



(22) Date de dépôt/Filing Date: 1992/05/29

(41) Mise à la disp. pub./Open to Public Insp.: 1992/11/30

(45) Date de délivrance/Issue Date: 2002/03/26

(30) Priorités/Priorities: 1991/05/29 (706,779) US;
1992/05/18 (885,291) US

(51) Cl.Int.⁵/Int.Cl.⁵ B29C 45/16, B29C 31/00

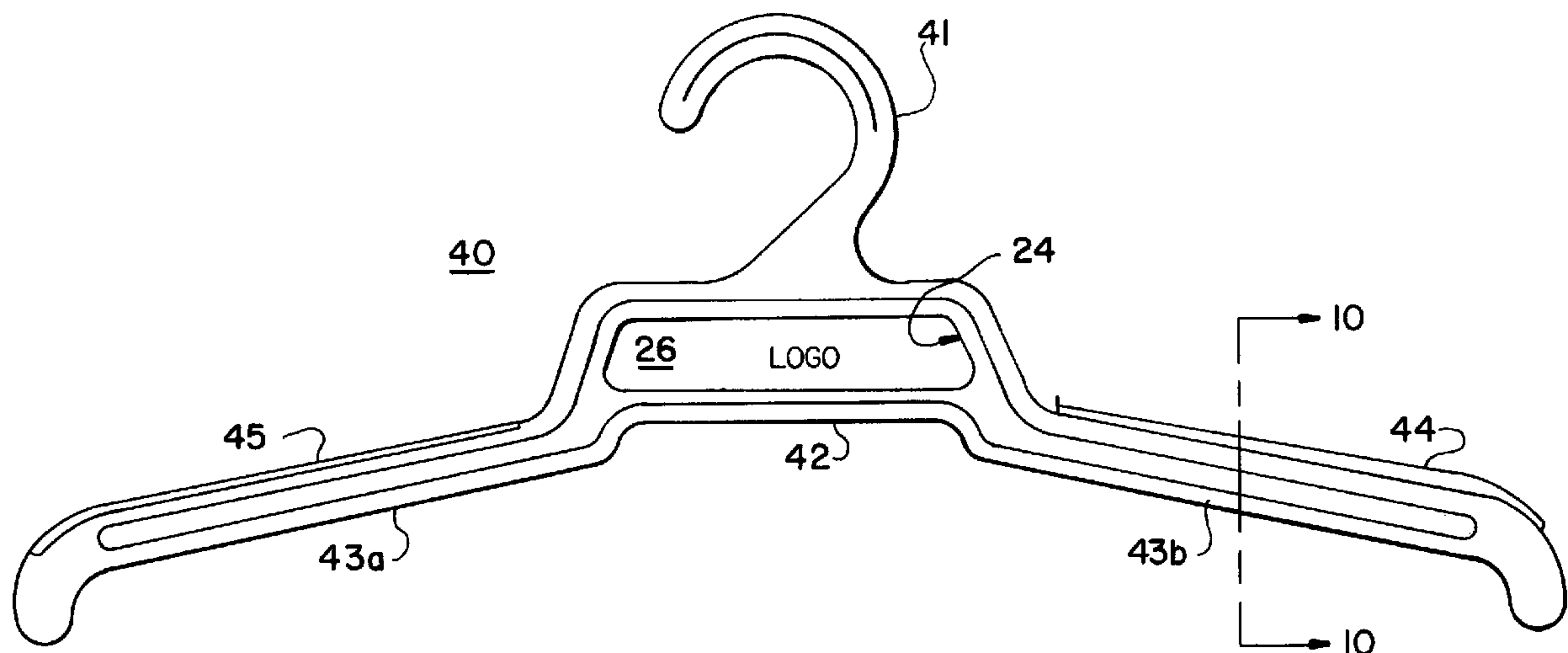
(72) Inventeurs/Inventors:
Gouldson, Stanley, US;
Olk, Olaf F., US;
Harmer, Roland G., US

(73) Propriétaire/Owner:
SPOTLESS PLASTICS PTY. LTD., AU

(74) Agent: MCFADDEN, FINCHAM

(54) Titre : CENTRE EN MATIERES PLASTIQUES COINJECTEES, METHODE DE MOULAGE CONNEXE ET
APPAREIL SERVANT A AMELIORER LADITE METHODE

(54) Title: COINJECTED PLASTIC GARMENT HANGERS, METHOD OF MOLDING HANGERS AND APPARATUS FOR
IMPLEMENTING METHOD



(57) Abrégé/Abstract:

A molded plastic garment hanger constituted from two materials which are fused and mechanically bonded to form a composite hanger. Also disclosed is a method and apparatus for the two-step or co-injection molding of plastic materials for the formation of the plastic garment hanger construction. The plastic garment hanger incorporates an insert consisting of a second plastic material adapted to have indicia, logo or non-slip means molded therein, and which insert may be fused to the hanger structure so as to form a mechanical bond with the first plastic material constituting the basin garment hanger.

1

ABSTRACT OF THE DISCLOSURE

5 A molded plastic garment hanger constituted from two materials which are fused and mechanically bonded to form a composite hanger. Also disclosed is a method and apparatus for the two-step or co-injection molding of plastic materials for the formation of the plastic garment hanger construction. The plastic garment hanger incorporates an insert consisting of a second plastic material adapted to have indicia, logo or non-slip means molded therein, and which insert may be fused to the hanger structure so as to form a mechanical bond with the first plastic material constituting the basic garment hanger.

10

15

20

25

30

35

COINJECTED PLASTIC GARMENT HANGERS, METHOD OF MOLDING
HANGERS AND APPARATUS FOR IMPLEMENTING METHOD

1

The present invention relates to coinjected plastic garment hangers, and more particularly, pertains to a molded plastic garment hanger constituted from two materials which are coinjected to form a composite hanger. Moreover, the invention also relates to a novel method and apparatus for the two-step or co-injection molding of plastic materials for the formation of the plastic garment hanger construction.

In industry, particularly such as the garment manufacturing industry, plastic hangers garment are widely employed for the purpose of shipping and displaying garments, such hangers frequently being of the inexpensive ship-on type whereby the garment is shipped from the manufacturer or wholesaler to the retailer while suspended from the hanger. Generally, such garment hangers are inexpensive single-piece or unitary molded plastic structures which are adapted to be either discarded at the time of sale, returned to the garment manufacturer or provided to a customer free of charge in conjunction with the purchase of the garment suspended therefrom.

Garment hangers of that type may either be simply constructed as molded plastic structures incorporating a unitary or metal central hook portion adapted to be suspended from a suitable support, such as a garment rack or the like, and with a hanger body portion having arms extending in opposite directions from the base of the hook portion so as to facilitate a garment to be suspended therefrom. When needed for a specific use, the opposite or distal ends of the body portion or arms may be formed with suitable grip slots or clip members to enable the attachment of various kinds of garments

1 thereto, such as underwear, slips, brassieres, multiple
garments, and the like.

5 The prior art includes a number of garment hangers that
are molded so as to receive various indicia or logos, which
may be representative of the garment manufacturer or designer,
or possibly the retail establishment, to provide a form of
advertisement and to also identify the origin of the garment
being suspended therefrom. An embossed logo may also be
imprinted therein so as to provide various color contrasts
10 provided through molded raised or recessed surfaces
representative of a logo, advertisement, or the like as
mentioned hereinbefore.

15 The prior art also includes garment hangers for coats,
blazers and other heavier garments which are fitted with pads
or rubber strips, along the shoulder portion, or non-slip
adhesive coatings on the pants bar to help retain the garment
on the hanger.

20 Blanchard U. S. Patent 4,886,195 discloses a plastic
garment hanger of a basically unitary construction wherein
garment size identification structure is molded into the
hanger, such as in the shape of a flat surface molded into the
hook portion of the hanger. Although this provides for a
suitable provision of indicia, such as garment size
identification or of a logo and the like, the hanger would not
25 be readily employable for garments produced by either
different manufacturers or for garments of different sizes.
Consequently, the garment hanger is limited to its use for a
specific application and/or garment type or size.

30 Samuels, et al. U. S. Patent 4,006,547 discloses a
garment hanger in which indicia means are attachable to the
hanger body in the form of tabs or the like which can be
removed from the hanger at the point of sale, or replaced by
other indicia-incorporating structure when it is required to
employ the garment hanger for different garment types.

35 Similarly, Phillip U. S. Patent 4,115,940 discloses a
molded plastic garment hanger in which clips or tabs bearing

1 specified indicia may be detachably fastened to the hanger
structure.

5 U.S. Patent 4,655,867 discloses a garment hanger having a
non-slip strip of resilient material adhesively secured to the
shoulder portions of the hanger.

U.S. Patent 4,606,482 discloses a rod-type garment hanger
having a pre-formed sleeve of non-slip protective material
which is slipped over the rod portions of the hanger to assist
in retaining garments on the hanger.

10 U.S. Patent 4,058,241 discloses a tightly braided cover
which is plaited around the periphery of a garment hanger to
provide protection for the garment and to prevent garment
slippage from the hanger.

15 The prior art also discloses numerous kinds of apparatus
and methods for molding two-component plastic materials; in
essence, by means of a two-step or co-injection process.
However, these have not been specifically applied to the
production of a two-component or composite plastic garment
hanger of the types considered herein.

20 In essence, Neumeister U. S. Patent 4,416,602 discloses
an injection molding apparatus for manufacturing articles from
different types of plastic materials, in which a first plastic
material is injected into a mold to form a frame member or the
like, and thereafter subsequent to cooling and solidifying of
25 the molten plastic material, a second plastic material is
injected into the cavity of the mold so as to form an insert
within an aperture of the frame member provided by the first
plastic material, thereby fusing the plastic materials and
forming a mechanical bond therebetween.

30 Similar types of molding apparatus and methods of that
kind are disclosed in various patent publications,
representative of which are Schomblond U. S. Patent 4,711,621
disclosing a mold for producing composite bodies from
different plastic materials; Hemery U. S. Patent 4,335,068 and
35 Bullard, et al. U. S. Patent 3,577,596.

1 The present invention relates to coinjected plastic
hangers, a method of coinjection of the hangers and the
apparatus for implementing the co-injection molding. Various
desirable attributes for hangers may be created in a
5 coinjected hanger which are not available to a hanger molded
from a single plastic. These attributes may include color
ornamentation, size index markings, logos or trademarks
associated with the garment suspended from the garment,
integrally molded non-slip portions to retain garments on the
10 hangers, and garment retaining clips formed of resilient
plastic to prevent breakage thereof.

 Accordingly, in order to improve upon the plastic hangers
which are currently available in the industry, and which
incorporate integral structure bearing indicia or logos for
15 the purpose of identifying manufacturers, designers, retailers
or the like by having such information molded or embossed into
the primary hanger construction, the invention contemplates
the provision of molded plastic garment hangers incorporating
at least at one suitable location on the hanger, a frame-like
20 enclosure, with a through-aperture of predetermined size and
configuration integrally molded with the basic hanger
structure, and wherein an insert from a second or separate
plastic material is adapted to be molded into the aperture of
the enclosure and having the specified indicia, such as a logo
25 or other suitable legends molded therein. The composite
garment hangers which are thus formed from two separate
materials, may be constituted from two plastic materials of
the same color and/or type of plastic, or from different kinds
of plastic materials and which, if desired, may be imparted
30 different colors to provide a decorative effect. The second
plastic material for the insert which is molded into the
frame-like enclosure and which has the logo impressed or
molded therein, is generally produced in the same mold for
producing the basic hanger structure through a co-injection
35 method, subsequently to the initial molding and cooling of the
basic hanger structure so as to cause the insert to fuse and

1 bond with the contacting surfaces within the enclosure molded
into the plastic material for the hanger. This bond may be a
mechanical bond, a plastic molded bond, or a fusion bond,
5 depending on the plastics selected, and the relative
injection, set and cool cycles of the coinjection machine.
This imparts a versatility to the construction and utilization
of such garment hangers inasmuch as a single mold with a
movable core can be employed for forming the entire composite
plastic garment hanger construction, and the mold may be
10 modified with regard to the formation of the insert portion
adapted to be received within the enclosure, so as to enable
the hanger to be individualized concerning the incorporation
of indicia representative manufacturers, designers and/or
retail establishments at a minimum cost and effort.

