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(54) **INTERLOCKING SELF-ALIGNING CLADDING PANEL FOR FLOORS, WALLS, CEILINGS, OR THE LIKE**

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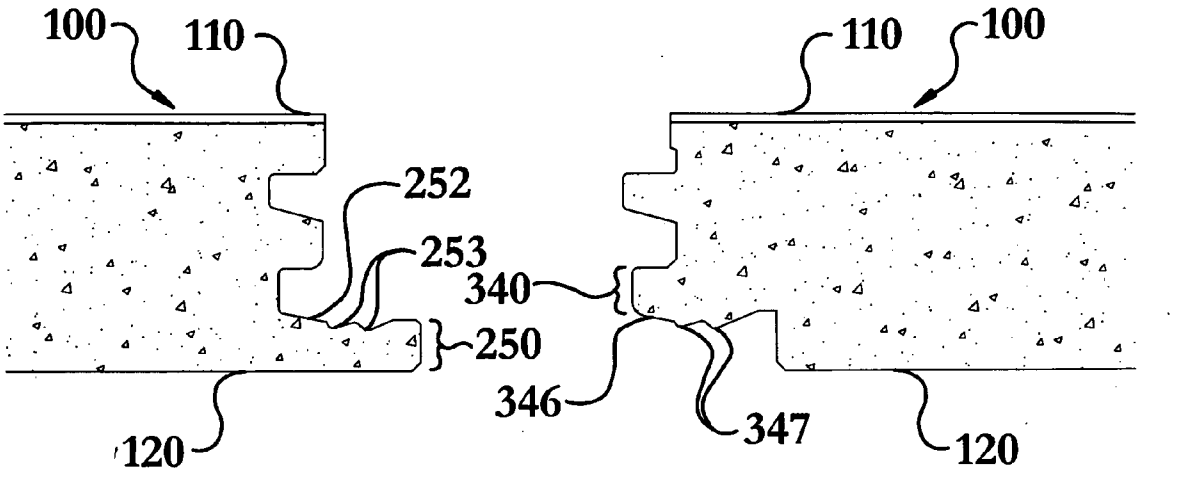
(57) **ABSTRACT**

Interlocking cladding panels for floors, walls, ceilings, or the like, having a top surface and a bottom surface and terminating with at least a receiving edge and an engaging edge. The receiving edge has a head tooth, a leveling tooth recess, an intermediate tooth, a locking tooth recess, and a foot tooth. The engaging edge has a head tooth recess to cooperate with the head tooth, a leveling tooth to cooperate with the leveling tooth recess, an intermediate tooth recess to cooperate with the intermediate tooth, a locking tooth to cooperate with the locking tooth recess, and a foot tooth recess to cooperate with the. foot tooth. The receiving edge is complementary in shape to the engaging edge so that when the engaging edge is placed on the foot tooth of an adjacent panel it is guided into position permitting the installer to snap the panels into a locked position.



