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(54) **FLEXIBLE MATERIAL FLOORING MITER
DEVICE AND SYSTEM FOR FLEXIBLE
MATERIAL FLOORING INSTALLATION**

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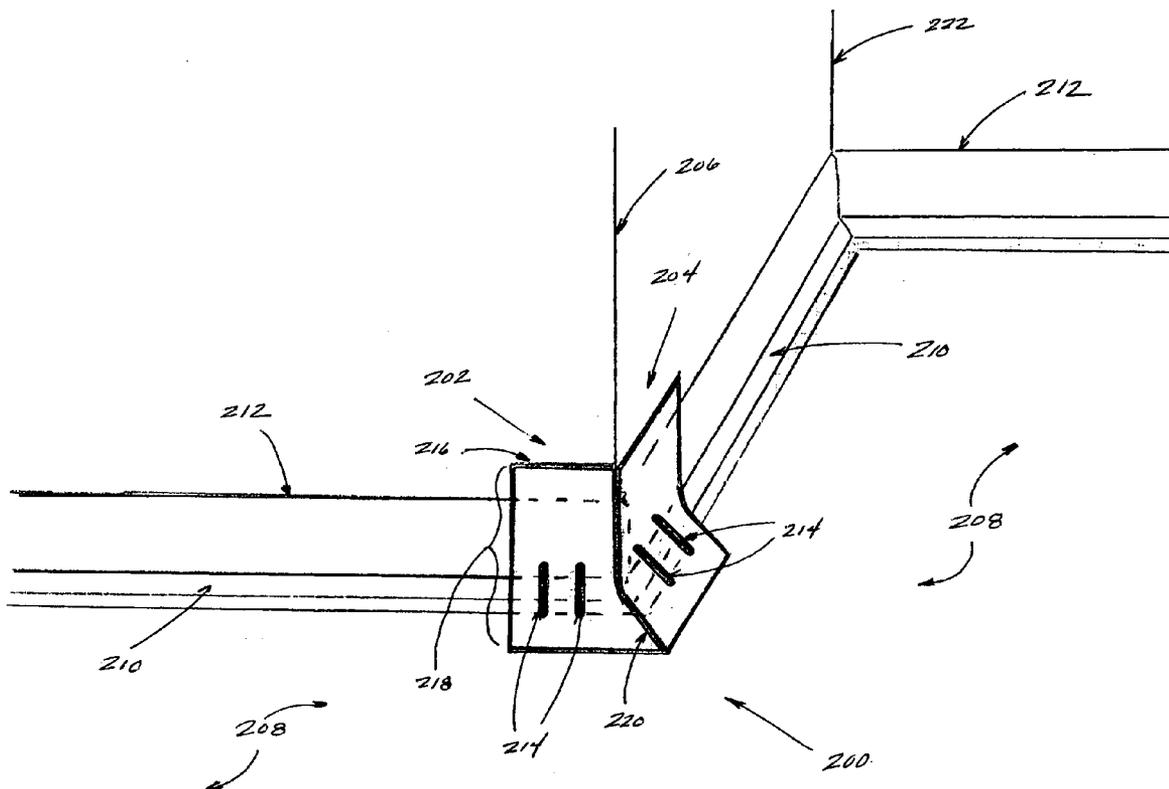
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(57) **ABSTRACT**

A device and method for the proper installation of flexible flooring such as sheet flooring and more particularly the formation of flash coving and proper installation thereof comprising two complementary portions of a guide tool of proper angles and straightedges required to form mitered corner formation and installation.

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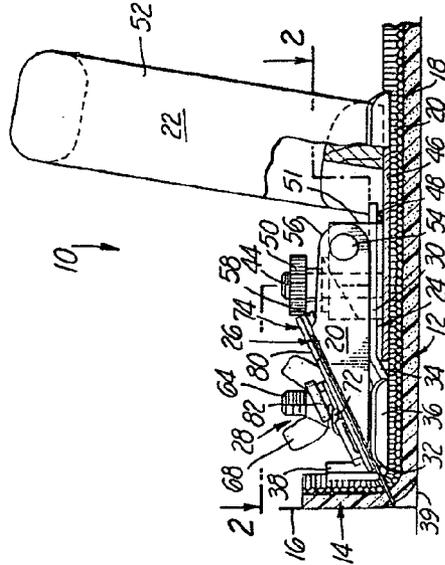


FIGURE 1A (PRIOR ART)

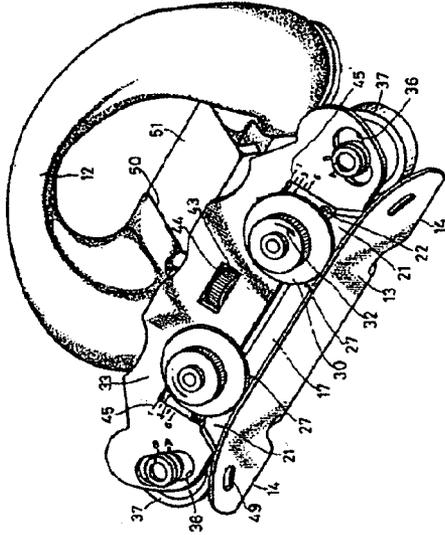


FIGURE 1B (PRIOR ART)

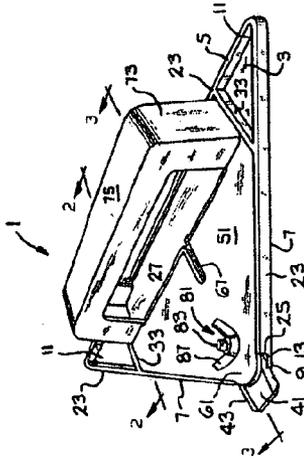


FIGURE 1C (PRIOR ART)

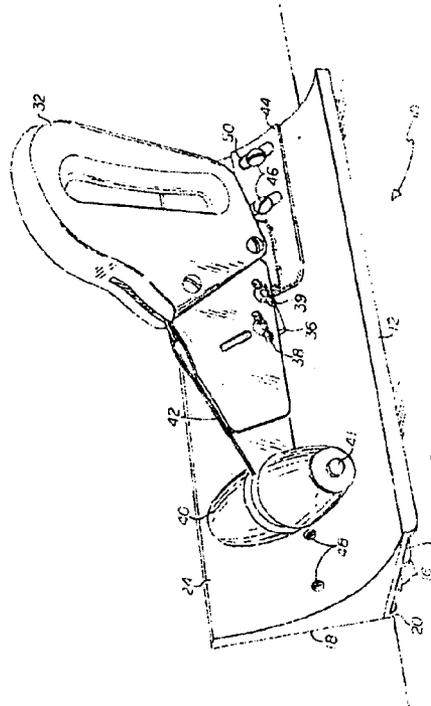


FIGURE 1D (PRIOR ART)

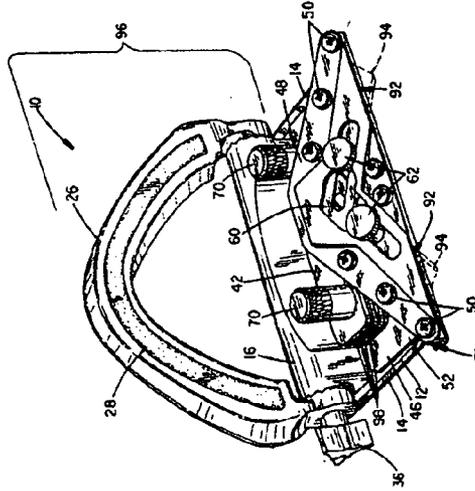


FIGURE 1E (PRIOR ART)

