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(54) **BLACKBERRY PLANT NAMED ‘COLUMBIA SUNRISE’**

(50) Latin Name: *Rubus subg. Rubus Watson*.
Varietal Denomination: **Columbia Sunrise**

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See application file for complete search history.

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(57) **ABSTRACT**

A new and distinct blackberry cultivar that originated from seed produced from a cross between the female blackberry plant ‘NZ 9629-1’ (unpatented) and the male parent blackberry plant ‘ORUS 1939-2’ (unpatented). This new blackberry cultivar can be distinguished by its medium to high yields of medium-large and very sweet flavored berries with good firmness and color and that are the earliest ripening, completely thornless blackberry that we are aware of.

4 Drawing Sheets

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Latin name of the genus and species of the plant claimed: ‘COLUMBIA SUNRISE’ is a blackberry plant that is *Rubus subg. Rubus Watson*.

Variety denomination: The new blackberry plant claimed is of the variety denominated ‘Columbia Sunrise’ *Rubus subg. Rubus Watson*.

BACKGROUND OF THE INVENTION

The present invention relates to a new and distinct blackberry cultivar designated ‘Columbia Sunrise’ and botanically known as *Rubus subg. Rubus Watson*. This new blackberry cultivar was discovered in Corvallis, Oreg. in July 2008 and originated from a cross between the female blackberry plant ‘NZ 9629-1’ (unpatented) and the male parent blackberry plant ‘ORUS 1939-2’ (unpatented). ‘Columbia Sunrise’s spinelessness is derived from ‘Lincoln Logan’ (unpatented) that can be found as a parent four and five generations back in ‘Columbia Sunrise’s pedigree. The original seedling of the new cultivar was asexually propagated at a nursery in Benton County, Oreg. The new cultivar was established in vitro from a cane cutting, and microcuttings have been taken and rooted from this sort of culture. The present invention has been found to be stable and to reproduce true to type through successive asexual propagations.

BRIEF DESCRIPTION OF THE PHOTOGRAPHS

This new blackberry plant is illustrated by the accompanying photographs that show the fruit of the plant and machine harvested fruit, as well as canes and entire plants; the colors shown are as true as can be reasonably obtained by conventional photographic procedures.

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FIG. 1 shows a section of a spineless primocane and a leaf.

FIG. 2 shows typical fruit in a fruit cluster in the field.

FIG. 3 shows typical hand-harvested fruit of ‘Columbia Sunrise’ (left) compared to ‘Black Diamond’ (unpatented) (right).

FIG. 4 shows an entire 4-year old plant.

DETAILED DESCRIPTION OF THE NEW CULTIVAR

The following description of ‘Columbia Sunrise’ is based on observations taken from 2011 to 2016 growing seasons in trials in Corvallis and Aurora, Oreg. This description is in accordance with UPOV terminology. 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. ‘Columbia Sunrise’ has not been observed under all possible environmental conditions. Color terminology follows The Royal Horticultural Society Colour Chart. London (R.H.S.) (5th edition, 2007).

Table 1 shows plant characteristics of the new cultivar. Characteristics include plant vigor, growth habit, date of full bloom, date 50% of fruit were ripe, weight of primary fruit, and winter tolerance in Aurora, Oreg. (45° 16' 49" N/122° 44' 50" W) and Lynden, Wash. (48° 56' 48" N/122° 27' 2" W).

TABLE 1

Plant Characteristics of 'Columbia Sunrise'.	
Characteristic	Columbia Sunrise
Plant vigor	High compared to Black Diamond
Growth habit	Trailing
Date full bloom	5 May, early compared to Marion
Date 50% of fruit were ripe	5 July, early compared to Black Diamond
Weight of primary fruit	8.15 g (larger than Marion)
Winter tolerance in Aurora, Oregon (45° 16' 49" N/122° 44' 50" W)	Good-very good
Winter tolerance in Lynden, Washington (48° 56' 48" N/122° 27' 2" W)	Good (similar to Marion)

Table 2 shows floricanes and mature primocane characteristics of the new cultivar. Characteristics include diameter at base, diameter at midpoint, diameter at terminus, internode length at base, internode length at midpoint, internode length at terminus, presence of spines further than 0.6 m from the soil surface, presence of spines less than 0.6 m from the soil surface, floricanes color at base, floricanes color at midpoint, floricanes color at terminus, floricanes lateral length, floricanes lateral strength, primocane color at base, primocane color at midpoint, primocane color at terminus, floricanes length, and floricanes length (range).

