This invention relates to improvements in building construction having particular reference to building walls composed of a plurality of prefabricated parts, the general object of the invention being to provide improved means for facilitating the assembling and uniting of such parts in wall-producing order, whereby to provide an exterior or interior building wall possessing low constructional cost, one which may be completely dismantled without loss of parts, and a wall possessing high mechanical strength, resistance to heat transmission and of improved appearance.

Another object of the invention resides in the provision of an improved wall structure for frame type buildings, wherein the wall structure is composed of a plurality of panel units which are connected with an adjoining frame structure by means of removable holding clips, the latter being connected with the adjacent elements of the frame structure and the wall units without the use of nails or other similar types of fastening means.

For a further understanding of the invention, reference is to be had to the following description and the accompanying drawings, wherein:

Fig. 1 is a perspective view of a portion of a wall formed in accordance with the present invention, parts being shown in section to provide a better understanding of the invention.

Fig. 2 is a perspective view of one of the exterior siding panels forming a part of the wall, the view being taken to show the rear side of the panel.

Fig. 3 is an enlarged vertical sectional view disclosing fragmentarily the wall studding, the exterior siding panels and the fastening clips employed in uniting the siding panels with the studding.

Fig. 4 is a detail horizontal sectional view taken on the plane indicated by the line V—V of Fig. 3 and disclosing a stud, the exterior and interior siding panels and the means employed to secure the panels to the studs.

Fig. 5 is a detail vertical sectional view taken on the plane indicated by the line IV—IV of Fig. 3 and showing the longitudinally extending slots formed in the studding members for the reception of the panel-holding clips.

Fig. 6 is a perspective view of one of the clips employed to secure the exterior siding panels.

Fig. 7 is a similar view of one of the clips used to attach the interior finish panels.

Fig. 8 is also a similar view of a modified form of clip which may be used to secure the exterior panels.

Referring more particularly to the drawings, the numeral 1 designates the base or foundation of the building which, in the form of the invention illustrated, is of the poured concrete type. Mounted on the upper surface of the base is a sill 2, the latter being held in connection with the base by means of suitable securing devices, not shown. The sill 2 includes longitudinally extending sections 2a arranged on edge and having the lower portions reinforced by strips 2b and 2c, the latter being positioned on the outer side of the sill and having an upwardly extending rib provided on the upper surface adjacent to the outer edge. Arising from the sill at suitably spaced intervals is a plurality of studs 3. Each of these studs comprises a pair of wood strips 4 which are maintained in spaced relationship and united by means of spacer bars 5. The width of the spacer bars, as shown in Figs. 1 and 4, is less than that of the inner faces of the strips 4, the bars being disposed substantially centrally of said strips so that the inner faces of the latter may be provided with longitudinally extending saw cuts or grooves 6.

The outer wall of the building is composed of a plurality of vertically superposed siding panels 7. Each of these panels comprises a relatively thin outer sheet 8 of wood or other desired material. As shown in Fig. 3, each sheet has its back surface provided with fixed upper and lower bars 9 and 10 respectively which, preferably, are coextensive with the length of the sheet 8 attached thereto. Each lower bar 10 has its under side recessed as at 11 in order to receive the upper edge of the sheet 8 of the next lower panel. Likewise, the upper side of each of the upper bars 9 is longitudinally recessed as at 12 and spaced from the lower surface of the bar 10 of the next adjacent upper panel 7.

To secure these siding panels to the studs 3 in a quickly executed, yet positive manner, the present invention makes use of metallic clips 13 of the type disclosed in Fig. 6. Each of these clips is stamped from a single sheet of metal to include a base portion 14 having arcuate end walls 15. Integrally projecting from the upper edge of each of the base portions 14 is a forwardly and horizontally projecting web 16, the latter being of less width than the length of the adjoining base portion 14. The forward end of each of the webs 16 terminates in a downwardly directed lip 17, the latter having an outwardly and angularly directed lower edge portion 18.

In view of the foregoing, it will be seen that in erecting a wall in accordance with the present
invention, the lowermost of the siding panels 1 is placed against the sill strips 2 and moved downward to position the rib on the sill strip 2 in the recess 11 of the bar 10 carried by the lower panel 1, as shown in Fig. 1. The engagement between the bar 10 and the rib on strip 2c prevents the lower portion of the lower panel from moving away from the building frame. The upper portion of the panel is secured to the frame through the use of the clips 13. Thereafter, the siding panels are placed in superposed relationship, one upon the other, with the sheets 8 of adjoining panels arranged in overlapping and watershielding relationship, the upper edge of each sheet being received within the recess 11 of the bar 10 of the next adjacent upper panel. This arrangement serves to prevent the lower portions of the panels from moving away from the walls. The upper portions of the panels in turn are united to the siding members 2 by means of the clips 12. Due to the spacing of the strips 4 of each stud member, the clips at the time of insertion are turned, as shown by dotted lines in Fig. 5, so that the length of the base portion 4 of each clip will be so disposed as to be received within the space provided between the strips 4. When the base portion is then aligned with the saw cuts or grooves 5, the clip is rotated about 90 degrees so that the arcuate ends 15 thereof will be positioned within the grooves or saw cuts 6, thus preventing the clips from being outwardly withdrawn from the stud members, and are slidably united in connection therewith. The overhanging lips 17 of the clips are then positioned in the recesses 12 of the bars 3, fastening the siding members or panels to the studs. This system of assembly is followed throughout the entire height of the building wall. It will be noted that the siding members are secured to the studs without the use of nails or special tools. Moreover, the operation may be expeditiously carried out. Similar convenience is of course obtainable in the dismantling of the wall when such a condition is occasioned. The construction employed enables complete dismantling without injury to any of the parts comprising the wall. All of the parts are preferably made to facilitate specifications, so that they may be shipped in a collapsed condition in compact groupings and then, without any fastening or dressing at the time of erection, assembled in their proper relative order.