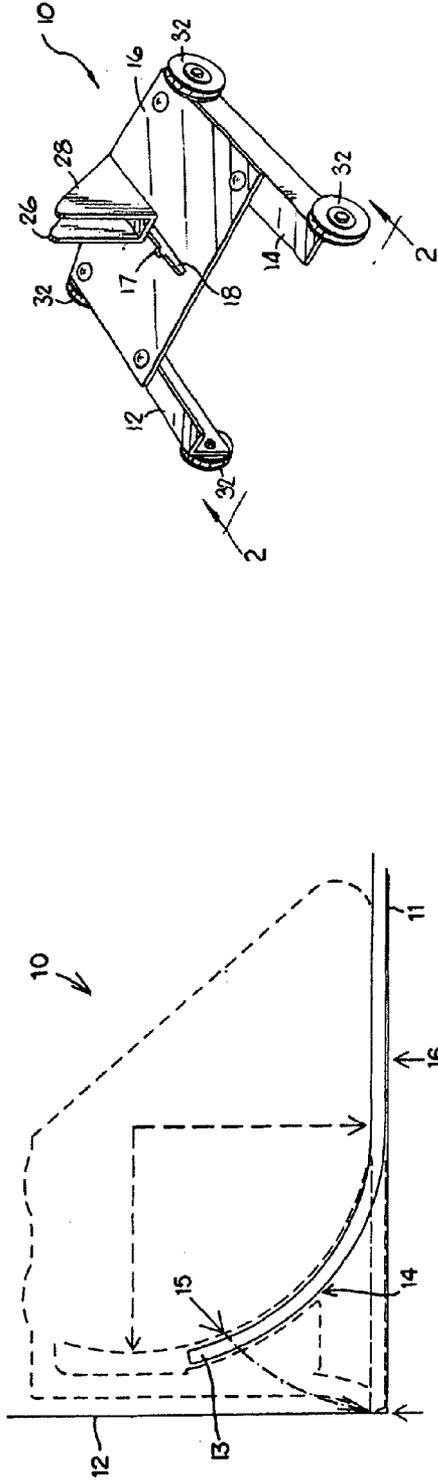


FIGURE 1G (PRIOR ART)

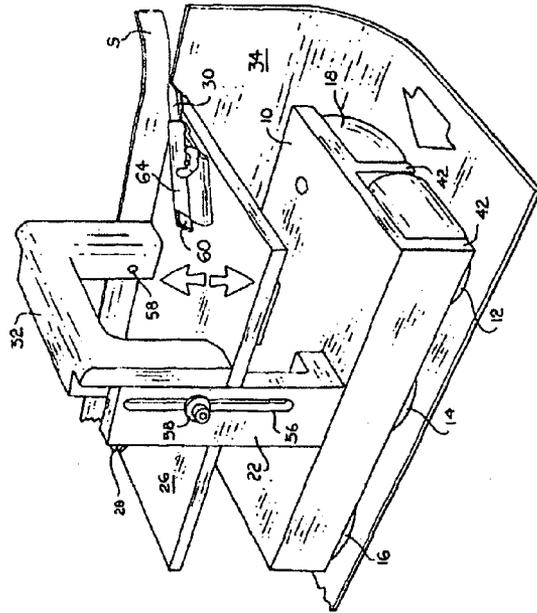


FIGURE 1H (PRIOR ART)

