April 14, 1931. R. E. DRAKE 1,800,609

SHEET FASTENING

Filed March 30, 1929 3 Sheets-Sheet 1

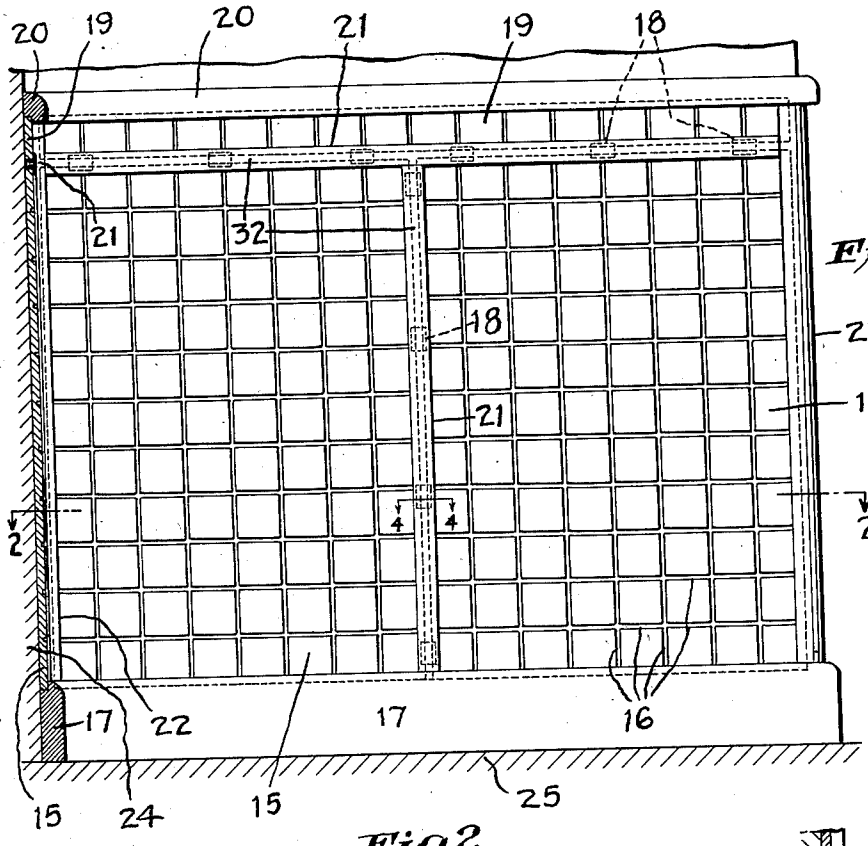


Fig. 1.

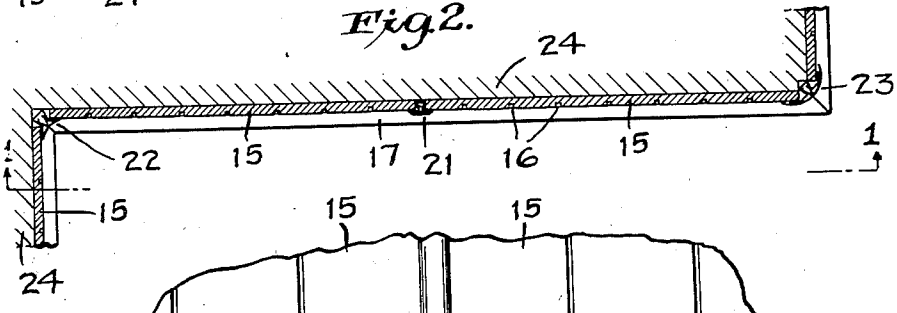


Fig. 2.

