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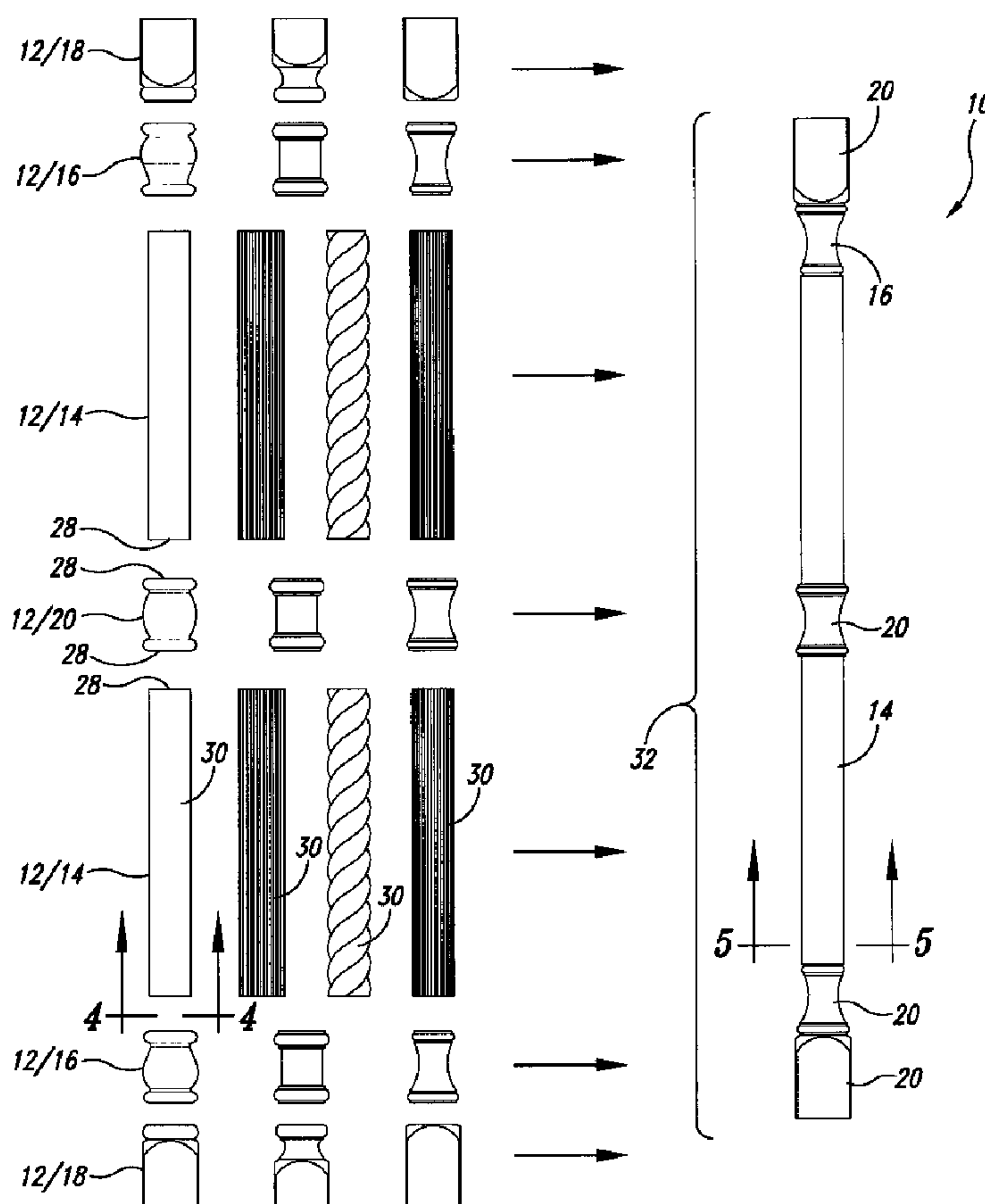
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(54) Title: MODULAR MOULDING WITH FITTED SPLINE JOINERY SYSTEM



(57) Abrégé/Abstract:

An ornamental modular columnar moulding system having a groove and spline that joins two or more modular moulding pieces together to form a unitary columnar moulding that can be readily attached to a surface of a piece of furniture, cabinet, frame, or the



(57) **Abrégé(suite)/Abstract(continued):**

like. Each modular moulding piece includes an end surface that conforms to an end of another modular moulding piece such that the end surfaces align when positioned to make end-to-end contact with each other. Each modular moulding piece has a substantially planar surface and a front surface. When two or more moulding pieces are aligned end-to-end, the planar surfaces align and the touching front surfaces form an ornamental columnar moulding. Each back surface includes a longitudinally positioned groove that also aligns with at least portions of the grooves on other moulding pieces. A spline, which may be rounded or partially rounded or other shape, is fitted within the groove at least by and between each aligned and contacting modular moulding piece in order to form one unitary columnar ornamental moulding suitable for adhering to a surface of furniture and the like with virtually no gaps or misalignment between the adjoining modular pieces.

ABSTRACT

An ornamental modular columnar moulding system having a groove and spline that joins two or more modular moulding pieces together to form a unitary columnar moulding that can be readily attached to a surface of a piece of furniture, cabinet, frame, or the like. Each modular moulding piece includes an end surface that conforms to an end of another modular moulding piece such that the end surfaces align when positioned to make end-to-end contact with each other. Each modular moulding piece has a substantially planar surface and a front surface. When two or more moulding pieces are aligned end-to-end, the planar surfaces align and the touching front surfaces form an ornamental columnar moulding. Each back surface includes a longitudinally positioned groove that also aligns with at least portions of the grooves on other moulding pieces. A spline, which may be rounded or partially rounded or other shape, is fitted within the groove at least by and between each aligned and contacting modular moulding piece in order to form one unitary columnar ornamental moulding suitable for adhering to a surface of furniture and the like with virtually no gaps or misalignment between the adjoining modular pieces.

MODULAR MOULDING WITH FITTED SPLINE JOINERY SYSTEM

TECHNICAL FIELD

The present invention relates generally to modular ornamental mouldings. In particular, the present invention relates to a modular moulding with a fitted spline joinery system.

BACKGROUND OF THE INVENTION

Ornamental wood mouldings have long been employed to enhance the look of furniture, cabinetry, architectural interiors, and the like. Current options include employing a skilled carpenter or woodcrafter to create a unitary custom moulding or selecting a standard stock moulding to fit into a specific length and application.

With the explosion of demand for high-end, custom-look cabinetry in kitchens, bathrooms, and other previously pure utility spaces, ornamental legs and faux-leg wood mouldings are in higher demand than ever before. However, a furniture or cabinet maker either has to stock many various unitary ornamental legs or faux-leg mouldings, manufacture their own mouldings, or utilize modular component ornamental mouldings and tack and/or glue each piece into place to create a unit that looks like a turned furniture leg.

Although the latter option is used with more frequency, it adds to labor costs as it is time-consuming to line up modular pieces of adjoining mouldings, such as center spools, elongated column pieces, base spools, and base blocks to create the look of a turned leg. These individual components are generally tack nailed to furniture, cabinets, or the like, and then filled in with wood putty to patch any visible crevices. The result provides a unitary columnar ornamental moulding look, but is time consuming to assemble. Further, unless the assembler has great skill and patience, the end result may not comport with highly discerning homeowners and contractors as the resulting moulding may contain visible gaps or carpenter tacks, and/or the individual moulding pieces may be unevenly aligned.

SUMMARY OF THE INVENTION

The present invention is directed to a unique modular ornamental moulding system that employs a spline and groove joinery method. Each ornamental moulding unit, such as an elongated column member, a base block, a base spool, or a center spool, has a substantially planar back surface and a front ornamental surface, with the front surface intended to be visible. Each moulding unit is designed to align with each other to form a unitary columnar moulding, that looks like a one-piece turned leg, with the back surfaces all in substantial planar alignment and the top surface forming a unitary columnar ornamental moulding. Each substantially planar back surface has a groove (or slot) that is longitudinally aligned of each piece, such that when each moulding piece is laid end-to-end and the ornamental features of each moulding piece are in a desired arrangement, at least portions of the groove are aligned with portions of the groove adjacent mouldings. According to one aspect of the present invention, the groove is continuous and straight when each moulding unit is aligned end-to-end.

An elongated spline of a shape to be fitted within the now longitudinally aligned groove is positioned at least by and between each two adjacent and contacting moulding pieces. The spline may be rounded with a substantially circular cross sectional shape or may be partially rounded with a planar lower surface. The spline lower surface is either preferably planar to conform to the planar surface of the back of each moulding piece or positioned below the planar back surface to not protrude beyond the overall substantially planar back surface of the assembled columnar ornamental moulding.

The present invention also includes a method of applying a plurality of modular ornamental moulding pieces to a piece of furniture, or the like, that provides the appearance of a unitary columnar ornamental moulding. Moreover, the modular pieces are assembled and adhered or otherwise affixed to a furniture surface without the need for tack pins or glue for each individual piece. The method includes providing a plurality of modular ornamental moulding units with a substantially planar back surface and a top surface that forms the ornamental moulding and that each unit has a groove aligned longitudinally of the planar

surface. At least one spline is fitted within the longitudinally-positioned groove at least by and between adjoining sections of adjacent moulding units. In this way, the moulding units form a columnar ornamental moulding with a substantially planar back surface and an ornamental top surface. The resulting assembled columnar ornamental moulding is adhered, such as by wood glue, or otherwise affixed, to a desired location on a piece of furniture, or the like, via the substantially planar surface.

In addition to the great flexibility that furniture and cabinet makers will have by stocking fewer ornamental moulding pieces and the ability to provide customers with greatly enhanced number of ornamental options, the current modular moulding invention and method provides cost-saving ease of installation and improved aesthetics (e.g., virtually no gaps and no misalignment).

