

- [54] METHOD FOR FABRICATING DECORATIVE BEAD CHAINS
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Related U.S. Application Data

- [62] Division of Ser. No. 425,129, Oct. 23, 1989.
- [51] Int. Cl.⁵ B05D 3/02; B05D 3/12; B05D 5/00
- [52] U.S. Cl. 427/172; 427/171; 427/262; 427/280; 427/287; 427/293
- [58] Field of Search 63/2, 4; 427/262, 258, 427/265, 267, 280, 287, 171, 172, 293

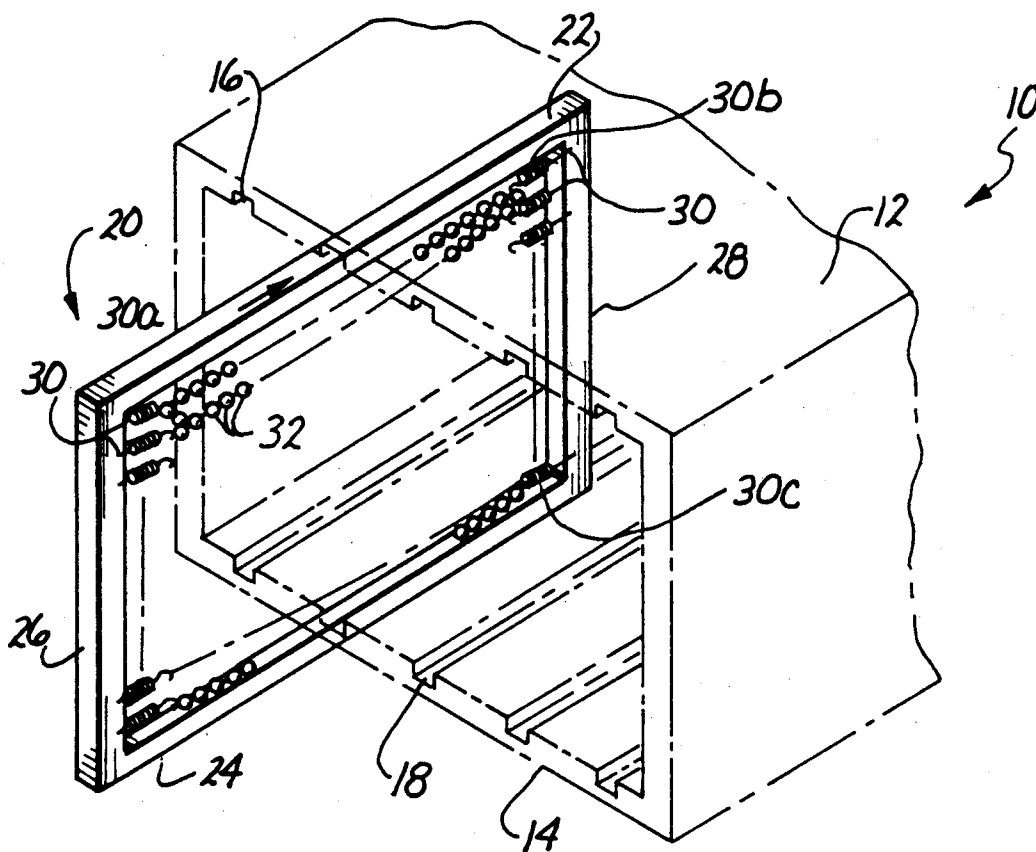
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[57] **ABSTRACT**

A method of producing decorative lengths of shot chain involves pre-heating the chain, initially applying a primer coat, reheating the primed chain, then subjecting one side of the chain to the application of paint of one color, reheating the chain to set that application, applying a different color to the other side of the chain and then baking to anneal the paint. The chain is then clipped to desired lengths. The method may be practiced either continuously or step-by-step.

