United States Patent

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[54] **DRYWALL JOINT SYSTEMS AND METHOD FOR MAKING THE SAME**
17 Claims, 11 Drawing Figs.

[52] **U.S. Cl.** **52/309,** 52/173, 52/417, 52/746, 156/71, 156/275, 161/44
[51] **Int. Cl.** **E04b 2/72**
[50] **Field of Search** 52/127, 173, 309, 417, 741, 746; 161/43, 44; 156/71, 275

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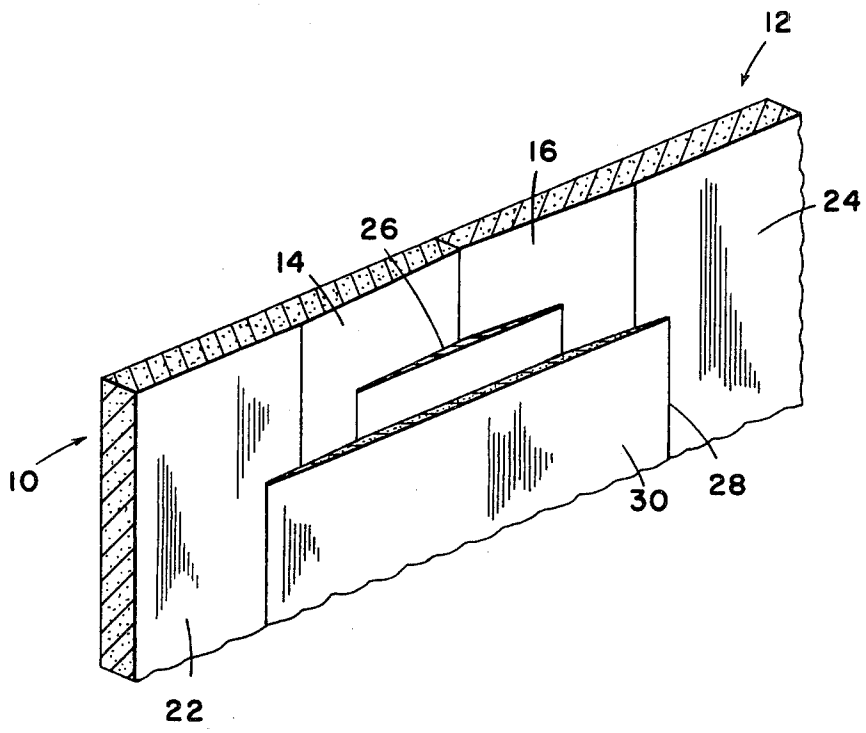
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ABSTRACT: A method for forming drywall joint systems wherein abutting edges of adjacent wallboard panels are adjoined by a thermoplastic adhesive substance which acquires its adhesive properties when heated and allowed to cool. The thermoplastic adhesive is applied to the joint formed by adjacent wallboard panels after they are erected or it is preapplied and then reheated after wallboard erection. Joint systems formed according to the method may consist of the thermoplastic adhesive substance alone or with other joint-forming materials such as joint-reinforcing tape and/or a cementitious adhesive.