These and other advantages will become more apparent upon review of the Drawings, the Best Mode for Carrying Out the Invention, and the Claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Like reference numerals are used to designate like parts throughout the several views of the drawings, wherein:

Fig. 1 is a pictorial front view of various ornamental modular moulding units that can be arranged to form a unitary columnar ornamental moulding;

Fig 2 is a back view of Fig. 1 illustrating the groove and spline joinery system of the present invention;

Fig. 3 is an enlarged pictorial view of an exemplar moulding piece or unit;

Fig. 4 is an end view of the unitary columnar ornamental moulding of Fig. 1 illustrating a first embodiment of the groove and spline joinery system;

Fig. 5 is a cross-sectional view of the unitary columnar ornamental moulding taken substantially across lines 5 — 5 of Fig. 1 and illustrating the same groove and spline joinery embodiment of Fig. 4;

5 Fig. 6 is an end view like Fig. 4 except illustrating a second embodiment of the groove and spline joinery system;

Fig. 7 is a cross-sectional view like Fig. 5 except illustrating the second embodiment groove and spline joinery system of Fig. 6;

Fig. 8 is an end view like Fig. 4 except illustrating a third embodiment of the groove and spline joinery system;

10 Fig. 9 is a cross-sectional view like Fig. 5 except illustrating the third embodiment groove and spline joinery system of Fig. 8;

Fig. 10 is an end view like Fig. 4 except illustrating a fourth embodiment of the groove and spline joinery system;

15 Fig. 11 is a cross-sectional view like Fig. 5 except illustrating the fourth embodiment groove and spline joinery system of Fig. 10;

Fig. 12 is a perspective view illustrating assembly of the modular moulding components to form a unitary columnar moulding;

Fig. 13 is a front view of an exemplar assembled unitary columnar moulding having two base blocks, two end spools, two elongated columns, and a center spool;

20 Fig. 14 is a back view of a unitary columnar moulding, similar to Fig. 13 except illustrating another exemplar unitary ornamental moulding arrangement having two base blocks, two end spools, and a single elongated column;

Fig. 15 is a front view of Fig. 14;

Fig. 16 is a perspective view of a piece of furniture to which one assembled unitary columnar moulding of the present invention is adhered to the furniture surface and another is about to be adhered; and

Fig. 17 is a perspective view of a framed mirror to which a pair of assembled unitary columnar mouldings of the present invention is adhered to the frame portion.

BEST MODE FOR CARRYING OUT THE INVENTION

The present invention is directed to a modular ornamental moulding joinery system to achieve unitary columnar ornamental moulding for application to furniture, cabinetry, frames, and the like. Referring to Figs. 1-17, a unitary ornamental column moulding 10 is made up of individual modular moulding pieces 12. The individual modular moulding pieces 12 may be elongated column members 14, base spools 16, base blocks 18, or center spools 20.

Referring particularly to Fig. 3, each moulding piece 12 includes a first end 22 and a second end 24 with a generally axially-aligned body portion 26 generated about an imaginary axis A — A positioned therebetween. At least one end of each moulding piece 12 has a surface that conforms to an end of another moulding piece 12. According to one embodiment, each end has a cross-planar surface 28 (or cut) essentially perpendicularly to axis A — A so as to be aligned end-to-end with an adjoining moulding piece 12, although other conjoining end shapes may be used but are not illustrated.

Each moulding piece 12 has a front surface 30 which when joined with at least one other moulding piece form a unitary columnar ornamental surface 32 that is to be placed front side up upon a desired surface on a piece of furniture or the like. The various illustrations in Figs. 1, 13, and 15-17 are for illustrative purposes only and not to be limited to the designs that are shown. Hundreds, perhaps thousands, of design permutations may be had with minimal stocking, as opposed to having specialty moulding in stock or resorting to expensive custom orders.

Each moulding piece's back surface 34 is substantially planar so that each adjoining moulding piece can better align, as discussed in further detail below, and that once the moulding pieces are aligned to form the unitary columnar moulding, the substantially planar back surface 34 can be readily adhered or otherwise fixed to a substantially planar surface on furniture and the like.

According to one aspect of the invention, each moulding piece 12 is essentially a cylindrical column or block that has been cut substantially one-half axially along axis A —A. Thus, each moulding piece may look like a 1/2 column moulding. Alternatively, but not shown, each moulding piece can be other shapes, e.g., 3/4 column, 1/3 column, rectangular, triangular, or other variation.

Referring particularly to Fig. 2 and also to Fig. 12, each substantially planar back surface 34 includes a longitudinally positioned groove 36 (or slot) that aligns with each moulding piece when positioned end-to-end. A spline 38 that is of a size and shape to be fitted within groove 36 is fitted within at least by and between adjoining portions of abutting and adjacent moulding pieces 12. In this way, the spline joins adjacent and abutting moulding pieces to form a unitary columnar moulding 10.

From a manufacturing standpoint a single elongated groove positioned longitudinally end-to-end of each moulding piece 12 is perhaps more pragmatic. In this embodiment, the resulting groove forms a unitary straight groove once the moulding pieces are laid end-to-end. However, it is not a necessary feature of the present invention that the groove run the entire longitudinal length of each modular piece, but merely at least at an abutting end of each modular member.

According to another aspect of the invention, the spline may be fitted, such as friction fit, within a groove that runs the full length of the unitary columnar moulding 10 (not illustrated).

Referring now to Figs. 4-11, the spline 38 may be a 1/2 rounded spline 40 with a planar surface 42 that, when placed into and fitted within the groove, is co-planar with back

surface 34. In the embodiment of Figs. 4 and 5, the groove may include a pair of opposing side walls 44 and an inverted "v-shaped" bottom 46 that aids in placement and engagement of the 1/2 rounded spline 40. The spline may be friction fit into the groove. However, a sealant, including glue, may be used to fit the spline within the groove as illustrated in the cross-sectional views of Figs. 5, 7, 9, and 11.

In another embodiment, as illustrated in Figs. 6 and 7, the groove may have a rounded bottom 48 that directly conforms to the shape of a rounded spline (whether half round or spherical, such as shown in Figs. 10 and 11). In yet another embodiment, as illustrated in Figs. 7 and 8, the groove 36/50 may be trapezoidal in shape for friction fitting a 1/2 rounded spline.

It is preferable that the back surface of the unitary columnar moulding 10 not have any outwardly protruding spline portions unless a corresponding groove is made within the surface to which the unitary columnar track is to be affixed. Although a resulting smooth planar surface of the combined spline and back surface may be had using a spline with a partially planar surface, the spline 38/52 may have a circular cross section, as illustrated in Figs. 10 and 11, or some other shape so as to fit within the groove such that no spline portion protrudes beyond the back surface of the moulding piece.

The present invention also includes a method of applying modular moulding pieces in order to obtain the look of expensive custom moulding without the need for skilled carpenters or stocking large amounts of pre-fabricated unitary ornamental mouldings or carpenter tacks. The method includes providing modular moulding pieces each having front surfaces and substantially planar surfaces. The method further includes aligning desired moulding pieces end-to-end such that the moulding pieces' substantially planar surfaces align and the front surfaces form an elongated ornamental moulding. Along the substantially planar surface of each moulding piece is a groove. A spline or portions of spline are fitted within the resulting elongated groove to join at least over portions of adjacent and adjoining moulding pieces to form a unitary columnar ornamental moulding. The back side of the

unitary moulding is adhered or otherwise affixed to a surface on a piece of furniture, cabinetry, or the like.

The present invention and method are primarily intended for the wood furniture industry, with the moulding pieces being made of various types of woods. However, the present invention and its joinery system are not limited to wood mouldings and may be used on composite/man-made mouldings or even metal mouldings.

Advantages of the present invention include the ease and speed in which to attain the look of expensive custom moulding without the expense of unnecessary stock or need for highly skilled carpenters. Unsightly gaps between adjoining modular moulding pieces or misalignment are virtually eliminated in order that the highest quality aesthetics are maintained.

The illustrated embodiments are only examples of the present invention and, therefore, are non-limitative. It is to be understood that many changes in the particular structure, materials, and features of the invention may be made without departing from the spirit and scope of the invention. Therefore, it is the inventors' intention that their patent rights not be limited by the particular embodiments illustrated and described herein, but rather by the following claims interpreted according to accepted doctrines of claim interpretation, including the Doctrine of Equivalents and Reversal of Parts.

WHAT IS CLAIMED IS:

1. A modular moulding system comprising:

at least two pieces of substantially columnar modular moulding each having an end surface in which the two ends are alignable and correspond nearly seamlessly to each other when brought into contact;

each said columnar modular moulding piece having a substantially planar back surface and a front ornamental moulding surface such that when the columnar moulding pieces are positioned end-to-end at the aligned and contacting end surfaces, the planar back surfaces of each moulding piece are all in substantial alignment, the front decorative surfaces of each moulding piece are aligned such that the columnar moulding pieces look like one unitary columnar moulding member; and

each said back surface having a longitudinally positioned groove with a spline fitted at least by and between the aligned and contacting end surfaces to join adjacent columnar modular moulding pieces.

2. The system according to claim 1 wherein the groove is positioned generally centrally of each columnar modular moulding piece.

3. The system according to claim 2 wherein the resulting unitary columnar moulding member has one continuous straight groove.

4. The system according to claim 1 wherein the groove is substantially rectangular in shape.

5. The system according to claim 1 wherein the spline is rounded.

6. The system according to claim 4 wherein the groove further includes an upwardly extending v-shaped section that extends outwardly from the groove.