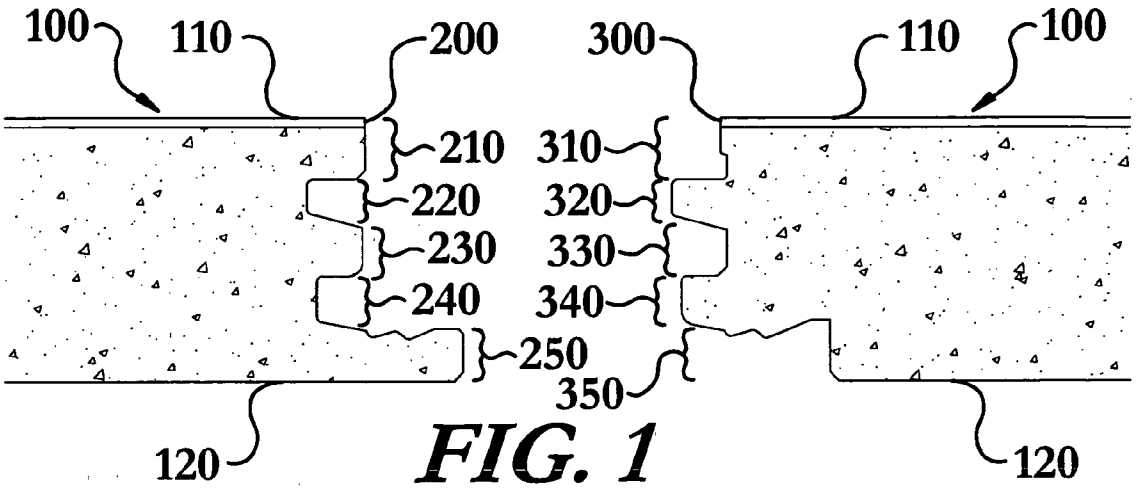


FIG. 1

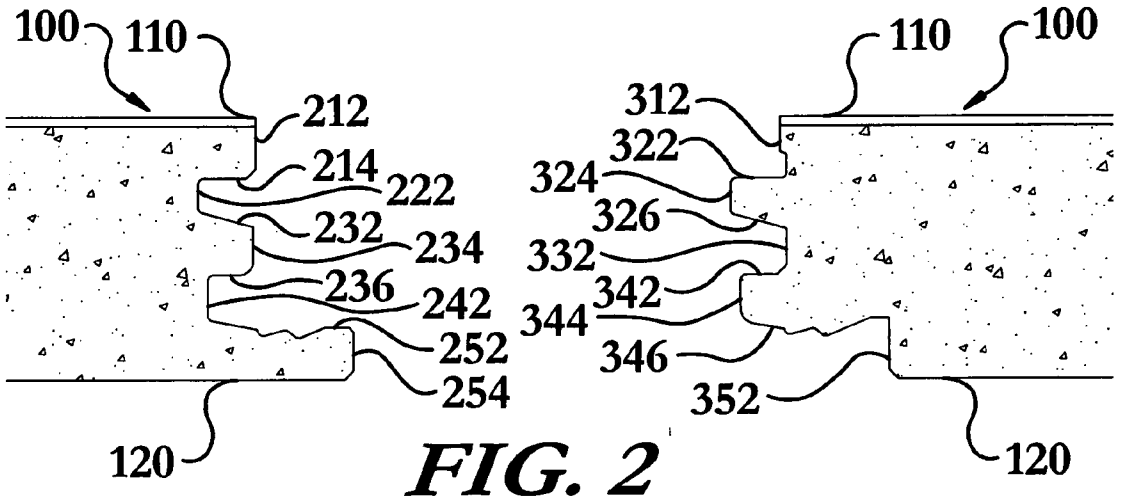


FIG. 2

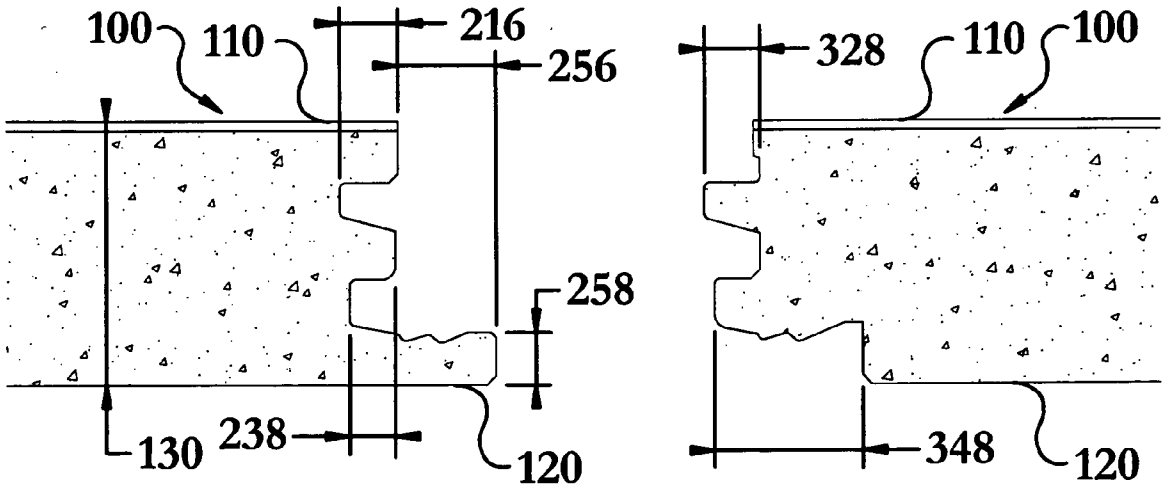


FIG. 3

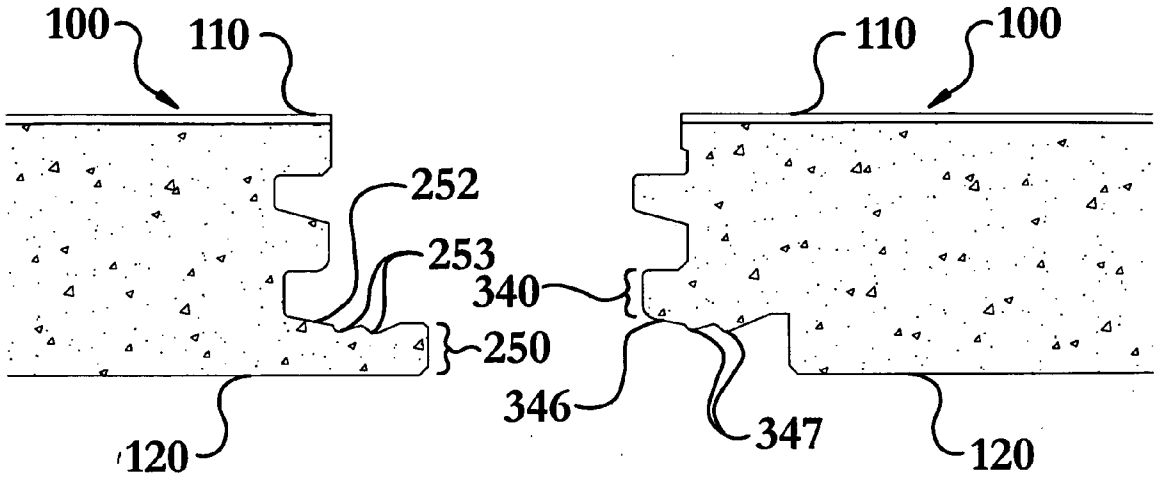


FIG. 4

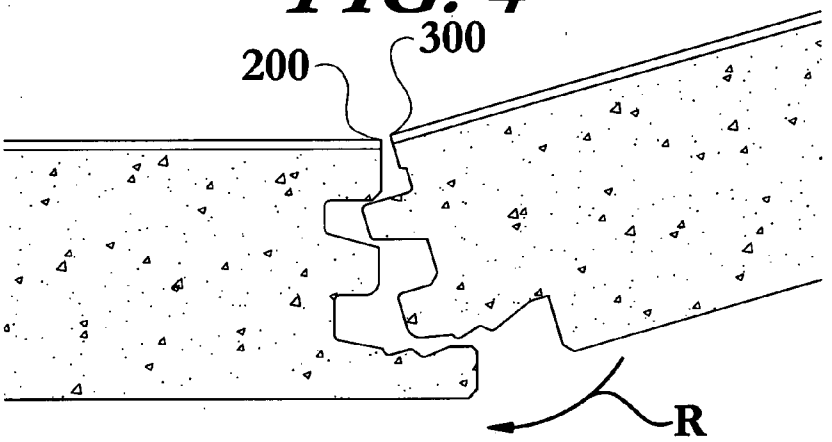


FIG. 5

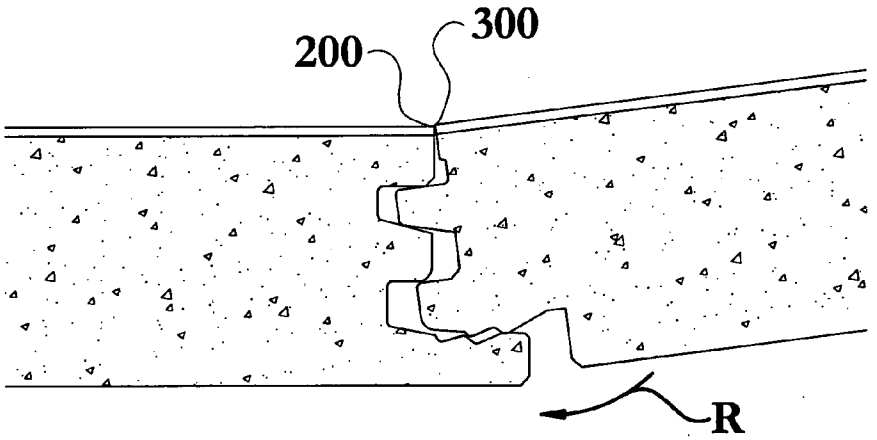


FIG. 6

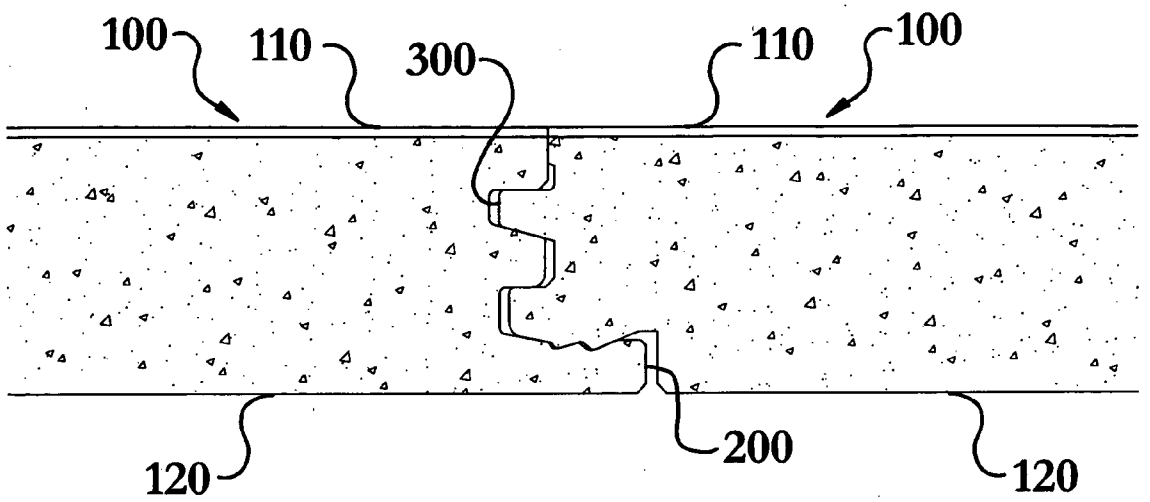


FIG. 7

INTERLOCKING SELF-ALIGNING CLADDING PANEL FOR FLOORS, WALLS, CEILINGS, OR THE LIKE

TECHNICAL FIELD

[0001] The present invention relates to the field of cladding panels used in the construction of floors, walls, ceilings, and the like, in particular, to a edge joining profile that securely locks adjacent panels together.

BACKGROUND OF THE INVENTION

[0002] During the past few years laminated floors have achieved an increase in popularity. Generally, in the production of laminated floors, a decorative thermosetting laminate is first produced. The decorative laminate typically consists of a base layer of paper sheets impregnated with resin and a decorative surface layer. The finished laminate is produced by pressing the different layers together at high pressure and elevated temperature. The laminate is then glued to a carrier, often particle board. This panel is then sawn into floor boards and distinct edge profiles are added.

[0003] In the past the edge profiles simply mated together and required some form of mechanical fastener or adhesive to secure the boards to one another. Such fastening techniques made it difficult, if not impossible, to change damaged boards or remove the boards for reinstallation in another location. In an effort to avoid these fastening techniques many manufacturers have developed panels with interlocking edge profiles. While these prior art interlocking edge profiles have eliminated the use of glue, they rarely provide a rigid joint and are therefore often easily distinguishable from solid wood floors. Additionally, such prior art interlocking edges are prone to weak joints, or those that tend to loosen over time and