TABLE 2

Floricanes and Mature Primocane Characteristics of 'Columbia Sunrise'.	
Characteristic	Columbia Sunrise
Diameter at base	1.27 cm
Diameter at midpoint	0.89 cm
Diameter at terminus	0.39 cm
Internode length at base	4.60 cm
Internode length at midpoint	7.27 cm
Internode length at terminus	8.25 cm
Presence of spines further than 0.6 m from the soil surface	Absent
Presence of spines less than 0.6 m from the soil surface	Absent
Floricanes color at base	200A
Floricanes color at midpoint	146C
Floricanes color at terminus	144B
Floricanes lateral length	Medium-long
Floricanes lateral strength	Medium
Primocane color at base	144B with tint 178A
Primocane color at midpoint	146C
Primocane color at terminus	146C
Floricanes length	3.26 m
Floricanes length (range)	1.51-4.59 m

Table 3 shows primocane foliage characteristics of the new cultivar. Primocane characteristics include mature compound leaf width, mature compound leaf length, number of leaflets per primocane compound leaf, mature leaflet shape, mature leaflet apex, mature leaflet base, mature terminal leaflet width, mature terminal leaflet length, mature first lateral leaflet width, mature first lateral leaflet length, leaflet margin, leaflet serration teeth length, leaflet serration teeth width at base, spine presence on leaves, pubescence on primocane leaflet upper surface, pubescence on primocane leaflet undersurface, primocane leaf color abaxial, primocane leaf color adaxial, petiole length, petiole color: upper surface, petiole color: undersurface, petiolule length termi-

nal leaflet, petiolule length first distal leaflet, petiolule color abaxial, petiolule color adaxial, stipule length, stipule width, and stipule attitude.

TABLE 3

Primocane Foliage Characteristics of 'Columbia Sunrise'.	
Characteristic	Columbia Sunrise
Mature compound leaf width	17.78 cm
Mature compound leaf length	13.87 cm
Number of leaflets per primocane compound leaf	7.00
Mature leaflet shape	Cordate
Mature leaflet apex	Broadly acuminate
Mature leaflet base	Rounded to cordate; distal often oblique
Mature terminal leaflet width	6.34 cm
Mature terminal leaflet length	8.03 cm
Mature first lateral leaflet width	3.23 cm
Mature first lateral leaflet length	5.38 cm
Leaflet margin	Double serrate
Leaflet serration teeth length	0.22 cm
Leaflet serration teeth width at base	0.26 cm
Spine presence on leaves	No
Pubescence on primocane leaflet: upper surface	Light pubescent. Hairs short and soft
Pubescence on primocane leaflet: undersurface	Puberulent-dense mat
Primocane leaf color abaxial	146A
Primocane leaf color adaxial	147B
Petiole length	8.15 cm
Petiole color: upper surface	166A
Petiole color: undersurface	145A
Petiolule length: terminal leaflet	1.14 cm
Petiolule length: first distal leaflet	Sessile
Petiolule color: abaxial	149B
Petiolule color: adaxial	149B
Stipule length	1.26 cm
Stipule width	0.18 cm
Stipule attitude	Erect, sometimes recurved, often crossed

Table 4 shows floricanes foliage characteristics of the new cultivar. Floricanes characteristics include mature compound leaf width, mature compound leaf length, number of leaflets per floricanes compound leaf, mature leaflet shape, mature leaflet apex, mature leaflet base, mature terminal leaflet width, mature terminal leaflet length, mature first lateral leaflet width, mature first lateral leaflet length, leaflet margin, leaflet serration teeth length, leaflet serration teeth width at base, pubescence on floricanes leaflet: upper surface, pubescence on floricanes leaflet undersurface, floricanes leaf color abaxial, floricanes leaf color adaxial, petiole length, petiole color adaxial, petiole color abaxial, petiolule length terminal leaflet, petiolule length first distal leaflet, petiolule color abaxial, petiolule color adaxial, stipule length, and stipule width.