15 For this purpose, the invention also contemplates a two-
step molding procedure or, in essence, a co-injection plastic
molding method whereby plastic materials of different types
and/or colors may be readily employed so as to have a first
plastic material of a specified type and color form the basic
20 hanger structure, cooled to some extent within the mold so as
to at least partially solidify, and thereafter a mold core is
movable into a position in communication with an inlet for a
further or second plastic material which may be either of the
same color and/or type as the first plastic material or,
25 possibly of a different color and/or material type, and in
which the second plastic material forms the insert which is
fused and bonded with the plastic material of the basic hanger
structure so as to provide for either a permanent or
detachable connection therebetween. However, it may also
30 be readily appreciated that, upon the manufacture of larger
quantities of such garment hangers, in the event that
appreciable numbers of such hangers bearing a specific indicia
or logo cannot be employed, it may be possible to simply punch
or knock out the insert by applying lateral mechanical
35 pressure thereto, and thus facilitate removal of the undesired
logo-bearing insert from the hanger without inherently

1 damaging the basic hanger construction itself, thereby
enabling such garment hangers to be generically employed with
other types and makes of garments.

5 The present invention also provides a coinjected garment
hanger having a non-slip plastic material that is molded and
bonded to the shoulder portions of the hanger to prevent
slippage of the garment from the hanger.

10 Accordingly, it is an object of the present invention to
provide a molded plastic garment hanger which incorporates an
insert consisting of a second plastic material adapted to have
indicia, logo or non-slip means molded therein, and which
insert may be fused to the hanger structure so as to form a
molded plastic or mechanical bond with the first plastic
material constituting the basic garment hanger.

15 Another object of the present invention is to
provide a molded plastic garment hanger which incorporates a
non-slip insert consisting of a second plastic material that
is softer and stickier than the garment hanger body, which
insert may be fused to the hanger structure so as to form a
20 molded plastic or mechanical bond with the first plastic
material constituting the basic garment hanger.

Another object of the present invention is to provide a
two-component plastic garment hanger adapted to be molded
through a single co-injection molding process, whereby an
25 insert which may be of a similar color and/or plastic
material, as the basic hanger construction, or alternatively,
of a different coloring and/or type of plastic material, is
fused within a mold to the material of the basic hanger
construction so as to form a mechanical bond therebetween.

30 Another object of the present invention is to provide a
mold for the co-injection of at least two plastic materials to
form a composite molded plastic garment hanger structure.

35 A more specific object resides in the provision of a
plastic mold of the type described herein, in which a second
plastic material is molded into a frame-like enclosure formed
from the first plastic material producing the basic hanger

1 construction so as to be fused thereto and forming a
mechanical bond therewith.

Yet another object of the present invention is to provide
a method for the co-injection molding of a plastic garment
5 hanger construction which is constituted from composite
plastic materials.

The foregoing and other objects of the invention may now
be more readily ascertained from the following detailed
description of preferred embodiments thereof, taken in
10 conjunction with the accompanying drawings; in which:

Figure 1 illustrates a fragmentary side view of a molded
plastic garment hanger incorporating an insert pursuant to the
inventive concept;

Figure 2 illustrates an embodiment in a view similar to
15 Fig. 1, showing a modification thereof;

Figure 3 illustrates an embodiment in a view similar to
Fig. 1, showing a further modification thereof;

Figure 4 illustrates a fragmentary schematic plan view of
a mold showing the cavity for forming the plastic garment
20 hanger pursuant to the invention;

Figure 5 illustrates a sectional view taken along line
5 - 5 in Fig. 4;

Figure 6 illustrates a view similar to Fig. 5 showing the
mold in a further operative position;

25 Figure 7 illustrates a view similar to Fig. 5 showing the
mold in the final operative position for forming the composite
molded plastic garment hanger;

Figure 8 illustrates a side view of an integral
molded plastic garment hanger incorporating, for the purposes
30 of illustration, two types of non-slip plastic inserts, with
one type on each shoulder of the hanger;

Figure 9 illustrates a side view of a composite
garment hanger having a molded plastic body incorporating non-
slip plastic inserts in the shoulder portion thereof;

35 Figure 10 is a cross-section of the hanger
illustrated in Fig. 8 taken along section line 10-10;

1 Figure 11 is a cross-section of the hanger
illustrated in Fig. 9 taken along section line 11-11.

5 Figure 12 is a cross-section of the lower portion of
the hanger illustrated in Figure 9 taken along section line
12-12.

 Figure 13 is a cross-section of a portion of a
garment hanger that would be formed by the mold illustrated in
Fig. 16, taken along section line 13-13 in Fig. 16;

10 Figure 14 is a cross-section of an alternative
embodiment of the portion of a garment hanger that would be
formed by an alternate mold construction, if taken along
section line 13-13 in Figure 16;

15 Figure 15 is a cross-section of an alternative
embodiment of the portion of a garment hanger that would be
formed by still another alternate mold construction if taken
along section line 13-13 in Figure 16; and

 Figure 16 is a cross-section of a mold cavity used
to form the hanger illustrated in Figure 8.

20 Referring now in detail to the drawings, and particularly
the hanger construction as shown in Fig. 1, there is
illustrated a partial or fragmentary side view of a molded
plastic garment hanger 10 having a central hook portion 12
which is integrally molded with hanger body 14, the latter of
which includes a pair of coplanar oppositely directed arms 16
25 and 18 for suspending one or more garments, as is well known
in industry. The distal ends of each of the arms 16 and 18
may, if desired, be equipped with suitable garment gripping or
clip structure, for example, as disclosed in Tendrup, et al.
U. S. Patent 4,623,079, or alternatively, may be of a simple
30 rounded end configuration to merely permit hanging suspension
of a garment rather than fastening the garment to the hanger.
In order to provide a reinforcement for the hook portion 12, a
suitable gusset or flange 20 may be molded into the hanger
proximate the juncture between base of the hook portion 12 and
35 the arm 18 of the hanger body 14. This will impart an
enhanced degree of strength against bending of the hook

1 portion in the plane of the body 14 under the weight of a supported garment.

Pursuant to the inventive structure of the hanger, as shown in the embodiment of Fig. 1, the upper end of the hook
5 portion 12 has integrally molded thereto a suitable enclosure or frame portion 22 providing an enclosed aperture 24, in this instance, of a generally rectangular configuration. Positioned within the aperture 24 of enclosure 22 is an insert
10 26 of a plastic material which may either be of the same color and/or type of plastic as that of the basic hanger construction or, alternatively, may be of a different plastic material and/or color to provide a composite hanger structure of a specific decorative nature. The plastic insert 26 is
15 essentially molded into the enclosure 22 so as to fuse with the material of the contacting edge surface of the latter and to thereby form a plastic molded or mechanical bond between the insert 26 and the basic hanger structure 10 as will be hereinafter described in greater detail. Suitable logos and
20 other kinds of indicia may be molded or sized into the insert 26, such as for identifying the garment manufacturer or designer, or the retailer, or may include any other suitable advertising or identifying legends in conformance with the requirements of the retailer or manufacturer of the garments.

The modified embodiments of the hanger as shown in Figs.
25 2 and 3, in which identical or similar elements are identified by the same reference numerals as those in Fig. 1, primarily differ from the former in the location of the enclosure 22 for the insert which is molded into the basic garment hanger construction, and whereby the insert 26 is shown at different
30 positions relative to the hanger hook portion 12 and hanger body 14.

Thus, in Fig. 2, rather than being located at the upper end of the hook portion 12, the enclosure 22, and resultingly insert 26, are formed towards one side of the hook portion and
35 extend coplanarly intermediate the upper end and the juncture of the base of the hook portion 12 with the hanger body 14.

1 Similarly, in the embodiment of Fig. 3, rather than being
formed on the hook portion 12, the enclosure 22 may be molded
onto the hanger body 14, in this instance, onto the arm 18 so
as to extend upwardly therefrom in a type of tab structure,
5 and with the insert 26 being fused and mechanically bonded
therein as in the previous embodiments.

It is also possible to contemplate providing apertures
for receiving inserts 26 in the body of the hanger portion 14
itself; for instance, such as in the region within the base of
10 the hook portion, or at any other suitable location as desired
by the needs of a customer for the garment hanger.

The entire composite hanger structure may be molded in a
co-injection plastic mold 30, as shown diagrammatically in
Figs. 4 through 7 of the drawings.

15 Hereby, the injection mold 30 includes a mold cavity 32
which is equipped with a movable core 34 to enable a first
plastic material in a molten state to be injected therein so
as to form the basic hanger construction 10 incorporating the
enclosure or frame 22 for an insert 26 which is to be
20 subsequently located therein. After this molding procedure is
completed with regard to the injection of the first plastic
material into the mold cavity 32 for the basic hanger
construction 10, the core 34 is displaced, as shown in Fig. 6,
so as to be retracted to close off the infeed for the first
25 plastic material, and a second plastic material is commenced
being injected into the mold cavity from a separate injection
inlet 36. The second plastic material, as shown in Fig. 7
fills the aperture or pocket formed within the frame 22 when
the core is fully retracted and the mold is allowed to cool to
30 produce the insert 26. Hereby, the second mold cavity formed
between the core 34 and the hanger 10 may also be provided
with a suitable configuration to permit the concurrent molding
of various logo or indicia into or onto the insert 26. The
face of the core 34, and the opposing side of the mold cavity,
35 formed by mold 30 may be embossed with complementary indicia,
such as size indicia, which may be viewed from either side of

1 the completed hanger. Upon opening of the mold subsequent to
cooling, the completed composite garment hanger structure is
ejected, the mold then closed and readied for the molding of
another garment hanger pursuant to the invention.

5 Figure 8 illustrates a side view of an integral molded
plastic garment hanger 40 incorporating, for the purposes of
illustration, two types of non-slip plastic inserts 44, 45,
with one type of each insert on each shoulder of the hanger.
The hanger illustrated in Figure 8 includes a centrally
10 located hook portion 41 and a molded body member 42 connected
thereto which extends outwardly and downwardly from the lower
end of the hook member. This hanger may also form an aperture
24 within body member 42 for receipt of an insert 26 in a
manner similar to that illustrated for Figures 1-4. The
15 molded body member has M section arms 43a, 43b which are
illustrated in cross-section in Figure 10 which provide
structural strength for the hanger and support for the
garment. For the purposes of illustration, two types of
inserts 44, 45 are illustrated, although it is understood that
20 in actual practice, each of the arms 43a, 43b would normally
be equipped with the same type of insert. A cross-section of
the arm 43b taken along section line 10-10 is illustrated in
Figure 10 which illustrates, in cross-section, the cross-
section of the non-slip insert 44 bonded to the shoulder
25 portion of hanger arm 43b. As illustrated in Figure 8, the
insert 44 sets on top of the shoulder to provide a non-slip
gripping surface for hanger 40. A cross-section of arm 43a
would be similar to the cross-section illustrated for Figure
9, wherein the non-slip portion is completely embedded within
30 the outwardly extending arm.

Figure 9 illustrates a composite hanger having a
molded plastic body portion and a centrally located metal hook
46 arranged to suspend the hanger from a hanger support bar or
the like. The molded plastic body 47 extends outwardly and
35 downwardly from the lower end of the hook member with
outwardly extending arms 48a, 48b. Each of the arms 48a, 48b

1 has integrally molded therewith a non-slip layer 45 which
forms the upper top portion of the shoulder of each of the
hanger arms 48a, 48b.

5 Figure 11 illustrates a cross-section of the hanger
illustrated in Figure 9 taken along section line 11-11. The
hanger illustrated in Figure 9 is a coat hanger suitable for
supporting medium weight coats and blazers from arms 48a and
48b, and trousers from the trouser bar 50. Trouser bar 50 has
fused thereto a non-slip insert 51 arranged across the entire
10 upper portion of the pants support bar 50. A cross-section of
the trouser bar 50 taken along the section line 12-12 is
illustrated in Figure 12.

The bond between the plastic insert 26 and the enclosure
22 of Figures 1-4 and the non-slip inserts 44, 45 and 51 and
15 the hangers illustrated in Figures 8 and 9 may be a mechanical
bond, a molded plastic bond, a fused bond or a combination
thereof as desired. The factors which determine the type of
bond include the chemical compatibility of the plastics
involved, the melting and fusing temperatures of the
20 respective plastics involved, the temperatures at which the
plastic is injected into the respective mold cavities, the
temperature at which the cavity is maintained, and the
respective dwell time between the injection of the first
plastic, and the removal of the mold insert and the injection
25 of the second plastic.

By adjusting the parameters of the process, one may
achieve a mechanical bond, a plastic molded bond, or a wholly
fused bond wherein the surface layers of the plastics have
intermixed with each other.