7. The system according to claim 1 wherein the spline is friction fit within the groove.
8. The system according to claim 1 wherein each modular moulding piece is a 1/2 column.
9. The system according to claim 1 wherein the groove has a substantially rounded bottom to correspond to the shape of the spline.
10. The system according to claim 3 wherein the spline is a contiguous piece.
11. The system according to claim 1 wherein the spline is in multiple sections with a contiguous piece fitted into the groove by and between the aligned and contacting end surfaces.
12. A method of attaching modular columnar moulding pieces to a surface, such as furniture and the like, the method comprising:
 - providing a substantially planar surface to which the columnar moulding pieces are to be attached;
 - providing a set of columnar moulding pieces having at least two moulding pieces that each have an end surface of which the two or more end surfaces are alignable and correspond nearly seamlessly to each other when brought into contact, and each said columnar moulding piece has a substantially planar back surface and a front ornamental surface such that when the columnar moulding pieces are positioned end-to-end with the planar back surfaces all in substantial alignment, the front decorative surfaces are aligned such that the columnar moulding pieces look like one unitary columnar moulding member; and
 - providing each said back surface having a longitudinally positioned groove with an at least partially rounded spline inserted within the groove between connecting columnar moulding pieces;

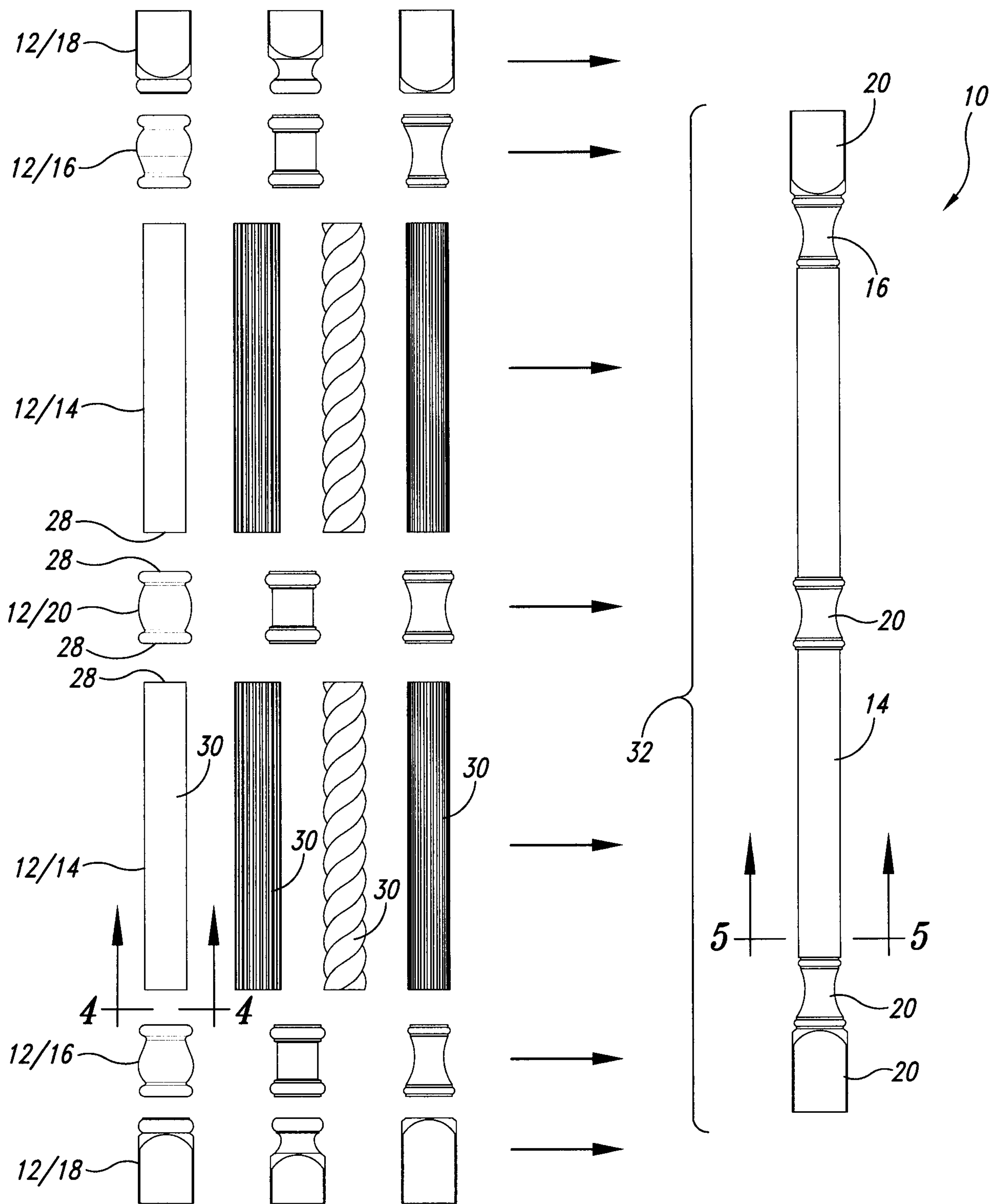
fitting a spline within the groove by and between the aligned ends of the two or more columnar moulding pieces thereby forming a unitary columnar moulding member that gives the appearance of being a unitary ornamental moulding; and

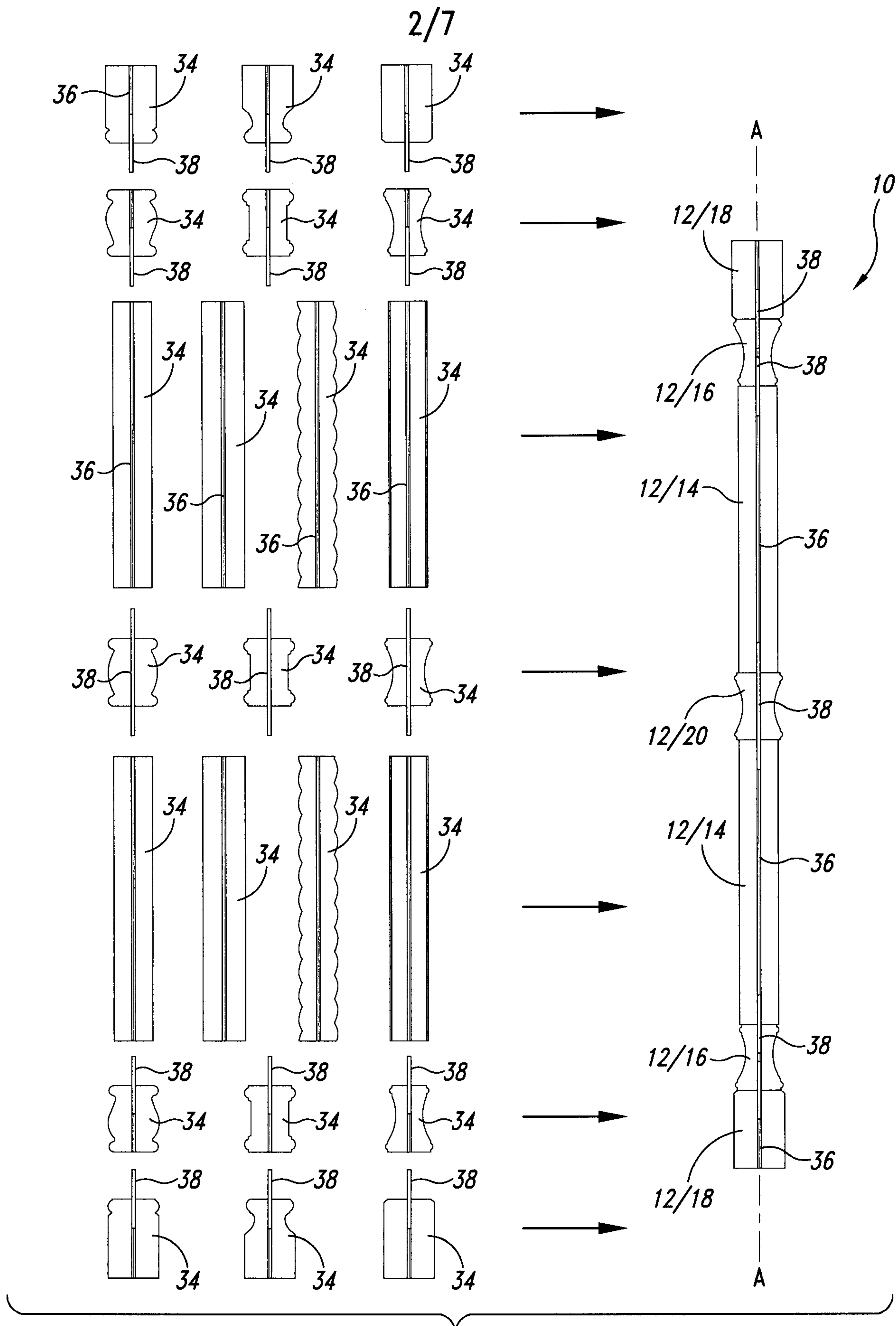
attaching the joined columnar moulding pieces' substantially planar surface to a substantially planar surface of a piece of furniture or the like.

13. The method according to claim 12 wherein the spline is friction fitted into the groove.

14. The method according to claim 12 wherein a sealant is first applied to the groove and then the spline is fitted into the groove with the sealant therebetween.

