

COMPOSITE FLOWER ART EQUIPMENT AND
RELATED MEANS OF PRODUCTION

BACKGROUND OF THE INVENTION

5 The present invention relates to a hard polymer
made from the refinery of poly-alcohol pre-polymer and
iso-cyanophate and heat reaction, which has
characteristics of water retaining. Said polymer can be
made into various different shapes by copying rocks and
10 spectacular woods, and be made into various shapes of
sight or minature of landscape; said polymer can also
be fixed into various types of flower vessel by using
poly-amino methyl acid ester styro to form one-piece
body of polymer rock or wood and flower vessel.
15 Furthermore, as the polymer has characteristics of
water retaining, it can be used for growing plant which
is able to proceed photosynthesis to display vitality
of life.

20 At present potted plant sculpture has used two
types of material - genuine and artificial materials;
the former one is referred to the material for growing
plant, including real trunk (wood) and organic soil in
the pot; the latter one is referred to artificial
25 potted plant made from synthetic resin, plaster and

plastic material by copying genuine wood and plant but
such artificial potted plant has no sign of life;
another is referred to as half-genuine wood potted
plant made from genuine trunk which is grown in the
5 resin-made-soil pot by stuffing plaster and resin. and
such potted plant has no sign of life but only the
trunk is genuine wood material; regardless of genuine
wood or half-genuine wood potted plant and artificial
wood potted plant, it should need the process of
10 "sculpture" to become the style as desired: in the
process of "sculpture". it is common to tie the
branches of a tree with iron wire after bending so as
to form a specific shape and further to make potted
plant shaping with sense of beauty. and such a process
15 of "sculpture" might need to be performed one after
another and there has no big difference in the process
of "sculpture" among genuine wood, half-genuine wood
and artificial wood potted plant; the difference lies
in the process of sculpture which will cause major
20 lateral bending moment to the trunk due to bending and
tying. and the bending moment will result in reducing
bonding force between the trunk and staff of pot; the
reduction of bonding force has no much influence to
solid genuine-wood potted plant but it will result in
25 break-off between te trunk and the pot of half-genuine

wood and artificial potted plants using resin or
plaster as stuff media. and what's worse it will result
in the whole trunk breaking off and falling down from
the pot after the process of sculpture performed
5 several times.

The artificial potted plant not only has the
defects of trunk break-off and sculpture problem but
also has environmental protection problem as result of
10 its material; it is widely known that the half-genuine
wood or artificial potted plants made from resin,
plastic or plaster material can not be recycled or
blended with soil and it is really a challenge to
environmental protection problem that is getting worse:
15 in consideration of environmental protection issue,
genuine-wood potted plant shall be the best choice;
however, most of potted plant sculpture experts know it
is impossible for making a total same genuine-wood or
half-genuine wood potted plant. the reason is that
20 there has a rare chance of finding an almost same trunk
of tree as another, and a consistent shape could hardly
be controlled in the process of growing and sculpture,
and furthermore, totally artificial making will result
in high cost to cause the problem of expense: on the
25 contrary, though the trunk of artificial potted plant

can be molded in consistent shape by filling plaster or plastic material or resin extrusion, the inorganic trunk can not grow live plant, and it will cost much time and labor if using plastic branches and leaves for sticking to the trunk, and furthermore sculpture could hardly be performed in such case so that such potted plant will not look handsome after sculpture.

In view of the conventional genuine-wood, half-wood and artificial potted plants having been involved in such problems as high cost, failure of making the same shape, time and labor consuming, difficult job of sculpture and environmental pollution etc., the promotion of art of potted plants has been obstructed; in order to solved above-mentioned problems, the inventor has been devoted to the research with respect to the characteristics of potted plant products, and used sponage made from the refinery of poly-alcohol pre-polymer and iso-cyanophate and heat reaction to make a trunk (of a tree) which has characteristics of water retaining and can be planted in any kind of flower art vessel and poly-amino methyl acid ester styro is used for stuffing in the vessel; when the styro has cemented into a basis for growing plant, it can be formed one-piece body with the trunk

and flower art vessel: the one-piece body of trunk,
growing basis and flower art vessel permits mass
production of trunks in one shape and the trunks can
retain water and grow plants after adding fertilizer
5 just like a genuine wood and organic soil: the trunks
made in such way have similar property to that of a
genuine wood and their outlook is almost the same as a
genuine wood or rock; moreover, the one-piece body of
trunk, growing basis and flower art vessel provides a
10 firm and strong operating structure for essential
process of sculpture for making a handsome potted plant
as desired, and certainly the branches and leaves
growing on the trunk are real and so the process of
sculpture is the same as that of genuine-wood potted
15 plant. The means of production and properties of the
composite artificial potted plant sculpture equipment
with a number of advantages will be described together
with the accompanying drawings.

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BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic diagram showing the means of
the production of the present invention.

FIG. 2 is the embodiment of the present invention.

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DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Referring to FIG. 1. the production process of the present invention includes two stages wherein iso-cyanophate pre-polymer 1 is mixed by the mixer 2 and stored/mixed 3 for foaming 4; and poly-alcohol pre-polymer 5 is added open type foam agent 5A and mixed by the mixer 6 and stored/mixed 7 to permit poly-alcohol pre-polymer for foaming 8; foaming iso-cyanophate pre-polymer 4 and poly-alcohol pre-polymer mixture 8 prepared through said two procedures is sent into the mixing chamber 9 for mixing up 10 and then fed into artificial wood or rock mold 12 to form a sponage with water-retaining property after heat reaction 12A, and to become in formation 14 through drying 13, and it will become hard trunk 15 with water-retaining property after cooling, and the finished products are stored in the product store 16.