30 Figure 13 is an enlarged illustration of a portion
of the hangers illustrated in Figures 8-10 as formed in the
mold cavity illustrated in Figure 16. This cross-section is a
portion of the cross-section taken at 90° to the cross-section
illustrated in Figures 10 and 16 along section line 13-13. As
35 illustrated in Figure 13, the non-slip plastic insert 44 is
mechanically bonded to the support arm 43b by means of a

1 series of interlocking dove tail joints generally indicated at
52. An alternative embodiment for the means by which the non-
slip plastic insert 44c is mechanically bonded to arm 43c is
5 illustrated in Figure 14 which illustrates a mechanical bond
by means of a series of interlocking buttonhole joints,
generally indicated at 52c in Figure 14. Still another
embodiment for the means by which the non-slip plastic insert
44d is mechanically bonded to arm 43d is illustrated in Figure
15 which illustrates a mechanical bond by means of a series of
10 interlocking key hole joints, generally indicated at 52d in
Figure 15. Any one of a variety of locking methods including
those illustrated in Figures 13-15 can be used depending upon
the preference of the manufacturer. Alternately, the
configurations may be reversed with the key portion that is
15 illustrated as integrally molded on arm 43b, c or d, molded on
non-slip insert 44, and the complementary portion that is
illustrated as integrally molded on non-slip plastic insert
44b, c or d is molded on arm 43b. The illustrations of
Figures 13-15 are intended to be illustrative only of a wide
20 variety of mechanical interlocks suitable for use as a
mechanical bond.

The mold for producing the construction is
illustrated in Figure 16 wherein injection mold 60, 61 define
therebetween a mold cavity 62 with a sub-cavity 63 that is,
25 during a first mold cycle, filled with a reciprocating core
member 64. Core member 64 is mounted on reciprocating piston
65 for movement in and out of mold cavity 63 by virtue of a
hydraulic cylinder 66.

A first plastic material in a molten state is
30 injected through feeder 67 and orifice 68 to fill the mold
cavity 62 during the first mold cycle. During this filling
operation, mold core 64 is within and completely fills the
mold cavity 63 and closes orifice 69. After the plastic from
the primary source feeder 67 has completely filled the mold
35 cavity 62, a second mold cycle is begun in which the mold core
64 is withdrawn from cavity 63 which allows a second insert

1 plastic material to be injected via conduit 70 through orifice
69 and into mold cavity 63. The residence time of core 64
within cavity 63 is dependent upon the type of plastics being
5 of bond desired between the insert and the plastic hanger
body. It should be noted that the mold core 64 has a dove
tail cross-section essentially identical to the cross section
illustrated in Figure 13 for insert 44. When mold core 64 is
filling cavity 63 it forms the dove tail portion of the main
10 hanger body 43b as illustrated in Figure 13 from the primary
material. When the core 64 is withdrawn, the secondary
material fills each of the dove tail cavities formed in the
base member thereby completing the cross-section illustrated
in Figure 13. However, it should be noted that the present
15 invention is not limited to mechanical bonding by means of
dove tail joints. As illustrated in Figures 14 and 15 the
mold core 64 could also have a buttonhole joint or keyhole
joint cross-section as means of mechanically bonding the arm
43b and the non-slip plastic insert 44. After the insert
20 cavity 63 has been filled, mold 60, 61 is cooled, mold members
60, 61 are separated, and the newly formed hanger is ejected
from mold cavity 62 by means of ejector pins (not shown).

From the foregoing illustrations it is readily apparent
that the present invention is directed to an extremely simple
25 composite garment hanger construction, preferably produced in
a coinjection mold through a simple two step process which
requires a minimum amount of effort and expenditure, while
being versatile in its applications due to the specific
structural aspects of the members. No costly hand labor is
30 required to attach sizing index caps, to stamp logos, or to
affix the non-slip strips to the shoulders of the hangers.
All is accomplished in a single molding operation.

The plastic materials which can be employed with the
molding operation in order to produce the inventive composite
35 molded plastic hanger may include, but are not limited to
plastic materials such as polystyrene, SAN, ABS, PPO, nylon,

1 polypropylene, polyethylene, PET, polycarbonates, acrylics and
PVC among others, each being provided with specific coloration
in conformance with the specific demands of the customer.

5 When it is desired to mold composite hangers with the non-slip
inserts, polypropylene and polyethylene primary materials may
be combined with ethylene vinyl acetate, low density
polyethylene, or thermoplastic elastomers for the non-slip
layer. Alternately, if polystyrene, ABS or SAN primary
materials are desired, they may be combined with ethylene
10 vinyl acetate, PVC or thermoplastic elastomers. Other
materials suitable for the primary body construction such as
PVC, PC, PMMA or a mixture of a polystyrene with one of the
foregoing primary materials may be used with EVA, PVC or
thermoplastic elastomers and the non-slip insert material.

15 More particularly, when a chemical bond is desired, it is
preferable to use styrene main as the primary material with
styrene or polypropylene main as the primary material with
EVA/PP mix. When a chemical and mechanical bond is desired,
it is preferable to use styrene main as the primary material
20 with styrene rubber. When a mechanical bond is desired, it is
preferable to use polypropylene main as the primary material
with polyethylene.

While there have been shown and described what are
considered to be the preferred embodiments of the invention,
25 it will, of course, be understood that various modifications
and changes in form or detail can readily be made without
departing from the spirit of the invention. It is therefore
intended that the invention not be limited to the exact form
and detail herein shown and described nor to anything less
30 than the whole of the invention herein disclosed as
hereinafter claimed.

- 16 -

CLAIMS:

1. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook to support a garment therefrom, and at least one coinjected non-slip strip molded into at least one surface of said molded body member to assist in retaining a garment thereon.

2. The coinjected plastic garment hanger as claimed in claim 1, in which said hook member is formed of plastic and integrally molded with said plastic body member.

3. The coinjected plastic garment hanger as claimed in claim 1, in which said hook member is formed of metal and said body member defines a means for receiving said hook member.

4. The coinjected plastic garment hanger as claimed in claim 1, wherein said molded plastic body member includes first and second arms which extend outwardly and downwardly from said hook member, with a first coinjected non-slip member integrally molded into said first arm and a second coinjected non-slip member integrally molded into said second arm.

5. The coinjected plastic garment hanger as claimed in claim 1, wherein said molded plastic body member includes a horizontal bar, with said non-slip strip integrally molded into the upper surface of said horizontal bar.

6. The coinjected plastic garment hanger as claimed in claim 4, which further includes a horizontal pants bar connecting the lowermost ends of said outwardly and downwardly extending arms, said horizontal bar having a coinjected layer of non-slip plastic integrally molded therewith.

7. The coinjected plastic garment hanger as claimed in claim 4, which further includes a coinjected indicia integrally molded with said molded plastic body member.

8. The coinjected plastic garment hanger as claimed in claim 7, which further includes a coinjected indicia

- 17 -

mechanically bonded to said molded plastic body member, said mechanical bond formed between said indicia and said body member by said coinjection.

9. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook to support a garment therefrom, at least one enclosure having a through aperture molded therein of specified configuration and size, and at least one coinjected member molded into said hanger, said coinjected member comprising an insert constituted from a second plastic material of a configuration and size commensurate with the aperture of said enclosure being molded into said enclosure so as to form a bond with the plastic material of said garment hanger.

10. The garment hanger as claimed in claim 9, wherein said insert is constituted from a plastic material which is dissimilar from the plastic material of said hook member and hanger body.

11. The garment hanger as claimed in claim 9, wherein said insert and said hook member and hanger body consist of similar plastic materials.

12. The garment hanger as claimed in claim 9, wherein said insert has a coloring which differs from the coloring of said hook member and hanger body.

13. The garment hanger as claimed in claim 9, wherein said insert has indicia imprinted, embossed or molded thereon.

14. The garment hanger as claimed in claim 9, wherein said at least one enclosure for said insert is coplanarly molded at an upper end of said hook member distant from a base portion connecting said hook member with said hanger body, on an outer side edge of said hook member intermediate and upper end and

- 18 -

base of said hook member, or on the body of said garment hanger.

15. The garment hanger as claimed in claim 9, wherein said at least one enclosure has a generally rectangular or a generally triangular configuration.

16. The garment hanger as claimed in claim 9, wherein said bond is a mechanical bond, a plastic molded bond, a coinjected molded bond, or a fused bond.

17. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook member and including a first arm and a second arm each of which extend outwardly and downwardly from said hook member, said arms having upper garment supporting surfaces to support a garment therefrom, and at least one coinjected member molded into said garment hanger

wherein said at least one coinjected member includes a non-slip strip molded into at least one upper garment supporting surface of said molded body member with a first coinjected non-slip strip integrally molded into said first arm and a second coinjected non-slip strip integrally molded into said second arm to assist in retaining a garment thereon;

wherein each of said coinjected non-slip strips is formed with a mechanical interlock, and said interlock is also molded into at least one surface of said molded body member to mechanically assist in bonding said non-slip strip to said molded plastic body member, said mechanical-interlock bond formed between said non-slip strip and said body member during the coinjected molding of said garment hanger.

18. The coinjected plastic garment hanger as claimed in claim 17, wherein said at least one coinjected member is further secured to at least one surface of said molded body member by controlled thermal distortion.

- 19 -

19. The coinjected plastic garment hanger as claimed in claim 17, in which said hook member is formed of plastic and integrally molded with said plastic body member.

20. The coinjected plastic garment hanger as claimed in claim 17, in which said hook member is formed of metal and said body member defines a means for receiving said hook member.

21. The coinjected plastic garment hanger as claimed in claim 17, wherein said molded plastic body member includes a horizontal bar, wherein a third non-slip strip is integrally molded into an upper surface of said horizontal bar.

22. The coinjected plastic garment hanger as claimed in claim 17, which further includes a horizontal pants bar connecting the lowermost ends of said outwardly and downwardly extending first and second arms, said horizontal bar having a coinjected layer of non-slip plastic integrally molded therewith.

23. The coinjected plastic garment hanger as claimed in claim 17, which further includes a coinjected indicia integrally molded with said molded plastic body member.

24. The coinjected plastic garment hanger as claimed in claim 23, which further includes a coinjected indicia mechanically bonded to said molded plastic body member, said mechanical bond formed between said indicia and said body member by said coinjection.

25. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook member and including a first arm and a second arm each of which extend outwardly and downwardly from said hook member, said arms having upper garment supporting surfaces to support a garment therefrom, and at least one coinjected member molded into said garment hanger

wherein said at least one coinjected member includes a

- 20 -

non-slip strip molded into at least one upper garment supporting surface of said molded body member with a first coinjected non-slip strip integrally molded into said first arm and a second coinjected non-slip strip integrally molded into said second arm to assist in retaining a garment thereon;

said hanger further including at least one enclosure having a through aperture molded therein of specified configuration and size, and further wherein said at least one coinjected member includes an insert constituted from a second plastic material of a configuration and size commensurate with the aperture of said enclosure being molded into said enclosure so as to form a bond with the plastic material of said garment hanger.

26. The garment hanger as claimed in claim 25, wherein said insert is constituted from a plastic material which is dissimilar from the plastic material of said hook member and hanger body.

27. The garment hanger as claimed in claim 25, wherein said insert and said hook member and hanger body consist of similar plastic materials.

28. The garment hanger as claimed in claim 25, wherein said insert has a coloring which differs from the coloring of said hook member and hanger body.

29. The garment hanger as claimed in claim 25, wherein said insert has indicia imprinted, embossed or molded thereon.

30. The garment hanger as claimed in claim 25, wherein said at least one enclosure for said insert is coplanarly molded at an upper end of said hook member distant from a base portion connecting said hook member with said hanger body, on an outer side edge of said hook member intermediate and upper end and base of said hook member, or on the body of said garment hanger.

31. The garment hanger as claimed in claim 25, wherein

- 21 -

said at least one enclosure has a generally rectangular or a generally triangular configuration.

32. The garment hanger as claimed in claim 25, wherein said bond securing said non-slip strip to said first arm and said second arm is a mechanical bond, a plastic molded bond, a coinjected molded bond, a fused bond or a combination thereof.

33. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook and including a first arm and a second arm each of which extend outwardly and downwardly from said hook member, said arms having upper garment supporting surfaces to support a garment therefrom, and at least one coinjected member molded into said garment hanger, wherein said at least one coinjected member includes a coinjected non-slip strip molded into at least one upper garment supporting surface of said molded body member to assist in retaining a garment thereon.