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*Fig. 1*

*Fig. 2*

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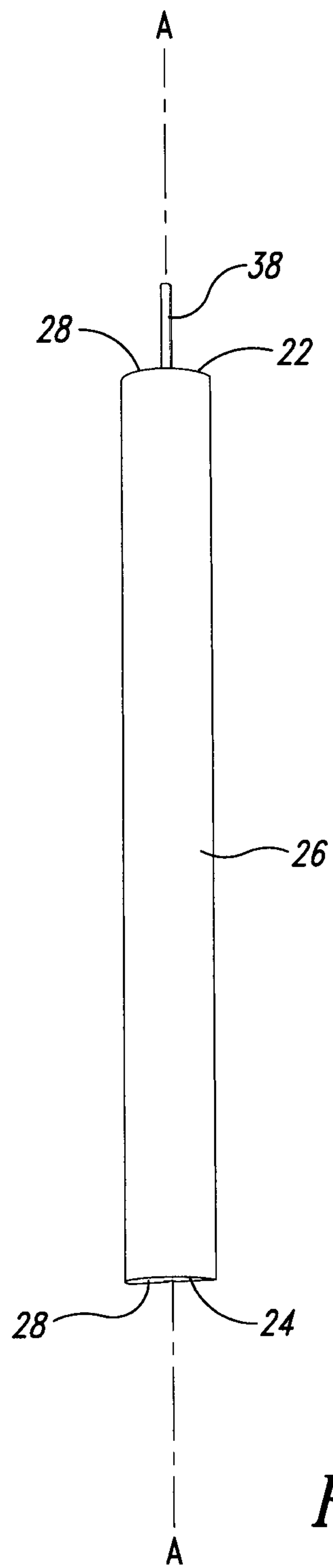