As illustrated in Figs. 3 and 6, the side edges of the web portions 16 of the clips are provided with down-turned sharpened tongues 19 which are forced into the bars 3, when the lips 17 are positioned in the recesses 12, to more positively secure the clips and panels in place.

While the lower portions of the lips 17 are outwardly turned to a slight degree to the end that when the clips are engaged with the bars 3, the panels will be forced snugly into contact with the outer edges of the studs, the engagement may be made still more forceful by forming the clips of spring steel and providing a slight bow 20 between the tongues 19 and the base 14, as shown in Fig. 8. When this modified form of clip is formed in engagement with the panel bar, the bowed portion 20 will be flexed and the panel firmly held in contact with the studs.

In our prior copending application, Serial No. 299,880, filed October 17, 1939 now Patent No. 2,266,599, we disclosed siding panels adapted for detachable siding by means of metallic clips carried by the siding members. Also, said application discloses the siding members as equipped along their rear faces with strips of thermal insulation. The present invention is contrasted from our previous disclosure by the fact that the clips are detachably connected with both the siding and stud members, so that they are not so apt to become bent or distorted during shipment or handling. Furthermore, in the present invention, the thermal insulation is separately secured by any suitable means to the stud members rather than being directly connected with the siding members, another feature which avoids injuring the insulation during shipment or handling and, in addition, provides for an improved weather-excluding construction.

Thus, as shown in Figs. 1 and 4, rectangular panels 21 of a compressed or molded insulation, such as mineral fibers or the like, are positioned between the outer strips 4 of the studs. Preferably, the panels 21 are each of room height and of a width corresponding to the spacing between adjoining stud members. The lower edges of the panels may rest on the sill structure 2 and their upper edges may engage with the ceiling or roof girts, not shown. The outer surfaces of the panels 21 are positioned against the rear surfaces of the upper bars 3 mounted on the inner surfaces of the siding members 1 which maintain the insulating panels in spaced relation from the body portions of said siding members. The panels 21 are held in proper positions by suitable fasteners which do not require the use of nails or special tools for their application.

The interior of the composite wall structure is completed by means of inner panels 22, which may be formed from any desired materials and suitably finished to provide an attractive room wall. The panels 22 are of rectangular form and are disposed for engagement with the inner edges of the strips 4, as shown in Fig. 4. The panels have reduced marginal edges 23 which are engaged by the outer legs of U-shaped metallic fastening elements 24, the inner legs of the fastening elements being received within saw cuts or grooves 25 provided lengthwise in the strip 4.

In combination with the panels 22, the inner wall is finished by means of parting strips 26. Each of these parting strips is formed with a head 27 having reversely beveled side surfaces 28, which are adapted to have any engagement with resilient lips 29 projecting from the fastening elements 24.

It will thus be seen that we have provided a building wall composed of prefabricated parts which may be readily and securely assembled at the time of wall erection. The construction is particularly suitable for residential buildings of all types, providing a wall construction of high mechanical strength, durability and rigidity, one which will highly resist the transmission of heat and a wall of attractive appearance. All parts may be readily assembled without the use of nails or special tools, and since the parts are of prefabricated construction, it is unnecessary at the time of erection to specially shape or fit any of the parts.
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cent to the upper part thereof, said bar being provided with a shoulder, and a plurality of metallic fastening clips removable and slidably mounted in the grooves of said studs, each of said clips having a forwardly directed lip portion adapted for engagement with the shoulder of one of said panel member bars, whereby to retain said panel members against lateral movement with respect to said studs.

2. In building wall construction, a plurality of relatively spaced stationarily supported vertically extending studs, each of said studs having the front thereof provided with a longitudinally extending inwardly directed recess, each recess having the side walls thereof formed with oppositely disposed registering longitudinally extending grooves, a plurality of horizontally extending siding members arranged in vertically superposed overlapping order at the fronts of said studs, each of said siding members consisting of an outer panel, spaced upper and lower horizontally extending bars secured to the rear surface of each of said panels, the lower of said bars being recessed to receive the upper edge portion of the panel of the next adjacent lower siding member, the upper part of each panel being provided with a longitudinally disposed shoulder, and a plurality of relatively independent fastening clips for detachably securing said siding members to said studs, each of said clips consisting of a widened base portion having the ends thereof slidably and removable positioned in the grooves of said stud recesses and including further a forwardly directed lip disposed for engagement with the shouldered portions of the upper of said siding members.

3. In prefabricated building wall construction, a plurality of vertically disposed stationarily supported and relatively spaced studs, each of said studs consisting of a pair of transversely spaced vertically extending strips and an intervening filler bar, said bar being of less width than said strips to provide on opposite sides of said studs inwardly disposed longitudinally extending recesses, an outer wall construction composed of a plurality of horizontally extending vertically superposed siding members, fastening clips removable positioned in the front recess of each stud for detachably unifying said siding members with said studs, an inner wall construction composed of a plurality of panels, fastening clips positioned in the rear recess of each of said studs for unifying said inner wall panels with said studs, sheets of thermal insulation positioned between said studs and said inner and outer wall members, and removable fasteners engaged with said studs for retaining said insulated sheets in their mounted positions.

4. In wall construction for buildings, a plurality of vertically extending laterally spaced studs, each thereof having a pair of spaced rails with complementary grooves formed in the opposed faces adjacent to the inner and outer edges, finish panel means disposed in engagement with the inner and outer edges of said studs to form inner and outer wall surfaces, and clip means for preventing separation of said finish panel means from said studs, said clip means having base and panel engaging portions, the opposite edges of the base portions being removable positioned in the grooves in said studs.

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