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Shaw et al.

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(54) **STRAWBERRY PLANT NAMED 'CABRILLO'**

(50) Latin Name: *Fragaria×ananassa* **Duch.**
Varietal Denomination: **Cabrillo**

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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 126 days.

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(51) **Int. Cl.**
A01H 5/08 (2006.01)

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USPC **Plt./209**

(58) **Field of Classification Search**
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See application file for complete search history.

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(57) **ABSTRACT**

'Cabrillo' is a day-neutral strawberry cultivar that is moderate to strong in expressing the day-neutral character. 'Cabrillo' will be of special interest for winter plantings and in summer plantings where 'San Andreas', 'Portola', and 'Albion' have been successful.

3 Drawing Sheets

Genus and species: The strawberry cultivar of this invention is botanically identified as *Fragaria×ananassa* Duch.

Variety denomination: The variety denomination is 'Cabrillo'.

BACKGROUND OF THE INVENTION

This invention relates to a new and distinctive day-neutral type cultivar designated as 'Cabrillo', which resulted from a cross performed in 2008 between two unreleased germplasm accessions Cal 3.149-8 (unpatented) and Cal 5.206-5 (unpatented).

'Cabrillo' was first fruited at the University of California Wolfskill Experimental Orchard, near Winters, Calif. in 2009, where it was selected, originally designated Cal 8.181-1, and propagated asexually by runners. Following selection and during testing the plant of this selection was designated 'CN236'. With the decision that this plant was to be released, this plant was given the name 'Cabrillo' for purposes of introduction into commerce and for international registration and recognition. Asexual propagules from this original source have been tested at the Watsonville Strawberry Research Facility, the South Coast Research and Extension Center, and to a limited extent in grower fields starting in 2010.

BRIEF SUMMARY OF THE INVENTION

'Cabrillo' is a day-neutral (ever-bearing) strawberry cultivar similar to 'Albion' (U.S. Plant Pat. No. 16,228), but with higher yield. It is also similar to 'San Andreas' (U.S. Plant Pat. No. 19,975), but with higher yield, better flavor, and larger fruit. 'Cabrillo' is moderate to strong in expressing the day-neutral character and 'Cabrillo' will be of special interest for winter plantings and in summer plantings where 'San Andreas', 'Portola' (U.S. Plant Pat. No. 20,552), and 'Albion' have been successful. Fruiting plants of 'Cabrillo'

are similar in morphology to 'Albion' or 'San Andreas', although slightly larger and more erect. The fruit shape for 'Cabrillo' is typically a short and either symmetrical or slightly flattened conic. It is easily distinguished by fruit shape from 'Albion' (long conic), 'San Andreas' (long conic with a slight neck) or 'Portola' (short and rounded conic). Subjectively, 'Cabrillo' has outstanding flavor. The fruit will be exceptional for both fresh market and processing, and will be useful for home garden purposes.

BRIEF DESCRIPTION OF THE DRAWINGS

The Figures depict various characteristics of the 'Cabrillo' cultivar. Plants were planted in November.

FIG. **1** shows the general flowering and fruiting characteristics of the plant in a field planting.

FIG. **2** shows a typical leaf at mid-season.

FIG. **3** shows representative mid-season fruit.

DETAILED DESCRIPTION OF THE INVENTION

'Cabrillo' is typical of day-neutral strawberry cultivars and produces fruit regardless of day length when treated appropriately in arid, subtropical climates. 'Cabrillo' is moderate to strong in expressing the day-neutral character, being stronger in flowering response than 'San Andreas' and 'Albion', and less so than 'Portola' or 'Irvine' (U.S. Plant Pat. No. 7,172). The fruit of 'Cabrillo' is firmer and larger than that of unreleased parent Cal. 3.149-8; and larger and darker in color than the fruit of unreleased parent variety Cal. 5.206-5. 'Cabrillo' will be of special interest for winter plantings and in summer plantings where 'San Andreas', 'Portola', and 'Albion' have been successful.

Plants and Foliage:

Fruiting plants of 'Cabrillo' are similar in morphology to 'Albion' or 'San Andreas' although slightly larger and much

more erect. The growth habit of the plant is upright. The inflorescence is at the same level in relation to foliage. Blistering of the leaf is absent or weak. Glossiness of the leaf is strong. The terminal leaflet is obtuse in shape. Comparative statistics for foliar characters near mid-season (November plantings) are given for 'Cabrillo' and the three comparison cultivars in Table 1. Individual leaflets for 'Cabrillo' are slightly smaller than for the comparison cultivars, and are much more concave. Leaves (including petioles) for 'Cabrillo' are slightly shorter than those for the comparison cultivars, mostly due to leaflet size. Petioles are generally thinner than those of the comparison cultivars. The adaxial (upper) and abaxial (lower) surfaces of leaves for 'Cabrillo' are similar in color to the comparison cultivars at mid-season.