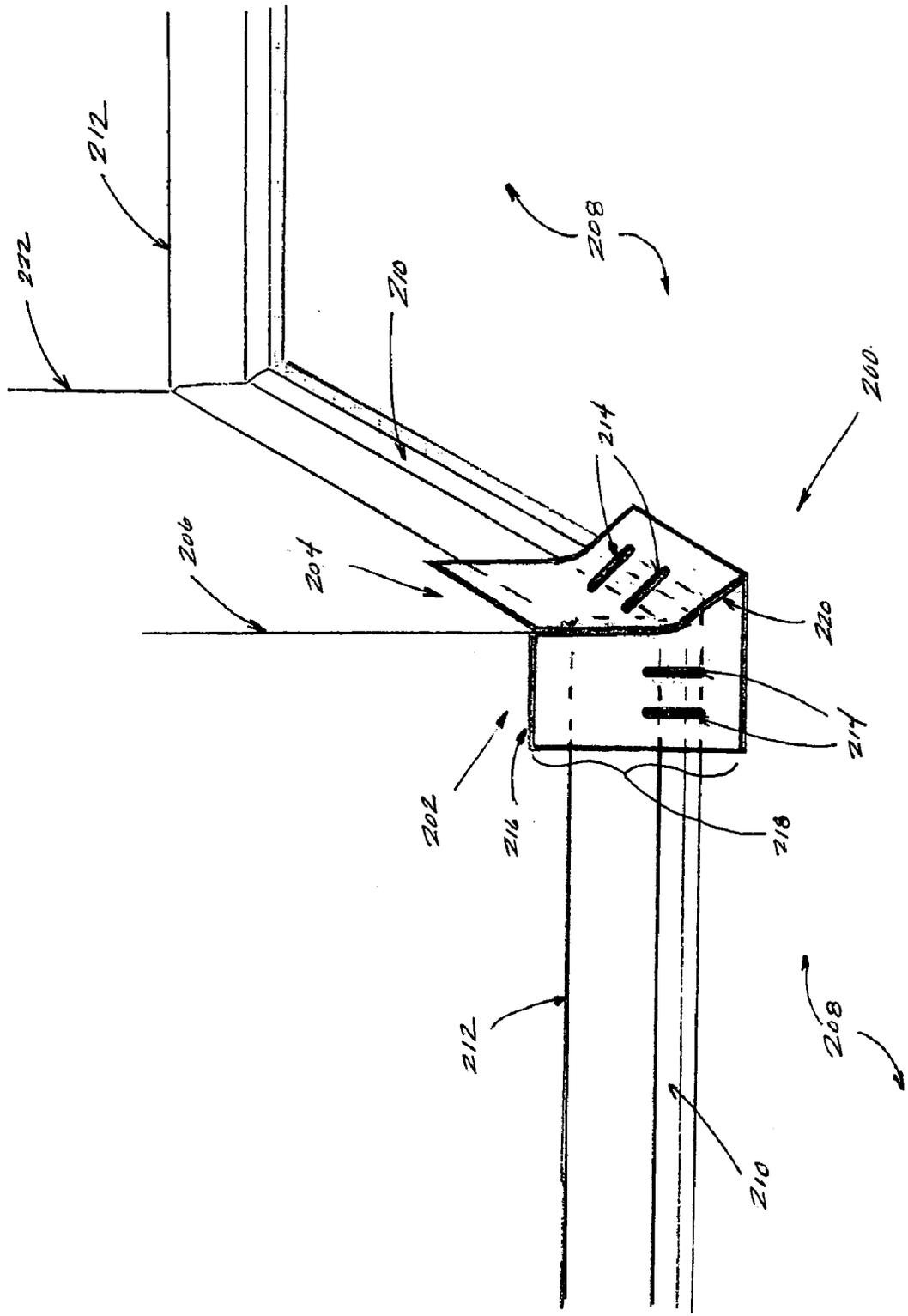


FIG. 2

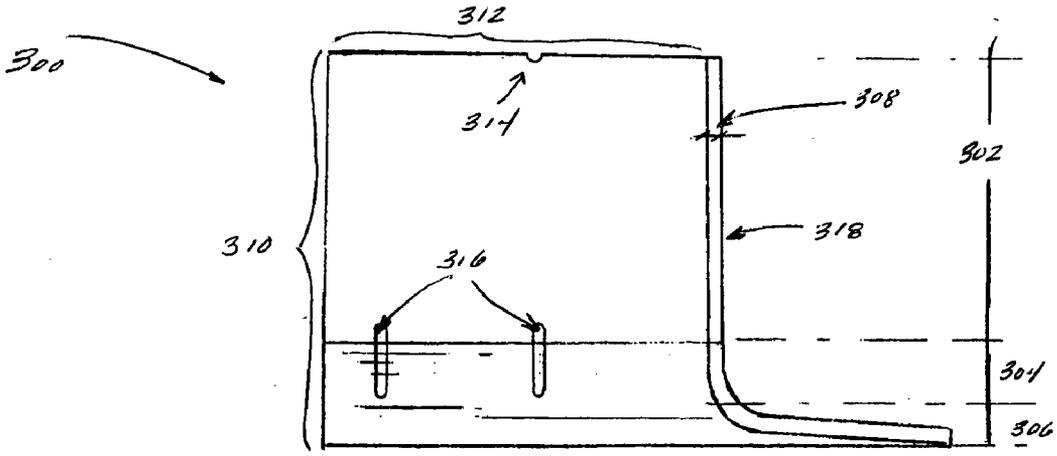


FIG. 3A

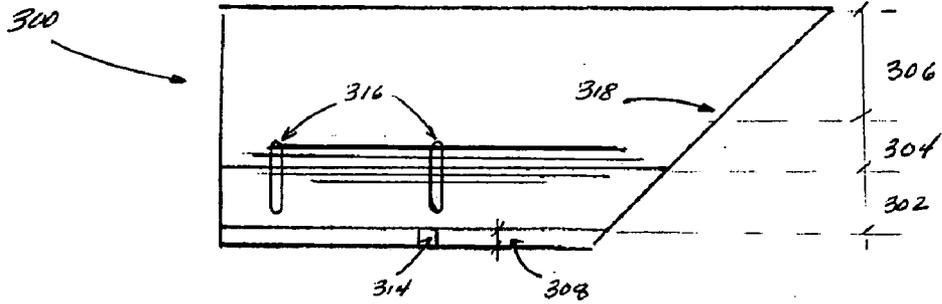


FIG. 3B

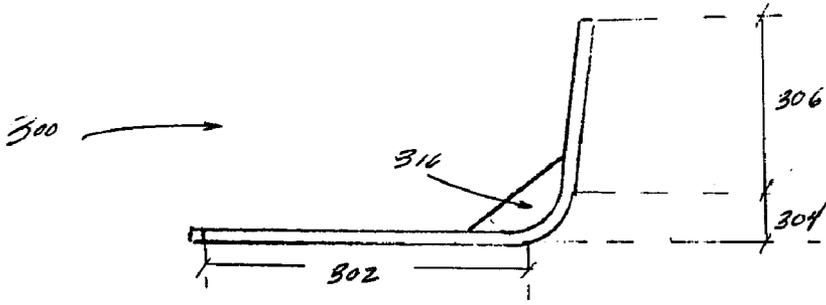


FIG. 3C

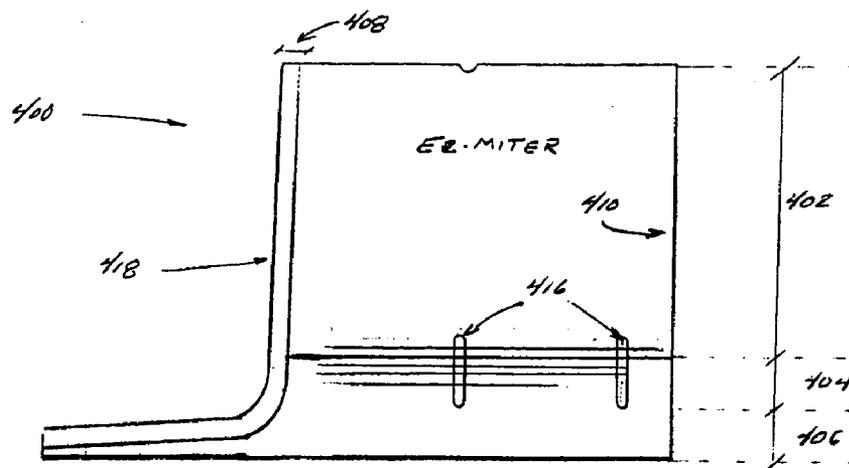


FIG. 4A

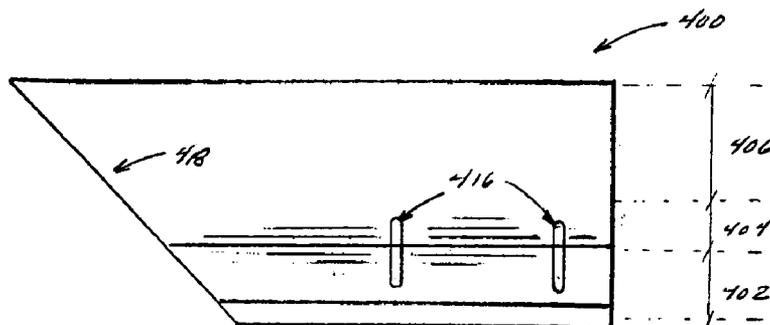


FIG. 4B

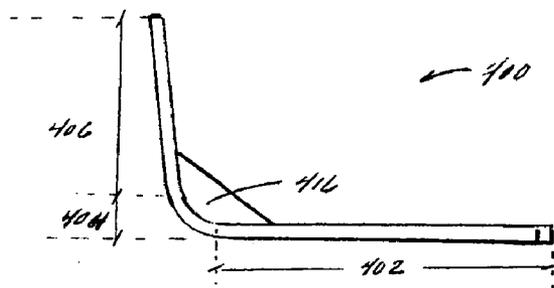


FIG. 4C

FLEXIBLE MATERIAL FLOORING MITER DEVICE AND SYSTEM FOR FLEXIBLE MATERIAL FLOORING INSTALLATION

FIELD OF THE INVENTION

[0001] The present invention generally relates to the field of flexible flooring installation. More specifically, the present invention relates to a device and method for the proper installation of flexible flooring such as sheet flooring and more particularly the formation of flash coving and proper installation thereof.

BACKGROUND OF THE INVENTION

[0002] Flexible flooring is commonly utilized as flooring cover in residential and commercial building. Depending on the intended use of a residential or commercial facility, various flooring options are available to the consumer. For example, residential and commercial linoleum, sheet vinyl floor coverings, glue down carpet products and other carpet products including rubber or vinyl backed carpets are commonly utilized in the art.

[0003] In fact, the desire to provide floor coverings exhibiting a hard, relatively waterproof surface for shielding the foundations and supporting structures from the daily grind of activities commonplace in the home is long ingrained in our culture. Primitive floor coverings included tamped earth mixed with oxblood which dried to a hard, easily-swept surface. Such floor coverings gave way to the introduction of floor cloths (common rudimentary squares of various cloth substances) in the eighteenth century. Floor cloths were primarily utilized in dining areas and were placed under dining room tables to catch crumbs rather than exposing the crumbs to the unprotected wood floors providing structural support to the domicile. Virtually after every meal, the floor cloths were removed and any debris was transported outside of the domicile as the cloths were shaken to loosen and remove the crumbs from the previous meal.

[0004] Over time, the floor cloths were improved upon, and in the early eighteenth century, floor cloths were soon loomed from sturdy coated fabrics. It became commonplace for floor cloths to be manufactured from canvas, hemp, and linen coated with oils or paints providing a virtually water-proof surface. These "oilcloths" were easily made at home and soon mass produced.

[0005] Mass produced oilcloths gave rise to the advent of a product now commonly called linoleum. Early linoleum was manufactured from linseed oil, cork gums, and pigment and was designed to exhibit a leather-like texture. Linoleum remained popular into the 1900's as a long-lasting floor covering and soon various floor covering alternatives emerged, including vinyl flooring which exhibited vibrant printed colors molded with a clear vinyl product.

[0006] Today, vinyl floor coverings are the prominent floor covering in both residential and commercial applications. Various individual products are known in the art such as residential rotogravure sheet flooring, residential interflex flooring, residential linoleum sheet flooring, residential dry-back tile, commercial linoleum sheet flooring, heterogeneous commercial sheet flooring, heterogeneous commercial tile flooring, homogeneous commercial sheet flooring, homogeneous commercial tile flooring, commercial felt-backed sheet flooring, commercial inlaid sheet flooring, commercial luxury solid vinyl flooring, commercial vinyl composition

tile, commercial slip-retardant sheet flooring, and commercial vinyl composition slip-retardant tile, just to name a few. Various manufacturers, including current manufacturers such as Armstrong World Industries, Inc.'s Floor Products unit and Congoleum Corporation, market various products for the aforementioned floor coverings categories under various trademarked names. For example, Armstrong World Industries, Inc.'s commercial linoleum sheet flooring line includes current products marketed under the names: Marmorette®, Granette®, Uni Walton®, Colorette®, Linorette®, Lino-dur®. Similarly, Armstrong World Industries, Inc.'s commercial solid vinyl sheet flooring line includes current products marketed under the names: Natural Creations® and Natural Options®.

[0007] Each of the aforementioned products are manufactured from various common raw materials. For example, the primary components of the aforementioned vinyl floor coverings include polyvinyl chloride (or vinyl) resins, plasticizers (high molecular-weight solvents), pigments and trace stabilizers, and a carrier sheet or backing. The backing is generally manufactured of felt or highly filled paper made from wood pulp and calcium carbonate. High-gloss surface vinyl sheets or vinyl tiles have an additional polyurethane coating applied at the end of the process.

[0008] In general, the manufacture of vinyl floor coverings involves a series of physical alternations to the various aforementioned raw materials. First, vinyl resins and plasticizers are mixed, creating a slurry commonly referred to as plastisol. A compound consisting of two nitrogen atoms which are united at both ends to separate carbon atoms is added to the base slurry. When the resins, plasticizers, and nitrogen compound is heated, the nitrogen compound decomposes forming nitrogen gas bubbles resulting in a vinyl foam. This foam-based slurry is transferred and spread onto the installation medium or backing. The slurry is placed on the felt or wood pulp backing via a reverse roll coater and adhered via heat application creating a vinyl gel whereby the vinyl resin absorbs the plasticizer. The gel is transferred through a printing press and is impressed, when desired, with metal intaglio plates for creating the carved decorative patterns. A second mixing of plasticizer and vinyl are applied to the printed gel and is transferred through a second heating system resulting in a clear vinyl known as wear layer. This top layer is designed as a protective portion to safeguard the decorative portion of the product. Once the wear layer is adhered, various finishes are applied with consistent thickness and the product is cured. Further, an adhesive layer may be affixed thereto.

