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Fear et al.

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(54) **RASPBERRY PLANT NAMED 'DRISCOLL CARDINAL'**

(50) Latin Name: ***Rubus idaeus L.***
Varietal Denomination: **Driscoll Cardinal**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 37 days.

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(52) **U.S. Cl.** **Plt./204**
(58) **Field of Search** Plt./204

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(57) **ABSTRACT**

The present invention relates to a new and distinct cultivar of raspberry plant named Driscoll Cardinal. The new cultivar is distinguished from other raspberry cultivars by its firm and very consistent fruit with regard to its size and shape throughout its harvest period. The new cultivar is distinguished from its seed parent by having larger fruit and more vigorous canes; it is distinguished from its pollen parent by producing a higher yield of fruit and better flavored fruit.

3 Drawing Sheets

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Latin name of the genus and species of the plant claimed: The variety is botanically identified as *Rubus idaeus* L.

1. BACKGROUND OF THE INVENTION

The new cultivar of raspberry plant was developed from the hybridization of the selection 'M48.9' (an unpatented variety) as the seed parent with the selection 'Gloria' (U.S. Plant Pat. No. 11,067) as the pollen parent. The parents were crossed in 1994, whereafter fruit and seed were collected to produce seedlings for field planting in Carpenteria, Calif. in 1995. The new cultivar was selected from these seedlings in 1995 for its excellent attractive firm fruit. The new cultivar has been asexually propagated by in vitro shoot tip culture, root sucker division and root cuttings at the Cassin Ranch in Santa Cruz County, Calif. and has been shown to maintain the desired and distinguishing characteristics after propagation over several generations.

2. SUMMARY OF THE INVENTION

The present invention provides a new and distinct cultivar of red raspberry plant named 'Driscoll Cardinal'. The cultivar is botanically identified as *Rubus idaeus* L. The 'Driscoll Cardinal' red raspberry plant produces a primocane crop which begins in mid-July and continues until mid-October. The floricane crop begins in mid-May and continues until mid-July. Both the primocane and floricane yields are high relative to other comparable varieties. The fruit of 'Driscoll Cardinal' is notably quite firm and very consistent with regard to its size and shape throughout its harvest period. The fruit of 'Driscoll Cardinal' separates easily from its receptacle.

3. BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying photographs show typical specimens of the primocane fruit, leaves and shoot of the new cultivar, in color as nearly true as it is reasonably possible to make in color illustrations of these characteristics.

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FIG. **1** is a photograph of 'Driscoll Cardinal' primocane flower fruit in various stages of development.

FIG. **2** is a photograph of 'Driscoll Cardinal' primocane leaves showing upper and lower leaf surfaces.

FIG. **3** is a photograph of 'Driscoll Cardinal' primocane shoot.

4. DETAILED BOTANICAL DESCRIPTION

The following detailed description of the new raspberry cultivar, 'Driscoll Cardinal', is based upon observations taken of 7 to 17 month old plants and fruit grown in Watsonville, Calif. between 2001 and 2002, and is believed to apply to plants of the 'Driscoll Cardinal' cultivar grown in similar conditions of soil and climate elsewhere.

Throughout this specification, color names beginning with a small letter signify that the name of the color, as used in common speech, is aptly descriptive. Color data followed by an alphanumeric code designates the color according to The R.H.S. Colour Chart published by The Royal Horticultural Society of London, England. Color designations, color descriptions, and other phenotypical descriptions may deviate from the stated values and descriptions depending upon variation in environmental, seasonal, climatic and cultural conditions.

Table 1 provides information on the plant and fruit characteristics of the new cultivar 'Driscoll Cardinal' compared with characteristics of the unpatented raspberry cultivar 'Heritage'. Observations of the cultivars were taken under similar conditions.

The new variety is particularly characterized and distinguished from other cultivars by its fruit firmness, consistent fruit structure and high yield.

The fruit color of 'Driscoll Cardinal' is a medium red at harvest but darkens slightly after harvest to a deeper color. Fruit of 'Driscoll Cardinal' separates easily from the receptacle and is of excellent firmness at harvest. The fruit of 'Driscoll Cardinal' is very consistent in size and shape

throughout the harvest period. The average plant height is about 200 cm and the average plant spread is about 80 cm. The prickle pigmentation color is 187A. The pedicel pigmentation color is 144A. The pigmentation color of the young shoots is 144A in color and the average number of young shoots per plant is 17.