TABLE 4

Floricanes Foliage Characteristics of 'Columbia Sunrise'.	
Characteristic	Columbia Sunrise
Mature compound leaf width	12.98 cm
Mature compound leaf length	11.62 cm
Number of leaflets per floricanes compound leaf	3, sometimes 4
Mature leaflet shape	Cordate
Mature leaflet apex	Broadly acute to broadly acuminate
Mature leaflet base	Cordate

TABLE 4-continued

Florican Foliage Characteristics of 'Columbia Sunrise'.	
Characteristic	Columbia Sunrise
Mature terminal leaflet width	6.40 cm
Mature terminal leaflet length	7.78 cm
Mature first lateral leaflet width	5.00 cm
Mature first lateral leaflet length	6.93 cm
Leaflet margin	Serrate
Leaflet serration teeth length	0.35 cm
Leaflet serration teeth width at base	0.32 cm
Pubescence on florican leaflet: upper surface	Yes; light
Pubescence on florican leaflet: undersurface	Yes; light
Florican leaf color abaxial	137B
Florican leaf color adaxial	147B
Petiole length	5.92 cm
Petiole color adaxial	146B
Petiole color abaxial	146B
Petiolule length terminal leaflet	1.45 cm
Petiolule length first distal leaflet	1.58 cm
Petiolule color: abaxial	145A
Petiolule color: adaxial	145A
Stipule length	0.95 cm
Stipule width	0.13 cm

Table 5 shows flower and flowering characteristics of the new cultivar. Flower and flowering characteristics include date 1st bloom, date full bloom, date last bloom, petal color, number flowers per cluster, number of petals per flower, flower diameter, petal length, petal width, number of sepals per flower, peduncle length, rachis length, peduncle color, and cyme type.

TABLE 5

Flower and Flowering Characteristics of 'Columbia Sunrise'.	
Characteristic	Columbia Sunrise
Date 1 st bloom	28-Apr
Date full bloom	5-May
Date last bloom	19-May
Petal color	155C
Number flowers per cluster	4.67
Number of petals per flower	5.00
Flower diameter	3.40 cm
Petal length	1.47 cm
Petal width	1.09 cm
Number of sepals per flower	5.33
Peduncle length	21.50 cm
Rachis length	15.02 cm
Peduncle color	146C
Cyme type	Elongate simple cyme

Table 6 shows fruit and fruiting characteristics of the new cultivar. Fruit and fruiting characteristics include date 5% of fruit were ripe, date 50% of fruit were ripe, date 95% of fruit were ripe, weight of primary fruit, weight of secondary fruit, weight of tertiary fruit, diameter of primary fruit at equator, diameter of 2° fruit at equator, diameter of 3° fruit at equator, diameter of 1° fruit at poles: tip, diameter of 1° fruit at poles: base, diameter of 2° fruit at poles: tip, diameter of 2° fruit at poles: base, diameter of 3° fruit at poles: tip, diameter of 3° fruit at poles: base, berry length primary fruit, berry length 2° fruit, berry length 3° fruit, ratio of primary fruit length to width, shape description, uniformity of berry shape, color when full ripe, number of drupelets per fruit, drupelet weight, individual seed weight, glossiness, firmness, flavor, texture of fruit when chewed, drupelet skin resistance to abrasion, ease of separation of fruit from

pedicel, machine harvestability, resistance to heat damage of fruit, berries per inflorescence—mean, berries per inflorescence range, soluble solids (%; in brix), pH, titratable acidity (% as citric acid), and yield (actual kg·plt⁻¹).