34. The coinjected plastic garment hanger as claimed in claim 33, wherein said coinjected non-slip strip is molded into at least one surface of said molded body member by mechanical bonding to said molded plastic body member, said mechanical bond formed between said non-slip strip and said body member by said coinjection.

35. The coinjected plastic garment hanger as claimed in claim 33, wherein said at least one coinjected member is further molded into at least one surface of said molded body member by thermal distortion.

36. The coinjected plastic garment hanger as claimed in claim 33, in which said hook member is formed of plastic and integrally molded with said plastic body member.

37. The coinjected plastic garment hanger as claimed in claim 33, in which said hook member is formed of metal and said

- 22 -

body member defines a means for receiving said hook member.

38. The coinjected plastic garment hanger as claimed in claim 33, wherein said molded plastic body member includes first and second arms which extend outwardly and downwardly from said hook member, with a first coinjected non-slip member integrally molded into said first arm and a second coinjected non-slip member integrally molded into said second arm.

39. The coinjected plastic garment hanger as claimed in claim 33, wherein said molded plastic body member includes a horizontal bar, with said non-slip strip integrally molded into the upper surface of said horizontal bar.

40. The coinjected plastic garment hanger as claimed in claim 38, which further includes a horizontal pants bar connecting the lowermost ends of said outwardly and downwardly extending arms, said horizontal bar having a coinjected layer of non-slip plastic integrally molded therewith.

41. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook which includes a first arm and a second arm which extend outwardly and downwardly from said hook member, said arms having upper garment supporting surfaces to support a garment therefrom, said hanger comprising:

- (a) first and second coinjected non-slip strips, with said first coinjected non-slip strip molded into a first upper surface of said first arm and said second coinjected non-slip strip molded into a first upper surface of said second arm, said first and second coinjected non-slip strips assisting in retaining a garment on said upper garment supporting surfaces;

- (b) first and second coinjected boundary zones formed between said first and second non-slip strips and said first and second upper surfaces formed on said first and second arms;

- (c) said first and second boundary zones defining one or

- 23 -

more of the following bonds: a mechanical bond, a plastic molded bond, a wholly fused bond or a mechanical bond formed by controlled thermal deformation.

42. The coinjected plastic garment hanger as claimed in claim 41, wherein said boundary zone includes a mechanical bond formed between said non-slip strip and said body member, said mechanical bond molded into said upper surface of each of said first and second upper surfaces formed on said first and second arms during the coinjection molding of said hanger.

43. The coinjected plastic garment hanger as claimed in claim 41, wherein said boundary zone includes a wholly fused bond formed between said non-slip strip and said body member, said fused bond formed on said upper surface of each of said first and second upper surfaces of said first and second arms during the coinjection molding of said hanger.

44. The coinjected plastic garment hanger as claimed in claim 41, wherein said boundary zone includes a thermally deformed mechanical bond formed between said non-slip strip and said body member, said deformed mechanical bond molded into said upper surface of each of said first and second upper surfaces formed on said first and second arms by controlled thermal deformation during the coinjection molding of said hanger.

45. The coinjected plastic garment hanger as claimed in claim 41, wherein said boundary zone includes a plastic molded bond formed between said non-slip strip and said body member, said plastic molded bond formed on said upper surface of each of said first and second upper surfaces of said first and second arms during the coinjection molding of said hanger.

46. The coinjected plastic garment hanger as claimed in claim 41, wherein said molded plastic body member includes a horizontal bar, with a non-slip strip integrally molded into the upper surface of said horizontal bar.

- 24 -

47. The coinjected plastic garment hanger as claimed in claim 41, which further includes a horizontal pants bar connecting the lowermost ends of said outwardly and downwardly extending arms, said horizontal bar having a coinjected layer of non-slip plastic integrally molded therewith.

48. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook which includes a first arm and a second arm which extend outwardly and downwardly from said hook member, said arms having upper garment supporting surfaces to support a garment therefrom, said hanger comprising:

(a) first and second coinjected non-slip strips, with said first coinjected non-slip strip molded into an upper surface of said first arm and said second coinjected non-slip strip molded into an upper surface of said second arm, said first and second coinjected non-slip strips assisting in retaining a garment on said upper garment supporting surfaces;

(b) first and second coinjected boundary zones formed between said first and second non-slip strips and said first and second upper surfaces formed on said first and second arms;

(c) said first and second boundary zones defining a mechanical bond between said first and second coinjected non-slip strips and said upper surfaces formed on said first and second arms.

49. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook which includes a first arm and a second arm which extend outwardly and downwardly from said hook member, said arms having upper garment supporting surfaces to support a garment therefrom, said hanger comprising:

(a) first and second coinjected non-slip strips, with said

- 25 -

first coinjected non-slip strip molded into an upper surface of said first arm and said second coinjected non-slip strip molded into an upper surface of said second arm, said first and second coinjected non-slip strips assisting in retaining a garment on said upper garment supporting surfaces;

(b) first and second coinjected boundary zones formed between said first and second non-slip strips and said first and second upper surfaces formed on said first and second arms;

(c) said first and second boundary zones defining a molded plastic bond formed between said first and second coinjected non-slip strips and said upper surfaces formed on said first and second arms during the coinjection molding of said hanger.

50. A coinjected plastic garment hanger having a hook member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook which includes a first arm and a second arm which extend outwardly and downwardly from said hook member, said arms having upper garment supporting surfaces to support a garment therefrom, said hanger comprising:

(a) first and second coinjected non-slip strips, with said first coinjected non-slip strip molded into an upper surface of said first arm and said second coinjected non-slip strip molded into an upper surface of said second arm, said first and second coinjected non-slip strips assisting in retaining a garment on said upper garment supporting surfaces;

(b) first and second coinjected boundary zones formed between said first and second non-slip strips and said first and second upper surfaces formed on said first and second arms;

(c) said first and second boundary zones defining a wholly fused bond formed between said first and second coinjected non-slip strips and said upper surfaces formed on said first and second arms during the coinjection molding of said hanger.

51. A coinjected plastic garment hanger having a hook

- 26 -

member for suspending said garment hanger from a support, said hanger having a molded plastic body member attached to said hook which includes a first arm and a second arm which extend outwardly and downwardly from said hook member, said arms having upper garment supporting surfaces to support a garment therefrom, said hanger comprising:

(a) first and second coinjected non-slip strips, with said first coinjected non-slip strip molded into an upper surface of said first arm and said second coinjected non-slip strip molded into an upper surface of said second arm, said first and second coinjected non-slip strips assisting in retaining a garment on said upper garment supporting surfaces;

(b) first and second coinjected boundary zones formed between said first and second non-slip strips and said first and second upper surfaces formed on said first and second arms;

(c) said first and second boundary zones defining a thermally deformed mechanical bond between said first and second coinjected non-slip strips and said upper surfaces formed on said first and second arms, said thermally deformed bond created by controlled thermal deformation during the coinjection molding of said hanger.

52. A coinjected plastic garment hanger as claimed in claim 41, 48, 49, 50 or 51, wherein said non-slip insert is formed of a thermoplastic rubber.

53. A molded plastic garment hanger having a centrally located hook portion for suspension from a support, and a body integrally formed with said hook portion so as to extend substantially horizontally from a lower end of said hook portion, said hanger having at least one enclosure having a through-aperture molded therein of specified configuration and size, and an insert for indicia constituted from a second plastic material of a configuration and size commensurate with the aperture of said enclosure molded into said enclosure so

- 27 -

as to form a plastic molded bond with a first plastic material of said garment hanger.

54. A garment hanger as claimed in claim 53, wherein said at least one enclosure for said insert is coplanarly molded at an upper end of said hook portion distant from a base portion connecting said hook portion with said hanger body.

55. A garment hanger as claimed in claim 53, wherein said at least one enclosure for said insert is coplanarly molded on an outer side edge of said hook portion intermediate and upper end base of said hook portion.

56. A garment hanger as claimed in claim 53, wherein said at least one enclosure for said insert is molded on the body of said garment hanger.

57. A garment hanger as claimed in claim 53, wherein said at least one enclosure has a generally rectangular configuration.

58. A garment hanger as claimed in claim 53, wherein said insert is constituted from a plastic material which is dissimilar from the plastic material of said hook portion and hanger body.

59. A garment hanger as claimed in claim 53, wherein said insert and said hook portion and hanger body consist of similar plastic material.

60. A garment hanger as claimed in claim 53, wherein said insert has a coloring which differs from the coloring of said hook portion and hanger body.