Referring to FIG. 1, another procedure of the present invention is to deliver iso-cyanophate pre-polymer 1 into the mixer 2 for mixing/storing 3, and then for foaming 4; and poly-alcohol pre-polymer 5 is mixed by the mixer 6 and stored/mixed 7 to permit it for foaming 8A; after foaming, said iso-cyanophate pre-polymer 4 and poly-alcohol pre-polymer 8A will be delivered into the mixing chamber 9 for mixing 10, and

before filling 11 procedure, they will be moved from the pot and vessel store 22 to the flower vessel of transit zone 23, and will be picked up by robot arm for moving to ready filling zone 17, and pre-fabricated
5 trunk 15 will be picked up by robot arm for moving into the pot in ready filling zone 17: upon completion of filling and natural drying 18, it will become one-piece product 19 of trunk, attachment basis and pot, and said finished product can be stored in the warehouse 21
10 after inspection 20.

Said procedures are related to the formation process of one-piece body of hard trunk 15 with water-retaining property and the pot, and the trunk has
15 the same water-retaining property as that of a genuine wood to permit for growing plant: in order to match the sculpture of some potted plants, artificial branches and leaves are used for mass production of the potted plants of the same shape because water-retaining trunk
20 15 of the present invention can be replaced by artificial wood/rock trunk 15A: the method of making an artificial wood/rock trunk 15A is similar to that of making water-retaining trunk 15, and the difference lies in poly-alcohol without adding open type foaming
25 agent 5A but directly mixed up to form poly-alcohol

foaming polymer 8A; another difference lies in
iso-cyanophate pre-polymer and poly-alcohol pre-polymer
that are filled and mixed up in the artificial
wood/rock mold 12 and directly drying 13 in formation
5 14; because it has not been added open type foaming
agent 5A, heat reaction 12A procedure can be omitted;
the trunk made through such method has no
water-retaining property and cannot permit for growing
live plant, and such procedure as shown in FIG. 1.

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Referring to the composite flower equipment as
made through said process, either water-retaining trunk
15 or artificial wood/rock trunk 15A can be made
through automatic mass production, and such trunks of
the same shape can be used as flower art equipment 30
of potted plant (FIG. 2), and their major
characteristics lie in one-piece formation of trunk
301, attachment basis 302 and the pot 303; the flower
art equipment 30 made through such method for potted
20 plant can firmly bind up with the trunk 301, attachment
basis 302 and the pot 303, and it has strong bending
resistance against any of "sculpture" process to avoid
the trunk breaking off. and it can be made into an
artificial wood potted plant 41 with artificial
25 branches and leaves. genuine-wood potted plant 42 with

water-retaining hard trunk and real branches and
leaves, and water-retaining hard trunk can be made into
sword-mountain or rock-like potted plant 43 to permit
for growing real plant. The said processes can enable
5 to produce various shapes of potted plants in form of
specification and mass production, and the shaping of
potted plant can be limitless designed and mass copied
to reduce the cost; another, the trunk of potted plant
can whether or not have characteristics of growing
10 plants, and it has similar sense of feeling to that of
genuine wood or rock, and it has positive help to the
sense of feeling with respect to the landscape design.

The table below relates to a comparison of
15 materials for artificial potted plant 41, genuine-wood
potted plant 42, rock-shaping potted plant 43 made
according to the present invention and existing potted
plant:

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		Environmental protection effect	Way of operation	Characteristics of potted plant
5	Potted plant	1. Self-rotten	1. Spec.	1. One-piece
	Material:	2. Dissolved	based.	body composite
	-Pot	in the soil	2. Mass pro-	material, firm
10	-PU basis		duction of	structure,
	- PU artifi-		consistent	adaptable to
	cial trunk		operation.	random bending
			3. One-piece	of potted plant
			formation.	sculpture.
15				2. PU body is
				artificial wood
				base material
				and can totally
				replace genuine
20				wood.
				3. With sense
				of real feeling
				and beauty.

		Environmental protection effect	Way of operation	Characteristics of potted plant
5	Half-genuine potted plant	1. Not easily rotten.	1. Non-spec.	1. Not totally fixed.
10	Material: - Pot - Plaster fixing - Genuine trunk	2. Pollution to human body and environ- ment.	2. No mass production. 3. Manual operation, no one-piece formation.	2. Too much labor and cost 3. Non-spec. of shaping, non-uniformed sense of beauty
15	Plastic wood copied potted plant	1. Not rotten	1. Non-spec.	1. Hardly fixed
20	Material: - Pot - Polylon fixing - Plastic trunk	2. Pollution to green land and environ- ment.	2. No mass production. 3. Labor operation, no one-piece formation	2. Difficult sculpture. 3. Too much labor and time 4. No sense of beauty and reality



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What is claimed is:

A means of production of composite flower art vessel;

poly-alcohol pre-ploymer added open type foaming agent,
5 foaming to form poly-alcohol mixture after mixed and
stored, and then filled into an artificial wood or rock
mold after mixed with foaming iso-cyanophate
pre-polymer, and such mixture in the mold forming into
water-retaining sponage after heat reaction, and
10 finally drying in formation, and a water-retaining hard
trunk can be removed from the mold for growing live
plant;

said water-retaining hard trunk chucked by the robot
arm for placing in the flower art vessel, and then the
15 mixture of iso-cyanophate pre-polymer and foaming
poly-alcohol pre-polymer filled into the flower art
vessel to become one-piece-formation composite flower
art vessel of water-retaining hard trunk and flower art
vessel.

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