[0009] Once manufactured and shipped, the floor covering is ready for installation. Depending on the desired size of installation, floor covering utilized, and various other parameters, basic installation is common to the various aforementioned sheet flooring products.

[0010] First, the subfloor must be prepared including the removal of any abrasive portions, removal of obstructions, grading of the flooring, the preparation of underlayments, sealing and/or patching of various subfloors, etc. Next the various adhesives are applied and the layout and fitting of the flooring is established.

[0011] Once the flooring is installed and fitted, the seams are addressed, often requiring difficult pattern matching of the various flooring products. Once the patterns are matched, seam cutting must be performed. Those of skill in the art will readily recognize that seam cutting is one of the most difficult

aspects of sheet flooring installation especially since it is relatively impossible to repair a mis-cut on a seam compared to other fitted regions.

[0012] There are three common methods for cutting seams. These include double-cut, recess scribed or underscribe, and straightedge and butt. Double-cut seams are generally used on heterogeneous and felt-backed materials—generally materials which can be cut through two layers with one cut. With a first piece installed and secured, a second piece is pattern matched, and a straightedge cut is made through both pieces of floor covering.

[0013] In contrast, recess scribe or underscribe seams are recommended for heavier materials. To perform this type of edge, a first piece is fit in place and straight-edged with a knife. A second piece is overlaid and a recess scriber is set to follow the straight-edged first piece to mark the desired cut. A straightedge knife is utilized to complete the cut along the scribed portion.

[0014] The final common cut is the straightedge and butt seam. This seam application is only utilized with certain products and requires aligned patterns of joined flooring which are cut in two distinct passes.

[0015] Once the seams are cut, seam coating products are utilized to virtually hide the seams in the materials from common view. In most instances, the seams are further heat welded to provide for a protected, water-resistant seam.

[0016] In many instances, the flooring installation is complete at this point. However, additional installation such as flash coving is required in numerous applications. Specifically, in many industrial and commercial institutions, flash coving is required. While many of skill in the art find seams to be a difficult application, flash coving is viewed as the specialty skill that separates a good installer from a great installer. The extensive steps and difficulty of each step with little room for error makes the preparation of flash coving one of the most difficult aspects of installing flexible flooring.

[0017] Advancements in utility knives, scribe knives, hook blade knives, rollers, straightedge tools and the like have made various portions of installing sheet flooring easier. However, while numerous inventions and advancements in the art have evolved to assist in the installation of sheet and tile flooring, few inventions have aided an installer with the flash coving aspect of flexible flooring installation.

[0018] The need for a device for aiding in the installation of flash coving will be readily apparent based on a review of several disclosures in the art. For example, various flexible flooring cutting tools developed in the art include Prater U.S. Pat. No. 3,395,453 entitled “Carpet Cutter,” Matsushita U.S. Pat. No. 4,001,936 entitled “Carpet Cutter,” Baughman U.S. Pat. No. 4,817,290 entitled “Trimming Tool,” Hyer et. al U.S. Pat. No. 6,112,417 entitled “Precision Vinyl & Carpet Trimmer,” and Taylor et. al U.S. Pat. No. 6,230,410 entitled “Wall Trimmer for Carpet and Vinyl Floor Coverings.”

[0019] The carpet cutters disclosed by Prater U.S. Pat. No. 3,395,453 (depicted as FIG. 1A PRIOR ART in the present disclosure), Matsushita U.S. Pat. No. 4,001,936 (depicted as FIG. 1B PRIOR ART in the present disclosure), and Baughman U.S. Pat. No. 4,817,290 (depicted as FIG. 1C PRIOR ART in the present disclosure) are each designed to address the excess material at the intersection of a wall and a floor evident in the installation of primarily cushion-backed carpets. Each cutter is designed with a plurality of blades posi-

tioned to cut the excess material within close proximity to the wall thereby allowing for a relatively precision cut of the carpet material.

[0020] An improvement to the aforementioned cutters includes Hyer et. al U.S. Pat. No. 6,112,417. While Prater, Matsushita, and Baughman are directed to carpet cutting instruments, the Hyer et al. invention is directed to a device for cutting carpets and vinyl flooring products. Hyer et al. (depicted as FIG. 1D PRIOR ART in the present disclosure) discloses a “hand operated trimmer for trimming an edge of vinyl, carpet or the like being installed on a floor so that the cut edge of the floor covering will lie closely against an adjacent wall. The trimmer comprises an elongated base member and an integral cutting blade” wherein the base member is manufactured in a generally triangularly shape whereby the members of the base form a right angle and pressure applying rollers are employed for securing the flooring during cutting. The Hyer et al. disclosure further overcomes the disadvantages of the prior art by further providing a handle allowing the user to place sufficient pressure on the device to further secure the material to be cut.

[0021] Continuing with the advancements in the art of installing flexible flooring, Taylor et al. U.S. Pat. No. 6,230,410 (depicted as FIG. 1E PRIOR ART in the present disclosure) further discloses an improved trimmer tool. In particular, Taylor et al.’s tool is designed to be used in both directions along walls, and may be used right or left handed.

[0022] A further improvement in the art is directed to a linoleum trimming tool. Specifically, Fortin U.S. Pat. No. 5,189,795 (depicted as FIG. 1F PRIOR ART in the present disclosure) is entitled “Precision linoleum edge trimming tool.” Fortin discloses a trimming tool designed for trimming edge portions of linoleum to fit against a bordering wall. The tool exhibits a downwardly opening throat, extending lengthwise and protruding therethrough each end. The throat is designed of sufficient dimension “to enable an edge portion of the thickest and stiffest linoleum to be entered in and pass through the throat and be held upwardly curved against the outer wall of the throat as the tool is advanced along the wall with spaced edge portions in engagement with the wall at its junction with the floor or a covering thereon and disposed to hold the front of the tool out of contact with the wall or a baseboard.” Fortin further discloses “[t]he tool has a holder for a blade exposed in the throat in the trailing end and disposed to sever the edge portion against the outer or front wall of the throat as the tool is advanced.”

[0023] As disclosed, the Fortin tool is primarily designed for easily trimming and making cuts in linoleum at points of intersection at a wall during installation. The Fortin tool is an elaborate device including a series of adjustments and a cutting edge with the singular purpose of cutting linoleum.

[0024] Recognizing the inherent flaw in providing a device with the single purpose of cutting linoleum, Fortin obtained an independent second patent for a flexible wall trimming device. Specifically, Fortin U.S. Pat. No. 5,450,672 is directed to a second flexible material wall trimming tool designed for trimming flexible or soft flooring materials and wall covering cove materials at the intersection of a floor and wall. As disclosed, the Fortin device “is adapted for cutting soft residential linoleum and sheet vinyl floor coverings, glue down carpets and other soft carpet materials including carpets with rubber or vinyl backing and carpet tiles, and wall covering materials such as vinyl or rubber cove material covering the baseboard area of a wall. The manual trimmer “is adjust-

able to provide the desired tightness of fit and to match a flexible floor covering and wall cove covering with a desired trim fit at the floor/wall intersection.”

[0025] While Fortin, like the aforementioned disclosures, attempted to improve the cutting tools common in the art for cutting flexible flooring at the intersection of a wall, Fortin failed to provide an improved tool for addressing various additional aspects related to the installation of flexible flooring. Specifically, Fortin’s inventions and the other aforementioned inventions, fail to provide any means to assist in the installation of flash coving common in many installations.

[0026] While the aforementioned inventions are directed to improved cutting devices, other disclosures in the art are directed to other aspects of flexible flooring installation. For example, systems for improved seam sealing and heat welding are known in the art. Additional disclosures are directed to the installation of custom insets in flexible flooring. Further inventions in the art are directed to guide tools for making precision cuts. One of these disclosures includes Terhorst U.S. Pat. No. 5,485,676 entitled Carpet Cutting Knife Guide. Terhorst (depicted as FIG. 1G PRIOR ART in the present disclosure) is directed to an improved system for making accurate straightedge cuts by providing a knife guide for cutting overlapping adjacent edges of two pieces of carpet to be laid adjacently on a floor. The guide disclosed by Terhorst includes two lateral members, a platform member exhibiting “an opening through which at least a blade of a carpet cutting knife member can pass to thereafter be positioned substantially at the floor. The opening has in conjunction therewith at least one friction fit means whereby a portion of the knife member can be releasably retained.” The Terhorst system further includes wheels for “manually moving the guide over the overlapping edges of the carpet to be cut.” Thus, the Terhorst system guides the cutting knife to permit an operator to efficiently and precisely cut overlapping edges of the carpet. While the Terhorst system is designed to properly cut carpet (and arguably other flexible flooring), the system fails to provide a system or method for aiding an installer in creating flash coving.