7 Claims, 1 Drawing Sheet



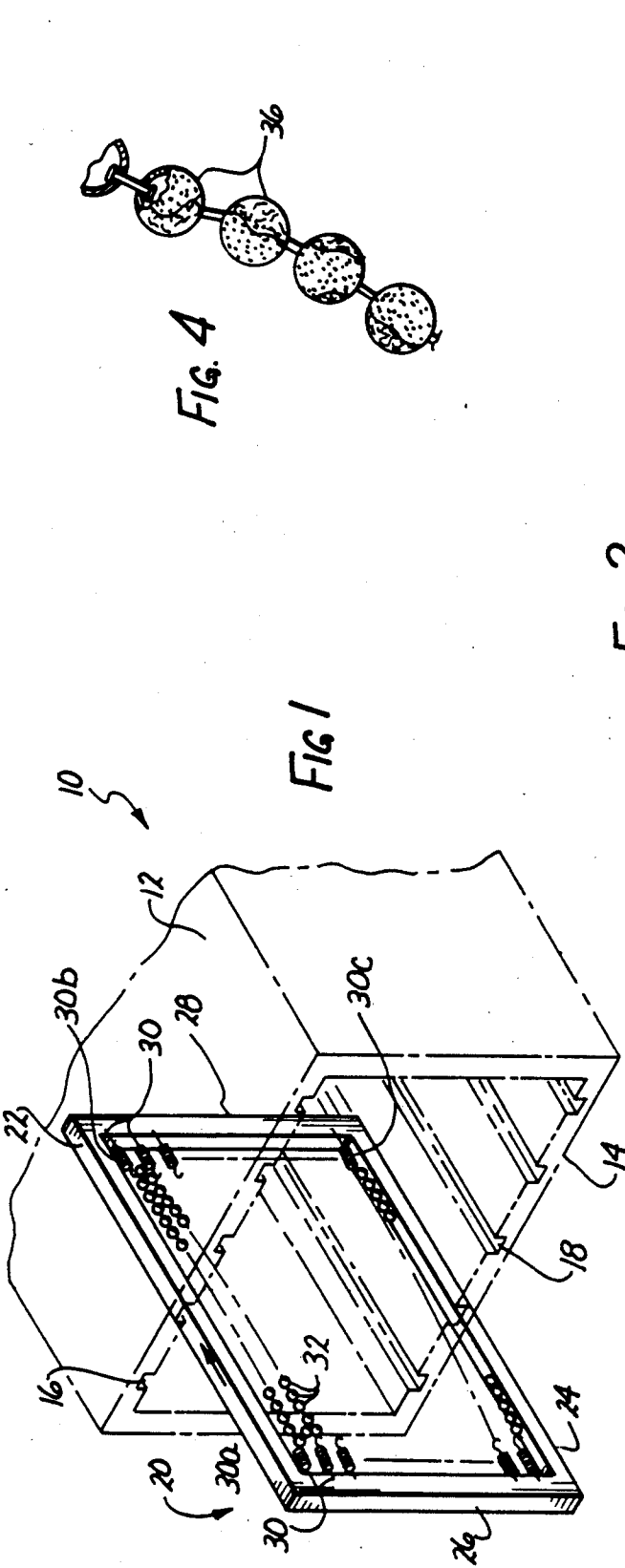


FIG. 1

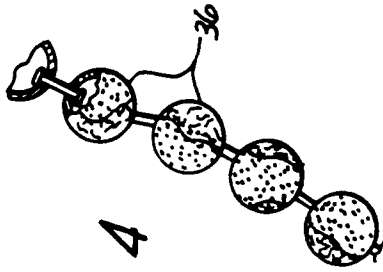


FIG. 4

FIG. 2

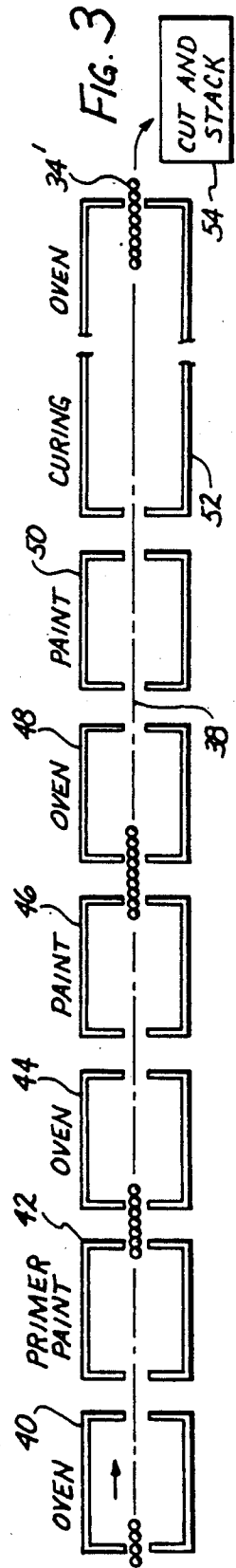
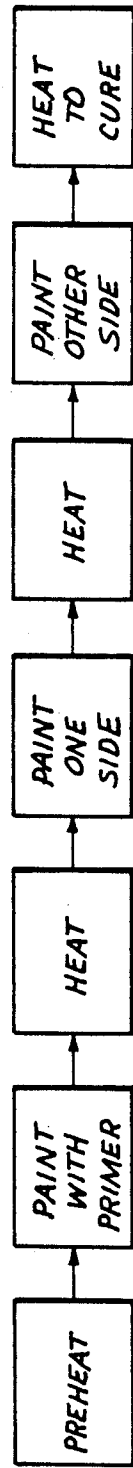


FIG. 3

METHOD FOR FABRICATING DECORATIVE BEAD CHAINS

This is a division of application Ser. No. 07/425,129, 5
filed Oct. 23, 1989.

FIELD OF THE INVENTION

This invention relates to the art of fabricating strings 10
or chains of metal elements, and particularly shot or
bead chains.

BACKGROUND OF THE INVENTION

What are usually called "shot" or "bead chains" have 15
been known and available for purchase for many dec-
ades. Such chains normally come in an unpainted metal-
lic condition, but are frequently painted either by draw-
ing them through a vessel containing paint or past a
paint sprayer. Such painting has usually been a one pass
operation, with the result that the bead or shot chain 20
assumes a single solid color.

In recent times, however, it has been found that even 25
bright solid colors applied to shot or bead chains have
not rendered the latter sufficiently appealing to result in
widespread adoption and use of such chains. What has
been found most appealing are shot or bead chains hav-
ing a plurality of colors, particularly where lengths of
the chain may be hung in such a manner as to permit
them to turn or twist naturally upon the application of
even the slightest lateral stimulus to the bead or chain. 30
Examples of such chain pendencies could be where they
are employed as earrings, curtains or hat ornaments.
The problem, however, is that prior to the present in-
vention there has been no economical and effective 35
method for applying a plurality of colors to shot or bead
chains, and particularly in such a manner that the colors
do not tend to run together.

SUMMARY OF THE INVENTION

The method of the present invention may be accom- 40
plished either continuously or step-by-step. The step-
by-step method may be preferred where the quantities
of decorative chain do not justify the installation of
expensive baking, spraying and carrier equipment.

The method of the present invention involves the 45
steps of preheating predetermined lengths of the chain,
initially applying a primer coat, followed by a reheating
of the primed chain and then subjecting one side of the
chain to one preselected color, immediately followed 50
by a brief period of reheating to set the color, and then
applying a different color to the other side of the chain.
Optionally, paint splatters of still further colors may
thereafter be applied to both sides of the chain. The thus
painted chain is then baked for a sufficient period of 55
time, e.g. 15-20 minutes to insure proper annealing of
the colored paint to the metal surface of the shot or
beads of the chain. Following such baking, the chain
may then be clipped into desired lengths.