develop gaps between adjacent panels. Gaps are also produced during installation due to poor workmanship or adjacent panels that are not perfectly aligned. Dirt and water can penetrate into these gaps. Moisture in such gaps will cause the core of the laminate to expand in cases where it is made of wood, fiber board, or particle board. Such expansion causes the surface layer to rise closest to the edges of the joint where surface wear is then concentrated, which radically reduces the useful life of the floor.

[0004] In the past numerous single tongue and groove joining systems have been patented. Patents in this category include U.S. Pat. No. 935,402, U.S. Pat. No. 5,797,237, U.S. Pat. No. 6,216,409, U.S. Pat. No. 6,591,568, and U.S. Pat. No. 6,601,359. Flooring manufacturers have since realized that do-it-yourselfers need flooring that is essentially foolproof and aligns itself so as not to have gaps. As such, numerous joining systems that claim to be self-aligning have been patented. One such system is found in U.S. Pat. No. 6,591,568. Unfortunately, to date most self-aligning systems have been plagued by weak joints and installation difficulties.

[0005] What has been needed in the industry is a multi-tongue, or multi-toothed, self-aligning edge profile that is simple enough for do-it-yourself installers. While some prior art multi-tongue systems do exist they have not yet achieved the appropriate balance between self-alignment, joint rigidity, and ease of installation.

SUMMARY OF INVENTION

[0006] In its most general configuration, the present invention advances the state of the art with a variety of new capabilities and overcomes many of the shortcomings of prior devices in new and novel ways. In its most general sense, the present invention overcomes the shortcomings and limitations of the prior art in any of a number of generally effective configurations. The instant invention demonstrates such capabilities and overcomes many of the shortcomings of prior methods in new and novel ways.