[0027] While the aforementioned inventions are directed to various improvements in the art for installing flexible flooring, each invention fails to provide an improved system and method for installing flash coving and creating precision flash coving seams. In contrast to the aforementioned disclosures, Stanbery et al. U.S. Pat. No. 4,549,351 addresses an improved apparatus directed to assisting an installer with a flash coving installation. Specifically, Stanbery et al. (depicted as FIG. 1H PRIOR ART in the present disclosure) is directed to a “hand-operated cutter of flooring material characterized by a substantially rectangular base supported by three cylindrical roller wheels, a pair of guide posts rising from an upper surface of the base, a cutter plate adjustably attached to the guide posts, and a pair of razor blades angularly clamped to opposing ends of the cutter plate. The device also includes cove forming mechanism including a pair of separated, half-spherical wheels adapted to urge the flooring material into the juncture between the floor and wall surfaces. The height of the cutter plate above the base is adjustable to cut the flooring material at a user selectable height above the floor.” Clearly, the Stanbery et al. device is adapted to cut the portion of flexible material at the top edge of the flash coving. While arguably a useful development in the art, this device fails to aid an installer in creating miter joints of the flash coving at the intersection of the wall and floor

[0028] Recognizing the failure of an improved apparatus and method for installing flash coving in flexible flooring installations, the present disclosure is directed to assist an installer create flash coving in flexible flooring installation.

SUMMARY OF THE INVENTION

[0029] In view of the foregoing disadvantages inherent in the known and various flexible flooring installation systems and devices now disclosed in the prior art, in accordance with a first preferred embodiment of the present invention, provided is a flash coving installation guide device for aiding an installer to make proper flash coving cuts and seams. More specifically, the first preferred embodiment is designed to be utilized to control and ultimately eliminate extensive damage to products and injuries to installers common with creating flash coving in flooring devices.

[0030] The primary purpose of the present invention, which will be described subsequently in greater detail, is to provide a first preferred embodiment concerning a guide tool for concise and proper cuts in flexible flooring to allow for the creation of proper seams in flash coving. The present invention is directed to a trim corner guide manufactured in a first right hand trim corner guide and a second left hand trim corner device. The devices are manufactured of sufficient material to act as a guide for a utility knife while cutting flexible flooring and are of sufficient thickness to allow the knife to extend beyond the guide.

[0031] The hand-operated left hand trim corner guide is manufactured from a single piece of sturdy plastic material and is composed of a lower base having an upper surface and an underside adapted for contact with a flooring surface integrated with a curved cove forming portion angled to form an approximate ninety degree angle adapted to press the flooring surface into the subfloor and wall at or about an inside or outside corner. Due to inconsistencies in construction, in the preferred embodiment, this angle is increased to roughly ninety-five degrees as to allow the user to apply sufficient pressure to bend the guide to the approximate wall/floor angle and securely hold guide in place. The curved cove forming portion is further integrated with an upper portion of sufficient height to press flooring material against wall. Further integrated with the guide are guide post members allowing the installer to hold the guide in place and apply pressure to guide as to minimize movement of the guide during the cutting process. The left portion of guide is generally manufactured as a straight-edge while the right miter edge portion of guide is manufactured at a forty-five degree angle to allow for an angled miter cut at intersection of flooring material so as to create an aligned seam when installing flash coving.

[0032] The right hand trim corner guide is manufactured of generally mirrored-image dimensions so as to mate with left hand trim corner guide. Specifically, The right portion of right hand trim corner guide is generally manufactured as a straight-edge while the left miter edge portion of right hand trim corner guide is manufactured at a forty-five degree angle to allow for an angled miter cut at intersection of flooring material so as to create an aligned seam when installing flash coving. Thus, when left hand trim corner guide and right hand trim corner guide are aligned at respective miter edge portion, the two guides mate to form an outside ninety degree corner.

[0033] Thus, there has been summarized and outlined, generally in broad form, a plurality of the most important features of the present invention, as described with respect to the foregoing preferred and alternate embodiments, in order that

the following detailed description thereof which follows may be better understood by one of ordinary skill in the art. This summary and outline is further presented so that the novelty of the present contribution to the related art may be better appreciated. It will further be apparent that additional features of the invention described hereinafter and which will form the subject matter of the claims appended hereto will further define the scope, novelty, and in certain instances the improvements upon any existing art.

[0034] Further, it is to be readily understood that the invention presented herein is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the various figures integrated and categorized herein. The scope of the disclosure is presented in broad form so that other objects, features, and characteristics of the present invention, as well as the methods of operation and functions of the related elements of the structure, and the combination of parts and economies of manufacture, will become more apparent upon consideration of the following detailed description.

[0035] Those skilled in the art will appreciate that the disclosure of the present invention may readily be utilized as a basis for the designing of other similar structures, methods and systems for carrying out the various purposes and objectives of the present invention. Thus, the claims as set forth shall allow for such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention as described herein.

[0036] It is therefore an object of the present invention to provide a system and method for providing accurate mitered cuts for the installation of flexible flooring.

[0037] One further object of the present invention is to provide a system and method which provides for a safe means for installing flash coving and allows for accurate cuts in flexible flooring while preventing utility knife slippage so as to reduce the likelihood of user injury.

[0038] Another object of the present invention is to provide a system and method that is simple to manufacture yet highly effective in the art

BRIEF DESCRIPTION OF THE DRAWINGS

[0039] A further understanding of the present invention and the objectives other than those set forth above can be obtained by reference to the various embodiments set forth in the illustrations of the accompanying figures. Although the illustrated embodiment is merely exemplary of systems for carrying out the present invention, both the organization and method of operation of the invention, in general, together with further objectives and advantages thereof, may be more easily understood by reference to the drawings and the following description. The figures are not intended to limit the scope of this invention, which is set forth with particularity in the claims as appended or as subsequently amended, but merely to clarify and exemplify the invention. The detailed description makes reference to the accompanying figures wherein:

[0040] FIG. 1A (PRIOR ART) depicts a side view schematic of the Prater U.S. Pat. No. 3,395,453 prior art entitled "Carpet Cutter" illustrating the manner in which the trimmer serves the upwardly turned edge of the cushion back carpet along a wall to produce a squared edge carpet to butt snugly against a wall.

[0041] FIG. 1B (PRIOR ART) depicts a perspective view of the Matsushita U.S. Pat. No. 4,001,936 prior art entitled "Car-

pet Cutter" wherein the Matsushita system is designed to cut any excess edges of a carpet at its bend toward the wall to the size of a room after it has been laid in the room.

[0042] FIG. 1C (PRIOR ART) depicts a schematic of the Baughman U.S. Pat. No. 4,817,290 prior art entitled "Trimming Tool" wherein a trimming tool having an adjustable blade that can be used to trim carpeting, wallpaper and similar linear materials is detailed.

[0043] FIG. 1D (PRIOR ART) depicts a schematic of the Heyer et al. U.S. Pat. No. 6,112,417 prior art entitled "Precision Vinyl & Carpet Trimmer" exhibiting a perspective view of the device "with this view revealing an elongated base member having a generally triangularly-shaped cross section, with two of the elongate external surfaces of the base member meeting essentially at a right angle and adapted to be moved along the floor-wall intersection, with this device also having a concave front surface along which a sheet of vinyl or other floor covering can pass longitudinally, with this view also revealing a handle to be grasped by the vinyl installer, and pressure-applying rollers provided for maintaining a sheet of vinyl in close contact with the concave surface, so that the operatively mounted blade can cut the vinyl."

[0044] FIG. 1E (PRIOR ART) is a schematic of the Taylor et al. U.S. Pat. No. 6,230,410 prior art entitled "Wall Trimmer for Carpet & Vinyl Floorcoverings" prior art depicting a perspective view of the cutting tool designed for cutting floor coverings near walls wherein "[i]n its simplest form, the wall trimmer comprises a generally planar base plate adapted to be slid on floor coverings. A handle assembly is attached to said base plate for moving said wall trimmer along a path. The device further includes a blade guide assembly retaining a pair of blades, and a mounting assembly for mounting said blade guide assembly on said base plate."

[0045] FIG. 1F (PRIOR ART) is a schematic of the Fortin U.S. Pat. No. 5,189,795 prior art entitled "Precision Linoleum Edge Trimming Tool" prior art depicting the front view of the trimming tool for cutting the heaviest and stiffest linoleum as well as the more flexible, lighter linoleum lengths and carpeting.