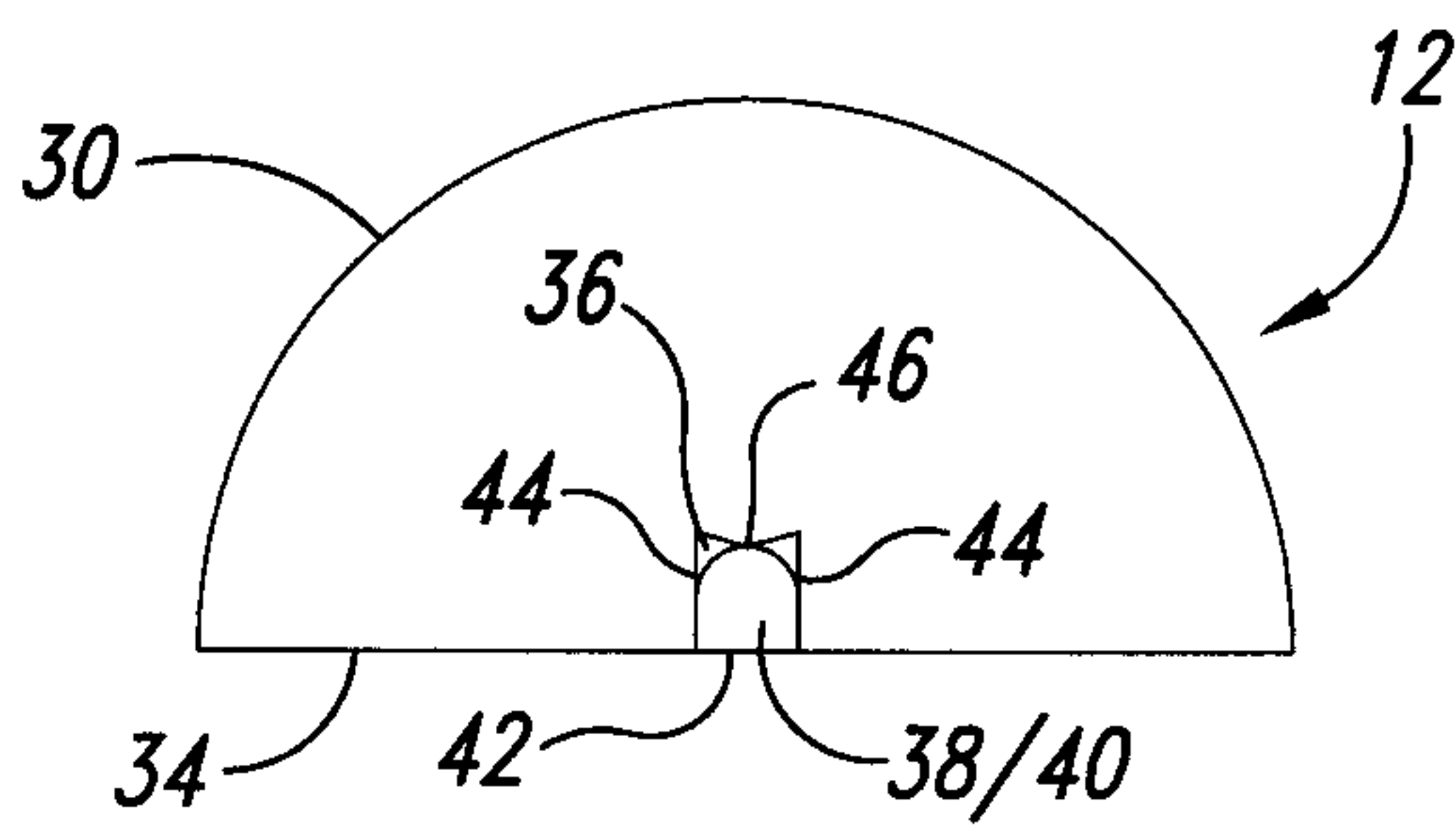
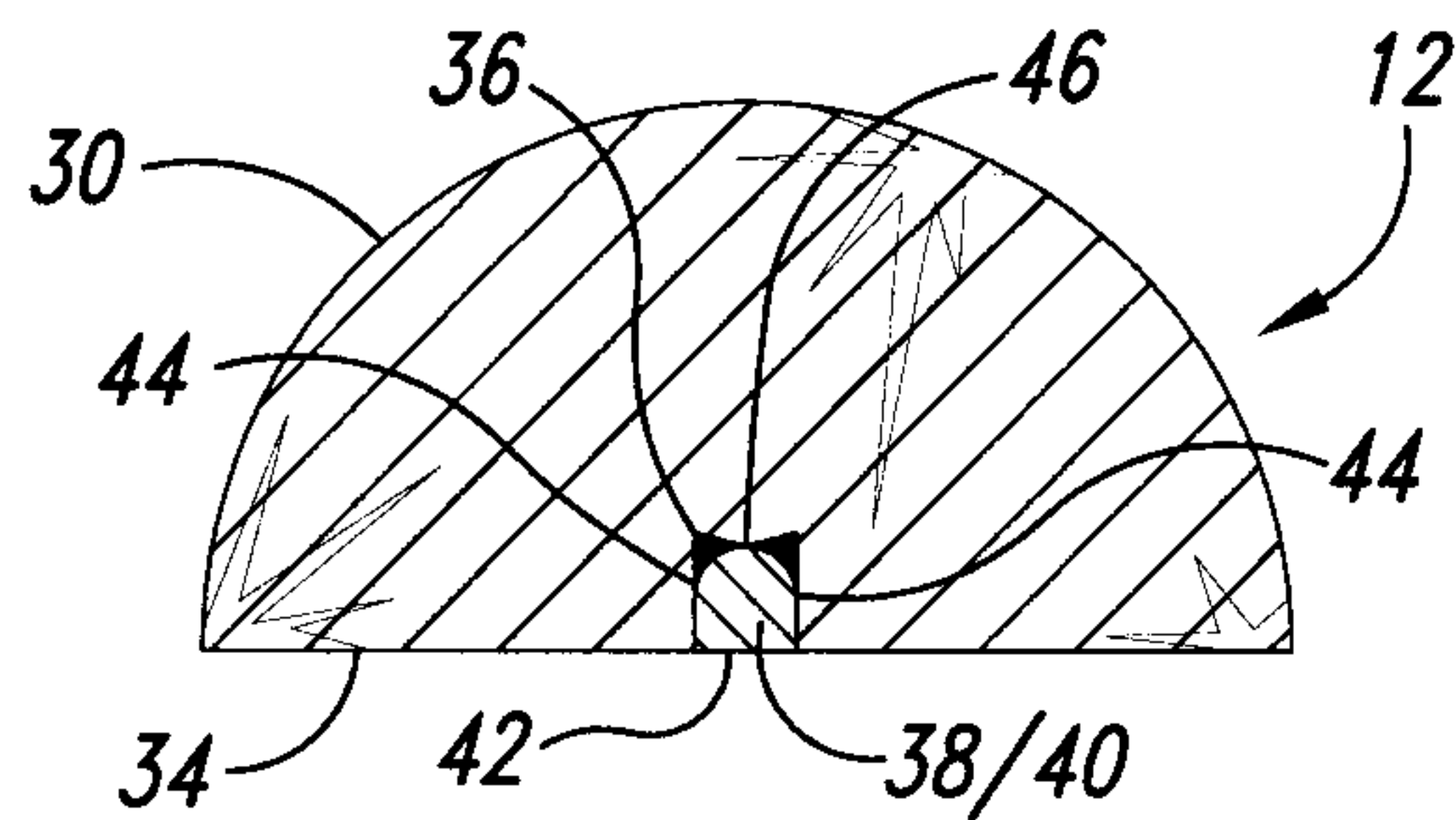
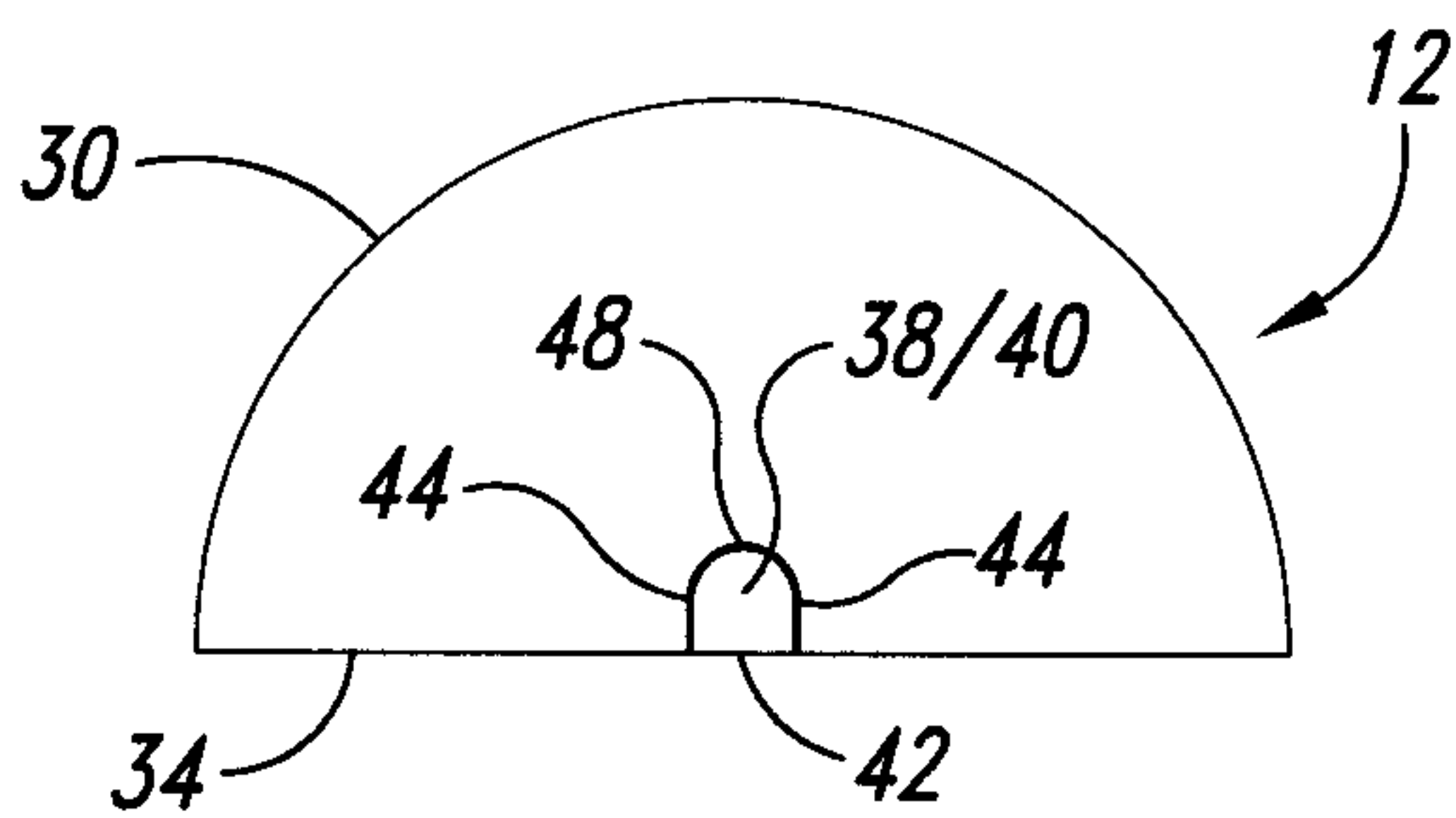
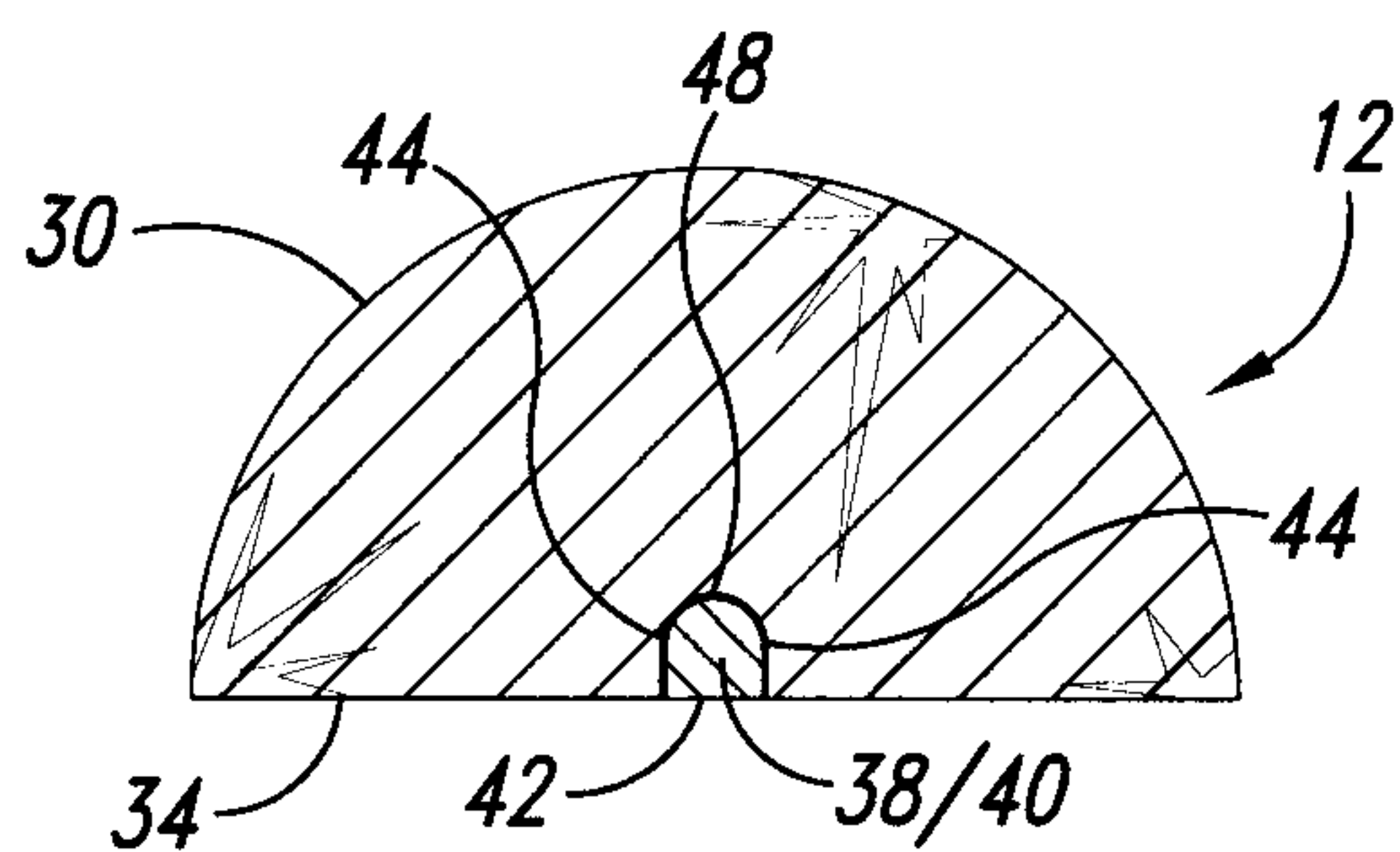