[0007] The interlocking cladding panels for floors, walls, ceilings, or the like, of the present invention, have a top surface and a bottom surface that are substantially parallel and terminate with at least four edges, including a receiving edge and an engaging edge. The receiving edge has a head tooth, a leveling tooth recess, an intermediate tooth, a locking tooth recess, and a foot tooth. The engaging edge has a head tooth recess to cooperate with the head tooth, a leveling tooth to cooperate with the leveling tooth recess, an intermediate tooth recess to cooperate with the intermediate tooth, a locking tooth to cooperate with the locking tooth recess, and a foot tooth recess to cooperate with the foot tooth.

[0008] The receiving edge is substantially complementary in shape to the engaging edge so that when the engaging edge of one panel is placed on the foot tooth of the receiving edge of an adjacent panel and is rotated toward the bottom surface the panels snap together. The foot tooth acts to guide the locking tooth into position so that it may be easily snapped into its locked position. The guiding nature of the foot tooth makes installation virtually impossible to do incorrectly even by the most novice installer. When adjacent panels are joined together they interlock so as to oppose withdrawal of the receiving edge from the engaging edge.

[0009] The foot tooth extends beyond both the intermediate tooth and the head tooth by a projection distance. The projection distance is parallel to the top surface from the distal most point on the foot tooth to the distal most point of the head tooth, or the intermediate tooth. The projection distance is generally greater than, or equal to, the height of the foot tooth. In one particular embodiment, the projection distance is greater than, or equal to, twenty-five percent of the thickness of the panel. In yet a further embodiment, the projection distance is greater than, or equal to, thirty-five percent of the thickness of the panel. Experimentation has shown that a projection distance of approximately forty percent of the thickness of the panel produces a secure and rigid joint. In one particular embodiment the locking tooth may be formed with at least one heel projection extending toward the bottom surface of the panel that cooperates with at least one heel recess formed in the foot tooth to impart enhanced resistance to separation of the panels.

[0010] These variations, modifications, alternatives, and alterations of the various preferred embodiments may be used alone or in combination with one another as will become more readily apparent to those with skill in the art with reference to the following detailed description of the preferred embodiments and the accompanying figures and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] Without limiting the scope of the present invention as claimed below and referring now to the drawings and figures:

[0012] **FIG. 1** shows a side elevation view of the interlocking cladding panel, not to scale;

[0013] **FIG. 2** shows a side elevation view of the interlocking cladding panel, not to scale;

[0014] **FIG. 3** shows a side elevation view of the interlocking cladding panel, not to scale;

[0015] **FIG. 4** shows a side elevation view of the interlocking cladding panel, not to scale;

[0016] **FIG. 5** shows a side elevation view of the interlocking cladding panel, not to scale;

[0017] **FIG. 6** shows a side elevation view of the interlocking cladding panel, not to scale; and

[0018] **FIG. 7** shows a side elevation view of the interlocking cladding panel, not to scale.

DETAILED DESCRIPTION OF THE INVENTION

[0019] The interlocking cladding panel of the instant invention enables a significant advance in the state of the art. The preferred embodiments of the apparatus accomplish this by new and novel arrangements of elements and methods that are configured in unique and novel ways and which demonstrate previously unavailable but preferred and desirable capabilities. The detailed description set forth below in connection with the drawings is intended merely as a description of the presently preferred embodiments of the invention, and is not intended to represent the only form in which the present invention may be constructed or utilized. The description sets forth the designs, functions, means, and methods of implementing the invention in connection with the illustrated embodiments. It is to be understood, however, that the same or equivalent functions and features may be accomplished by different embodiments that are also intended to be encompassed within the spirit and scope of the invention. Referring to **FIG. 1**, the interlocking cladding panels (**100**) for floors, walls, ceilings, or the like, of the present invention have a top surface (**110**) and a bottom surface (**120**) that are substantially parallel and terminate with at least four edges including a receiving edge (**200**) and an engaging edge (**300**). The receiving edge (**200**) has a head tooth (**210**), a leveling tooth recess (**220**), an intermediate tooth (**230**), a locking tooth recess (**240**), and a foot tooth (**250**). The engaging edge (**300**) has a head tooth recess (**310**) to cooperate with the head tooth (**210**), a leveling tooth (**320**) to cooperate with the leveling tooth recess (**220**), an intermediate tooth recess (**330**) to cooperate with the intermediate tooth (**230**), a locking tooth (**340**) to cooperate with the locking tooth recess (**240**), and a foot tooth recess (**350**) to cooperate with the foot tooth (**250**).

[0020] The receiving edge (**200**) is substantially complementary in shape to the engaging edge (**300**) so that when the engaging edge (**300**) of one panel (**100**) is placed on the foot tooth (**250**) of the receiving edge (**200**) of an adjacent panel (**100**) and is rotated toward the bottom surface (**120**) the panels (**100**) snap together, as seen in **FIGS. 5, 6**, and **7**. The foot tooth (**250**) acts to guide the locking tooth (**340**) into position so that it may be easily snapped into its locked position. The guiding nature of the foot tooth (**250**) makes installation virtually impossible to do incorrectly even by the most novice installer. An angle of entry of the engaging edge (**300**) of between approximately five degrees to approximately seventy-five degrees has been found to be effective with the embodiment illustrated in **FIGS. 1 through 7**. When adjacent panels (**100**) are joined together, as shown in **FIG. 7**, they interlock so as to oppose withdrawal of the receiving edge (**200**) from the engaging edge (**300**) in a direction substantially parallel to the top surface (**110**) and bottom surface (**120**) of the panels (**100**).