TABLE 1

Foliar and plant characteristics for 'Cabrillo', 'Albion', 'San Andreas', and 'Portola'.

	Cultivar			
Characteristic	'Albion	'San Andreas'	'Portola'	'Cabrillo'
Plant height (mm)				
mean	285	302	300	313
range	270-300	280-320	290-320	290-340
Plant spread (mm)				
mean	390	444	433	452
range	335430	370-535	410-445	390-505
Mid-tier leaflet Length (mm)				
mean	88	88	98	85
range	80-100	80-100	90-100	70-100
Width				
mean	84	82	89	79
range	75-95	70-90	80-100	70-80
Mid-tier leaf Length (mm)				
mean	132	135	134	126
range	110-150	130-150	150-180	120-140
Width (mm)				
mean	164	154	170	160
range	150-180	130-160	150-180	140-180
Leaf components Petiole length (mm)				
mean	205	220	223	218
range	180-220	200-260	190-260	200-240
Petiole diameter (mm)				
mean	5.2	4.7	4.9	3.9
range	4-6	4-6	4-6	3-5
Petiolule length (mm)				
mean	6.1	6.0	10.7	11.4
range		5-9	10-12	8-14
# leaflets/leaf	3	3	3	3
Leaf convexity	some flat, most slight concave	some flat, most slight concave	some flat, most slight concave	mostly concave
Serrations				
number/leaf	24.2	21.8	24.6	20.5
range	22-26	19-24	21-28	18-24

TABLE 1-continued

Foliar and plant characteristics for 'Cabrillo', 'Albion', 'San Andreas', and 'Portola'.

	Cultivar			
Characteristic	'Albion	'San Andreas'	'Portola'	'Cabrillo'
shape	semi-pointed	semi-pointed	semi-pointed	semi-pointed
Leaf pubescence	moderate-heavy	moderate	moderate	light-moderate
Petiole pubescence density	heavy	heavy	moderate	heavy
direction	perpendicular	perpendicular	perpendicular	perpendicular
Petiole color (Munsell)		5 GY 8/8	7.5 GY 8/7	5 GY 8/8
Stipule length (mm)				
mean	33.0	32.0	29.4	30.0
range	30-35	25-35	24-37	24-40
Stipule color (Munsell)				
core margins	7 G 9/4 7 GY 8/7	2.5 GY 8/9 5 GY 8/7	2.5 GY 8/9 5 GY 8/8	5 GY 7/10 5 GY 8/8
Stolon base diameter (mm)	2.7	1.8	1.4	1.5
Stolons per nursery mother plant	15.8	21.5	20.3	22.0
Venation				
pattern	pinnate	pinnate	pinnate	pinnate
color (Munsell)	5 GY 6/8	2.5 GY 6/8	2.5 GY 6/8	10 GY 8/7

Disease and Pest Reaction:

'Cabrillo' is moderately resistant to powdery mildew (*Sphaerotheca macularis*), and moderately susceptible to Anthracnose crown rot (*Colletotrichum acutatum*). It is moderately resistant to Verticillium wilt (*Verticillium dahliae*), Phytophthora crown rot (*Phytophthora cactorum*) and common leaf spot (*Ramularia tulasnei*) (Table 2). When treated properly, it has tolerance to two-spotted spider mites (*Tetranychus urticae*) equal to that for the comparison cultivars. 'Cabrillo' is tolerant to strawberry viruses encountered in California.

TABLE 2

Disease resistance scores for 'Cabrillo' and three comparison cultivars; scores were obtained in evaluations conducted in 2012-2014.