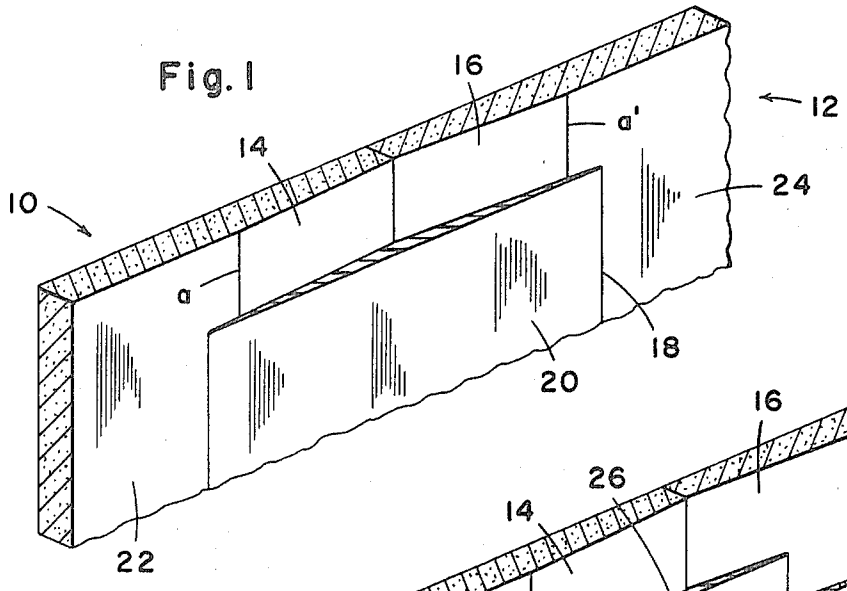


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SHEET 1 OF 3

Fig. 1



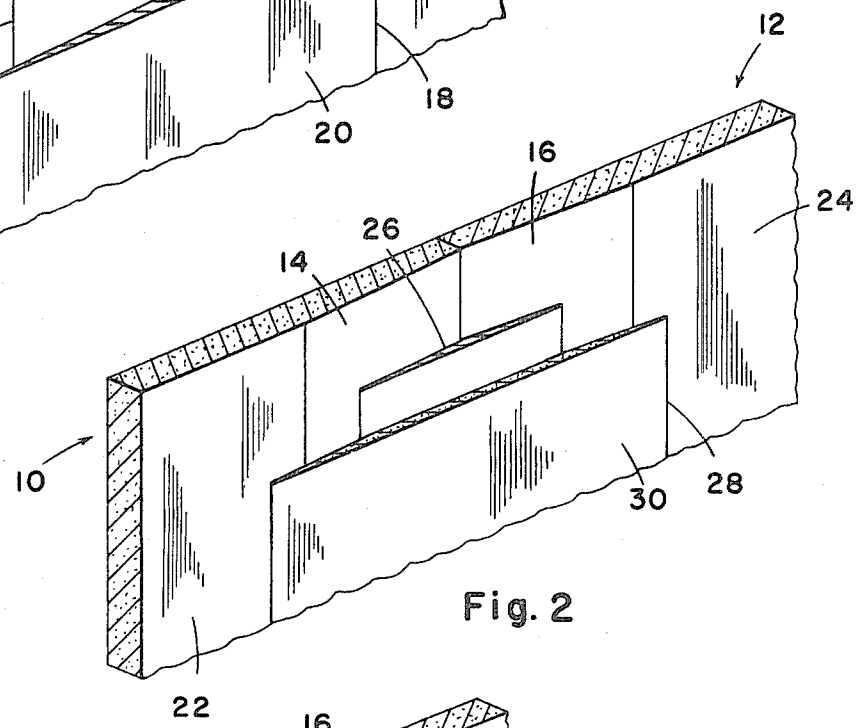


Fig. 2

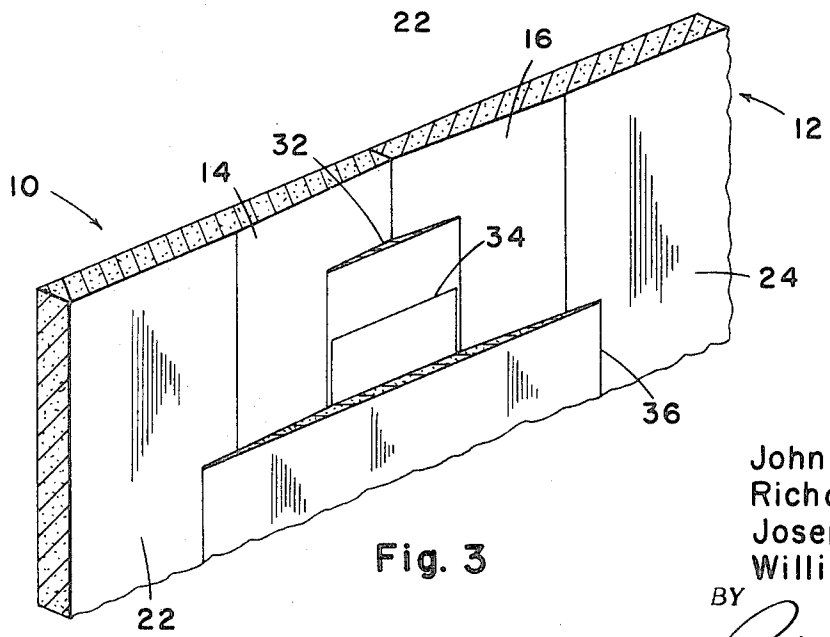


Fig. 3

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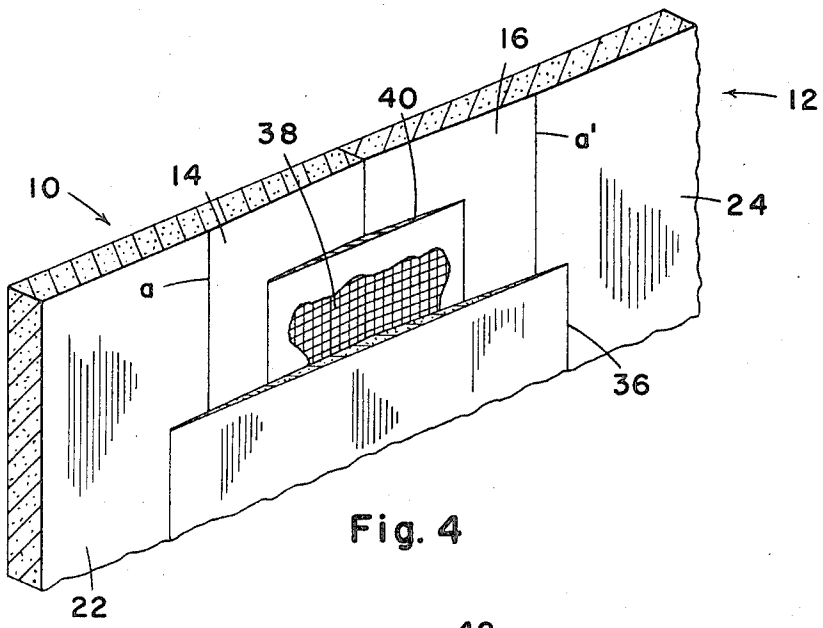