61. A garment hanger as claimed in claim 53, wherein said insert has indicia imprinted, embossed or molded thereon.

2070037

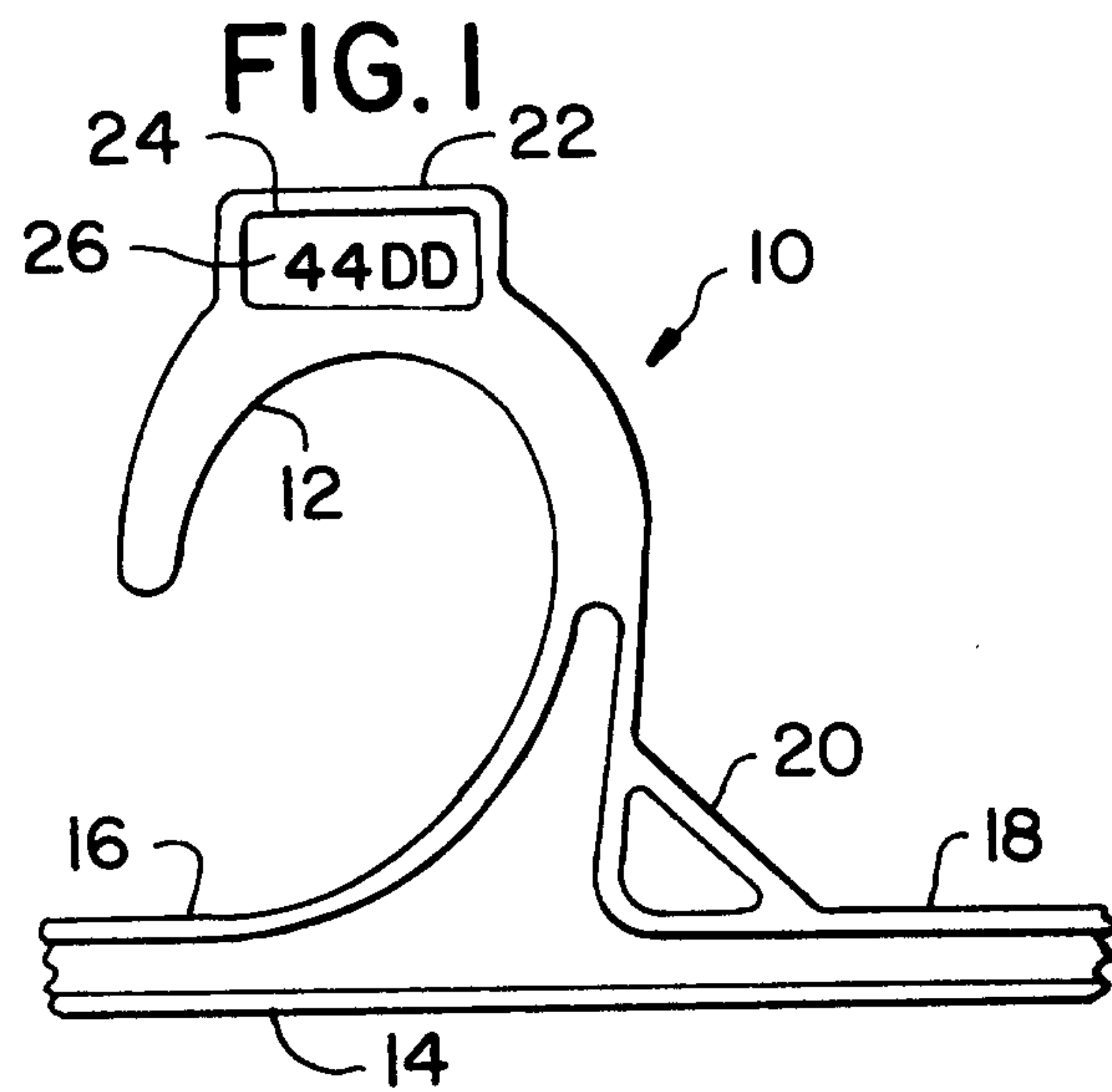
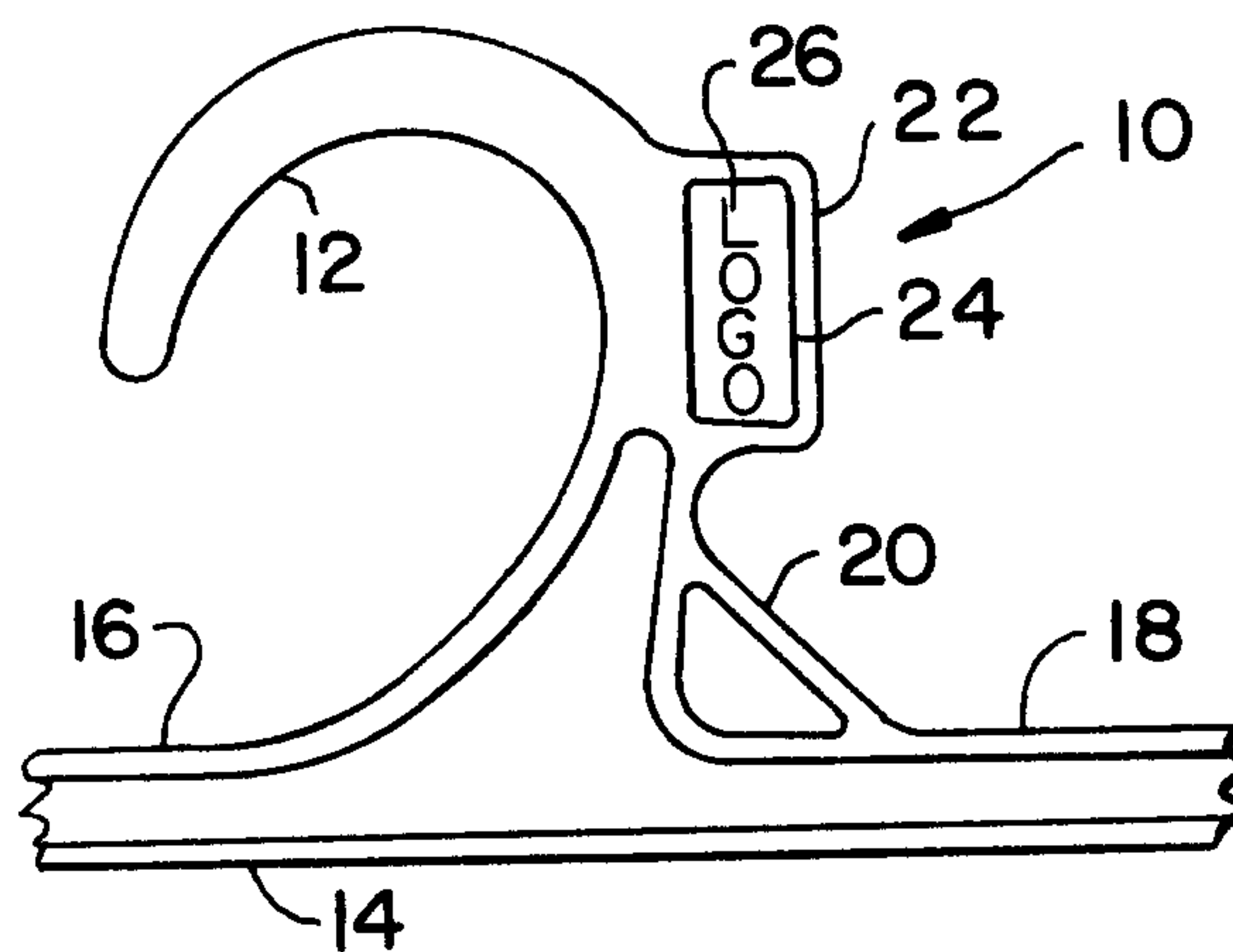
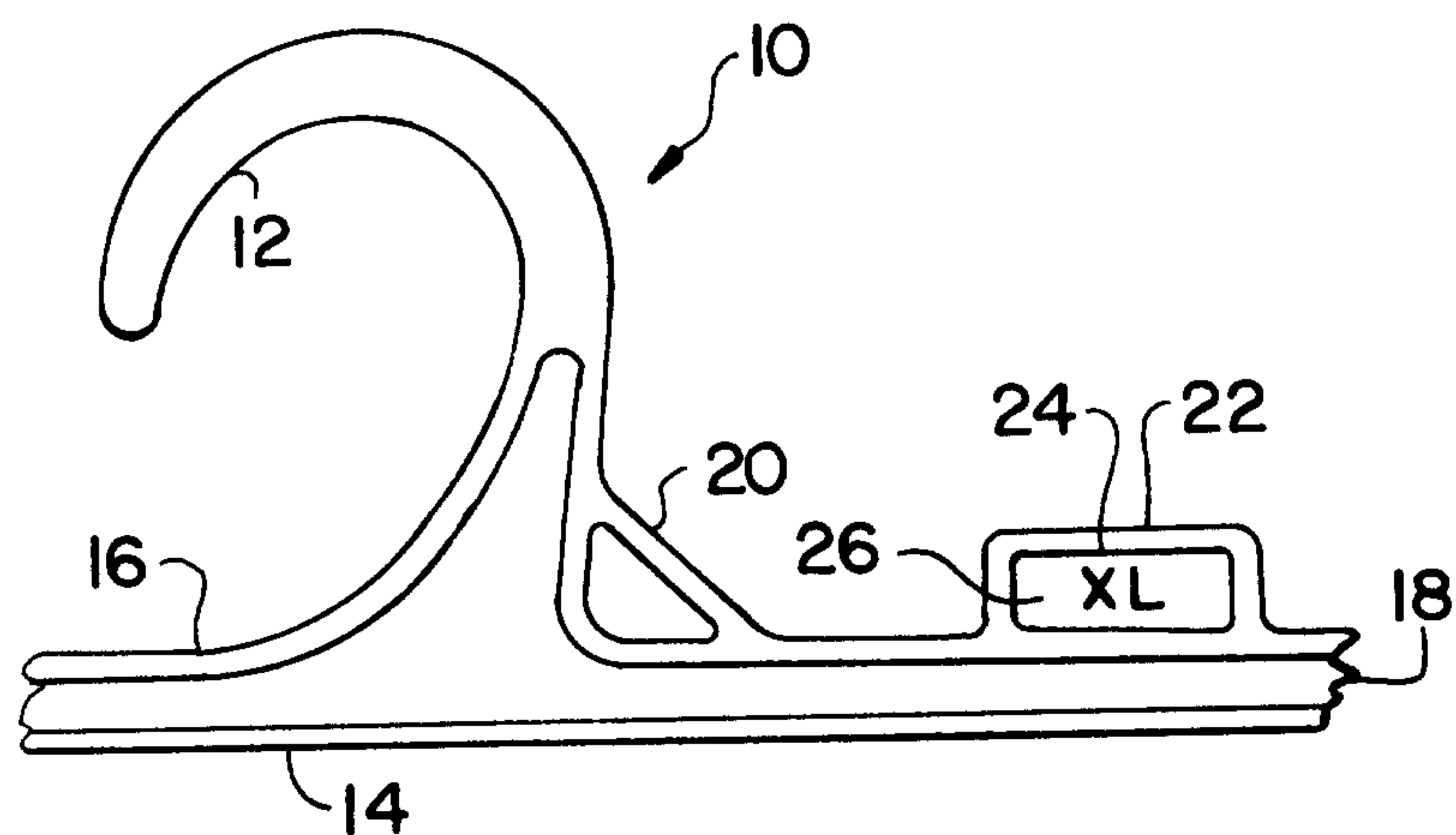
**FIG. 2****FIG. 3**