[0046] FIG. 1G (PRIOR ART) is a schematic of the Terhorst U.S. Pat. No. 5,485,676 prior art entitled "Carpet Cutting Knife Guide" prior art depicting the perspective view of the knife guide for cutting overlapping adjacent edges of two pieces of carpet to be laid adjacently on a floor.

[0047] FIG. 1H (PRIOR ART) is a schematic of the Stanbery et al. U.S. Pat. No. 4,549,351 prior art entitled "Coving Cutter Assembly" prior art depicting the perspective view of the coving cutter assembly for cutting a flexible covering material to form a cove over the juncture of a substantially horizontal floor surface and a substantially vertical wall surface.

[0048] FIG. 2 is a frontal view of the preferred embodiment of the present invention wherein provided is miter corner guide system utilized in flexible sheet flooring installation.

[0049] FIG. 3A is frontal perspective view of a left trim corner guide disclosed as the preferred embodiment of the present invention utilized in flexible sheet flooring installation.

[0050] FIG. 3B is top perspective view of a left trim corner guide disclosed as the preferred embodiment of the present invention utilized in flexible sheet flooring installation.

[0051] FIG. 3C is side perspective view of a left trim corner guide disclosed as the preferred embodiment of the present invention utilized in flexible sheet flooring installation.

[0052] FIG. 4A is frontal perspective view of a right trim corner guide disclosed as the preferred embodiment of the present invention utilized in flexible sheet flooring installation.

[0053] FIG. 4B is top perspective view of a right trim corner guide disclosed as the preferred embodiment of the present invention utilized in flexible sheet flooring installation.

[0054] FIG. 4C is side perspective view of a right trim corner guide disclosed as the preferred embodiment of the present invention utilized in flexible sheet flooring installation.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0055] A detailed illustrative embodiment of the present invention is disclosed herein. However, techniques, systems and operating structures in accordance with the present invention may be embodied in a wide variety of forms and modes, some of which may be quite different from those in the disclosed embodiment. Consequently, the specific structural and functional details disclosed herein are merely representative, yet in that regard, they are deemed to afford the best embodiment for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention. The following presents a detailed description of a preferred embodiment (as well as some alternative embodiments) of the present invention.

[0056] Moreover, well known methods, procedures, and substances for both carrying out the objectives of the present invention and illustrating the preferred embodiment are incorporated herein but have not been described in detail as not to unnecessarily obscure novel aspects of the present invention.

[0057] The method for installing sheet flooring flash coving is complex and highly dependent on the skill of the craftsman as much of the installation requires free-hand forming of the material. Specifically, a craftsman must free hand many of the cuts that are ultimately fused to create seams that must be relatively hidden after they are joined resulting in a “seamless” presentation.

[0058] While flash coving may be installed by various craftsmen in generally different manners, the most common system for installing flash coved sheet flooring recommended by Armstrong World Industries, Inc. is expressed herein in reference to the use of the present invention. (See *Armstrong, Guaranteed Installation Systems* 2006/2007; AWI, 2006). However, while various craftsmen may install the flooring in different manners and rely on individual expertise, it will be evident to those of ordinary skill in the art that the present invention may be utilized for all methods of flash coving installation known in the art as well as modified methods of the future.

[0059] Thus, in order to install flash coving, the floor must be properly prepared and the cap strip and cove stick must be installed. With these installations in place, the scribing felt pattern can be set. Particularly, the craftsmen must cut in the scribing felt or guide paper to the edges of the cove stick. Once cut, the edges of the scribing felt are butted together and secured to the floor.

[0060] At this point of installation it is recommended that two templates are created from either scrap material or other similar material. The first template is created in a “T” structure, exhibiting approximately eight inches in height and six inches in width on the upper portion of the “T” and two inches

in width on the base portion of the “T”. The second template, created from the same material, is in a triangular form with legs of four inches. At the right angle of the triangle, a protruding portion of one and one half inch radius for the cove base is formed. To form this second template, the craftsman must first draw a four inch square on the scrap material and connect two opposing corners with a diagonal line. At one corner, extend the diagonal line one inch beyond the corner. To mark the point on the template, set the dividers using the same radius as the cove stick and swing arcs touching the edge of the square piece and the diagonal intersecting line. This point of the template will allow the user to mark the inside corners. While this is likely the most common dimensions for each template, modification to size may be apparent depending on the desired height of the cove stick and other installation factors.

[0061] With the templates created, the first template is placed in the inside corner and under the cap strip. Pressed firmly into the cove stick, the craftsman utilizes the template to trace around the portion of the template interacting with the felt paper. This step is repeated on the alternate side of the inside corner. It is further recommended that when marking the inside corners, an allowance is made for one piece of material fitting against the other by inserting a scrap piece between the wall and the template. In addition, it is typical in the art to make the allowance on the side of the inside corner that is fitted last. Continuing with the first template, the craftsman marks at various distances the height of the cap strip at several places along the wall.

[0062] An overhang is provided on the side opposite where the fill piece will be fit. Along the wall where the fill piece will be placed, a straightedge line is placed on the felt paper a predetermined distance from the wall in a direction parallel to the wall. A second line is drawn by the craftsman extending at a forty-five degree angle from the outside corner miter of the cove stick. With all lines scribed onto the scribing felt, crosslines are etched at the seams for reference.

[0063] With the pattern complete, the lines are transferred from the scribing felt onto the material, where necessary the angle marks and other marks are connected with a straight-edge, the forty-five degree angle cut is extended approximately three inches, and the flooring material is prepared for cutting. Since the cutting stage requires the most skill in the field, the scribe marks must be relatively accurate to provide for a “seamless” installation. In certain portions, stop cuts, parallel to the scribes, to prevent material tearing and safety cuts to prevent the knife from sliding and injuring the craftsmen are created. Portions are also taped at stress points to further prevent tears.

[0064] Once cut, spread adhesive is applied on the floor to act as a securing means to integrate flooring material with floor. Once the cut flooring material is placed in the room, certain portions are seated and the flooring material is placed gently into the corners. After the seating the flooring material and tucking the corners, flooring material is inserted under the cap strip starting at the center portions of the walls. To assist in the installation under the cap strip, a heating gun may be utilized to alter the pliability of the flooring material and prevent damage to the flooring material. To secure the material in place, the flooring material is also seated utilizing a roller.

[0065] The next step in anchoring flash coved sheet flooring material, and most relevant step to the use of the present invention, is the formation and installation of the mitered

outside corner. Finishing the outside corner is typically completed roughly by hand by each craftsman and the quality of each corner seam is highly dependent on the skill of the installer. Further, damage at the outside corner may result in substantial repair time and material costs to mend or reconstruct the portion of damaged material.

[0066] The first step for constructing and finishing a mitered outside corner requires a craftsman to position a recess scribe at an outside corner to mark the section extending beyond the corner. To avoid damage to the material, a protective piece of scrap material is utilized as a guide for the knob of the scribe to ride against the wall. This use of scrap material also provides for an allowance for the fill piece to miter to the portion being marked. The second step requires a craftsman to create a second scribe at the vertical section to the top of the cove stick.

[0067] Again, utilizing the first template previously prepared, the third step in finishing the corner requires a craftsman to position the template along the forty-five degree line on the flooring material and curve the template upwards along the radius of the cove stick to the vertical scribe line and etch a guide line along the edge of the template. According to the fourth step, positioning a knife at a forty-five degree angle to the corner, a craftsman free hands a cut from the top vertical scribe to along the miter of the cove stick to the bottom portion of the cove stick. Remove the scrap material created from the cutting area without cutting the portion in contact with the floor as this portion, with the fill piece in position, will be double cut to provide a proper seam.

[0068] The aforementioned fill piece created in an "L" shape as step five is created by an installer utilizing free hand cuts. With the fill piece formed and heated, it can be positioned within the material void to allow the craftsman to utilize the recess scribe set for an outside scribe to scribe the vertical section from the top of the cove stick.

[0069] Again, positioning the first template along the forty-five degree line on the flooring material, the seventh step of installation, requires the craftsman to scribe the vertical portion of the fill piece up the radius of the cove stick until the scribe intersects the bottom of the scribe line previously created. Next (the eighth step of installation), positioning a free hand knife at a forty-five degree angle to the corner, the craftsman cuts downwards from the top of the scribe line along the miter near the cove stick. Again the scrap is removed from the location without cutting the portion closest to the floor as this portion will serve as the upper material of the aforementioned double cut.

[0070] The ninth step of installation requires the removal of the fill piece and the application of adhesive material thereto. The fill piece is subsequently heated, placed within the void portion, and rolled into place. The aforementioned double cut through the first layer of flooring material from the bottom of the cove stick to the edge of the fill piece (tenth step).