[0021] With reference now to **FIG. 2**, the head tooth (**210**) is defined by the top surface (**110**) of the panel (**100**), a primary surface (**212**), and a lower surface (**214**). The intermediate tooth (**230**) is defined by an upper surface (**232**), a primary surface (**234**), and a lower surface (**236**). The leveling tooth recess (**220**) is defined by the lower surface (**214**) of the head tooth (**210**), a rear surface (**222**), and the upper surface (**232**) of the intermediate tooth (**230**). The foot tooth (**250**) is defined by an upper surface (**252**), a primary surface (**254**), and the bottom surface (**120**) of the panel (**100**). The locking tooth recess (**240**) is defined by the lower surface (**236**) of the intermediate tooth (**230**), a rear surface (**242**), and the upper surface (**252**) of the foot tooth (**250**). The leveling tooth (**320**) is defined by an upper surface (**322**), a primary surface (**324**), and a lower surface (**326**). The head tooth recess (**310**) is defined by a rear surface (**312**) and the upper surface (**322**) of the leveling tooth (**320**). The locking tooth (**340**) is defined by an upper surface (**342**), a primary surface (**344**), and a lower surface (**346**). The intermediate tooth recess (**330**) is defined by the lower surface (**326**) of the leveling tooth (**320**), a rear surface (**332**), and the upper surface (**342**) of the locking tooth (**340**). The foot tooth recess (**350**) is defined by the lower surface (**346**) of the locking tooth (**340**) and a rear surface (**352**).

[0022] The foot tooth (**250**) extends beyond both the intermediate tooth (**230**) and the head tooth (**210**) by a projection distance (**256**), as seen in **FIG. 3**. The projection distance (**256**) is parallel to the top surface (**110**) from the distal most point on the foot tooth (**250**) to the distal most point of the head tooth (**210**), or the intermediate tooth (**230**). The projection distance (**256**) is generally greater than, or equal to, the height (**258**) of the foot tooth (**250**). In one particular embodiment, the projection distance (**256**) is greater than, or equal to, twenty-five percent of the thickness (**130**) of the panel (**100**). In yet a further embodiment, the projection distance (**256**) is greater than, or equal to, thirty-five percent of the thickness (**130**) of the panel (**100**).

[0023] Experimentation has shown that a projection distance (**256**) of approximately forty percent of the thickness (**130**) of the panel (**100**) produces a secure and rigid joint.

[0024] With reference now to **FIG. 4**, in one particular embodiment the lower surface (**346**) of the locking tooth (**340**) is formed with at least one heel (**347**) projection extending toward the bottom surface (**120**) of the panel (**100**) that cooperates with at least one heel recess (**253**) formed in the upper surface (**252**) of the foot tooth (**250**). The embodiment of **FIG. 4** illustrates two heel (**347**) projections and two heel recesses (**253**). Such a dual heel (**347**) embodiment imparts enhanced resistance to separation of the panels (**100**).

[0025] In the embodiments illustrated in **FIGS. 1 through 7**, at least a portion of the leveling tooth (**320**) upper surface (**322**) is coincident with a portion of the head tooth (**210**) lower surface (**214**) when adjacent panels (**100**) are engaged, however such coincidence is not required. Similarly, a portion of the leveling tooth (**320**) lower surface (**326**) may be coincident with a portion of the intermediate tooth (**230**) upper surface (**232**), a portion of locking tooth (**340**) upper surface (**342**) may be coincident with a portion of the intermediate tooth (**230**) lower surface (**236**), and a portion of the foot tooth (**250**) upper surface (**252**) may be coincident with a portion of the locking tooth (**340**) lower surface (**346**).

[0026] Additionally, in some embodiments the foot tooth (**250**) primary surface (**254**) may not contact the rear surface (**352**) of the foot tooth recess (**350**) wherein when adjacent panels (**100**) are engaged. Similarly, the leveling tooth (**320**) primary surface (**324**) may not contact the rear surface (**222**) of the leveling tooth recess (**220**), and the locking tooth (**340**) primary surface (**344**) may not contact the rear surface (**242**) of the locking tooth recess (**240**). The lack of contact between the various teeth and their associated recesses is only present in one embodiment and one skilled in the art will appreciate that such contact is permissible, and perhaps desirable in some embodiments.

[0027] Referring again to **FIG. 3**, the head tooth (**210**) may be further characterized as having a head tooth length (**216**). Similarly, the intermediate tooth (**230**) has an intermediate tooth length (**238**), the leveling tooth (**320**) has a leveling tooth length (**328**), and the locking tooth (**340**) has a locking tooth length (**348**). In one particular embodiment the head tooth length (**216**), the intermediate tooth length (**238**), and the leveling tooth length (**328**) are less than fifty percent of the panel thickness (**130**) and the locking tooth length (**348**) is less than seventy-five percent of the panel thickness (**130**). The ratios of this embodiment have been found to produce a particularly secure and rigid connection between adjacent panels (**100**).

[0028] In further embodiments, illustrated in **FIGS. 1 through 7**, the head tooth lower surface (**214**), the leveling tooth upper surface (**322**), the intermediate tooth lower surface (**236**), and the locking tooth upper surface (**342**) are substantially parallel to the top surface (**110**) and the bottom surface (**120**) of the panel (**100**). Similarly, additional embodiments may have the head tooth primary surface (**212**), the leveling tooth recess rear surface (**222**), the intermediate tooth primary surface (**234**), the locking tooth recess rear surface (**242**), the foot tooth primary surface (**254**), the head tooth recess rear surface (**312**), the leveling tooth primary surface (**324**), the intermediate tooth recess rear surface (**332**), the locking tooth primary surface (**344**), and the foot tooth recess rear surface (**352**) substantially orthogonal to the top surface (**110**) and the bottom surface (**120**) of the panel (**100**).

[0029] Numerous alterations, modifications, and variations of the preferred embodiments disclosed herein will be apparent to those skilled in the art and they are all anticipated and contemplated to be within the spirit and scope of the instant invention. For example, although specific embodiments have been described in detail, those with skill in the art will understand that the preceding embodiments and variations can be modified to incorporate various types of substitute and or additional or alternative materials, relative arrangement of elements, and dimensional configurations. Accordingly, even though only few variations of the present invention are described herein, it is to be understood that the practice of such additional modifications and variations and the equivalents thereof, are within the spirit and scope of the invention as defined in the following claims. The corresponding structures, materials, acts, and equivalents of all means or step plus function elements in the claims below are intended to include any structure, material, or acts for performing the functions in combination with other claimed elements as specifically claimed.