FIG. 4

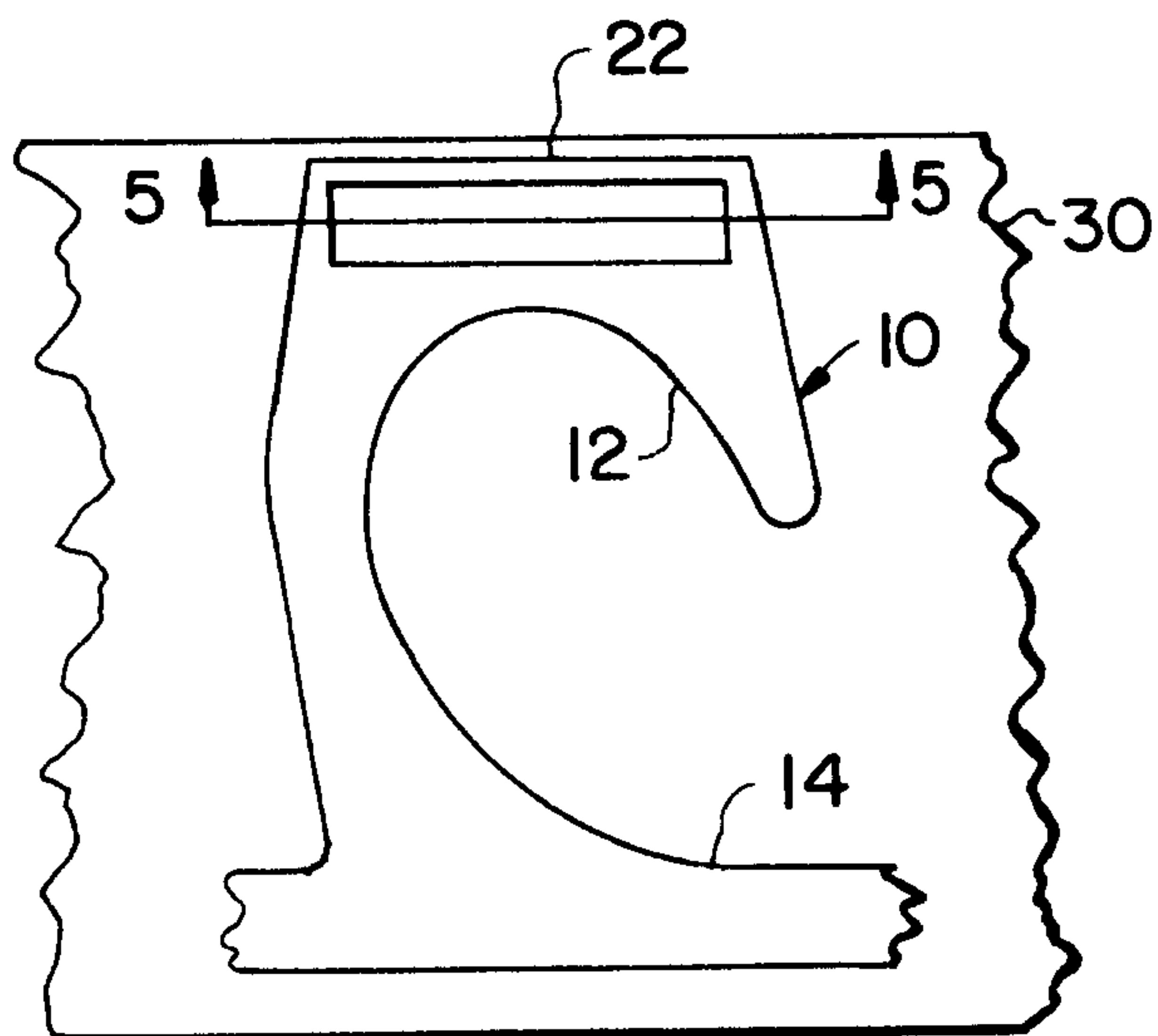


FIG. 5

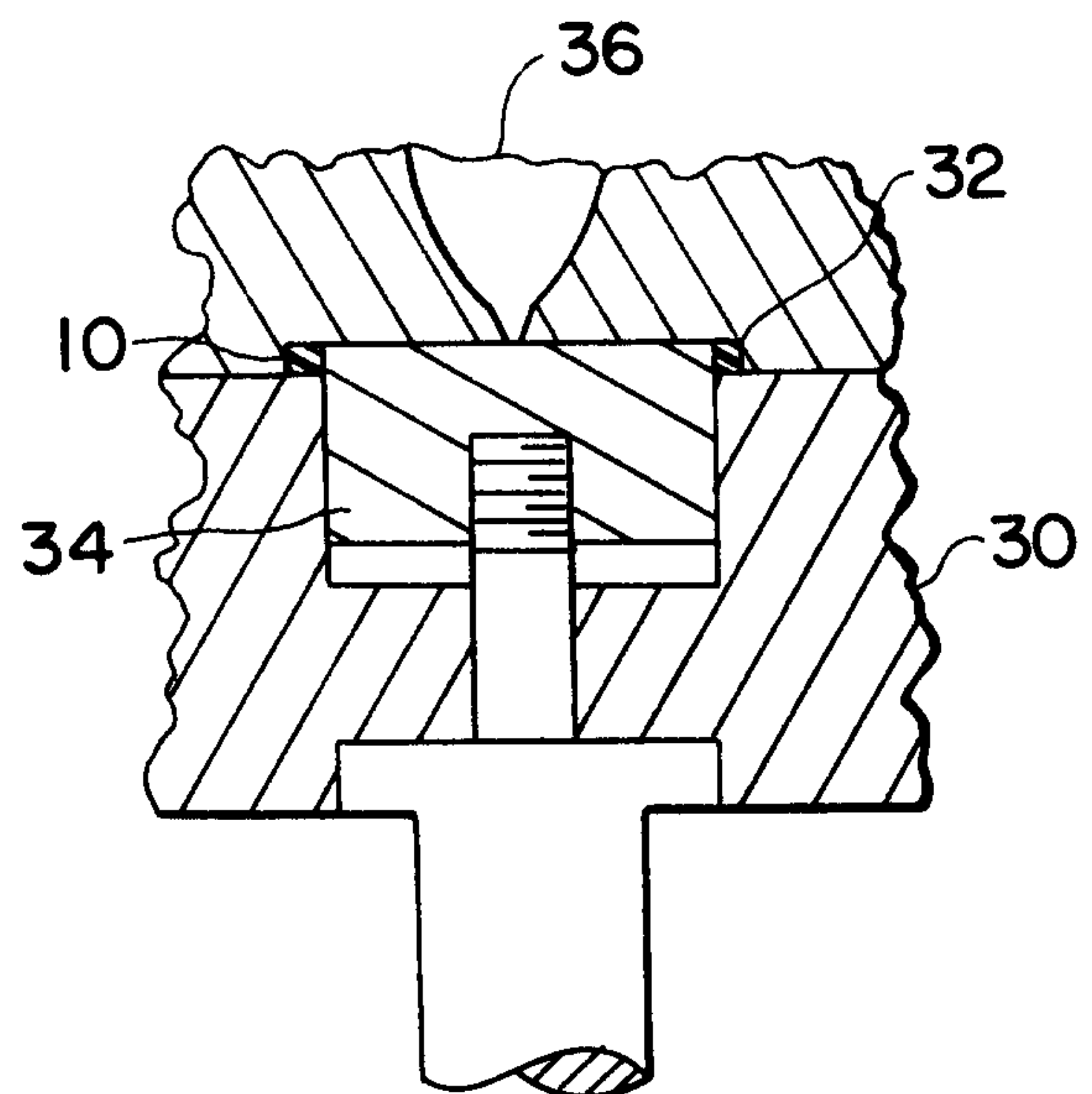


FIG. 6

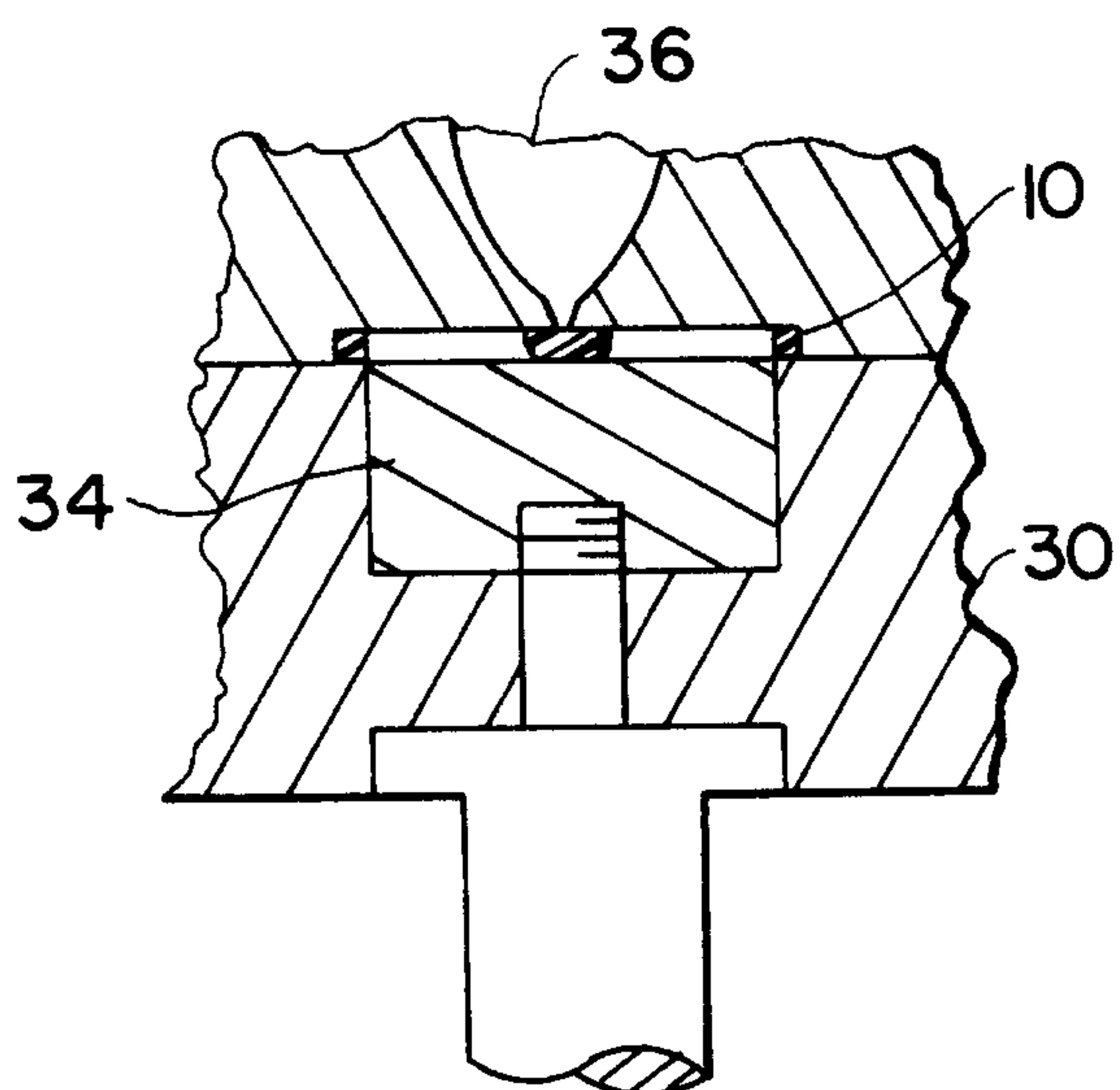


FIG. 7

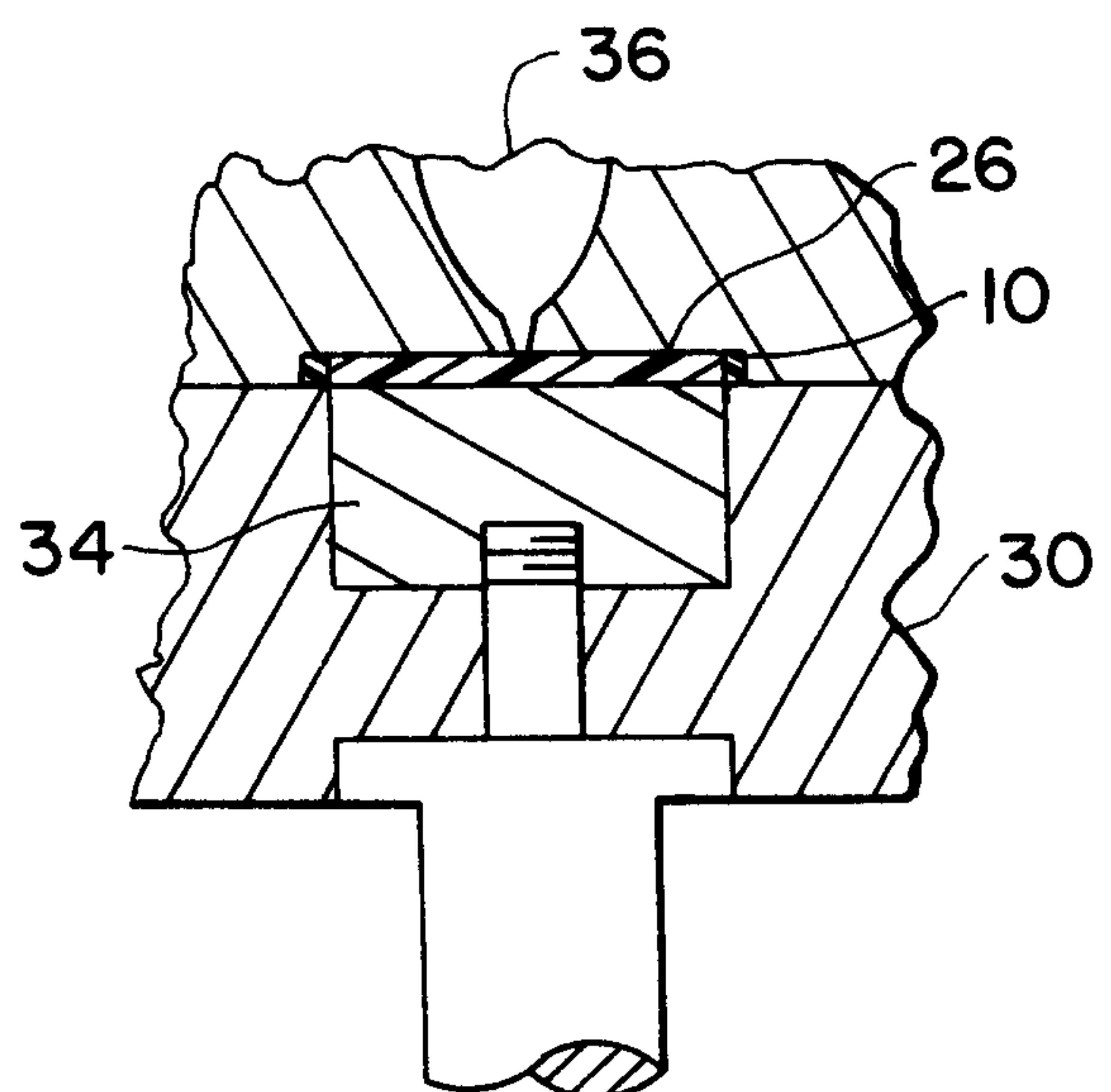
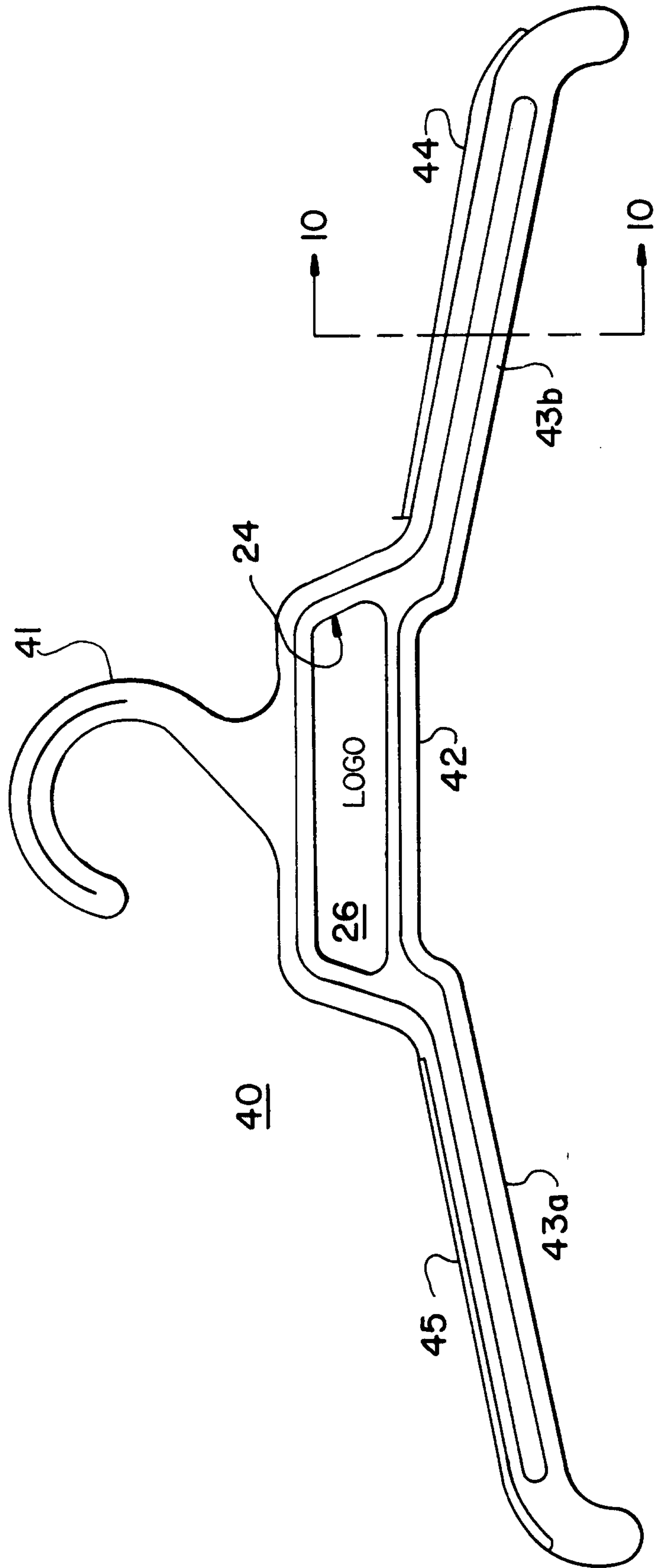