Fig. 4

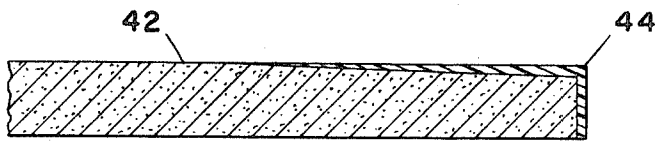


Fig. 5

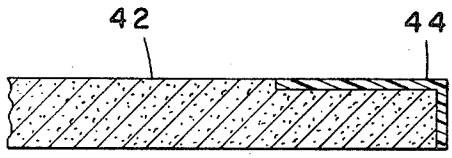


Fig. 6

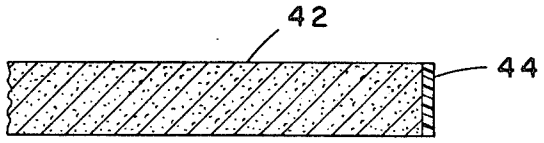


Fig. 7

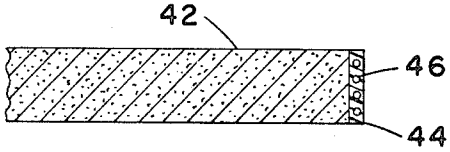


Fig. 8

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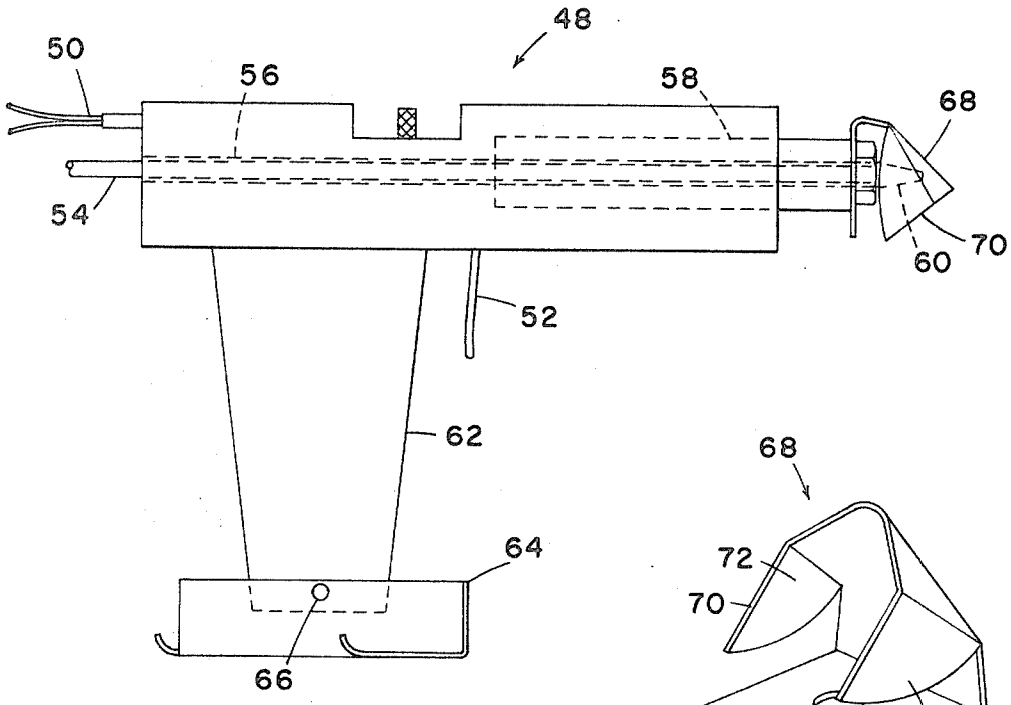


Fig. 9

Fig. 11

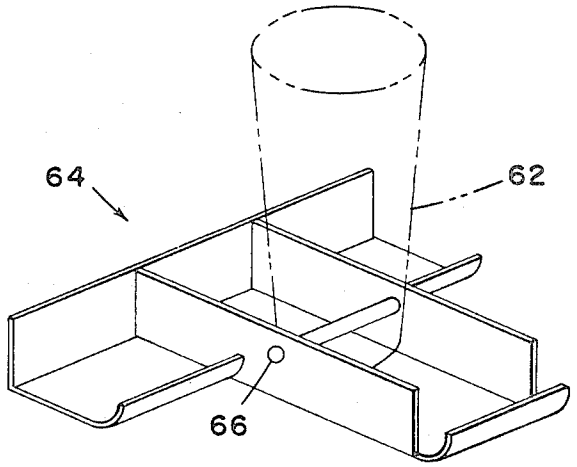


Fig. 10

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DRYWALL JOINT SYSTEMS AND METHOD FOR MAKING THE SAME

BACKGROUND OF THE DISCLOSURE

Drywall construction commonly involves applying a plurality of wallboard panels to framing thus forming joints between the adjacent board panels. A common method of concealing these joints consists of adhering thereover a narrow paper joint tape by means of an aqueous cementitious adhesive. After the adhesive has been allowed to dry for a period of about one day a thin layer of the cementitious adhesive is smoothly applied thereover, it being somewhat wider than the paper tape and tapered out to very thin edges. This second layer of adhesive material is allowed to dry for about one day and another thin layer of adhesive, somewhat wider, is applied thereover. In this manner a final substantially monolithic wall surface appearance is provided when the complete surface is covered with a decorative coating of paint or the like.