I claim:

1. An interlocking self-aligning cladding panel (**100**) for floors, walls, ceilings, or the like, comprising:

a top surface (**110**) and a bottom surface (**120**) that are substantially parallel and terminate with at least four edges including a receiving edge (**200**) and an engaging edge (**300**);

the receiving edge (**200**) having a head tooth (**210**), a leveling tooth recess (**220**), an intermediate tooth (**230**), a locking tooth recess (**240**), and a foot tooth (**250**);

the engaging edge (**300**) having a head tooth recess (**310**) to cooperate with the head tooth (**210**), a leveling tooth (**320**) to cooperate with the leveling tooth recess (**220**), an intermediate tooth recess (**330**) to cooperate with the intermediate tooth (**230**), a locking tooth (**340**) to cooperate with the locking tooth recess (**240**), and a foot tooth recess (**350**) to cooperate with the foot tooth (**250**); and

the receiving edge (**200**) being substantially complementary in shape to the engaging edge (**300**) so that when the engaging edge (**300**) of one panel (**100**) is placed on the foot tooth (**250**) of the receiving edge (**200**) of an adjacent panel (**100**) and is rotated toward the bottom surface (**120**) the panels (**100**) snap together so as to oppose withdrawal of the receiving edge (**200**) from the engaging edge (**300**) in a direction substantially parallel to the top surface (**110**) and bottom surface (**120**) of the panels (**100**).

2. The interlocking cladding panel of claim 1, wherein the head tooth (**210**) is defined by the top surface (**110**) of the panel (**100**), a primary surface (**212**), and a lower surface (**214**), the intermediate tooth (**230**) is defined by an upper surface (**232**), a primary surface (**234**), and a lower surface (**236**), the leveling tooth recess (**220**) is defined by the lower surface (**214**) of the head tooth (**210**), a rear surface (**222**), and the upper surface (**232**) of the intermediate tooth (**230**), the foot tooth (**250**) is defined by an upper surface (**252**), a primary surface (**254**), and the bottom surface (**120**) of the panel (**100**), and the locking tooth recess (**240**) is defined by the lower surface (**236**) of the intermediate tooth (**230**), a rear surface (**242**), and the upper surface (**252**) of the foot tooth (**250**), and wherein the leveling tooth (**320**) is defined by an upper surface (**322**), a primary surface (**324**), and a lower surface (**326**), the head tooth recess (**310**) is defined by a rear surface (**312**) and the upper surface (**322**) of the leveling tooth (**320**), the locking tooth (**340**) is defined by an upper surface (**342**), a primary surface (**344**), and a lower surface (**346**), the intermediate tooth recess (**330**) is defined by the lower surface (**326**) of the leveling tooth (**320**), a rear surface (**332**), and the upper surface (**342**) of the locking

tooth (340), and the foot tooth recess (350) is defined by the lower surface (346) of the locking tooth (340) and a rear surface (352).

3. The interlocking cladding panel of claim 2, wherein the foot tooth (250) extends beyond both the intermediate tooth (230) and the head tooth (210) by a projection distance (256) parallel to the top surface (110) from the distal most point on the foot tooth (250) to the distal most point of the head tooth (210), or the intermediate tooth (230), that is greater than, or equal to, the height (258) of the foot tooth (250).

4. The interlocking cladding panel of claim 2, wherein the foot tooth (250) extends beyond both the intermediate tooth (230) and the head tooth (210) by a projection distance (256) parallel to the top surface (110) from the distal most point on the foot tooth (250) to the distal most point of the head tooth (210), or the intermediate tooth (230), that is greater than, or equal to, twenty-five percent of the thickness (130) of the panel (100).

5. The interlocking cladding panel of claim 2, wherein the foot tooth (250) extends beyond both the intermediate tooth (230) and the head tooth (210) by a projection distance (256) parallel to the top surface (110) from the distal most point on the foot tooth (250) to the distal most point of the head tooth (210), or the intermediate tooth (230), that is greater than, or equal to, thirty-five percent of the thickness (130) of the panel (100).

6. The interlocking cladding panel of claim 2, wherein the lower surface (346) of the locking tooth (340) is formed with at least one heel (347) projection extending toward the bottom surface (120) of the panel (100) that cooperates with at least one heel recess (253) formed in the upper surface (252) of the foot tooth (250).

7. The interlocking cladding panel of claim 6, having two heel (347) projections and two heel recesses (253).

8. The interlocking cladding panel of claim 2, wherein when adjacent panels (100) are engaged at least a portion of the leveling tooth (320) upper surface (322) is coincident with a portion of the head tooth (210) lower surface (214), a portion of the leveling tooth (320) lower surface (326) is coincident with a portion of the intermediate tooth (230) upper surface (232), a portion of locking tooth (340) upper surface (342) is coincident with a portion of the intermediate tooth (230) lower surface (236), and a portion of the foot tooth (250) upper surface (252) is coincident with a portion of the locking tooth (340) lower surface (346).

9. The interlocking cladding panel of claim 2, wherein when adjacent panels (100) are engaged the foot tooth (250) primary surface (254) does not contact the rear surface (352) of the foot tooth recess (350).

10. The interlocking cladding panel of claim 2, wherein when adjacent panels (100) are engaged the leveling tooth (320) primary surface (324) does not contact the rear surface (222) of the leveling tooth recess (220).

11. The interlocking cladding panel of claim 2, wherein when adjacent panels (100) are engaged the locking tooth (340) primary surface (344) does not contact the rear surface (242) of the locking tooth recess (240).

12. The interlocking cladding panel of claim 3, wherein the head tooth (210) has a head tooth length (216), the intermediate tooth (230) has an intermediate tooth length (238), the leveling tooth (320) has a leveling tooth length (328), and the locking tooth (340) has a locking tooth length (348), wherein the head tooth length (216), the intermediate tooth length (238), and the leveling tooth length (328) are less than fifty percent of the panel thickness (130) and the locking tooth length (348) is less than seventy-five percent of the panel thickness (130).

13. The interlocking cladding panel of claim 12, wherein the head tooth lower surface (214), the leveling tooth upper surface (322), the intermediate tooth lower surface (236), and the locking tooth upper surface (342) are substantially parallel to the top surface (110) and the bottom surface (120) of the panel (100).

