building units to the purlins so as to leave both faces of the building units substantially fully exposed, and lighting means arranged in the space between said facings of building units, said building units being composed of light transmitting material so as to permit the passage of light therethrough, whereby the outer surfaces of the facings of building units appear illuminated.

14. A wall construction including, in combination, a wall section formed of building units arranged in courses and composed of light transmitting material, frame means for supporting the building units and arranged so as to be completely hidden by said building units, viewing the outer sides of the building units and leaving the inner sides of the building units substantially fully exposed, and lighting means positioned adjacent one surface of the wall section and so arranged that light is transmitted through the building units to give the opposite surface of the wall section an illuminated effect.

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