The paper tape provides reinforcing strength to the joint system, preventing cracking of the adhesive along the joint line. With this common technique for concealing drywall joints there often develops a slight ridge or bead on the wall surface directly over the joint. This defect can mar the monolithic appearance of the wall surface and costly repairs may be required to correct the condition. Moreover this method of forming joint systems requires a relatively long period of time due to the necessity of waiting about one day for each layer of adhesive to dry before the next layer can be applied.

SUMMARY OF THE INVENTION

The present invention relates to the use of thermoplastic adhesive substances, commonly referred to as hot melt adhesives, to form joint systems between adjacent wallboard panels. The thermoplastic adhesives may be employed alone or together with other joint-forming materials such as a strip of a joint-reinforcing tape and/or a cementitious adhesive. These thermoplastic adhesive substances can be conveniently applied by heating them to a temperature at which they acquire fluid properties and then spreading a layer thereof over the joint. They return to the temperature at which they solidify very quickly whereupon a decorative coating or an additional layer of joint-forming material can be immediately applied thereover. Joint systems formed in accordance with the practice of the invention are at least comparable in strength and quality with those made by the prior known method with the advantage that they may be made in a significantly shorter period of time.

It is an object of this invention to provide a novel method for concealing drywall joints in simulated monolithic wall construction and further to provide a method requiring less time than was heretofore necessary to form joints of a quality at least equal to those made by the prior known methods. It is another object to provide such a method which forms joints which have improved resistance to beading. It is a further object to provide a simulated monolithic drywall surface including joints formed by the novel method.

Still another object is to provide novel wallboard panels which are adapted for forming the novel joint systems of the invention. It is yet another object to provide a novel apparatus for applying the thermoplastic adhesive substances to drywall joints at a job site.

These and other objects and advantages of the present invention will be more fully apparent when considered in relation to the preferred embodiments thereof as set forth in the specification and as shown in the drawings in which:

FIG. 1 through FIG. 4 are perspective views of sections of simulated monolithic wall surfaces including drywall joint systems formed in accordance with the invention.

FIG. 5 through FIG. 8 are end views of novel wallboard panels manufactured in accordance with the invention.

FIG. 9 represents, in purely diagrammatical fashion, a side view of an apparatus suitable for use in forming the joint systems of the invention.

FIG. 10 is a perspective view of a preferred embodiment of the positioning slide shoe of the apparatus shown in FIG. 9.

FIG. 11 is a perspective view of a preferred embodiment of the adhesive containing screed element of the apparatus shown in FIG. 9.

It should be understood that when reference is made herein to hot melt adhesives we mean thermoplastic substances which are composed of a thermoplastic polymeric material and a diluent system. The hot melt adhesives may be generally defined as 100 percent nonvolatile thermoplastic substances which exist in a solid form at room temperature and which become sufficiently fluid or tacky at elevated temperatures to be employed as adhesives.

The polymer is the essential ingredient in any hot melt adhesive system. Almost any thermoplastic polymeric material with adequate resistance to heat degradation can be suitable for incorporation into a hot melt adhesive. Examples of film-forming resins which are commonly used for this purpose are polyethylene, polyvinyl acetate, ethylene-vinyl acetate copolymers and the like. As the molecular weights of the polymers increase it may be generally said that the viscosities, strengths and mechanical properties of the adhesive systems increase.

The diluent system, which is usually a blend of materials such as a wax, a plasticizer, a heat stabilizer and perhaps dyes, an inert filler or an extender, makes it possible to utilize the properties of the polymer. The diluent functions as the vehicle for the polymer, lowering its viscosity thus making it more convenient to apply as well as enhancing its wetting ability and adhesive strength.

According to the invention the hot melt adhesives are utilized as the basis for various joint systems formed between adjacent drywall panels such as gypsum wallboard. In one commonly used form of gypsum wallboard, a generally rectangular panel, the front surfaces of the individual board panels have a substantially flat central surface disposed between recessed marginal surfaces of substantially greater width than depth extending in the longitudinal direction. The recessed marginal surface starts at a distance of from about 2½ to 3 inches from the panel edge and slopes downwardly to a maximum depth of from about 0.050 to about 0.070 inch. The invention will be described in detail with respect to this form of gypsum wallboard although it should be recognized that it may be practiced with various types of drywall materials as well as with gypsum wallboard having differently shaped edges.

When these wallboard panels are erected in edgewise abutting relationship on framing, the abutting edges of adjacent panels thus define a shallow recessed area which extends on both sides of the joint. Subsequently this recessed area, which is commonly known within the industry as the taper area, is filled with joint-concealing material. The particular joint system used must have a smooth, substantially flat outer surface which is substantially level with the central surfaces of the wallboard panels, somewhat wider than the taper area and which tapers out to very thin edges. The novel joint systems of the invention can consist of only the hot melt adhesive or a base layer of the thermoplastic adhesive covered with one or more layers of another suitable joint-forming material. Narrow strips of joint-reinforcing materials may be embedded within the joint systems for added strength where it is so desired. It is preferred to use paper joint tape or open mesh fiber cloths made from relatively strong material such as glass fiber to reinforce the drywall joints. The thermoplastic adhesive is preferably applied in a layer having a maximum thickness of from about 0.010 to about 0.070 inch. The width of the layer can vary considerably, it being dependent upon factors such as the type of joint system formed, the method used to apply the thermoplastic adhesive to the joint and the type of drywall as well as the shape of its edges as will be seen further below.