FIG. 8



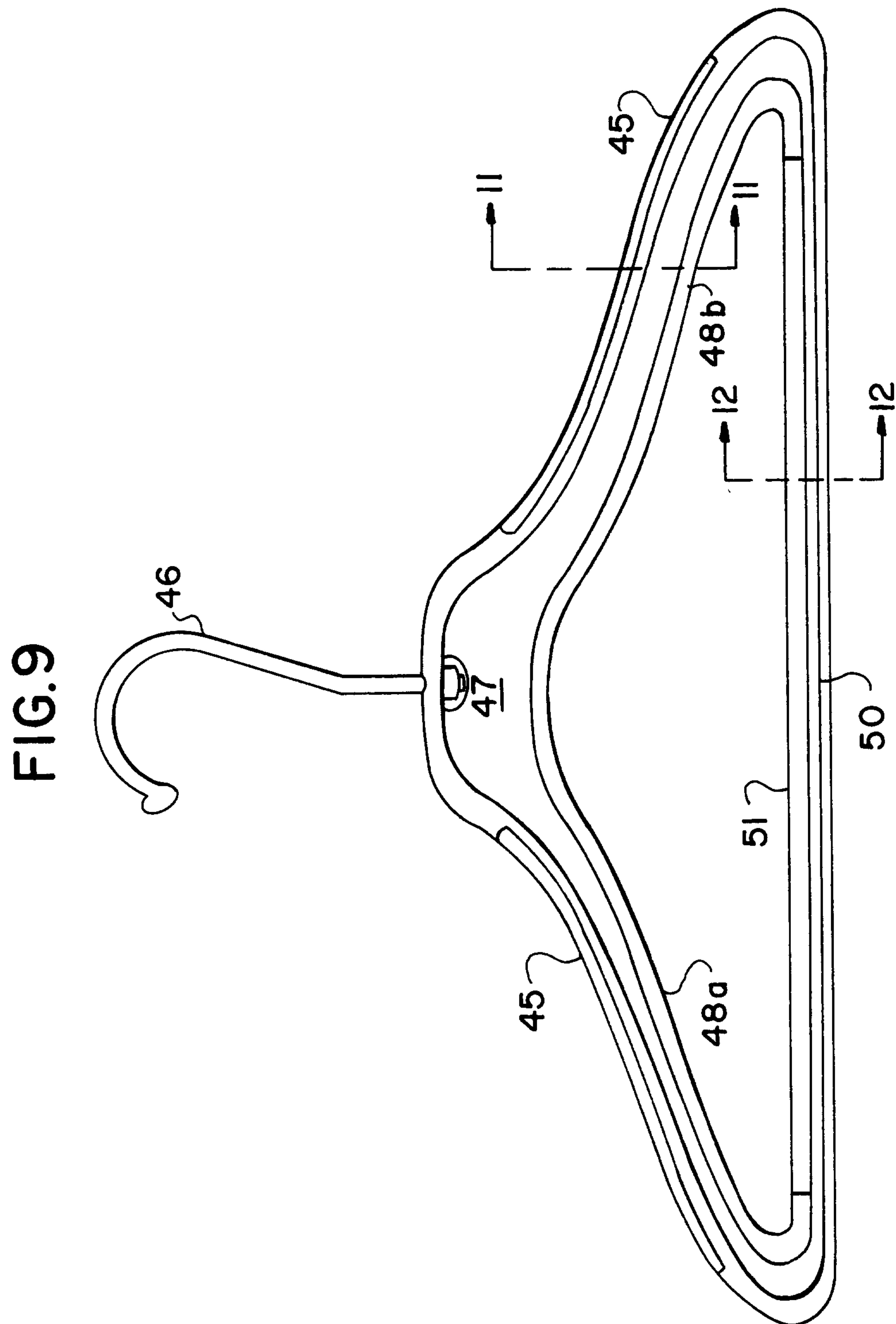


FIG.10

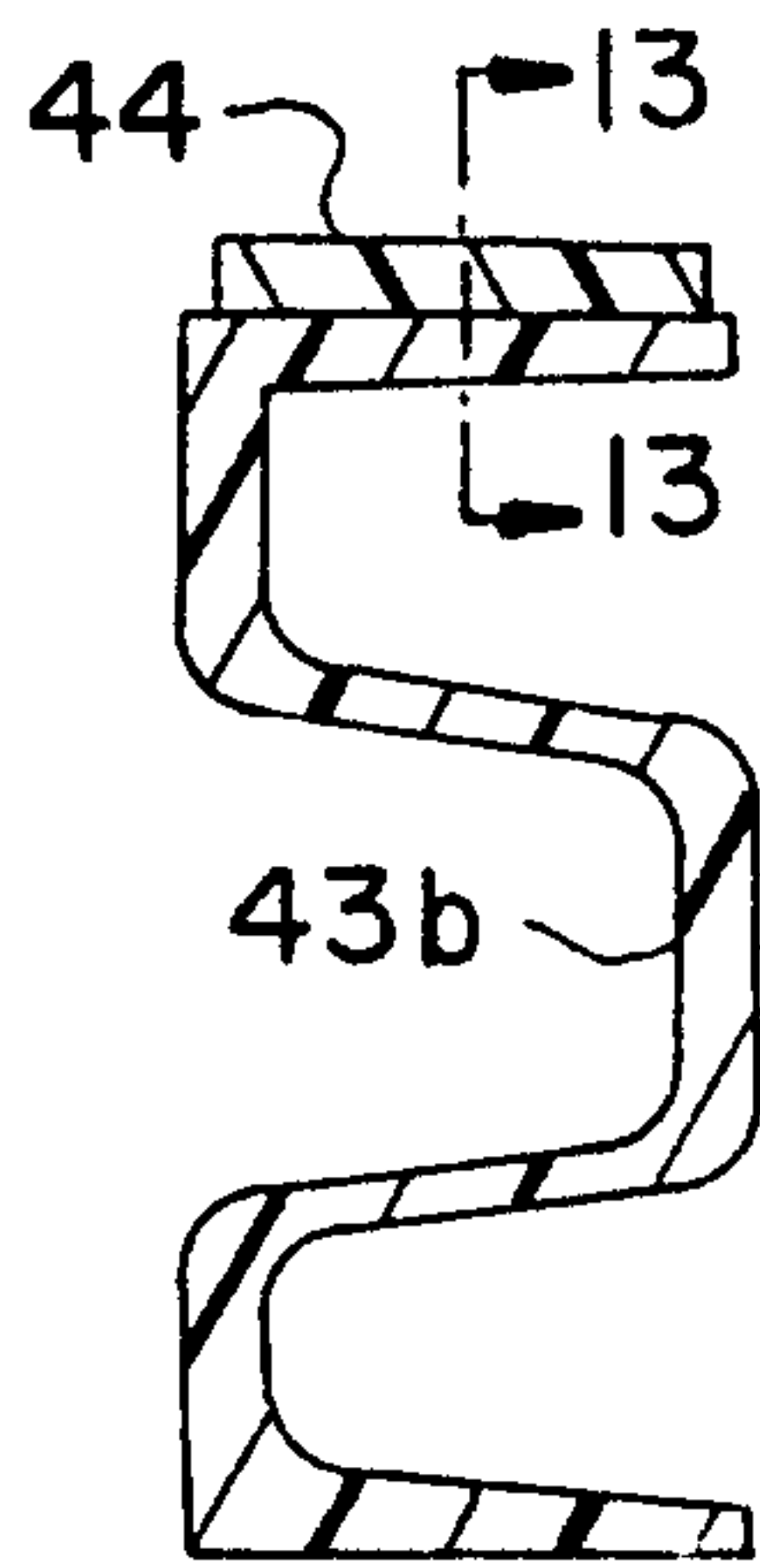


FIG.11

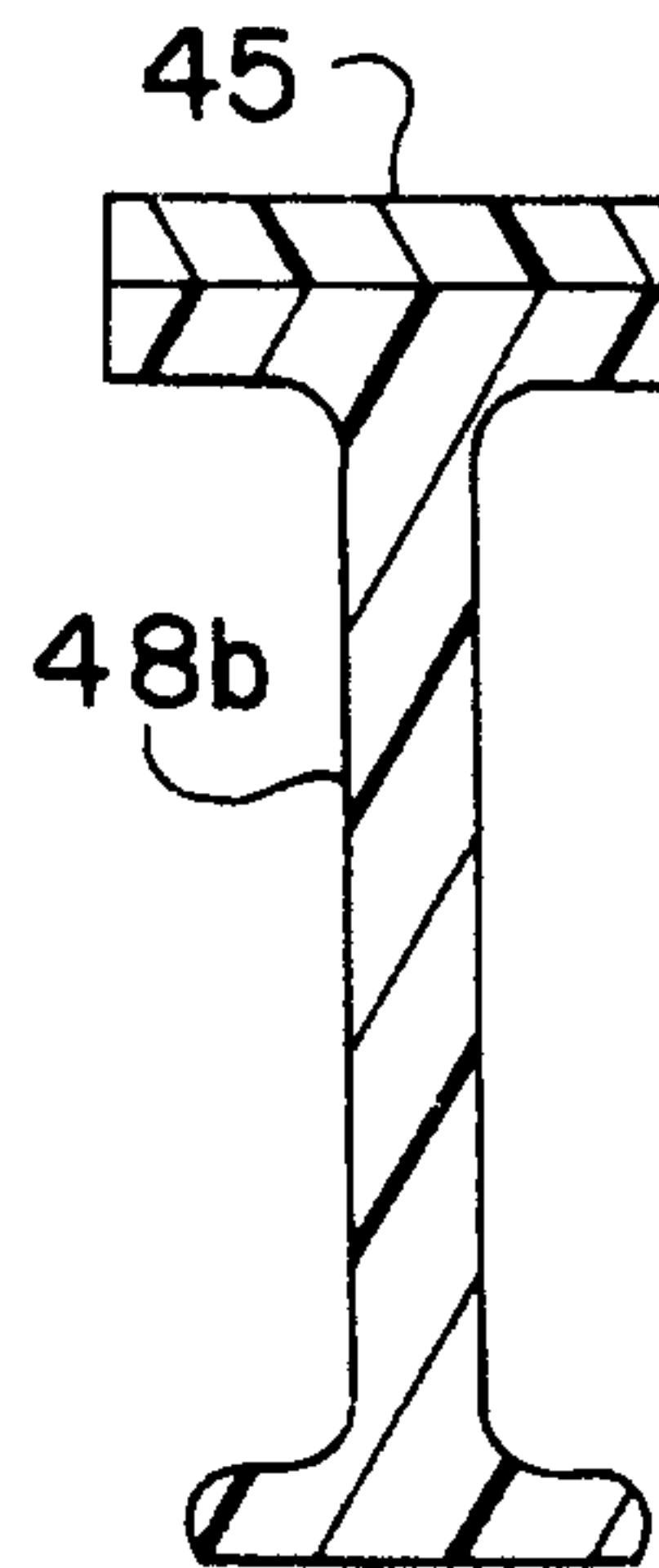


FIG.12