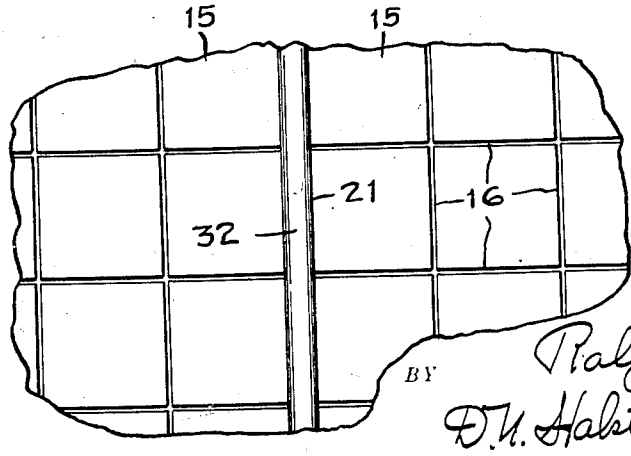


Fig. 3.

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SHEET FASTENING

Filed March 30, 1929 3 Sheets-Sheet 2

Fig. 4.

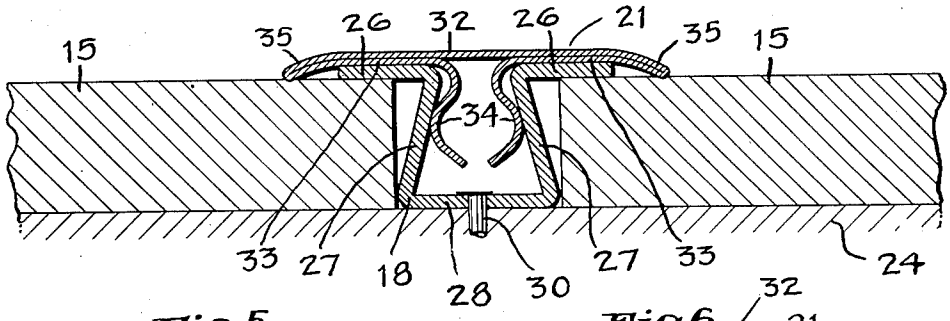


Fig. 5.

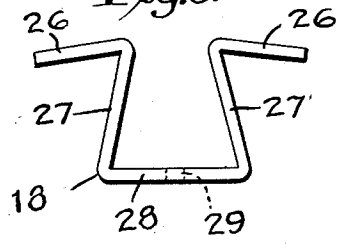


Fig. 6.

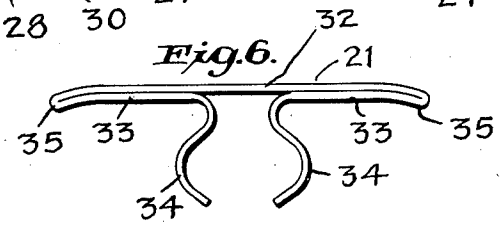


Fig. 8.