Referring to the drawings, FIG. 1 is a perspective view of a simulated monolithic wall construction including a joint made in accordance with a preferred embodiment of the invention. Wallboard panels 10 and 12 are erected in a manner such that the recessed marginal surfaces thereof 14 and 16 respectively define a taper area extending from line a transversely across the wall surface to line *a'*. Disposed over the joint formed between the abutting edges of the panels is a layer of a hot melt adhesive 18 which has a smooth, substantially flat outer surface 20. The layer of adhesive 18 is somewhat wider than the taper area and is tapered out to very thin edges. The outer surface 20 of the adhesive layer 18 is substantially level with the substantially flat central surfaces 22 and 24 of panels 10 and 12 respectively thus providing an overall wall surface which will give an attractive monolithic appearance when covered with a layer of a decorative coating composition.

FIG. 2 is a perspective view of a simulated monolithic wall construction including a joint system formed in accordance with another preferred embodiment of the invention. A layer of a thermoplastic adhesive 26 which covers about three-quarters of the surface of the taper area is applied over the joint. A thin covering layer of an aqueous cementitious adhesive 28, somewhat wider than the taper area is applied over the base layer of thermoplastic adhesive 26. The cementitious adhesive layer 28 is formed with a smooth substantially flat outer surface 30 which is substantially level with the substantially flat central surfaces 22 and 24 of wallboard panels 10 and 12 respectively.

FIG. 3 is illustrative of still another preferred embodiment of the invention. This joint system consists of a base layer of a thermoplastic adhesive 32, a strip of paper joint tape 34 adhered thereover and having a width substantially equal thereto, and a thin covering layer of a cementitious adhesive 36 formed with the same characteristics described with respect to the layer of cementitious adhesive in FIG. 2.

FIG. 4 illustrates the same type of joint system described in FIG. 3 with the exception that the joint-reinforcing material is an open mesh fiber material 38 which is substantially encased within the layer of thermoplastic adhesive 40.

The joint systems formed in accordance with the invention are capable of being finished in a significantly shorter period of time than is required for those made with the prior known method. When the hot melt adhesives are heated to elevated temperatures sufficient to give them fluid properties—in most cases 300° to 400° F—they can readily be applied to drywall joints. These adhesives subsequently cool very rapidly thus returning to a solid form in a period of about a minute or less. A layer of a decorative coating composition can then be immediately applied thereover. Where it is desired to dispose a covering layer of another joint-forming material, e.g. an aqueous cementitious adhesive, it is not necessary to observe any extended waiting period before doing so. Thus this novel method of forming drywall joints eliminates the necessity of waiting about one day after the initial layer of adhesive has been laid down before the next layer can be applied as has heretofore been the case. This reduction in the time required to form joint systems can lead to significant economies for contractors in the building industry. Moreover, these novel joint systems have been shown to be of a quality at least equal to those made by the prior known method. Strength tests have shown that joint systems employing the thermoplastic adhesives perform favorably in comparison with those utilizing paper joint tape embedded in an aqueous cementitious adhesive.

Another advantage of forming joint systems with the method of the present invention is that it is possible thereby to decrease the tendency of the joint to bead. "Beading " is a joint deformity which appears as a line or ridge along the joint. Unfortunately when this condition occurs it is not apparent at the time the joint treatment is completed and may require several months to develop and manifest itself. When it does occur costly redecorating procedures may be necessary to correct the defect. This condition appears to be due to a number of factors all of which are not completely understood in view of the difference of opinion which exists within the industry relative to the cause of the problem and methods for preventing its occurrence. It is generally agreed, however, that moisture is one of the most significant factors causative of this condition. With the joint systems of the invention at least a substantial part of the wallboard surfaces in the joint area are covered with a hot melt adhesive most of which are highly water resistant. By using a water-resistant thermoplastic adhesive the amount of water which could be absorbed by the wallboard in the joint area is greatly diminished thus reducing the possibility of beading occurring.

Since the hot melt adhesives effect an instant bond with the drywall panels these novel joint systems can be utilized to great advantage in industrialized or prefabricated construction where complete wall surface assemblies are constructed at a manufacturing plant for later erection at a building site. The thermoplastic adhesives, by effecting an instant bond, will rigidize the wall surface assembly sufficiently to allow it to be immediately moved within the plant or transported to the building site. The ability to move these assemblies immediately after the joint system is formed can greatly increase the rate at which they can be made by the manufacturer.

Various methods can be utilized to form drywall joints with hot melt adhesives. One such technique consists of coating the adhesive on the longitudinal edges of the individual panels at the wallboard manufacturing plant. The thermoplastic substance can conveniently be applied to the panels by heating it to an elevated temperature at which it becomes fluid and coating it on the appropriate edges as the panels proceed along a continuous conveyor belt. When this application technique is employed it is preferred to cover the edge surface completely with the adhesive.