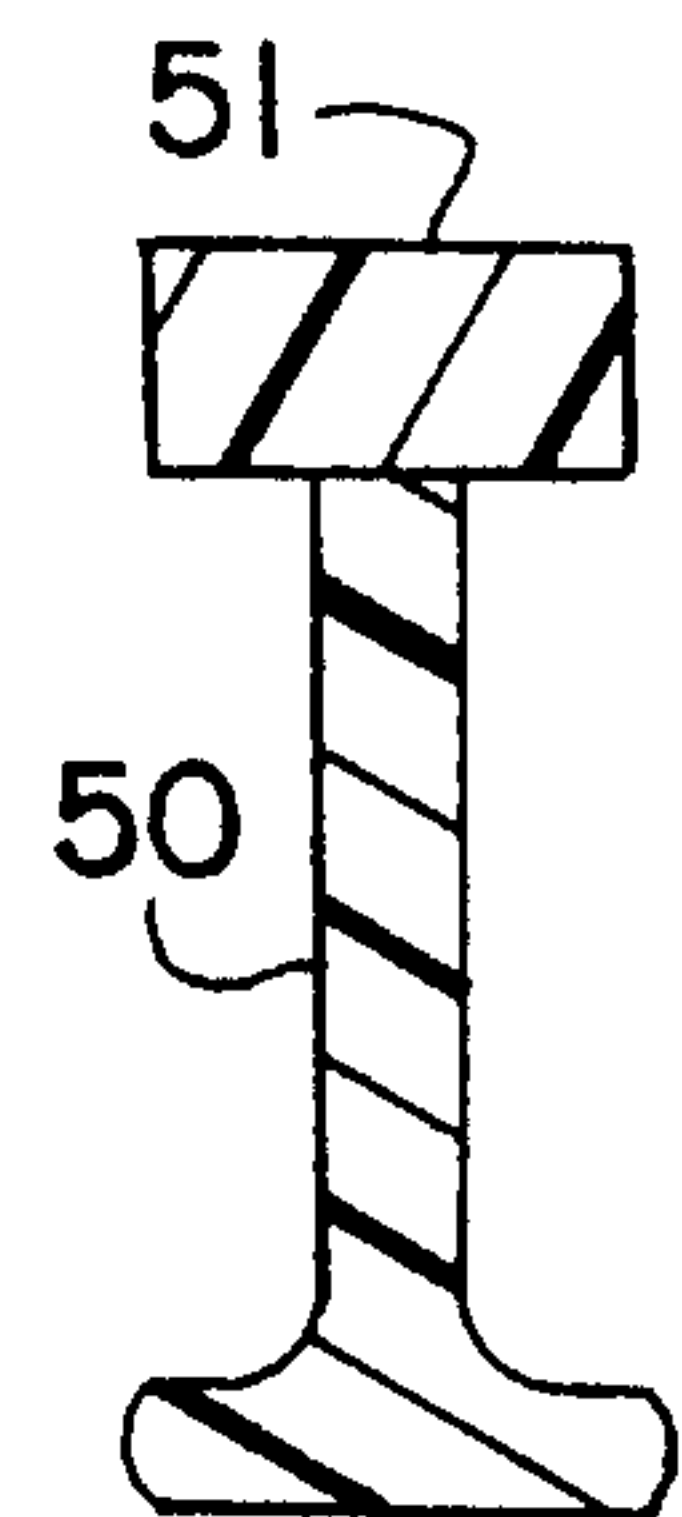


FIG.13

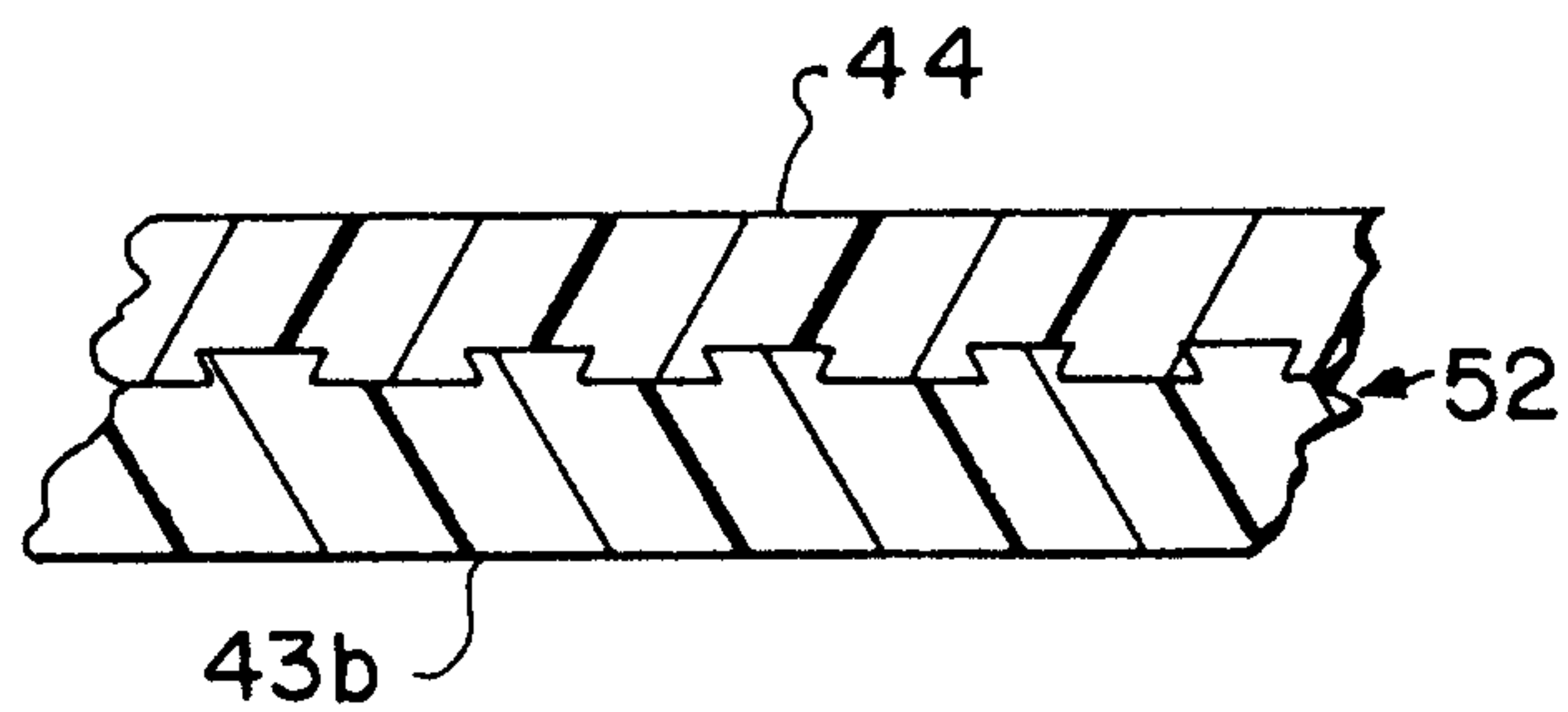


FIG.14

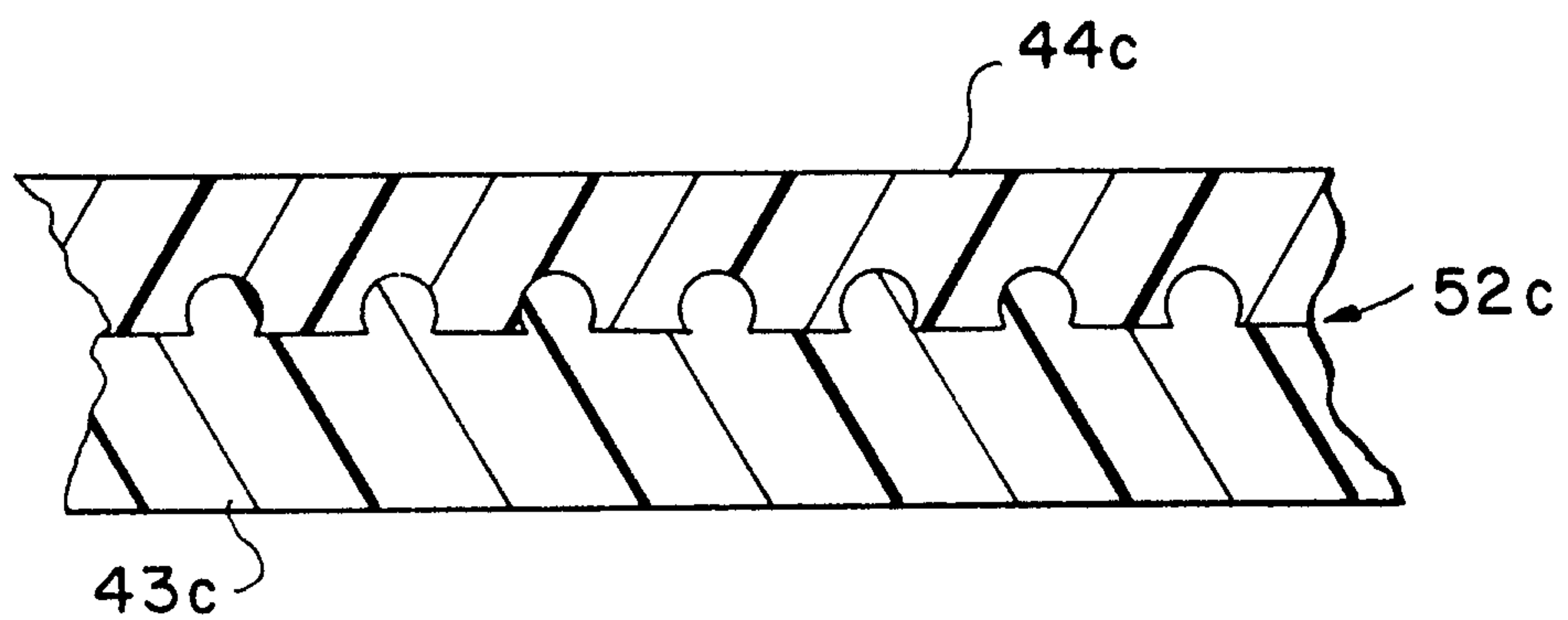


FIG. 15

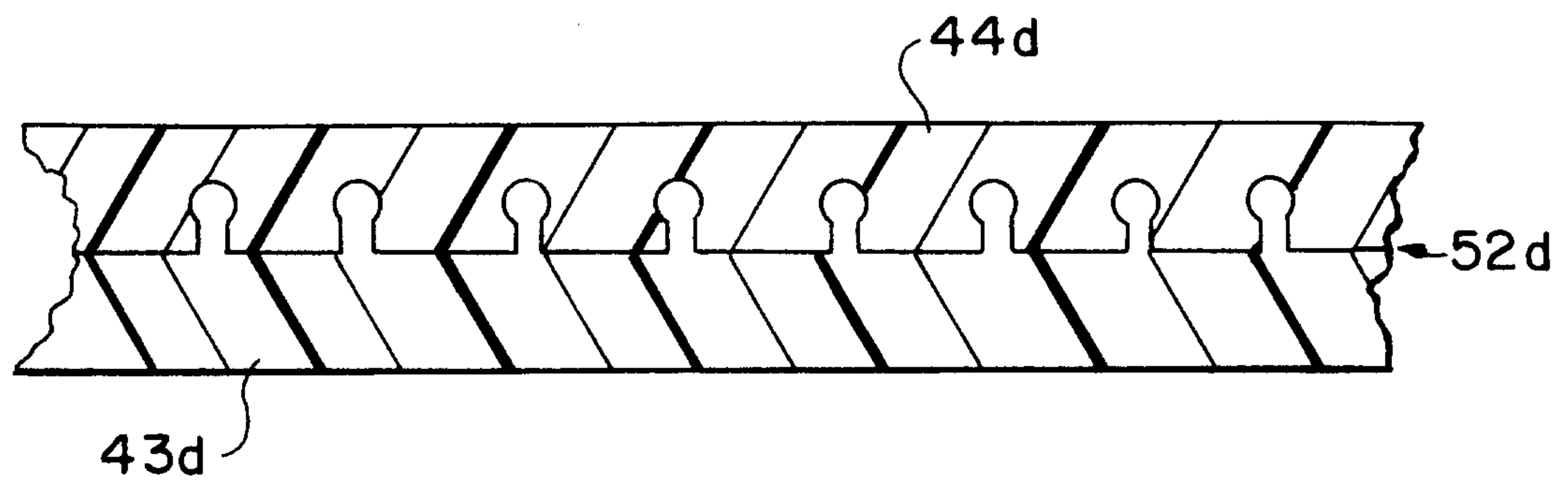


FIG. 16