TABLE 6

Fruit and Fruiting Characteristics of 'Columbia Sunrise'.	
Characteristic	Columbia Sunrise
Date 5% of fruit were ripe	25 June
Date 50% of fruit were ripe	5 July
Date 95% of fruit were ripe	19 July
Weight of primary fruit	8.15 g
Weight of secondary fruit	7.77 g
Weight of tertiary fruit	8.38 g
Diameter of primary fruit at equator	2.00 cm
Diameter of 2° fruit at equator	1.88 cm
Diameter of 3° fruit at equator	1.92 cm
Diameter of 1° fruit at poles: tip	1.25 cm
Diameter of 1° fruit at poles: base	1.64 cm
Diameter of 2° fruit at poles: tip	1.46 cm
Diameter of 2° fruit at poles: base	1.81 cm
Diameter of 3° fruit at poles: tip	1.00 cm
Diameter of 3° fruit at poles: base	1.79 cm
Berry length primary fruit	3.50 cm
Berry length 2° fruit	3.31 cm
Berry length 3° fruit	3.76 cm
Ratio of primary fruit length to width	1.75
Shape description	Conical
Uniformity of berry shape	Excellent
Color when full ripe	202A
Number of drupelets per fruit	104.83
Total seed weight per fruit	200.57 mg
Individual seed weight	1.93 mg
Glossiness	Medium glossy to dull
Firmness	Moderate
Flavor	Excellent
Texture of fruit when chewed	Excellent
Drupelet skin resistance to abrasion	Good
Ease of separation of fruit from pedicel	Easy
Machine harvestability	Excellent
Resistance to heat damage of fruit	Good
Berries per inflorescence-mean	6.50
Berries per inflorescence range	5-8
Soluble solids (%; in Brix)	13.00
pH	3.40
Titratable acidity (% as citric acid)	18.30
Yield (actual kg · plt ⁻¹)	4.7

COMPARISON WITH PARENTAL AND COMMERCIAL VARIETIES

'Columbia Sunrise' differs from the female parent 'NZ 9629-1' (unpatented) in that 'Columbia Sunrise' has medium-sized, glossy, fruit (8.2 g), while 'NZ 9629-1' has slightly pubescent fruit that are smaller (4.5 g).

'Columbia Sunrise' differs from the male parent black-berry plant 'ORUS 1939-2' (unpatented) in that it is spineless, has conic and sweet berries and moderate to high yields, while 'ORUS 1939-2' (unpatented) is spiny and has barrel shaped berries that tend to have a higher incidence of purple vs black fruit and moderate yields.

'Columbia Sunrise' differs from the commercial variety 'Marion' (unpatented) in that 'Columbia Sunrise' is spineless, very early ripening and has medium-large (8.2 g), firm fruit while 'Marion' is spiny and ripens the crop in midseason and has medium yields of medium sized (5.0 g), and soft fruit that are unevenly shaped. 'Columbia Sunrise' differs from the commercial variety 'Black Diamond' (unpatented) in that 'Columbia Sunrise' carries the 'Lincoln Logan'

(unpatented) source of spinelessness and therefore the canes are completely spineless and the plants are vigorous with medium-large (8.2 g) fruit that are an excellent, sweet, aromatic flavor, while 'Black Diamond' (unpatented) carries the 'Austin Thornless' (unpatented) source of spinelessness and so has spines on the base of the canes and the plants are not vigorous and they produce smaller (5.2 g) fruit with a mild flavor. 'Columbia Sunrise' differs from the commercial variety 'Columbia Star' (U.S. Plant Pat. No. 25,532) based

predominantly on having less uniformly shaped and sweeter fruit that ripen 7 days earlier.

We claim:

1. A new and distinct cultivar of blackberry plant, substantially as illustrated and described, characterized by its medium to high yields of medium-large and very sweet flavored berries with good firmness and color and that are the earliest ripening, completely thornless cultivar that we are aware of.