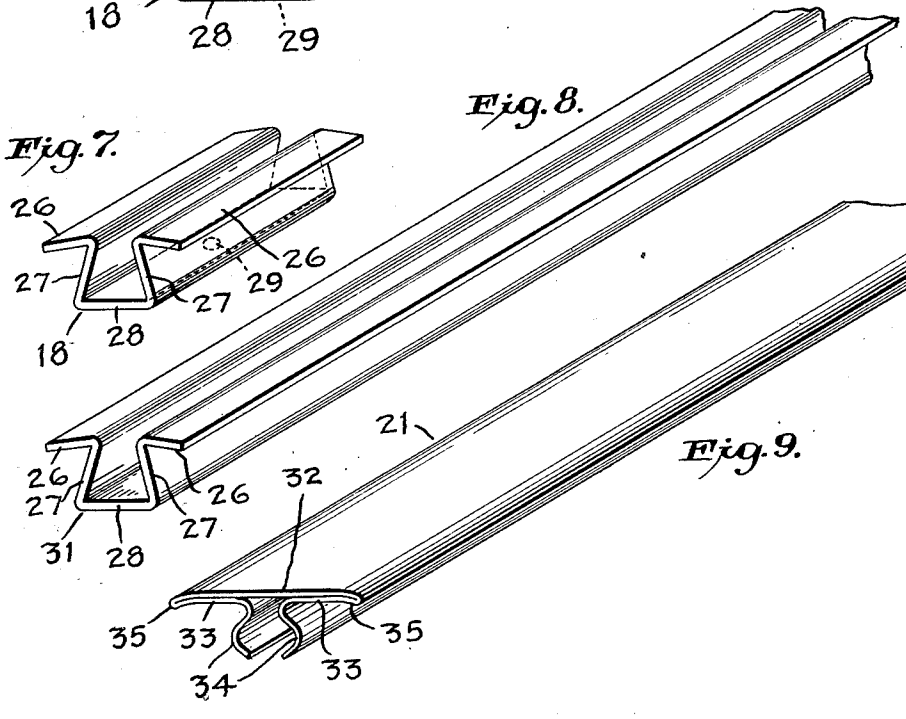


Fig. 7.

Fig. 9.

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April 14, 1931. R. E. DRAKE 1,800,609

SHEET FASTENING

Filed March 30, 1929 3 Sheets-Sheet 3

Fig. 10.

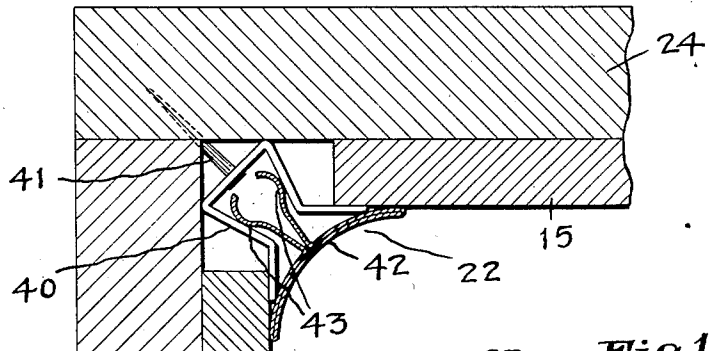
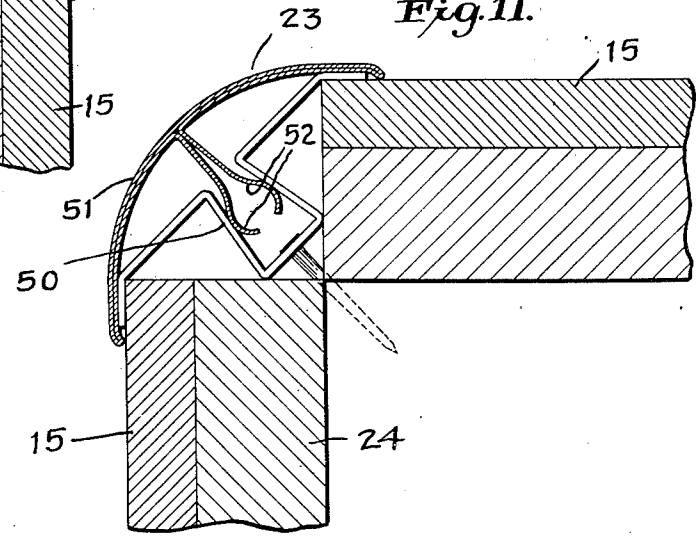


Fig. 11.



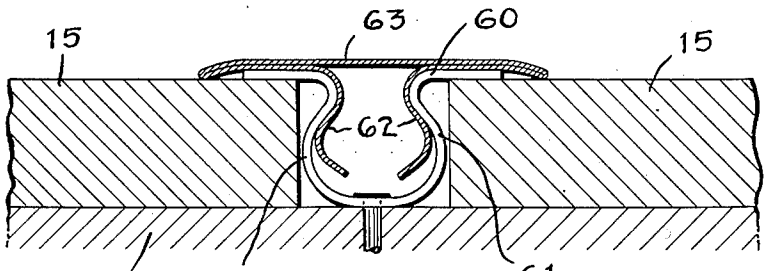


Fig. 12.

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Patented Apr. 14, 1931

1,800,609

UNITED STATES PATENT OFFICE

RALPH E. DRAKE, OF JAMAICA, NEW YORK, ASSIGNOR TO JOHNS-MANVILLE CORPORATION, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

SHEET FASTENING

Application filed March 30, 1929. Serial No. 351,236.