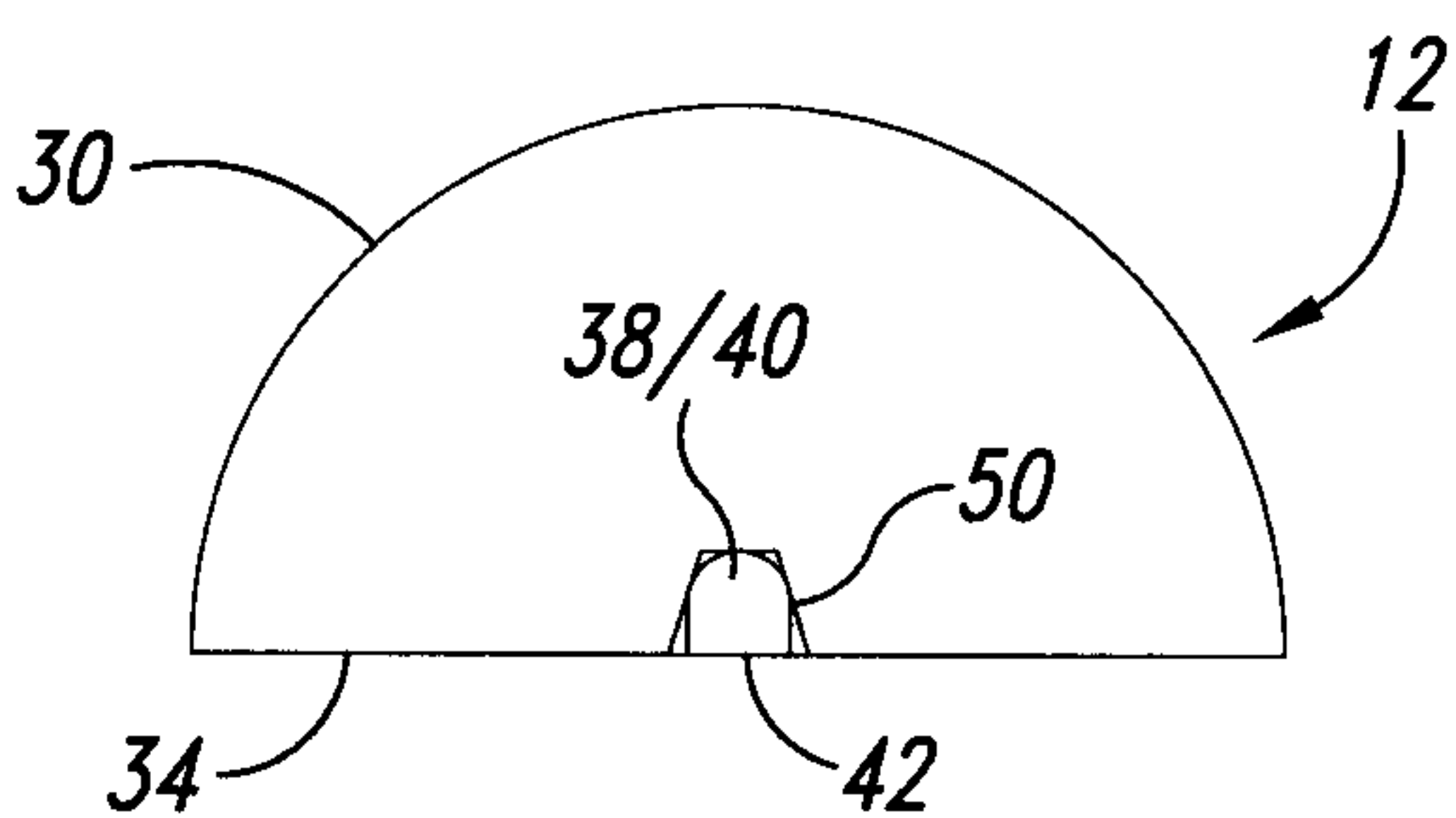
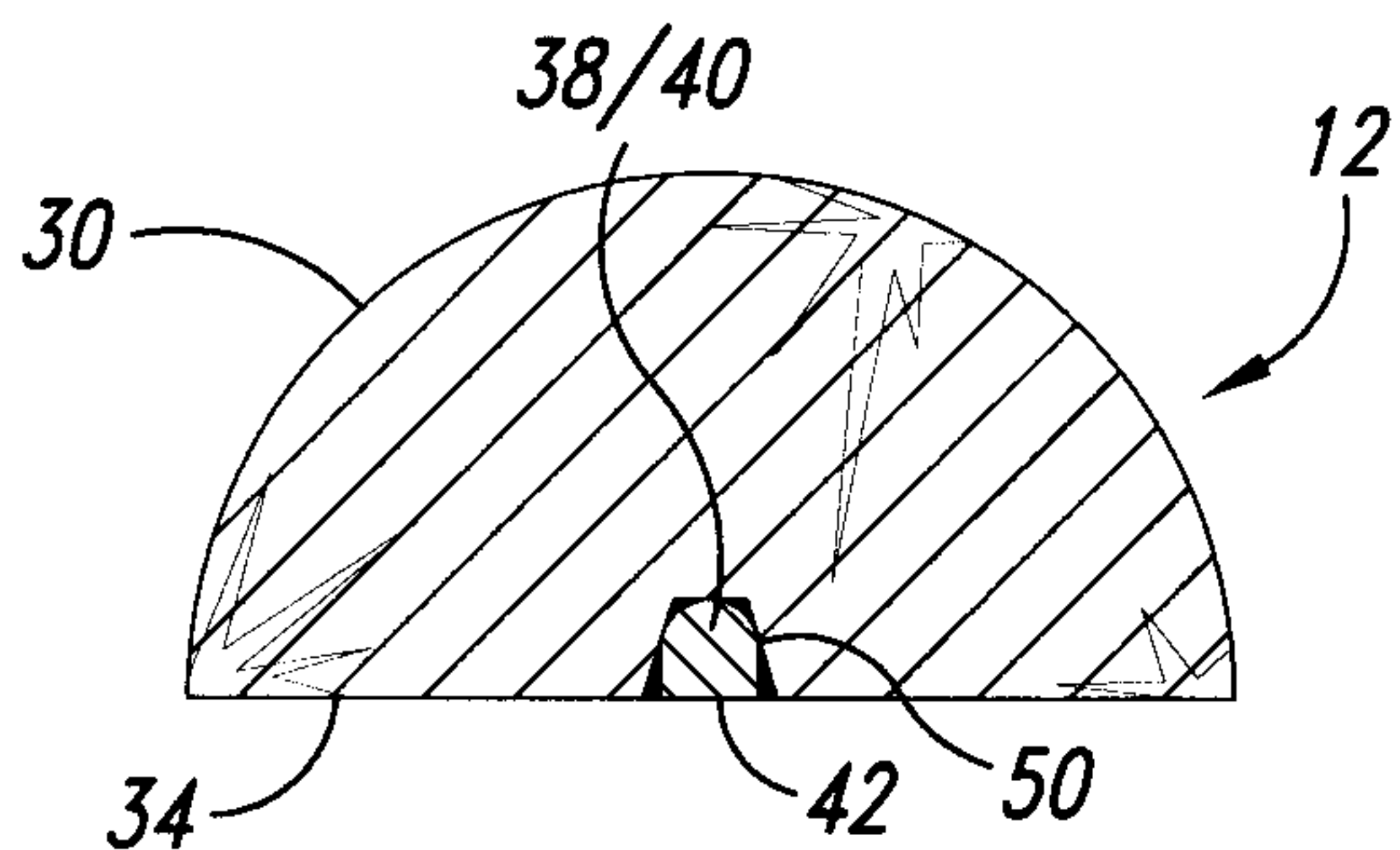
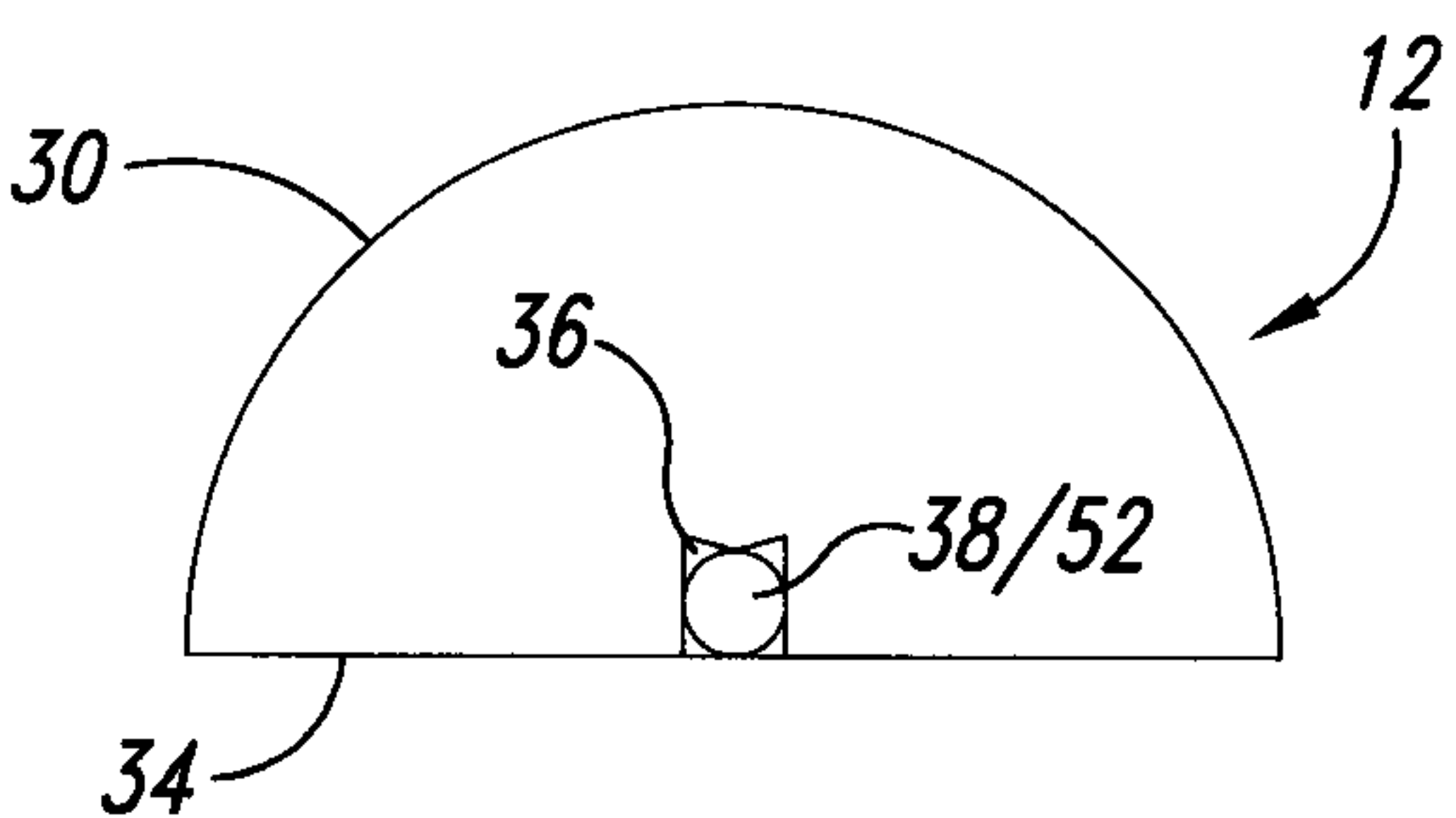
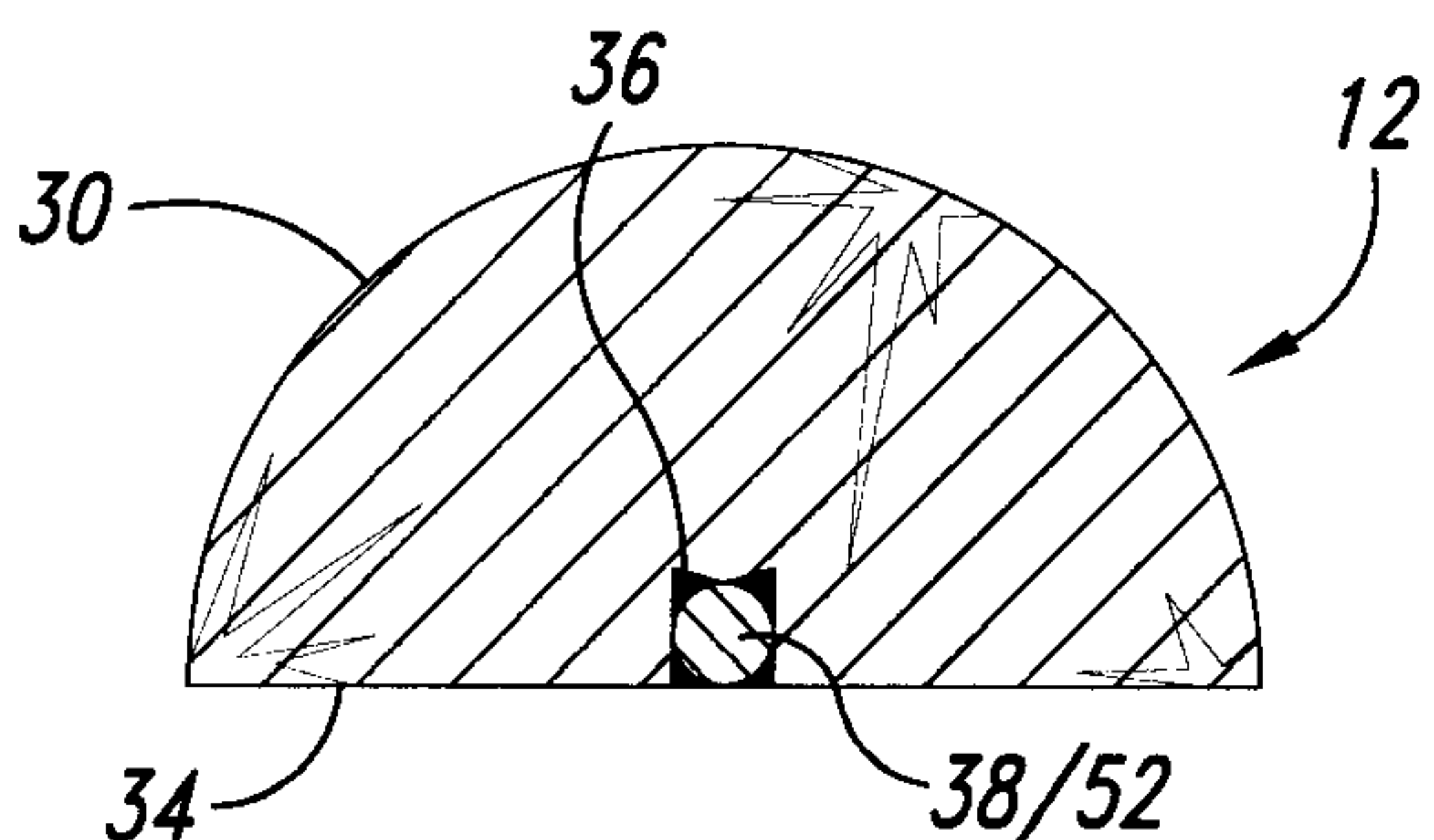