Genotype	*Phytophthora* Resistance Score (5 = best)	*Verticillium* Resistance Score (5 = best)	*Colletotrichum* Resistance Score (5 = best)
'Albion'	4.6	4.0	2.9
'San Andreas'	4.3	4.4	2.9
'Portola'	4.4	3.2	7.4
'Cabrillo'	4.2	3.4	1.8

Flowering, Fruiting, Fruit, and Production Characteristics:

'Cabrillo' is similar to other California day-neutral cultivars (e. g. 'San Andreas' and 'Albion') in that it will flower independently of day length, given appropriate temperature and horticultural conditions. The petals as arranged in the flower are touching. The achenes are level with the surface. The fruit is firm. Flowering occurs early. Comparative statistics for flower and fruit characters near mid-season (November plantings) are given for 'Cabrillo' and the three

comparison cultivars in Table 4. The primary flowers for 'Cabrillo' are similar in size to the comparison cultivars with a calyx that is distinctly larger relative to the corolla on primary fruit. The calyx for 'Cabrillo' varies in position but is usually more indented than for 'Albion' or 'San Andreas', similar to 'Portola'. The fruit shape for 'Cabrillo' can vary, but is typically a short and either symmetrical or slightly flattened conic. It is easily distinguished by fruit shape from 'Albion' (long conic), 'San Andreas' (long conic with a slight neck) or 'Portola' (short and rounded conic). 'Cabrillo' usually has a greater proportion of symmetrical fruit than the comparison cultivars. External fruit color for 'Cabrillo' is lighter and has greater shine than that of 'Albion' or 'San Andreas' and is distinctly darker than that of 'Portola'. Internal color is somewhat lighter with less red pigment than for 'Albion' (Table 3). Achenes vary from yellow to dark red, but are frequently more yellow than the comparison cultivars, and are usually slightly indented.

TABLE 3

Foliar and fruit color characteristics for 'Cabrillo' and three comparison cultivars.

	Cultivar			
Color Character	'Albion'	'San Andreas'	'Portola'	'Cabrillo'
Leaf color (CIELAB) Adaxial L*				
mean	36.3	36.9	37.7	36.2
range	32.2-40.8	34.1-39.2	36.2-38.7	35.0-38.7
a*				
mean	−9.8	−9.7	−9.4	−9.8
range	−6.7--12.8	−8.5--10.9	−6.9--10.8	−6.7--12.5
b*				
mean	13.7	13.1	13.2	12.9
range	12.1-18.1	12.8-15.5	10.8-14.3	10.1-15.8
Munsell	5 GY 4/3	5 GY 4/3	5 GY 3/2	5 GY 4/3
Abaxial L*				
mean	50.2	49.4	48.7	51.1
range	48.7-60.0	37.8-51.3	45.8-50.0	49.2-53.1
a*				
mean	−13.1	−12.6	−12.2	−13.1
range	−11.5--14.0	−9.9--13.8	−11.2--12.7	−12.5--14.0
b*				
mean	20.1	20.6	18.7	20.4
range	16.8-22.9	13.2-21.6	18.1-19.1	19.5-21.0
Munsell	10 GY 7/8	10 GY 7/8	7.5 GY 5/7	5 GY 5/5
Fruit color (CIELAB) External L*				
mean	37.6	40.3	40.1	39.2
range	34.6-41.5	37.7-44.9	37.2-42.5	35.4-41.6
a*				
mean	34.2	35.7	35.1	32.0
range	29.9-38.4	33.2-37.8	33.9-36.9	30.8-32.8

TABLE 3-continued

Foliar and fruit color characteristics for 'Cabrillo' and three comparison cultivars.

	Cultivar			
Color Character	'Albion'	'San Andreas'	'Portola'	'Cabrillo'
b*				
mean	19.3	23.2	22.5	70.5
range	12.9-20.9	18.6-30.0	15.2-27.2	18.5-23.2
Munsell	5 R 3/7	5 R 4/12	2.5 R 4/10	7.5 R 4/11
Internal L*				
mean	49.4	56.2	52.8	54.4
range	37.2-54.4	54.2-59.1	48.6-57.6	50.0-56.0
a*				
mean	19.2	18.5	18.4	14.9
range	16.7-23.1	12.8-20.8	13.5-21.8	9.8-20.5
b*				
mean	23.1	25.2	27.6	22.1
range	20.0-27.9	22.0-28.1	23.4-30.3	18.2-29.4
Munsell	5 R 4/12	7.5 R 4/11	5 R 5/13	5 R 5/13
Achene color Munsell	2.5 R 8/12	10 Y 7/9	7.5 Y 7/9	10 Y 8/11

TABLE 4

Flower and fruit characters for 'Cabrillo' and three comparison cultivars.