The invention relates to sheet-fastening devices, and particularly to that type of a sheet-fastening device which has a facing or covering strip.

As illustrated in the accompanying drawings, the sheet-fastening device is used with a newly developed form of tiling, an asbestos cement wall tile in sheet form. There are many other classes of sheet material with which the improved fastening device might advantageously be employed. Among these are wood fibre wall boards, pressed paper boards, gypsum wall boards and plaster boards, insulation boards from cane, pulp wood and other bases of vegetable origin, asbestos wood, steel lumber, moulded panels to simulate carved wood, decorated or plain glass sheeting, and many others.

The primary object of the present invention is to provide a sheet fastening which insures positive and durable sheet-engaging means for maintaining sheets in a relatively firm and fixed position. This method employs a sheet-fastening clip and a snap-in or covering strip, which is firmly held in a cooperative position in such a manner as to aid in anchoring the sheets and which may be finished as the sheet is finished, or in contrast, if desired.

The usual method and probably the simplest, where joints are to be covered, involves the use of a batten or stile. For some purposes, where the panel effect is desired, this fastening method is satisfactory. Where a smooth wall or comparatively smooth wall effect is required, ordinary battens and stiles fail. A further object of the present invention is to provide a sheet fastening which in its assembled condition with the sheets presents the effect of an unbroken smooth surface, as the fastening device is so constructed as to be almost flush with the outer face of the sheets, and the prominence of the joint is substantially lessened.

A further object of the invention is to provide a sheet fastening device erected with great ease in conjunction with sheet material, and which may be quickly installed with unskilled labor.

A still further object of the invention lies in the fact that the fastening may be readily dismantled to gain access to the walls or areas to which the sheets are secured without damaging the sheet material or fastening.

A further object is to provide a fastening device in which shrinkage or expansion of the sheets may take place without fracturing or unduly straining the sheet material and without injury to the fastening device or its decorative strip. This will prevent the unsightly appearance of warped or loosened sheets, which is prevalent where rigid fastening devices are in use.

In addition to the foregoing, other advantages will become apparent as this specification proceeds. Referring to the drawings forming a part thereof and in which preferred embodiments of the invention are illustrated:

Fig. 1 is an elevational view with one wall in section. In this view the sheet-fastening clips and their covering strips are somewhat exaggerated for clearness of illustration. This view can be considered as taken on line 1—1 of Fig. 2;

Fig. 2 is a sectional plan view taken on line 2—2 of Fig. 1;

Fig. 3 is a fragmentary elevation showing the true proportion between the marked tile sheets and the fastening device;

Fig. 4 is a detail sectional view on an enlarged scale and taken on line 4—4 of Fig. 1;

Fig. 5 is a detail end view of one of the clips before being positioned;

Fig. 6 is an end view of the snap-in strip before being placed in position;

Fig. 7 is a perspective view of one of the clips;

Fig. 8 is a perspective view of a channel section to be used instead of a plurality of short clips;

Fig. 9 is a perspective view of the snap-in strip;

Fig. 10 is a sectional view showing the application of the fastening device to an inside corner;

Fig. 11 is a sectional view showing the fastening device in position on an outside corner; and

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Fig. 12 is a sectional view of a modified form.

Referring again to the drawings, the reference numeral 15 designates the sheets of material. As illustrated, these sheets are scored or have grooves 16 to simulate joints between individual titles. As heretofore explained, the fastening device is applicable to sheet material of many kinds.

Figs. 1 and 2 of the drawings illustrate the sheets held in place on a wall by the improved fastening device. As shown in these drawings, the sheets are arranged to form a wainscoting and belt strip. They may, however, cover the complete wall and ceiling if so desired.