The reproductive organs of 'Driscoll Cardinal' are variable. The pigmentation color of both surfaces of the petals is 155D and there are five petals per flower. The style pigmentation color is 157D, the average number of styles per flower is about 100, the anther pigmentation color is 155D, and the average number of anthers per flower is about 108. The color of the seeds of 'Driscoll Cardinal' is 161A, the average seed weight is about 1.2 mg, and there are an average of about 94 seeds per fruit.

The primocane and floricane yields of 'Driscoll Cardinal' are high relative to the variety 'Heritage'.

'Driscoll Cardinal' is distinguishable from its pollen parent, selection 'Gloria', by producing a higher yield of fruit and better flavored fruit. The new cultivar is distinguished from its seed parent, selection 'M48.9', by having larger fruit and more vigorous canes.

4.1 DISEASE AND STRESS RESISTANCE

Resistance is unknown to powdery mildew and root rots. Cold tolerance of the new cultivar has not been established. Post harvest fruit rot resistance is good in comparison over many selections and varieties.

TABLE 1

PLANT CHARACTERISTICS OF 'DRISCOLL CARDINAL'

	Driscoll Cardinal	Heritage
General		
Plant size	small-med	Large
Growth habit	erect	erect
Productivity	High	Medium
Self-fruitfulness	Self-fruitful	Self-fruitful
Time of bud burst	late	late
Primocane fruiting		
Percent of cane length flowering as primocane	30-40	20-40
Percent of total yield	51	53
Primocanes		
Number of young shoots	many	medium
Young shoot pigmentation	medium	medium
Length (cm)	2.00	1.96
Time of shoot emergence	early	very late
Glaucosity (waxy bloom)	weak	weak
Strength	medium	medium
Cane cross section from mid cane of primocane)	rounded	rounded
Dormant cane color	dark brown w/quite a lot of purple	brown to purple brown
Prickles		
Pigmentation	brown to purple	green-brownish to green
Density on young shoots	medium	dense
Attitude of tip	downward	downward
Size: Length (base to tip at 1 m height at end of harvest) (mm)	1	2.3
Texture	smooth	rigid
Presence and distribution on petioles	present, irregularly	present irregularly

TABLE 1-continued

PLANT CHARACTERISTICS OF 'DRISCOLL CARDINAL'

	Driscoll Cardinal	Heritage
		distribtuted
Pubescence on canes	absent	absent
Internodal distance (cm) (at central ⅓ of cane)	6.5	5.3
LEAVES		
Color		
Face	147A	147A
Underside	148C	148B
Relief between veins	weak	very weak
Glossiness	medium	medium
Petiole length (cm)	5.4	7.6
Stipule orientation	erect	erect
Arrangement	compound	compound
Number of leaflets	sometimes 3, sometimes 5	sometimes 3, sometimes 5
Overlapping of lateral leaflets	touching	free to touching
Lateral leaflet: length of stalket (lower pair)	short	very short
Terminal leaflet		
Length (cm)	10.7	14.6
Width (cm)	6.8	7.8
Shape	ovate	ovate
Tip	acuminate	acuminate
Base	round	acute to rounded
Margin	doubly serrate	doubly serrate
Lateral leaflets (basal pair)		
Length (cm)	9.4	14.7
Width	6.6	8.6
Orientation	opposite	opposite
Shape	ovate	ovate
Tip	acuminate	acuminate
Base	round	oblique
Margin	doubly serrate	doubly serrate
Rachis length between terminal leaflet and adjacent lateral leaflets (cm)	3.4	1.5
FLOWERS		
Flowering period		
Primocane	15 weeks early June–mid-September	19 weeks late May–late September
Floricane	12 weeks, late March–late June	10 weeks, late March–mid June
Flower diameter (cm)	1.5	1.8
Petal		
Length (cm)	0.9	0.8
Width (cm)	0.4	0.3
Pedicel coloration	medium	Present, strong intensity
FRUIT		
Harvest season		
Primocane	mid-July–early Oct	Early July–early November
Floricane	mid-May–late July	Late May–late July
Fruting lateral		
Length (4th lateral from tip) (cm)	68.6	49.8
Number of fruit per lateral	19	20.3
Color		
Immature	44D	42C
Maturing	46A	46A
Mature fruit	53A	59A
Glossiness	weak	medium
Shape	ovate	ovate

TABLE 1-continued

PLANT CHARACTERISTICS OF 'DRISCOLL CARDINAL'