	Cultivar			
Character	'Albion'	'San Andreas'	'Portola'	'Cabrillo'
Petal number				
mean	5.5	6.4	6.0	5.3
range	5-7	6-7	5-7	5-7
Petal shape				
apex	truncate to slightly obtuse	truncate to slightly obtuse	truncate to slightly obtuse	truncate to slightly obtuse
base	attenuate	attenuate	attenuate	attenuate
margin	entire	entire	entire	entire
Petal length (mm)				
mean	9.4	9.1	10.3	10/7
range	8-10	7-11	9-12	9-13
Petal width (mm)				
mean	8.9	9.1	11.2	12.2
range	8-10	8-11	10-12	10-13
Flower position (relative to foliage)	most even some exposed	most even some internal and exposed	most exposed, some even	most exposed
Calyx diam.(mm)				
mean	31.3	32.7	29.1	35.2
range	25-35	27-38	27-32	32-38
Corolla diam. (mm)				
mean	26.0	30.8	24.2	26.3
range	25-30	28-34	22-26	24-28

TABLE 4-continued

Flower and fruit characters for 'Cabrillo' and three comparison cultivars.

Character	Cultivar 'Albion'	'San Andreas'	'Portola'	'Cabrillo'
Sepal length (mm)				
mean	15.0	10.1	10.4	10.9
range	8-20	7-12	9-12	9-15
Sepal width (mm)				
mean	6.5	6.4	6.9	6.7
range	5-8	5-10	6-8	5-8
Sepal color (Munsell)	5 GY 5/6	5 GY 5/6	5 GY 5/6	5 GY 5/6
Pedicel length (mm)				
mean	261	301	266	243
range	240-280	260-350	220-300	230-270
Pedicel diameter (mm)				
mean	4.5	4.9	3.9	5.0
range	4-5	4-7	3-5	4-6
Pedicel color	2.5 GY 6/8	2.5 GY 9/8	5 GY 6/8	2.5 GY 9/8
Fruit shape				
Fruit length (mm)				
mean	54.1	52.1	46.7	53.0
range	47-57	44-58	43-55	48-61
Fruit width (mm)				
mean	45.7	44.2	47.4	47.7
range	42-48	42-55	42-52	43-57
Length/width				
ratio	1.2	1.2	1.0	1.1
range	1.0-1.4	1.0-1.3	0.8-1.1	1.1-1.3
subjective	medium to long conic	medium to long conic	most short conic	medium conic
Primary/secondary fruit comparison				
size (subjective)	70-80%	60-70%	60-70%	70-80%
shape	shorter conic	shorter conic	similar shape	similar shape
Extent/size of hollow core	small-medium	small-medium	small-absent	small-absent
Calyx position	even to indented	even-slight neck	even-indented	indented-even
size relative to fruit	equal or greater than fruit diameter	equal or greater than fruit diameter	equal or greater than fruit diameter	equal or greater than fruit diameter

TABLE 4-continued

Flower and fruit characters for 'Cabrillo' and three comparison cultivars.

Character	Cultivar 'Albion'	'San Andreas'	'Portola'	'Cabrillo'
Seed position	even-indented	even	even	even-indented
Adherence of Calyx to Fruit	weak	weak	weak	inter-mediate

Flower measurements and fruit measurements obtained May 1-Jun. 1, 2013, subjective observations obtained May 28, 2014.

'Cabrillo' has been tested under a variety of cultural regimes, and optimal performance is obtained when nursery treatments and nutritional programs similar to those for 'Albion', 'San Andreas', and 'Portola' are used. In general, 'Cabrillo' is more vigorous than the comparison cultivars and is more flexible to planting and chilling treatments. 'Cabrillo' retains excellent fruit quality in summer planting systems.

When treated with appropriate planting regimes, 'Cabrillo' has larger fruit and produces greater individual-plant yield than any of the comparison cultivars (Table 5). 'Cabrillo' has a similar production pattern to 'Albion' with most cultural treatments, although it is substantially more adapted to later-season winter planting and spring planting. Commercial appearance ratings have been similar to or better than those for all of the comparison cultivars, especially 'Portola'; these superior appearance scores translate directly into a larger fraction of marketable fruit than is produced by the comparison cultivars. Fruit for 'Cabrillo' is substantially firmer than fruit from the comparison cultivars. Subjectively, 'Cabrillo' has outstanding flavor. The fruit will be exceptional for both fresh market and processing, and will be useful for home garden purposes.

TABLE 5

Performance of 'Cabrillo' and three comparison cultivars evaluated at the Watsonville Research Facility in 2012-13. All plants for these trials were harvested from a commercial nursery near Macdoel, CA on October 15-16, and transplanted after 18-21 days supplemental storage. Fruit harvest was initiated in early April and continued through the first week of October. (52" 2-row beds, 17,300 plants/acre).