FIG. 5, FIG. 6 and FIG. 7 are illustrative of some of the edge formations which the wallboard panels could have and the manner in which a layer of thermoplastic adhesive could be disposed thereover. These are end views of a section of the wallboard panels 42 which have a layer of hot melt adhesive 44 adhered thereto. The panels can be erected at a building site by the procedures normally employed since it is possible to drive a nail or a screw through the adhesive substance. When the panels are erected the adhesive is then heated to cause it to become substantially fluid thus enabling the adhesive layers on the adjacent panel edges to flow together. An integral layer of the adhesive is formed over the joint when the adhesive cools.

A number of techniques may be utilized to heat the adhesive after the wallboard panels have been erected. Thin, high resistance electrical wires can be embedded in the adhesive layer as it is applied to the panels at the wallboard manufacturing plant with the ends of the wires being allowed to remain exposed. After erection of the panels the exposed wires can be connected to an electrical power source, e.g. a wet or dry cell battery, which is suitable to generate an electrical current sufficient to cause the adhesive to become substantially fluid. The temperature of the adhesive can be quickly elevated to the level necessary to accomplish this result in this manner. After the integral layer of adhesive has been formed over the joint the wires can be left embedded in the adhesive layer with the exposed ends either removed or concealed with a covering layer of another joint-forming material. It is preferred to have about four to six wires for a layer of adhesive having a width of one-half inch; however, the number of wires necessary and the current required are dependent upon the particular hot melt adhesive applied to the panels. FIG. 8 is an end view of a section of a wallboard panel 42 having the thin high resistance electrical wires 46 located in the adhesive layer 44. The thermoplastic adhesive can also be heated to a substantially fluid form by means of a heat gun or by dielectric heating.

The hot melt adhesive can also be applied to a drywall joint after the individual panels have been erected to form a wall surface. The adhesive is heated to a fluid state and applied to the joint by means adapted to form a smooth layer thereof.

Some of the fluid substance will flow into the area between the abutting edge surfaces thus adding to the strength of the bond at the joint. The extent to which the edge surfaces of the wallboard panels are covered with adhesive when this technique is used will be dependent upon factors such as the viscosity of the adhesive and how closely the adjacent panels are positioned relative to each other. It should be recognized, however, that joint systems of high quality may be formed without any substantial part of the abutting edge surfaces being covered with the adhesive.

The hot melt adhesive may also be applied to a drywall joint by initially adhering it to a strip of a joint-reinforcing material and utilizing the latter as a carrier for the adhesive. An integral unit can be formed by adhering a layer of the adhesive to one side of the reinforcing material or by substantially encasing the latter in the adhesive. Where the joint-reinforcing material is a continuous web, e.g. a paper joint tape, or the like it is preferred to adhere a layer of adhesive to one side of the material. When an open mesh fiber material is used it may be substantially completely encased in a layer of the adhesive or only the strands of the material may be coated therewith. The combination of joint-reinforcing material and hot melt adhesive is heated to render the latter substantially tacky and then adhered to the wallboard surface over the joint.

FIG. 9 is a schematic representation of a preferred embodiment of an apparatus which is capable of efficiently applying a layer of a hot melt adhesive to a drywall joint after the wallboard panels have been erected at a building site. The apparatus is a standard hot melt adhesive applicator which has been specifically adapted for this purpose. The basic applicator is available from the United Shoe Machinery Company of Canada, Ltd. It should be understood that the novelty of the apparatus resides in the modifications made thereto.

The applicator 48 is electrically powered, having a cord 50 which can be connected into any standard electrical outlet and is activated by means of a trigger 52. The thermoplastic adhesive is fed into the applicator in the form of a cylindrical cord 54, advanced forwardly through an adhesive guide tube 56 into a melt body 58 where it is heated to an elevated temperature and exits from the apparatus as a fluid through a nozzle 60. The handle 62 of the applicator has pivotally attached thereto a positioning sliding shoe 64 by means of a connecting pin 66 which allows the applicator to be rotated over an arc of about 90° in a plane perpendicular to that of the positioning sliding shoe 64. A screed element 68 which is formed so as to also define an adhesive reservoir area is fitted on to the applicator extending forwardly of the nozzle 60. The screed element 68 has opposite sides adjoined at a central portion and a bottom edge 70 which is adapted to lie in a plane common with the bottom plane of the sliding shoe when the apparatus is in operative position.

The positioning sliding shoe 64 is adapted to move smoothly over a substantially flat surface. It is held against the wall surface across the joint positioning the applicator parallel with the direction of the joint. The applicator is rotated forward until the bottom edge 70 of the screed element 68 contacts the wall surface. Initially an amount of fluid adhesive sufficient to substantially fill the adhesive reservoir area is allowed to exit from the nozzle while the applicator remains stationary. It is necessary to maintain the adhesive reservoir area substantially filled with fluid adhesive as the apparatus is being moved along the joint in order to ensure a flow sufficient to form a substantially uniform layer of the adhesive over the length of the joint. The screed element is preferably metal and is attached to the apparatus in a manner such that it becomes heated when the apparatus is activated thus preventing the fluid adhesive from solidifying before it can be applied to the joint. The dimensions of the layer of adhesive disposed over the joint by the apparatus are controlled by the width of the bottom edge of the screed element and the angle at which it contacts the wall surface.