Fig. 3

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*Fig. 4**Fig. 5**Fig. 6**Fig. 7**Fig. 8**Fig. 9**Fig. 10**Fig. 11*

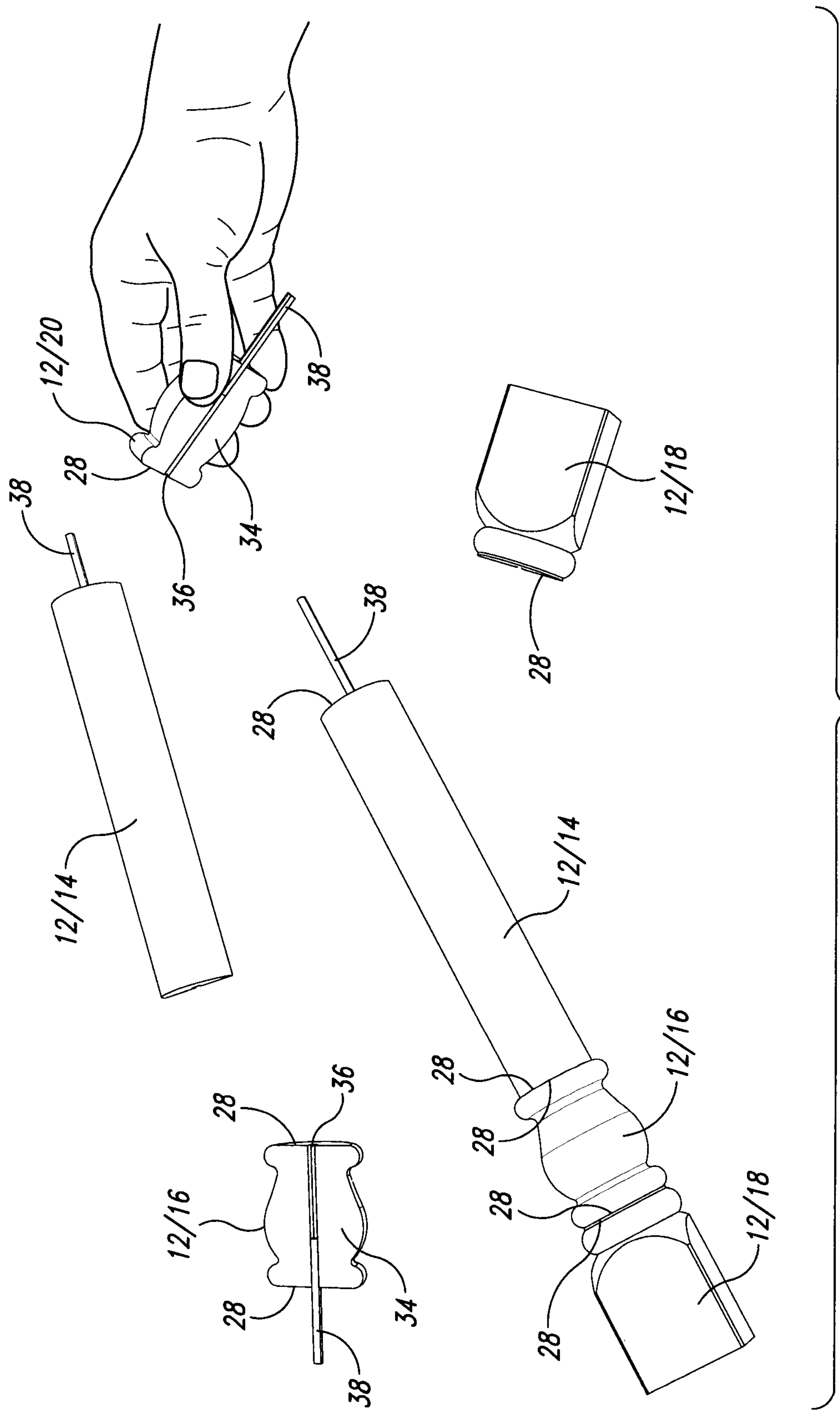
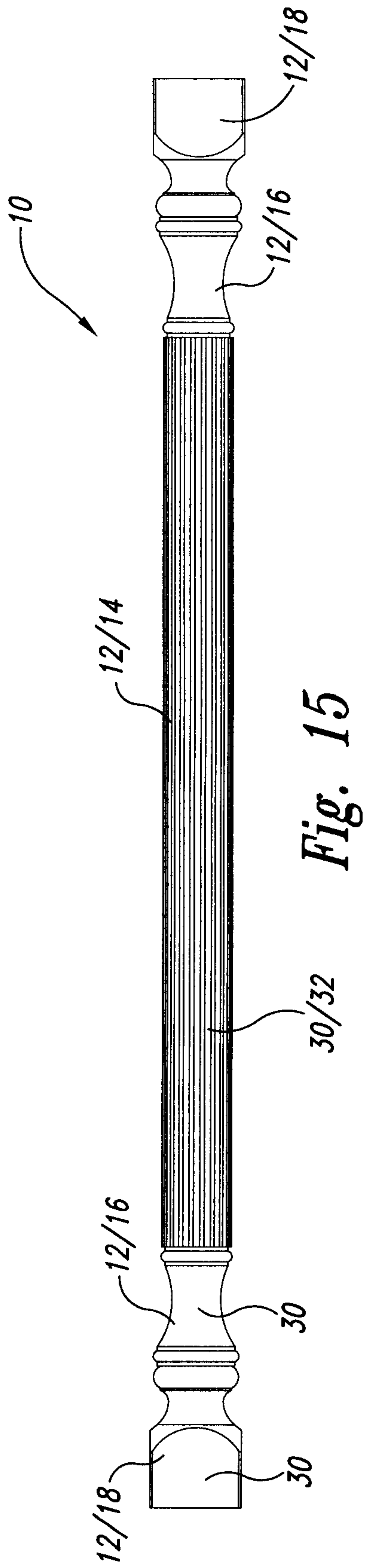