14. The interlocking cladding panel of claim 12, wherein the head tooth primary surface (212), the leveling tooth recess rear surface (222), the intermediate tooth primary surface (234), the locking tooth recess rear surface (242), the foot tooth primary surface (254), the head tooth recess rear surface (312), the leveling tooth primary surface (324), the intermediate tooth recess rear surface (332), the locking tooth primary surface (344), and the foot tooth recess rear surface (352) are substantially orthogonal to the top surface (110) and the bottom surface (120) of the panel (100).

15. An interlocking self-aligning cladding panel (100) for floors, walls, ceilings, or the like, comprising:

a top surface (110) and a bottom surface (120) that are substantially parallel and terminate with at least four edges including a receiving edge (200) and an engaging edge (300);

the receiving edge (200) having a head tooth (210), a leveling tooth recess (220), an intermediate tooth (230), a locking tooth recess (240), and a foot tooth (250);

the engaging edge (300) having a head tooth recess (310) to cooperate with the head tooth (210), a leveling tooth (320) to cooperate with the leveling tooth recess (220), an intermediate tooth recess (330) to cooperate with the intermediate tooth (230), a locking tooth (340) to cooperate with the locking tooth recess (240), and a foot tooth recess (350) to cooperate with the foot tooth (250);

the receiving edge (200) being substantially complementary in shape to the engaging edge (300) so that when the engaging edge (300) of one panel (100) is placed on the foot tooth (250) of the receiving edge (200) of an adjacent panel (100) and is rotated toward the bottom surface (120) the panels (100) snap together so as to oppose withdrawal of the receiving edge (200) from the engaging edge (300) in a direction substantially parallel to the top surface (110) and bottom surface (120) of the panels (100);

the head tooth (210) is defined by the top surface (110) of the panel (100), a primary surface (212), and a lower surface (214), the intermediate tooth (230) is defined by an upper surface (232), a primary surface (234), and a lower surface (236), the leveling tooth recess (220) is defined by the lower surface (214) of the head tooth (210), a rear surface (222), and the upper surface (232) of the intermediate tooth (230), the foot tooth (250) is defined by an upper surface (252), a primary surface (254), and the bottom surface (120) of the panel (100), and the locking tooth recess (240) is defined by the lower surface (236) of the intermediate tooth (230), a rear surface (242), and the upper surface (252) of the foot tooth (250), and wherein the leveling tooth (320) is defined by an upper surface (322), a primary surface (324), and a lower surface (326), the head tooth recess

(310) is defined by a rear surface (312) and the upper surface (322) of the leveling tooth (320), the locking tooth (340) is defined by an upper surface (342), a primary surface (344), and a lower surface (346), the intermediate tooth recess (330) is defined by the lower surface (326) of the leveling tooth (320), a rear surface (332), and the upper surface (342) of the locking tooth (340), and the foot tooth recess (350) is defined by the lower surface (346) of the locking tooth (340) and a rear surface (352);

the foot tooth (250) extends beyond both the intermediate tooth (230) and the head tooth (210) by a projection distance (256) parallel to the top surface (110) from the distal most point on the foot tooth (250) to the distal most point of the head tooth (210), or the intermediate tooth (230), that is greater than, or equal to, the height (258) of the foot tooth (250); and

the lower surface (346) of the locking tooth (340) is formed with at least one heel (347) projection extending toward the bottom surface (120) of the panel (100) that cooperates with at least one heel recess (253) formed in the upper surface (252) of the foot tooth (250).

16. The interlocking cladding panel of claim 15, wherein the foot tooth (250) extends beyond both the intermediate tooth (230) and the head tooth (210) by a projection distance (256) parallel to the top surface (110) from the distal most point on the foot tooth (250) to the distal most point of the head tooth (210), or the intermediate tooth (230), that is greater than, or equal to, twenty-five percent of the thickness (130) of the panel (100).

16. The interlocking cladding panel of claim 15, wherein the foot tooth (250) extends beyond both the intermediate tooth (230) and the head tooth (210) by a projection distance (256) parallel to the top surface (110) from the distal most point on the foot tooth (250) to the distal most point of the head tooth (210), or the intermediate tooth (230), that is greater than, or equal to, thirty-five percent of the thickness (130) of the panel (100).

17. The interlocking cladding panel of claim 16, having two heel (347) projections and two heel recesses (253).

18. The interlocking cladding panel of claim 15, wherein when adjacent panels (100) are engaged at least a portion of the leveling tooth (320) upper surface (322) is coincident with a portion of the head tooth (210) lower surface (214), a portion of the leveling tooth (320) lower surface (326) is coincident with a portion of the intermediate tooth (230) upper surface (232), a portion of locking tooth (340) upper surface (342) is coincident with a portion of the intermediate tooth (230) lower surface (236), and a portion of the foot tooth (250) upper surface (252) is coincident with a portion of the locking tooth (340) lower surface (346).

19. The interlocking cladding panel of claim 15, wherein when adjacent panels (100) are engaged the foot tooth (250) primary surface (254) does not contact the rear surface (352) of the foot tooth recess (350).

20. The interlocking cladding panel of claim 15, wherein when adjacent panels (100) are engaged the leveling tooth (320) primary surface (324) does not contact the rear surface (222) of the leveling tooth recess (220).

21. The interlocking cladding panel of claim 15, wherein when adjacent panels (100) are engaged the locking tooth (340) primary surface (344) does not contact the rear surface (242) of the locking tooth recess (240).

22. The interlocking cladding panel of claim 15, wherein the head tooth (210) has a head tooth length (216), the intermediate tooth (230) has an intermediate tooth length (238), the leveling tooth (320) has a leveling tooth length (328), and the locking tooth (340) has a locking tooth length (348), wherein the head tooth length (216), the intermediate tooth length (238), and the leveling tooth length (328) are less than fifty percent of the panel thickness (130) and the locking tooth length (348) is less than seventy-five percent of the panel thickness (130).