In the typical example illustrated in Figs. 1 and 2, the sheets 15 are slipped in a groove formed in the base moulding 17 and are spaced apart a sufficient distance to allow for the entering of the clips 18 described in detail hereinafter. The sheet 19 forming the belt strip is slipped into a groove in the cap moulding 20 and suitably spaced from the sheets 15 so that the fastening clips 18 may be applied. Obviously, the cap moulding might be located on top of the sheets 15 if the belt strip were not desired, or the cap moulding might be eliminated if the entire wall were to be covered. The decorative batten strips 21, described in detail hereinafter, are then positioned. In Figs. 1 and 2 an inside corner fastening is indicated at 22, the same being shown in detail in Fig. 10, and an outside corner fastening is shown at 23, this being illustrated in detail in Fig. 11. In these Figures 1 and 2, the wall is indicated at 24 and the floor at 25. It will be understood that in practice studying or nailing strips are provided in the wall and suitably located so that the clips 18 may be secured thereto.

The clips 18, of which detail views of the preferred form are shown in Figs. 5 and 7, comprise lateral wing portions 26, converging side portions 27, and a base 28. In these two figures, which show the clip before being applied, particular attention is directed to the fact that the wing portions 26 slope slightly rearwardly toward the base. In the assembled position illustrated in Fig. 4, it will be noted that these wing portions have been straightened out. By virtue of this construction the resilient tension in the metal is utilized to firmly hold the sheets in position. The base 28 is provided with a hole 29 through which a nail or screw 30 is driven to hold the clip in place. In installation, the clips may be placed suitable distances apart, depending upon the thickness of the sheet material to be held in place, and its weight. The clips are preferably more or less rigid and are made of a suitable non-rusting metal. In the preferred form, the sides of the clip converge outwardly, thereby forming a frictional engaging and interlocking arrangement for co-acting with the spring ribs of the covering strips. The side portions, however, may be straight without any convergence, and this latter form may be further modified by having rounded nubs or projections formed on the insides of the clips or channel members near the outer portions of the sides, thereby producing a positive engaging means for the spring ribs of the strips. With combinations as above and hereinafter described, it will be seen that the pressure of the ribs of the covering strips against the sides of the clips tends to force and maintain the wings of the clips in an engaging relationship with the sheet material, thereby not only increasing the gripping force of the clips and ensuring against the wings disengaging with the edges of the sheets, but also preventing any tendency to loosen.

Fig. 8 illustrates a channel section 31 which may be used instead of the individual clips. This channel has the same cross section as the clips 18, and bears similar reference characters. In practice it may extend substantially the length of the sheets, or be shorter if desired, and has a plurality of holes in the base for receiving anchoring means. This form is advantageous to use, where the sheets are unusually heavy.

The decorative batten strips 21 shown in detail in Figs. 6 and 9 have a double function of not only locking the sides of clips from inward displacement, but also aiding the wing portions of the clips and channels in anchoring the sheets.

These strips are preferably made of a relatively thin metal which must be ductile enough to permit of its being formed without weakening, and at the same time the temper must be sufficient to maintain adequate spring action to allow it to be sprung into the clips and remain in its fixed position. In the preferred embodiment as illustrated, the metal forming the face 32 of the strip is bent back upon itself, as at 33, and from these under folds, suitably shaped inwardly extending resilient ribs 34 or tongued elements extend longitudinally. The selection of a suitable metal, preferably non-corrodible, and the use of suitable tools and dies in the process of forming the strip, insure a uniform product having the desired qualities of ductility and temper during or after formation. In fact, the forming will have the tendency to enhance the temper or spring action in the ribs of the strip. The exposed face 32 of the strip may be plated, buffed and polished, following accepted methods, or it may be treated with finishes of paint, varnish, lacquer or enamel; or, if desired, a thin sheet of decorated celluloid serving as a jacket might be suitably secured to the face of the strip.