FIG. 10 is an elevated perspective view of a preferred embodiment of the positioning sliding shoe 64. FIG. 11 is a perspective view of a preferred embodiment of the screed element 68 showing the bottom edge thereof 70 and the opposite sides 72 and 74 thereof.

Numerous hot melt adhesives are commercially available at the present time. These substances can have greatly varying viscosities, melting temperatures, bonding strengths, setting times, etc. It must be left to the practitioner to determine which particular adhesive would be best suited for a specific application with regard to the type of wallboard, the method of application and various other considerations which are readily apparent to those skilled in the art. The method of the invention allows the formation of drywall joint systems of high quality in significantly shorter periods of time than were necessary with the prior known method thus enabling those engaged in the field of simulated monolithic wall construction to achieve substantial economies.

Having given a detailed description of the preferred embodiments of the invention so that those skilled in the art may practice the same we contemplate that variations may be made therein.

We claim:

1. In simulated monolithic wall construction the method of concealing the joints formed between adjacent wallboard panels comprising the steps of:

a. heating a solid thermoplastic adhesive comprising a thermoplastic polymer to an elevated temperature whereat it has fluid properties,

b. applying said fluid adhesive to a wall surface formed by at least two wallboard panels erected in substantially edge abutting relationship, said panels each having an outer face surface arranged in substantially coplanar relationship with each other and an abutting edge surface which is substantially perpendicular to said outer face surface, with said adhesive adjoining at least the portion of each of the abutting edge surfaces of said wallboard panels immediately adjacent the respective outer face surfaces thereof, and

c. cooling said thermoplastic adhesive to ambient temperature thereby returning it to a solid form

whereby a rigid unitary structure resistant to displacement or distortion otherwise caused by external effects is formed.

2. The method as defined in claim 1 wherein the fluid adhesive applied to the wall surface is in the form of a layer contacting at least the portion of said outer face surfaces of said wallboard panels immediately adjacent to the abutting edge surfaces thereof, said layer having a smooth substantially flat outer surface and tapering out to thin edges.

3. In simulated monolithic wall construction the method of concealing the joints formed between adjacent wallboard panels comprising the steps of:

a. heating a solid thermoplastic adhesive comprising a thermoplastic polymer to an elevated temperature whereat it has fluid properties,

b. applying said fluid adhesive to a wall surface formed by at least two wallboard panels erected in substantially edge abutting relationship, said panels each having an outer face surface arranged in substantially coplanar relationship with each other and an abutting edge surface which is substantially perpendicular to said outer face surface, with said fluid adhesive adjoining at least the portion of each of the abutting edge surfaces of said wallboard panels immediately adjacent the respective outer surfaces thereof,

c. cooling said thermoplastic adhesive to ambient temperature thereby returning it to a solid form

d. disposing thereover at least one layer of an aqueous cementitious adhesive comprising a minor amount of binder material, a major amount of inorganic filler material and a quantity of water sufficient to form a pastelike mixture of workable consistency, each layer of said cementitious adhesive being wider than the layer of thermoplastic adhesive or cementitious adhesive immediately beneath it

and having a smooth substantially flat outer surface tapering out to thin edges, and

e. drying each layer of said cementitious adhesive before a succeeding layer is laid down thereover

whereby a rigid unitary structure resistant to displacement or distortion otherwise caused by external effects is formed.

4. The method as defined in claim 3 wherein the fluid adhesive applied to the wall surface is in the form of a layer contacting at least the portion of said outer face surfaces of said wallboard panels immediately adjacent to the abutting edge surfaces thereof, said layer having a smooth, substantially flat outer surface and tapering out to thin edges.

5. In simulated monolithic wall construction the method of concealing the joints formed between adjacent wallboard panels comprising the steps of:

a. heating a narrow strip of joint-reinforcing tape having adhered thereto a solid thermoplastic adhesive comprising a thermoplastic polymer to an elevated temperature whereat said adhesive becomes substantially tacky,

b. applying said strip of tape to a wall surface formed by at least two wallboard panels erected in substantially edge abutting relationship, said panels each having an outer face surface arranged in substantially coplanar relationship with each other and an abutting edge surface which is substantially perpendicular to said outer face surface with said tape adjoining at least the portion of said face surfaces of said panels immediately adjacent said abutting edges thereof and said thermoplastic adhesive contacting said portion of the outer surfaces of said panels, and

c. cooling said strip of tape and said thermoplastic adhesive to ambient temperature thereby returning the adhesive to a solid form

whereby a rigid unitary structure resistant to displacement or distortion otherwise caused by external effects is formed.

6. In simulated monolithic wall surface construction the method of concealing the joints formed between adjacent wallboard panels comprising the steps of:

a. heating a narrow strip of joint-reinforcing tape having adhered thereto a solid thermoplastic adhesive comprising a thermoplastic polymer to an elevated temperature whereat said adhesive becomes substantially tacky,

b. applying said strip of tape to a wall surface formed by at least two wallboard panels erected in substantially edge abutting relationship, said panels each having an outer face surface arranged in substantially coplanar relationship with each other and an abutting edge surface which is substantially perpendicular to said outer face surface with said tape adjoining at least the portion of said face surfaces of said panels immediately adjacent said abutting edges thereof and said thermoplastic adhesive contacting said portion of the outer surfaces of said panels,

c. cooling said strip of joint-reinforcing tape and said thermoplastic adhesive to ambient temperature thereby returning the adhesive to a solid form,

d. disposing thereover at least one layer of an aqueous cementitious adhesive comprising a minor amount of binder material, a major amount of inorganic filler material and a quantity of water sufficient to form a pastelike mixture of workable consistency, each layer of said cementitious adhesive being wider than the strip of tape or layer of cementitious adhesive immediately beneath it and having a smooth substantially flat outer surface tapering out to thin edges, and

e. drying each layer of said cementitious adhesive before a succeeding layer is laid down thereover

whereby a rigid unitary structure resistant to displacement or distortion otherwise caused by external effects is formed.