[0071] The eleventh and final step of installation requires the craftsman to burnish the miter on the wall and around the cove stick cut. Fine sandpaper may be utilized on the outside corners of the miter to remove any burrs caused by the recess scribe.

[0072] From the aforementioned eleven step process, it is apparent that the installation of sheet flooring requires a high level of specific skill for numerous reason. First, a craftsman must apply specific knife angles to provide elaborate cuts and resulting "hidden" seams. Further, a craftsman must create specific field cuts on templates created from scrap material

that must include accurate and precise angles. In addition, a craftsman must be skilled with a recess scribe and other specific tools to create accurate cuts and guides. It is apparent that improper use of these tools may result in damage to flooring material secured in place and ultimately in excessive repairs to installed materials. Finally, as each of the aforementioned cuts are performed free hand by the craftsman, it is readily apparent to those of skill in the art that without any protection devices, any intended movement of the knife during a cut could result in excessive injury to the craftsman.

[0073] It is readily apparent that there exists a need in art to provide a singular tool or guide apparatus which allows a user to avoid the excessive field free hand cuts. Thus, presented is a guide apparatus for assisting a craftsman perform the aforementioned cuts in forming the miter corners required for the installation of flash coving in sheet flooring applications as defined in the steps one through eleven, supra.

[0074] Referring first to FIG. 2, depicted is the preferred embodiment of the present invention wherein provided is miter corner guide system **200** utilized in flexible sheet flooring installation. Specifically, depicted is left hand trim corner guide **202** and right hand trim corner guide **204** designed as generally mirrored images to intersect at an outside miter corner **206** (compared to inside miter corner **222**, wherein alternate guide systems can be manufactured in different dimensions as an alternate embodiment of the present invention) and each left hand trim corner guide **202** and right hand trim corner guide **204** further providing an outside straight-edge **218** to assist in creating filler flooring pieces and other desired cuts.

[0075] In the preferred embodiment, left hand trim corner guide **202** and right hand trim corner guide **204** are manufactured as injection molded construction to provide a rigid yet inexpensive form of manufacture. Left hand trim corner guide **202** and right hand trim corner guide **204** are fabricated of specific thickness to act as a sufficient guide for use with common utility knives utilized in the art. For example, in the present preferred embodiment, it has been determined that left hand trim corner guide **202** and right hand trim corner guide **204** may be manufactured of 0.125 inch thickness, however, it is contemplated by the present disclosure that various thicknesses may be utilized depending on the thickness of flexible sheet flooring material and protruding knife dimensions. Further, inner guide portion **220** of left hand trim corner guide **202** and right hand trim corner guide **204** are manufactured at forty-five degree angles to provide for proper knife positioning for cutting. While a forty-five degree angle is preferred, due to inconsistencies in construction, various alternative angles may be used in the event different knife positions are desired.

[0076] Still referring to FIG. 2, in the preferred embodiment of the present invention, left hand trim corner guide **202** and right hand trim corner guide **204** are manufactured of polypropylene. However, in keeping with the principles of the present invention, various rigid materials may be utilized in the construction. For example, it is contemplated by the present invention that various metals, such as aluminum, iron, copper, zinc, nickel and various alloys (such as steel, brass, bronze, etc.), various synthetic or semisynthetic polymerization materials (i.e., plastics), such as (polyvinyl chloride, polystyrene, polyethylene, polymethyl methacrylate and other polymers, acrylics, silicones, polyurethanes, etc.), various glass fiber materials including polymers reinforced with glass fibers, or any other material or combination of materials

may be utilized as the medium for the creation of miter corner guide system 200. Ideally, it is contemplated by the present disclosure that the miter corner guide system 200 may be manufactured of any material, in addition to the aforementioned material examples, which can be formed into desired thickness, size and angle yet can act as a guide product to provide accurate cuts and angles by a knife apparatus and further can serve to protect a craftsman from errant knife movement.

[0077] Left hand trim corner guide 202 and right hand trim corner guide 204 further include guide posts 214. Guide posts 214 are integral with left hand trim corner guide 202 and right hand trim corner guide 204 and allow the user specific pressure points and grab points at or near the curved cove forming portion of left hand trim corner guide 202 and right hand trim corner guide 204. Guide posts 214 of left hand trim corner guide 202 and right hand trim corner guide 204 allow the user to place left hand trim corner guide 202 and right hand trim corner guide 204 in the desired position and minimize movement of the guide during the cutting process. Guide posts 214 further provide protection for the hands of the user from an errant knife during cutting.

[0078] In the preferred embodiment it has been determined that left hand trim corner guide 202 and right hand trim corner guide 204 should be manufactured from a single piece of sturdy plastic material and is composed of a lower base having an underside adapted for contact with a flooring surface and an upper portion with an upper portion edge 216 having a height relevant to the cap strip 212 further adapted for contact with a wall surface. Lower base and upper portion of left hand trim corner guide 202 and right hand trim corner guide 204 are integrated at curved cove forming portion angled to be placed in contact with cove strip 210 to form an approximate ninety degree angle adapted to press the flooring surface into the floor 208 and press against the wall at or about an inside or outside corner when pressure is applied by the craftsman. Due to inconsistencies in construction, in the preferred embodiment, this angle is increased to roughly ninety-five degrees as to allow the user to apply sufficient pressure to bend the left hand trim corner guide 202 and right hand trim corner guide 204 to the approximate wall/floor angle and securely hold guide in place.

[0079] The left edge portion 218 of left hand trim corner guide 202 is generally manufactured as a straight-edge while the right miter edge portion 220 of left hand trim corner guide 202 is manufactured at a forty-five degree angle to allow for an angled miter cut at intersection of flooring material so as to create an aligned seam when installing flash coving. Right miter edge portion of left hand trim corner guide 202 is further angled to allow for proper alignment, placement, and angling of knife so that knife cuts and the desired angle to allow for a seamless integration of flooring materials.

[0080] The right hand trim corner guide 204 is manufactured of generally mirror-image dimensions so as to mate with left hand trim corner guide 202. Specifically, the right portion of right hand trim corner guide 204 is generally manufactured as a straight-edge while the left miter edge portion of right hand trim corner guide 204 is manufactured at a forty-five degree angle to allow for an angled miter cut at intersection of flooring material so as to create an aligned seam when installing flash coving. Thus, when left hand trim corner guide 202 and right hand trim corner guide 204 are aligned at respective miter edge portion, the two guides mate to form an outside ninety degree corner.

[0081] Turning next to FIG. 3A, depicted is a frontal perspective view of a left trim corner guide 300 disclosed as the preferred embodiment of the present invention utilized in flexible sheet flooring installation. Left hand trim corner guide 300 is composed of a lower base 306 having an underside adapted for contact with a flooring surface and an upper portion 302 with an upper portion edge 312 having a height relevant to the cap strip further adapted for contact with a wall surface. Upper portion 302 of left hand trim corner guide 300 further includes recess 314 which may be positioned to serve as an alignment guide and is generally a result of forming injection molded components. The left edge portion 310 of left hand trim corner guide 300 is generally manufactured as a straight-edge while the right miter edge portion 318 of left hand trim corner guide 300 is manufactured at a forty-five degree angle to allow for an angled miter cut at intersection of flooring material so as to create an aligned seam when installing flash coving. Right miter edge portion 318 of left hand trim corner guide 300 is further angled to allow for proper alignment, placement, and angling of knife so that knife cuts are made at the desired angle to allow for a seamless integration of flooring materials. In the preferred embodiment, thickness 308 of left hand trim corner guide 300 is approximately 0.125 inch thickness, however, it is contemplated by the present disclosure that various thicknesses may be utilized depending on the thickness of flexible sheet flooring material and protruding knife dimensions.

[0082] Underside of lower base 306 and upper portion is comprised of a generally smooth surface in the preferred embodiment, however, it is contemplated that various other surfaces incorporating a light grit or harder grit substance may be utilized so as to prevent movement of the guides when pressure is applied without damaging the floor or wall. Additional materials may be adhered depending on the desired stiffness and tactile nature of the exposed service of guide. Lower base 306 and upper portion 302 of left hand trim corner guide 300 are integrated at curved cove forming portion 304 angled to be placed in contact with cove strip to form an approximate ninety degree angle adapted to press the flooring surface into the floor and press against the wall at or about an inside or outside corner when pressure is applied by the craftsman. As previously mentioned, due to inconsistencies in construction, in the preferred embodiment, this angle is increased to roughly ninety-five degrees as to allow the user to apply sufficient pressure to left hand trim corner guide 300 or guide posts 316 of left hand trim corner guide 300 to bend left hand trim corner guide 300 to the approximate wall/floor angle and securely hold guide in place.