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The face of the strip is preferably wider than the distance from wing tip to wing tip of the clip so as to cover the clips after being set up. The edges of the face of the strip are preferably slightly splayed or turned in, as indicated at 35. Figs. 6 and 9 show the strip before being placed in position, and Fig. 4 illustrates the assembled condition. The converging sides 27 of the clips co-operate with the resilient longitudinally extending ribs of the decorative strip so as to hold it firmly in position. Due to the ribs of the strip being forced toward each other by the converging sides of clips, the splayed edges of the face of the strip will hug or press against the adjacent sheets, producing a close fitting contact, and aiding the wing portions 26 in anchoring the sheets. The fastening device will thus be almost flush with the sheets. In the illustration of the preferred embodiment of the fastening device, the spring action is in the strip, used with a relatively firm clip. The batten strip in the preferred form has been disclosed with spring-engaging ribs. A solid member may, however, be substituted therefor, and with this form the clips or channels are made of a material having a relatively high degree of resiliency to provide the necessary yielding and gripping action.

It will be seen from the foregoing that a cooperative structure is produced which not only is decorative, but also simple and effective for positively anchoring sheets or the like to a wall. It will be apparent that the sheets may be readily and quickly erected by unskilled labor and easily dismantled if desired without injury to the sheets or fastening devices.

Fig. 10 shows in detail the adaptability of the fastening device to an inside corner. The clips 40 have a slightly different arrangement of their wing portions and are secured in the corners of the room by nails or screws 41. The face 42 of the batten strip is concave in form and completely covers the joint. The longitudinally extending ribs 43 extend from about the middle of the strip so as to give a double thickness of metal for the entire face and thus provide additional strength.

Fig. 11 illustrates the fastening device applied to an outside corner, as indicated at 23 in Figs. 1 and 2. In this embodiment, the clip 50 is again slightly different, it being necessary to have the wing portions somewhat longer. The face 51 of the batten strip is convex in form, and the ribs 52 extend from the center of the strip for the same purpose as in Fig. 10.

Fig. 12 illustrates a modified form of clip and decorative strip. The clip 60 in Fig. 12 has curved sides 61 instead of the converging straight sides 27 of clips 18. The longitudinally extending ribs 62 of the batten strip 63 are made to conform with these sides. This form has certain advantages over that illustrated in the other figures in that a better interlocking contact is made between the ribs and sides of the clip.

In utilizing the device for ceiling installations, the fastening devices, particularly the clips, are made of heavier construction.

Many changes may be made in details and materials of construction and arrangement of parts without departing from the spirit of the invention or the scope of the appended claims.

What I claim is:

1. A device of the character described adapted for fastening sheets of tile-like material and the like comprising a clip having a channel portion interposed between the edge portions of adjacent sheets and having the base thereof secured to a supporting sub-structure and wing portions extending from the arms of said channel portion over the outer marginal edges of the sheets, a batten strip covering the channel between the sheets and concealing the clip disposed therein, said strip having an inwardly extending tongue element frictionally engaged between the arms of the channel portion.

2. In a fastening device for securing sheets of tile-like material and the like to a sub-structure the combination with a clip having a channel portion interposed between the edge portions of adjacent sheets and having the base thereof secured to the supporting sub-structure, said channel portion having resilient opposed sides each of which terminate in a lateral wing portion extending over the outer marginal edge of an adjacent sheet, of a batten strip adapted to overlie the channel between the adjacent sheets and conceal the clip disposed therein, said strip having an inwardly extending tongue element adapted to be secured by frictional engagement between the resilient sides of the channel whereby the latter are expanded laterally to more firmly secure the sheets and the batten strip secured in position.

3. In a fastening device for securing sheets of tile-like material and the like to a sub-structure the combination with a clip having a channel portion interposed between the edge portions of adjacent sheets and having the base thereof secured to the supporting sub-structure, said channel portion having outwardly converging resilient opposed sides each of which terminate in a lateral wing portion extending over the outer marginal edge of an adjacent sheet, of a batten strip adapted to overlie the channel between the adjacent sheets and conceal the clip disposed therein, said strip having an inwardly extending tongue element adapted to be secured by frictional engage-

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ment between the resilient sides of the channel whereby the latter are expanded laterally to more firmly secure the sheets and the batten strip secured in position.

Signed at New York in the county of New York and State of New York, this 23rd day of March, A. D. 1929.

RALPH E. DRAKE.