In one embodiment of the invention, an extended 60
length of the chain may be resiliently suspended back
and forth across a rack which could be rectangular,
circular, or elliptical, which rack should be open on
both sides of the thus suspended chain. Such rack
should be insertable in an oven and when removed 65
therefrom, supportable to enable the various paints to
be applied to the chain in a manner hereinabove de-
scribed.

Alternatively, a continuous carrier could be provided
to move one or more extended lengths of chain sequen-
tially through an oven or other heating area, and one or
more painting stations and additional ovens or heating
areas, and ultimately to a chain clipping position.

As a result of the application of paints to a shot or
bead chain in the manner herein described when clipped
into desired lengths, such lengths will appear with var-
iegated coloring such that, if suspended by one end, the
chain and any parallel lengths similarly pending may be
found to twist about vertical axis with the slightest lat-
eral disturbance of the chain or the element from which
the chain may be suspended. Such turning or twisting
produces an interesting, almost kaleidoscopic varie-
gated color display. This effect has resulted in a consid-
erable spontaneous popular demand for shot or bead
chains thus colored for decorative purposes.

DESCRIPTION OF THE DRAWINGS

In the accompanying drawings,

FIG. 1 is a perspective view of a rack insertable in an
oven and carrying a resiliently suspended length of shot
or bead chain for processing in accordance with the
method of the present invention.

FIG. 2 is a block diagram of the steps suggested for
practicing the method of the present invention.

FIG. 3 is a schematic diagram of an automated appa-
ratus for practicing the present invention.

FIG. 4 illustrates the resulting variegated colored
shot or bead chain.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIG. 1 illustrates apparatus for practicing the present
invention where only limited quantities of the finished
product may be required. Such apparatus may comprise
an oven 10 shown in dotted lines, the upper and lower
walls 12, 14 being slotted at 16 and 18, respectively to
receive a rack 20.

The rack 20 may comprise a rectangular metallic
frame having top and bottom members 22, 24 connected
at their ends by side members 26, 28. Inside the side
members 26 and 28 are secured a plurality of hooked
spring elements 30 which extend inwardly toward the
opposing side member.

One end 32 of a shot or bead chain 34 is hooked on to
a corner spring 30a, but transversely across the opening
defined by the frame 20 to the hooked element 30b to be
hooked thereon under at least slight tension. The shot
chain is then brought back and forth to be hooked alter-
nately on the remaining spring elements 30, projecting
inwardly from the side members 26 and 28, until the end
of the length of shot chain is reached or hooked on to
the lowermost spring element 30c.

In practicing the process of the present invention, the
frame 20 thus encompassing the tensionally suspended
shot chain 34 is slipped into a pair of slots 16 and 18 in
the oven and the oven door (not shown) is closed. The
oven is heated to a temperature somewhere between
250 degrees to 350 degrees (preferably closer to the
latter figure) for a couple of minutes, thereby effectively
preheating the shot chain to such oven temperature.

The rack 20 with the chain 34 is then withdrawn from
the oven and a coat of paint primer is sprayed or other-
wise applied to both sides of the shot chain. At this
point, the rack is reinserted in the oven for a few min-
utes to dry the primer, whereupon the rack 20 is again
withdrawn from the oven and a paint of one color is

applied to one side of the rack 20 and, consequently, one side of the shot chain. Again, as illustrated in FIG. 2, the rack is reinserted into the oven for a brief heating period to set the paint last applied, following which the rack is again withdrawn and paint of a different color is applied to the unpainted sides of the shot chain. Because the paint hits the chain before it has cooled from its last heating, it tends to set quickly and not run, but at this point, with both sides of the suspended shot chain now having been painted different colors, the rack may be inserted in the oven for the last time for a sufficient period to enable the paint to anneal to the metal surface. The rack may then be withdrawn from the heating oven and left to cool, at which point the painted shot chain 34 may then be unhooked from the elements 30, 30a, 30b and 30c, and clipped into such shorter lengths, if any, as may be desired.