	Driscoll Cardinal	Heritage
Dimensions		
Size	medium	small
Length	20	17
Width	20	18
Length:width	1.0	0.94
Weight (g/fruit)		
Primocane	4.1	3.1
Floricane	3.8	2.3
Soluble solids (%)	10.3	10.8
Titratable acidity (% as citric acid)	1.60	1.58
Seed Weight (mg)	2.3	1.5
Number druplets/fruit	94	72
Adherence to plug	medium	medium
Firmness	med-firm to firm	Firm
Yield	high	medium

4.2 NUCLEIC ACID FINGERPRINTING

Distinctive patterns of polymorphism can be detected using a variety of nucleic acid analysis methods. In one non-limiting example, molecular genetic maps can be produced using random amplified polymorphic DNA (RAPD) (Williams et al., 1990, "DNA polymorphisms amplified by arbitrary primers are useful as genetic markers", Nucleic Acids Res. 18(22):6531–5). Using a variety of oligonucleotide primers, alone or in combination, RAPD analysis of Driscoll Cardinal and Heritage yielded DNA fragment patterns that uniquely distinguish each of these genetically distinct genotypes.

We claim:

1. A new and distinctive cultivar of raspberry plant, substantially as shown and described.

* * * * *

FIG. 1

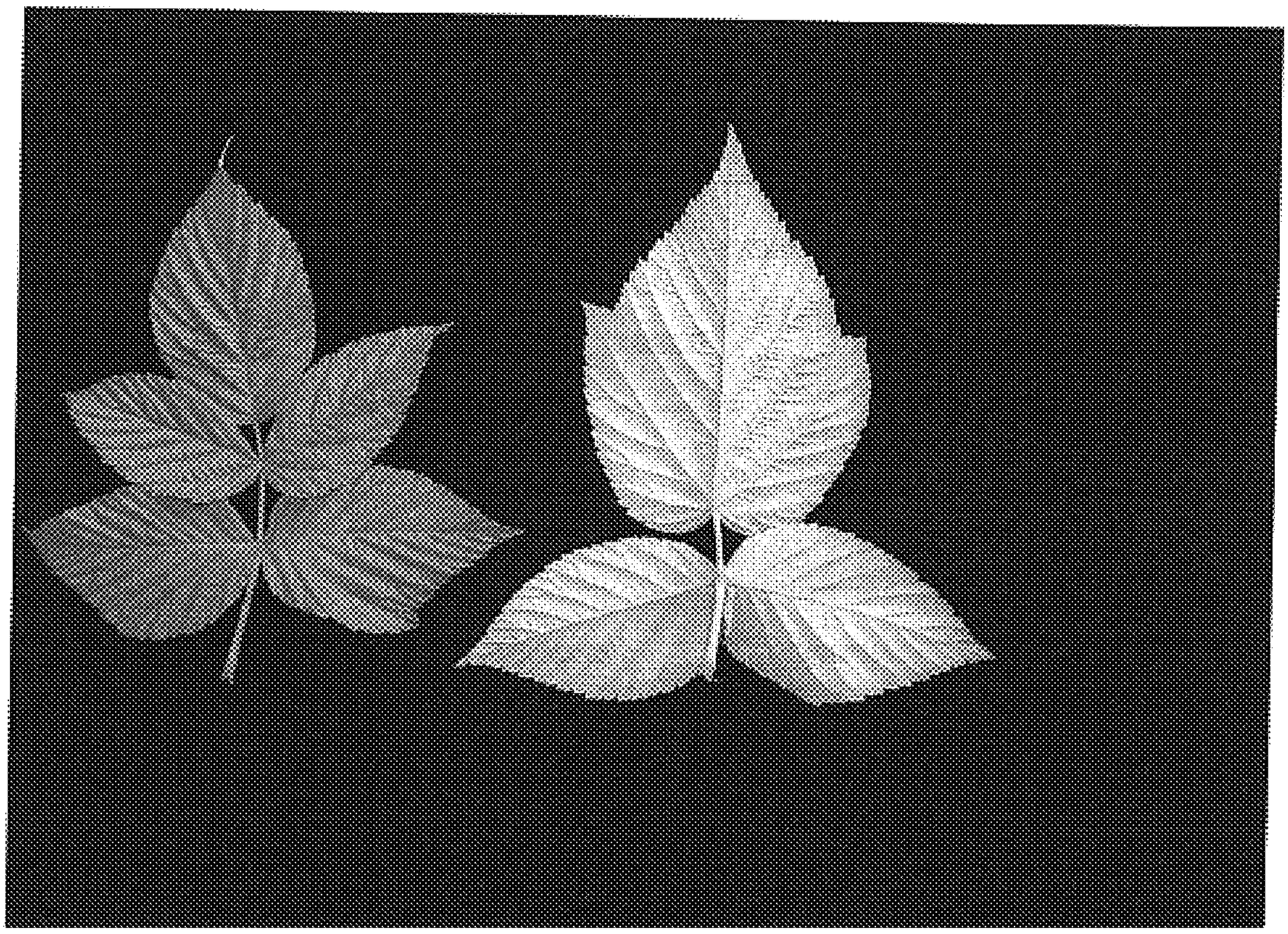

FIG. 2

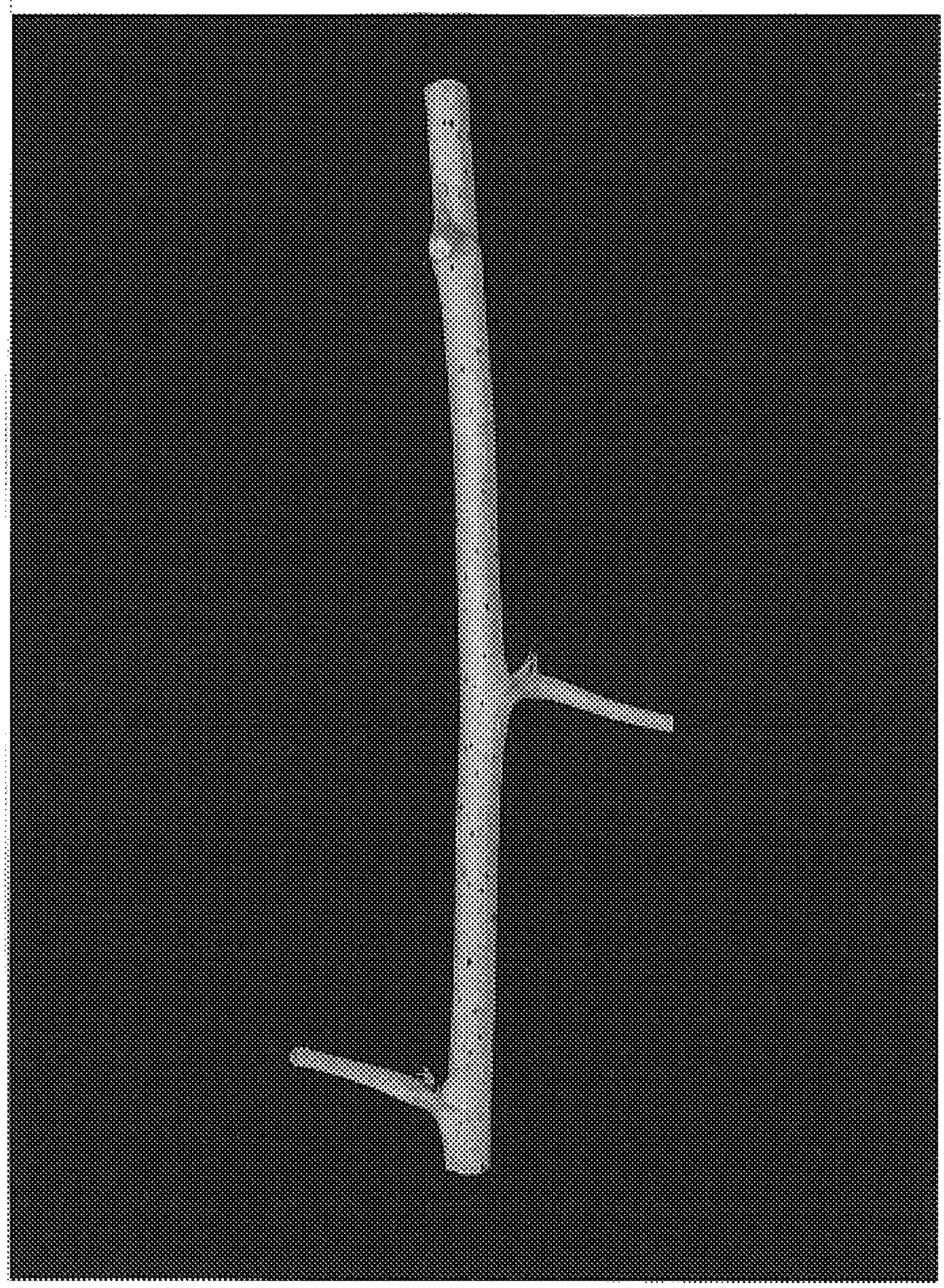

FIG. 3