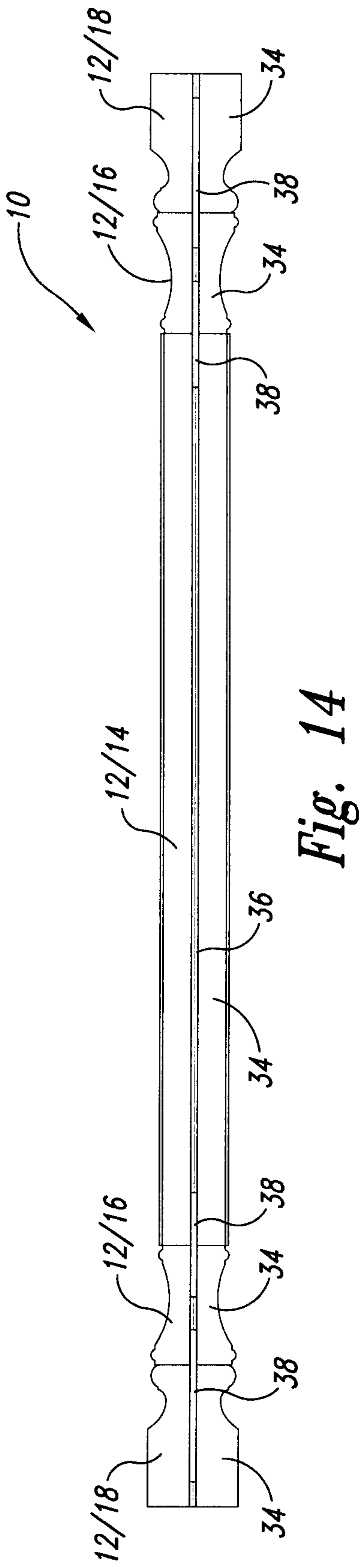
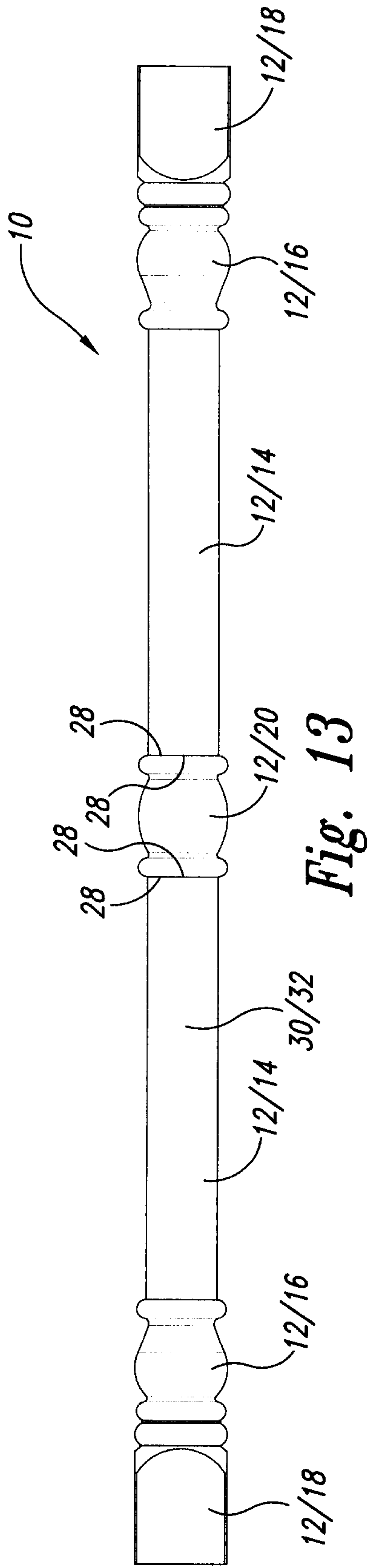
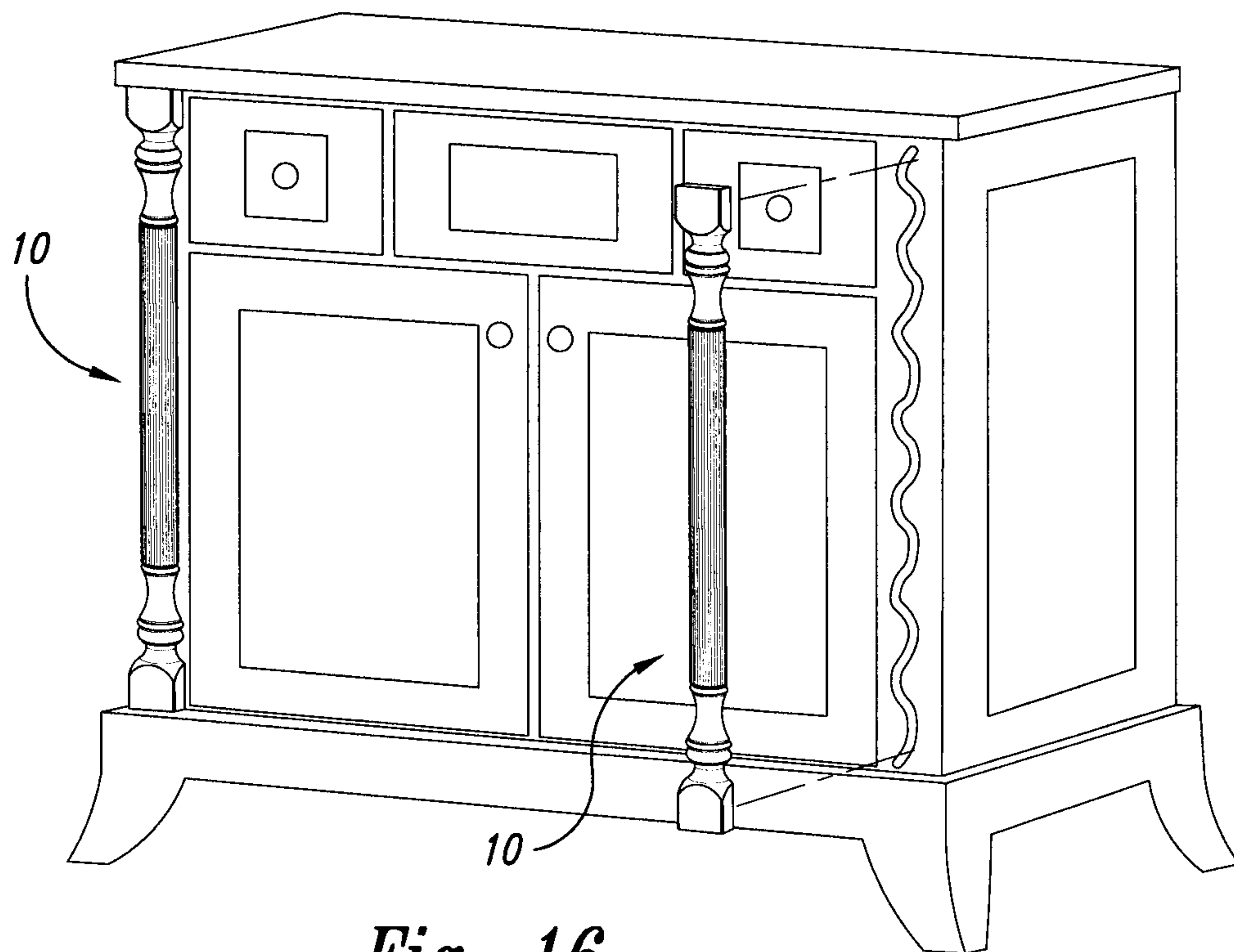
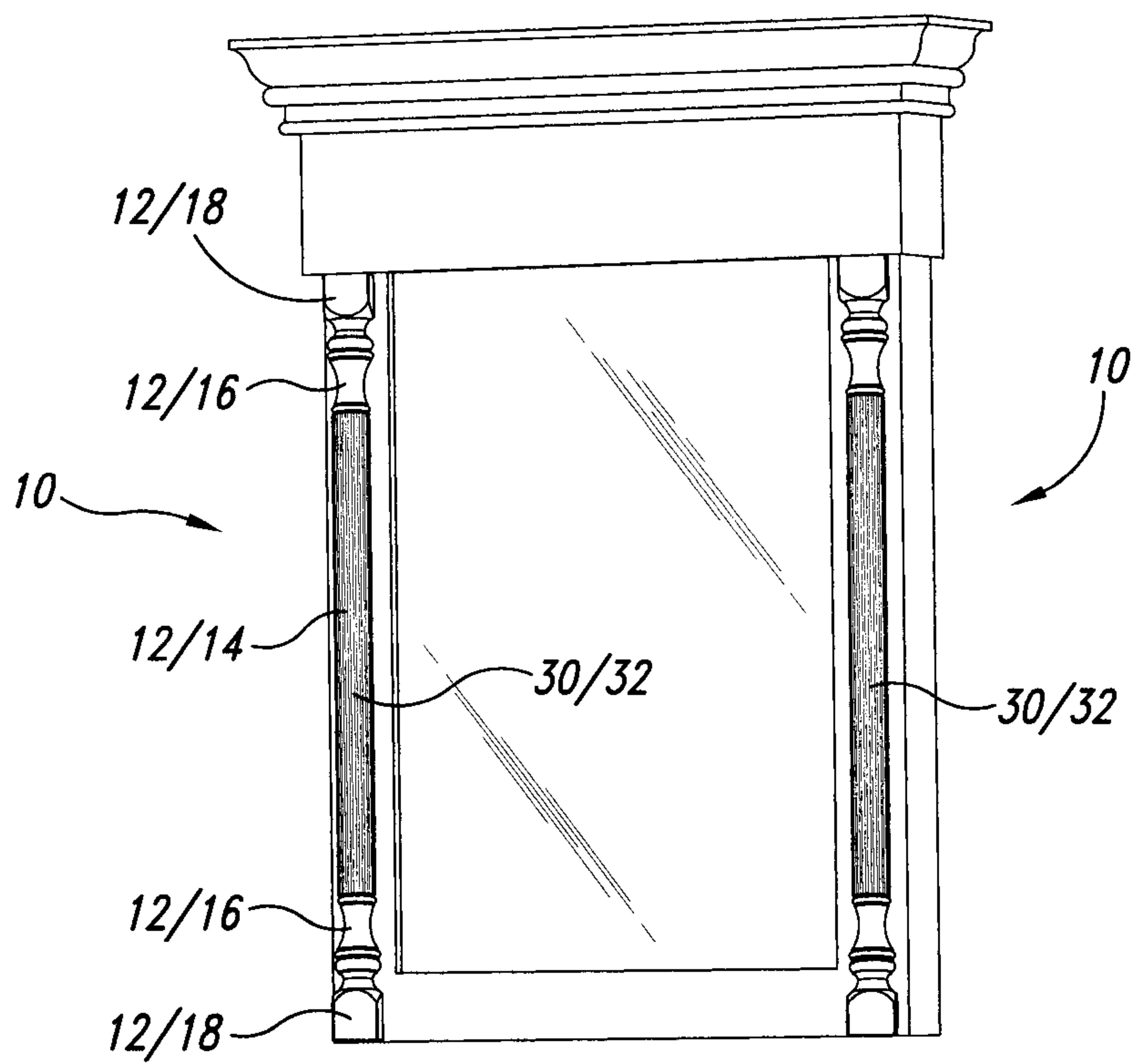


Fig. 12



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*Fig. 16**Fig. 17*