7. The method as defined in claim 6 in which said joint-reinforcing tape is a paper tape.

8. A simulated monolithic wall comprising at least two wallboard panels erected in substantially edge abutting relationship forming a joint therebetween, said panels each having an outer face surface arranged in substantially coplanar relationship with each other and an abutting edge surface which is substantially perpendicular to said outer face surface and at least the portion of said abutting edge surfaces of said panels immediately adjacent said face surfaces thereof being adjoined throughout the extent of the joint by a set thermoplastic adhesive adhered to said portion of said edge surfaces, said set thermoplastic adhesive forming with said panels a rigid unitary structure resistant to displacement or distortion otherwise caused by external effects.

9. A simulated monolithic wall as defined in claim 8 wherein substantially the complete abutting edge surfaces of the adjacent panels are adjoined throughout the extent of the joint by said set thermoplastic adhesive.

10. A simulated monolithic wall as defined in claim 8 wherein said set thermoplastic adhesive is adhered to the portion of the respective substantially coplanar outer face surfaces of said panels at least immediately adjacent the abutting edge surfaces of said wallboard panels.

11. A simulated monolithic wall as defined in claim 9 wherein said set thermoplastic adhesive is adhered to the portion of the respective substantially coplanar outer face surfaces of said panels at least immediately adjacent the abutting edge surfaces of said wallboard panels.

12. A simulated monolithic wall comprising at least two wallboard panels erected in substantially edge abutting relationship forming a joint therebetween, said panels each having an outer face surface arranged in substantially coplanar relationship with each other and an abutting edge surface which is substantially perpendicular to said outer face surface, at least the portion of said abutting edge surfaces of said panels immediately adjacent said face surfaces thereof being adjoined throughout the extent of the joint by a set thermoplastic adhesive adhered to said portion of said edge surfaces, and at least one layer of a hardened cementitious adhesive comprising a minor amount of binder material and a major amount of inorganic filler material disposed over said thermoplastic adhesive, each layer of said cementitious adhesive being wider than the thermoplastic adhesive or cementitious adhesive immediately beneath it, said set thermoplastic adhesive and said hardened cementitious adhesive forming with said panels a rigid unitary structure resistant to displacement or distortion otherwise caused by external effects.

13. A simulated monolithic wall as defined in claim 12 wherein substantially the complete abutting edge surfaces of the adjacent panels are adjoined throughout the extent of the joint by said set thermoplastic adhesive.

14. A simulated monolithic wall surface as defined in claim 12 wherein said set thermoplastic adhesive is adhered to the portion of the respective substantially coplanar outer face surfaces of said panels at least immediately adjacent the abutting edge surfaces of said wallboard panels.

15. A simulated monolithic wall as defined in claim 13 wherein said set thermoplastic adhesive is adhered to the portion of the respective substantially coplanar outer face surfaces of said panels at least immediately adjacent the abutting edge surfaces of said wallboard panels.

16. A simulated monolithic wall comprising at least two wallboard panels erected in substantially edge abutting relationship forming a joint therebetween, said panels each having an outer face surface arranged in substantially coplanar relationship with each other and an abutting edge surface which is substantially perpendicular to said outer face surface, and a strip of joint-reinforcing tape having a set thermoplastic adhesive adhered thereto adjoining the portion of the outer face surface of the respective panels at least immediately adjacent said abutting edge surfaces thereof with said set thermoplastic adhesive contacting said portions of the outer face surfaces of said panels, said set thermoplastic adhesive and said joint-reinforcing tape forming with said panels a rigid unitary structure

resistant to displacement or distortion otherwise caused by external effects.

17. A simulated monolithic wall comprising at least two wallboard panels erected in substantially edge abutting relationship forming a joint therebetween, said panels each having an outer face surface arranged in substantially coplanar relationship with each other and an abutting edge surface which is substantially perpendicular to said outer face surface, a strip of joint-reinforcing tape having a set thermoplastic adhesive adhered thereto adjoining the portion of the outer face surface of the respective panels at least immediately adjacent the abutting edge surfaces thereof with said set thermoplastic adhesive contacting said portions of the outer face surfaces of said panels and at least one layer of a hardened cementitious adhesive comprising a minor amount of binder material and a major amount of inorganic filler material, each of said layers of said cementitious adhesive being wider than said strip of joint-reinforcing tape or layer of cementitious adhesive immediately beneath it, said set thermoplastic adhesive, said joint-reinforcing tape and said hardened cementitious adhesive forming with said wallboard panels a rigid unitary structure resistant to displacement or distortion otherwise caused by external effects.