[0083] FIG. 3B depicts a top perspective view of a left hand trim corner guide 300 disclosed as the preferred embodiment of the present invention utilized in flexible sheet flooring installation. Left hand trim corner guide 300 is composed of a lower base 306 and an upper portion 302 including recess 314 integrated at curved cove forming portion 304 angled to be placed in contact with cove strip to form an approximate ninety degree angle adapted to press the flooring surface into the floor and press against the wall at or about an inside or outside corner when pressure is applied by the craftsman. Left hand trim corner guide 300 includes guide posts 316. Guide posts 316 of left hand trim corner guide 300 allow the user to place left hand trim corner guide 300 in the desired position and minimize movement of the guide during the cutting process. Left hand trim guide 300 is manufactured of generally consistent thickness 308. Right miter edge portion 318 of left

hand trim corner guide 300 is angled to allow for proper alignment, placement, and angling of cutting knife.

[0084] Referring to FIG. 3C, shown is a side perspective view of a left trim corner guide 300 disclosed as the preferred embodiment of the present invention. Left hand trim corner guide 300 is an integral device formed from lower base 306, upper portion 302, and curved cove forming portion 304. From this perspective, the depth and dimensions of guide post 316 are readily apparent. Guide posts 316 are designed to be of sufficient size to allow a craftsman to grasp and properly position left hand trim corner guide 300. Further, guide posts 316 are designed so that the craftsman can apply pressure to left hand trim corner guide 300 as to counter any slippage of left hand trim corner guide 300 that may result from the pressure applied by the angled cutting knife.

[0085] Turning next to FIG. 4A, depicted is a frontal perspective view of the preferred embodiment of the right hand trim corner guide 400 of the miter corner guide system of the present invention utilized in flexible sheet flooring installation. Right hand trim corner guide 400 is composed of a lower base 406 having an underside adapted for contact with a flooring surface, an upper portion 402 adapted for contact with a wall surface, and curved cove forming portion 304 angled to be placed in contact with cove strip to form an approximate ninety degree angle adapted to press the flooring surface into the floor and press against the wall at or about an inside or outside corner when pressure is applied by the craftsman. The right edge portion 410 of right hand trim corner guide 400 is generally manufactured as a straight-edge while the left miter edge portion 418 of right hand trim corner guide 400 is manufactured at approximately a forty-five degree angle to allow for an angled miter cut at intersection of flooring material so as to create an aligned seam when installing flash coving. Left miter edge portion 418 of right hand trim corner guide 400 is further angled to allow for proper alignment, placement, and angling of knife so that a knife cuts at the desired angle to allow for a seamless integration of flooring materials. Right hand trim corner guide 400 is manufactured of generally mirrored-image dimensions so as to mate with left hand trim corner guide. The angles and edges of right hand trim corner guide 400 are designed to correspond to allow for an angled miter cut at intersection of flooring material so as to create an aligned seam when installing flash coving. When first left hand corner guide and second right hand corner guide at aligned at respective miter edge portion, the two guides mate to form an outside ninety degree corner. Further, left miter edge portion 418 of right hand trim corner guide 400 is designed to angle outwards with the portion closest to the wall/floor having a shorter dimension than the portion furthest from the wall/floor. In contrast, miter edge portion of left hand trim corner guide (as disclosed in FIGS. 3A, 3B, and 3C) is designed to angle inwards with the portion closest to the wall/floor having a longer dimension than the portion furthest from the wall/floor. While this configuration is preferred, it will be readily apparent to those of ordinary skill in the art that various angle configuration may be used as long as the two guides properly meet for the desired angle.

[0086] Right hand trim corner guide 400 is further manufactured of a thickness 308 which generally matches the thickness of the corresponding aforementioned left hand trim corner guide. In this preferred embodiment, thickness has been determined to be approximately 0.125 inches. Similar to left hand trim corner guide disclosed in FIGS. 3A, 3B, and 3C herein, underside of lower base 406, upper portion 402, and

curved cove forming portion 404 is comprised of a generally smooth surface in the preferred embodiment, however, it is contemplated that various other surfaces may be utilized.

[0087] FIG. 4B depicts a top perspective view of right hand trim corner guide 400 disclosed as the preferred embodiment of the present invention. Right hand trim corner guide 400 is composed of a lower base 406 and an upper portion 402 integrated at curved cove forming portion 404 angled to be placed in contact with cove strip to form an approximate ninety degree angle adapted to press the flooring surface into the floor and press against the wall at or about an inside or outside corner when pressure is applied by the craftsman. Right hand trim corner guide 400 includes guide posts 416 for positing and minimizing the movement of the right hand trim corner guide 400 during the cutting process. Left miter edge portion 418 of right hand trim corner guide 400 is angled to allow for proper alignment, placement, and angling of cutting knife.

[0088] Continuing with FIG. 4C, shown is a side perspective view of a right trim corner guide 400 disclosed as the preferred embodiment of the present invention. Right hand trim corner guide 400 is formed from lower base 406, upper portion 402, and curved cove forming portion 404. Similarly to the image of left hand trim corner guide depicted in FIG. 3C, from this perspective, the depth and dimensions of guide posts 416 are readily apparent. Guide posts 416 are designed to be of sufficient size to allow a craftsman to grasp and properly position right hand trim corner guide 400. Further, guide posts 416 are designed so that the craftsman can apply pressure to right hand trim corner guide 400 as to counter any slippage that may result from the pressure applied by the angled cutting knife.

[0089] The foregoing description of the embodiments have been set forth in considerable detail for the purpose of making a complete disclosure of the present invention. It will be appreciated by those skilled in the art that changes could be made to the embodiments described above without departing from the broad inventive concept thereof. It is understood, therefore, that this invention is not limited to the particular embodiments disclosed, but it is intended to cover all modifications that are within the scope and spirit of the invention as defined by the appended claims.

Therefore, what is claimed is:

1. A miter corner guide system for installing flash coving in sheet flooring applications comprising:

- a first left hand trim corner guide; and
- a second right trim corner guide,

wherein said first left hand trim corner guide and said second right hand trim corner guide are designed as mirror-imaged forms to mate to provide for guides for accurate angled cuts.

2. A miter corner guide system according to claim 1 wherein said first left hand trim corner guide comprises a lower base portion connected to an upper portion by a curved cove forming portion wherein said curved cove forming portion aligns said lower base portion and said upper portion at an angle similar to that of a wall and a floor.

3. A miter corner guide system according to claim 1 wherein said first left hand trim corner guide comprises a lower base portion connected to an upper portion by a curved cove forming portion wherein said curved cove forming portion aligns said lower base portion and said upper portion at an angle similar to that of a wall and a floor.

4. A miter corner guide system according to claim 1 wherein said first left hand trim corner guide and said second

right hand trim corner guide is manufactured from a group of materials consisting of metal, synthetic polymerization material, semisynthetic polymerization material, or glass fiber material.

5. A miter corner guide system for installing flash coving in sheet flooring applications comprising:

- a first left hand trim corner guide composed of a lower base portion connected to an upper portion by a curved cove forming portion wherein said curved cove forming portion aligns said lower base portion and said upper portion at an angle similar to that of a wall and a floor; and
- a second right trim corner guide composed of a lower base portion connected to an upper portion by a curved cove forming portion wherein said curved cove forming portion aligns said lower base portion and said upper portion at an angle similar to that of a wall and a floor.

wherein said first left hand trim corner guide and said second right hand trim corner guide are designed as mirror-imaged forms to mate to provide for guides for accurate angled cuts.

6. A miter corner guide system according to claim **5** wherein said first left hand trim corner guide and said second right hand trim corner guide is manufactured from a group of materials consisting of metal, synthetic polymerization material, semisynthetic polymerization material, or glass fiber material.

7. A miter corner guide system according to claim **5** wherein said first left hand trim corner guide and said second

right hand trim corner guide further comprise guide post members for positioning said first left hand trim corner guide and said right hand trim corner guide and further for protecting a craftsman from an errant knife during the cutting process.

8. A method of installing flash coving for sheet flooring comprising the steps of:

- preparing the floor surface to remove debris and create a generally flat surface;
- cutting sheet flooring in general dimensions to desired flooring area;
- placing said sheet flooring in the desired flooring area and generally adhering said sheet flooring to said floor surface;
- adhering inside miter corners with said sheet flooring;
- adhering outside miter corners with said sheet flooring wherein said outside miter corners are cut using a knife and a miter corner guide system using a first left hand trim corner guide and a second right hand trim guide; and
- welding the seams of said sheet flooring.

9. The method of claim **8** wherein said first left hand trim corner guide and said second right hand trim corner guide is manufactured from a group of materials consisting of metal, synthetic polymerization material, semisynthetic polymerization material, or glass fiber material.

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