23. The interlocking cladding panel of claim 22, wherein the head tooth lower surface (214), the leveling tooth upper surface (322), the intermediate tooth lower surface (236), and the locking tooth upper surface (342) are substantially parallel to the top surface (110) and the bottom surface (120) of the panel (100).

24. The interlocking cladding panel of claim 22, wherein the head tooth primary surface (212), the leveling tooth recess rear surface (222), the intermediate tooth primary surface (234), the locking tooth recess rear surface (242), the foot tooth primary surface (254), the head tooth recess rear surface (312), the leveling tooth primary surface (324), the intermediate tooth recess rear surface (332), the locking tooth primary surface (344), and the foot tooth recess rear surface (352) are substantially orthogonal to the top surface (110) and the bottom surface (120) of the panel (100).

25. An interlocking self-aligning cladding panel (100) for floors, walls, ceilings, or the like, comprising:

a top surface (110) and a bottom surface (120) that are substantially parallel and terminate with at least four edges including a receiving edge (200) and an engaging edge (300);

the receiving edge (200) having a head tooth (210), a leveling tooth recess (220), an intermediate tooth (230), a locking tooth recess (240), and a foot tooth (250);

the engaging edge (300) having a head tooth recess (310) to cooperate with the head tooth (210), a leveling tooth (320) to cooperate with the leveling tooth recess (220), an intermediate tooth recess (330) to cooperate with the intermediate tooth (230), a locking tooth (340) to cooperate with the locking tooth recess (240), and a foot tooth recess (350) to cooperate with the foot tooth (250);

the receiving edge (200) being substantially complementary in shape to the engaging edge (300) so that when the engaging edge (300) of one panel (100) is placed on the foot tooth (250) of the receiving edge (200) of an adjacent panel (100) and is rotated toward the bottom surface (120) the panels (100) snap together so as to oppose withdrawal of the receiving edge (200) from the engaging edge (300) in a direction substantially parallel to the top surface (110) and bottom surface (120) of the panels (100);

the head tooth (210) is defined by the top surface (110) of the panel (100), a primary surface (212), and a lower surface (214), the intermediate tooth (230) is defined by an upper surface (232), a primary surface (234), and a lower surface (236), the leveling tooth recess (220) is defined by the lower surface (214) of the head tooth (210), a rear surface (222), and the upper surface (232)

of the intermediate tooth (**230**), the foot tooth (**250**) is defined by an upper surface (**252**), a primary surface (**254**), and the bottom surface (**120**) of the panel (**100**), and the locking tooth recess (**240**) is defined by the lower surface (**236**) of the intermediate tooth (**230**), a rear surface (**242**), and the upper surface (**252**) of the foot tooth (**250**), and wherein the leveling tooth (**320**) is defined by an upper surface (**322**), a primary surface (**324**), and a lower surface (**326**), the head tooth recess (**310**) is defined by a rear surface (**312**) and the upper surface (**322**) of the leveling tooth (**320**), the locking tooth (**340**) is defined by an upper surface (**342**), a primary surface (**344**), and a lower surface (**346**), the intermediate tooth recess (**330**) is defined by the lower surface (**326**) of the leveling tooth (**320**), a rear surface (**332**), and the upper surface (**342**) of the locking tooth (**340**), and the foot tooth recess (**350**) is defined by the lower surface (**346**) of the locking tooth (**340**) and a rear surface (**352**);

the foot tooth (**250**) extends beyond both the intermediate tooth (**230**) and the head tooth (**210**) by a projection distance (**256**) parallel to the top surface (**110**) from the distal most point on the foot tooth (**250**) to the distal most point of the head tooth (**210**), or the intermediate tooth (**230**), that is greater than, or equal to, the height (**258**) of the foot tooth (**250**);

the lower surface (**346**) of the locking tooth (**340**) is formed with two heel (**347**) projections extending toward the bottom surface (**120**) of the panel (**100**) that cooperates with two heel recess (**253**) formed in the upper surface (**252**) of the foot tooth (**250**);

the foot tooth (**250**) extends beyond both the intermediate tooth (**230**) and the head tooth (**210**) by a projection distance (**256**) parallel to the top surface (**110**) from the distal most point on the foot tooth (**250**) to the distal most point of the head tooth (**210**), or the intermediate tooth (**230**), that is greater than, or equal to, thirty-five percent of the thickness (**130**) of the panel (**100**);

the head tooth (**210**) has a head tooth length (**216**), the intermediate tooth (**230**) has an intermediate tooth length (**238**), the leveling tooth (**320**) has a leveling tooth length (**328**), and the locking tooth (**340**) has a locking tooth length (**348**), wherein the head tooth length (**216**), the intermediate tooth length (**238**), and the leveling tooth length (**328**) are less than fifty percent of the panel thickness (**130**) and the locking tooth length (**348**) is less than seventy-five percent of the panel thickness (**130**);

the head tooth lower surface (**214**), the leveling tooth upper surface (**322**), the intermediate tooth lower surface (**236**), and the locking tooth upper surface (**342**) are substantially parallel to the top surface (**110**) and the bottom surface (**120**) of the panel (**100**);

the head tooth primary surface (**212**), the leveling tooth recess rear surface (**222**), the intermediate tooth primary surface (**234**), the locking tooth recess rear surface (**242**), the foot tooth primary surface (**254**), the head tooth recess rear surface (**312**), the leveling tooth primary surface (**324**), the intermediate tooth recess rear surface (**332**), the locking tooth primary surface (**344**), and the foot tooth recess rear surface (**352**) are substantially orthogonal to the top surface (**110**) and the bottom surface (**120**) of the panel (**100**);

wherein when adjacent panels (**100**) are engaged the foot tooth (**250**) primary surface (**254**) does not contact the rear surface (**352**) of the foot tooth recess (**350**), the leveling tooth (**320**) primary surface (**324**) does not contact the rear surface (**222**) of the leveling tooth recess (**220**), and the locking tooth (**340**) primary surface (**344**) does not contact the rear surface (**242**) of the locking tooth recess (**240**).

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