It will also be possible, after both sides of the shot chain 34 have received their different colored coats and the latter have been sufficiently set as by heating or otherwise, to splatter still different paint colors upon one or both sides of the shot chain. It will be found that when the shot chain has been thus painted and strings of the chain are hung down, and any lateral disturbance of the chain will cause its individual balls 36 (FIG. 4) to present a color variegation which is almost kaleidoscopic in effect.

While the method of the present invention has been described as having been accomplished by the use of the rack 20 in an oven 10, it would also be possible to set up the painting of shot chain 34 in a continuous manner as shown schematically in FIG. 3. Thus, a continuous length of shot chain 34' is moved by a continuous carrier 38, first to an oven 40, next to a paint primer station 42, a second oven 44, paint station 46, oven 48, paint station 50, and a carrying oven 5, after which the chain 34' may be deposited in a receptacle 54 for cutting and/or stacking.

While the continuous carrier method of FIG. 3 would appear to offer many advantages over the method involving moving the rack 20 in and out of the oven 10, the continuous carrier method would entail substantial expenditures in the way of the various items of equipment required for the process. Where, therefore, the production may be limited to not over a few hundred feet of chain per day, the rack and oven method may be considerably more economical.

When the chains have been painted according to either method, they may be made into interesting decorative items, such as earrings 56, shown in FIG. 5 and/or necklaces 58, shown in FIG. 6. Because of the variegation of colors which may appear on these items, particularly where they are suspended and allowed to rotate, the effect has been most interesting so that the resulting product has obtained widespread commercial appeal.

We claim:

1. The method of producing a decorative shot or bead chain, each element of which is permanently coated with a variegation of colors, said method comprising:

- (a) preheating the chain to at least 250 degrees Fahrenheit for a brief period to bring the chain to such temperature;
 - (b) suspending the chain and, while so suspended, applying to each of at least two different areas of each shot or bead a different color paint; and
 - (c) subjecting the thus painted chain to further heating for a sufficient period to anneal the paint to the outside surfaces of the shot or beads of the chain.
2. The method of producing a decorative shot or bead chain, each element of which is permanently coated with a variegation of colors, said method comprising:
- (a) preheating the chain to at least 250 degrees Fahrenheit for a brief period of time to bring the chain to such temperature;
 - (b) suspending the chain and, while so suspended, applying a primer paint coat to the beads;
 - (c) re-heating the thus primed chain to at least 250 degrees Fahrenheit for a second period sufficient to dry the primer coat;
 - (d) removing the primer coated chain from the heat and applying to each of at least two different areas of each shot or bead a different colored paint; and
 - (e) subjecting the thus painted chain to further heating for a sufficient period to anneal the paint to the outside surfaces of the shot or beads of the chain.
3. The method of producing a decorative shot or bead chain, each element of which is permanently coated with a variegation of colors, said method comprising:
- (a) preheating the chain to at least 250 degrees Fahrenheit for a brief period of time to bring the chain to such temperature;
 - (b) suspending the chain and, while so suspended, applying a primer coat to the beads;
 - (c) re-heating the thus primed chain to at least 250 degrees Fahrenheit for a second period sufficient to dry the primer coat;
 - (d) removing the chain from the heat and applying to one side of the heated primed chain a paint of a first color, and re-subjecting the chain to a second re-heating;
 - (e) removing the chain from the heat and applying to the other side of the chain a paint of a second color; and
 - (f) subjecting the thus painted chain to further heating for a sufficient period to anneal the paint to the outside surface of the shot or beads of the chain.
4. The method as described in claim 3 wherein after step (e) and before step (f) both sides of the chain are splattered with paint of a third color.
5. The method as described in claim 1 wherein the suspension of the chain is accomplished by means of a rack having a series of resiliently disposed hooks on each side of the rack over which hooks the chain is transversely disposed in tension.
6. The method as described in claim 1 wherein, upon completion of the heating to anneal the paint, the chain is clipped to desired lengths.
7. The method as described in claim 1 wherein the steps are accomplished seriatim by a continuously moving carrier passing through heating and painting stations.

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