* * * * *

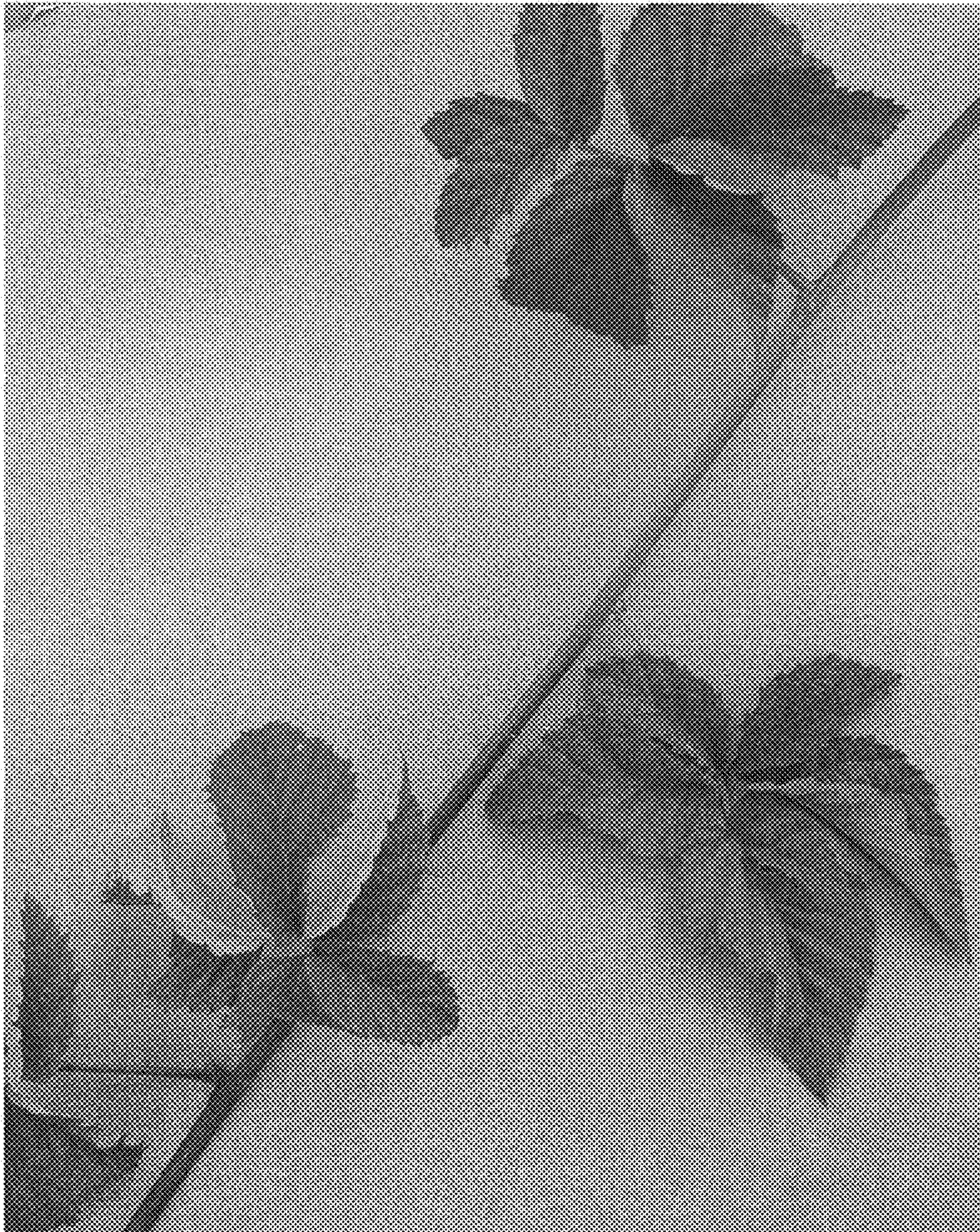


FIG. 1



FIG. 2



FIG. 3



FIG. 4