Cultivar	Yield (g/plant)	Appearance Score (5 = best)	Fruit Size (g/fruit)	Firmness
'Albion'	2,632	4.1	32.6	12.2
'San Andreas'	3,090	4.3	32.0	12.2
'Portola'	2,900	3.4	31.7	11.4
'Cabrillo'	3,669	4.3	32.0	12.2

What is claimed is:

1. A new and distinct cultivar of strawberry plant having the characteristics substantially as described and illustrated herein.

* * * * *

FIG. 1

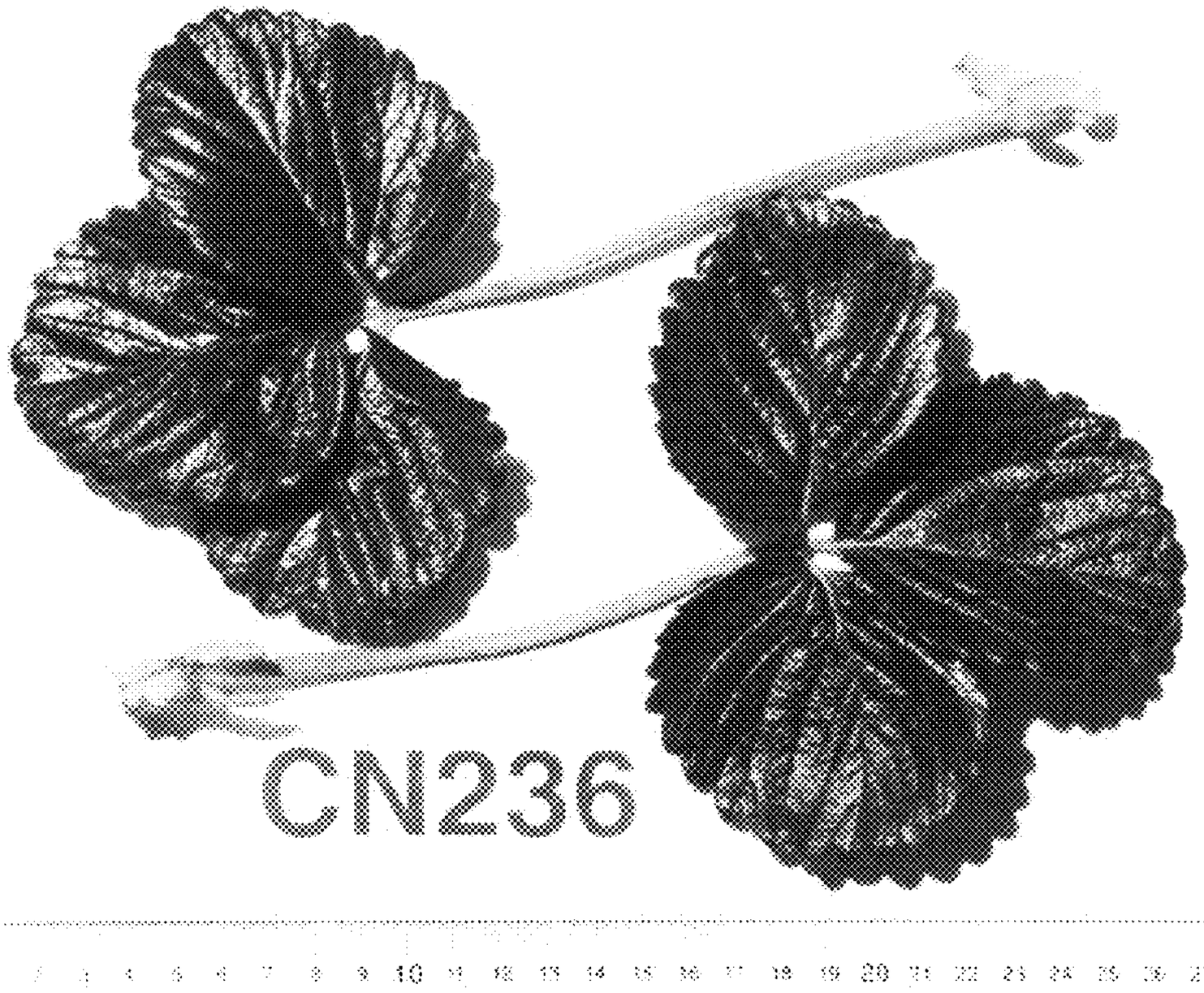

FIG. 2

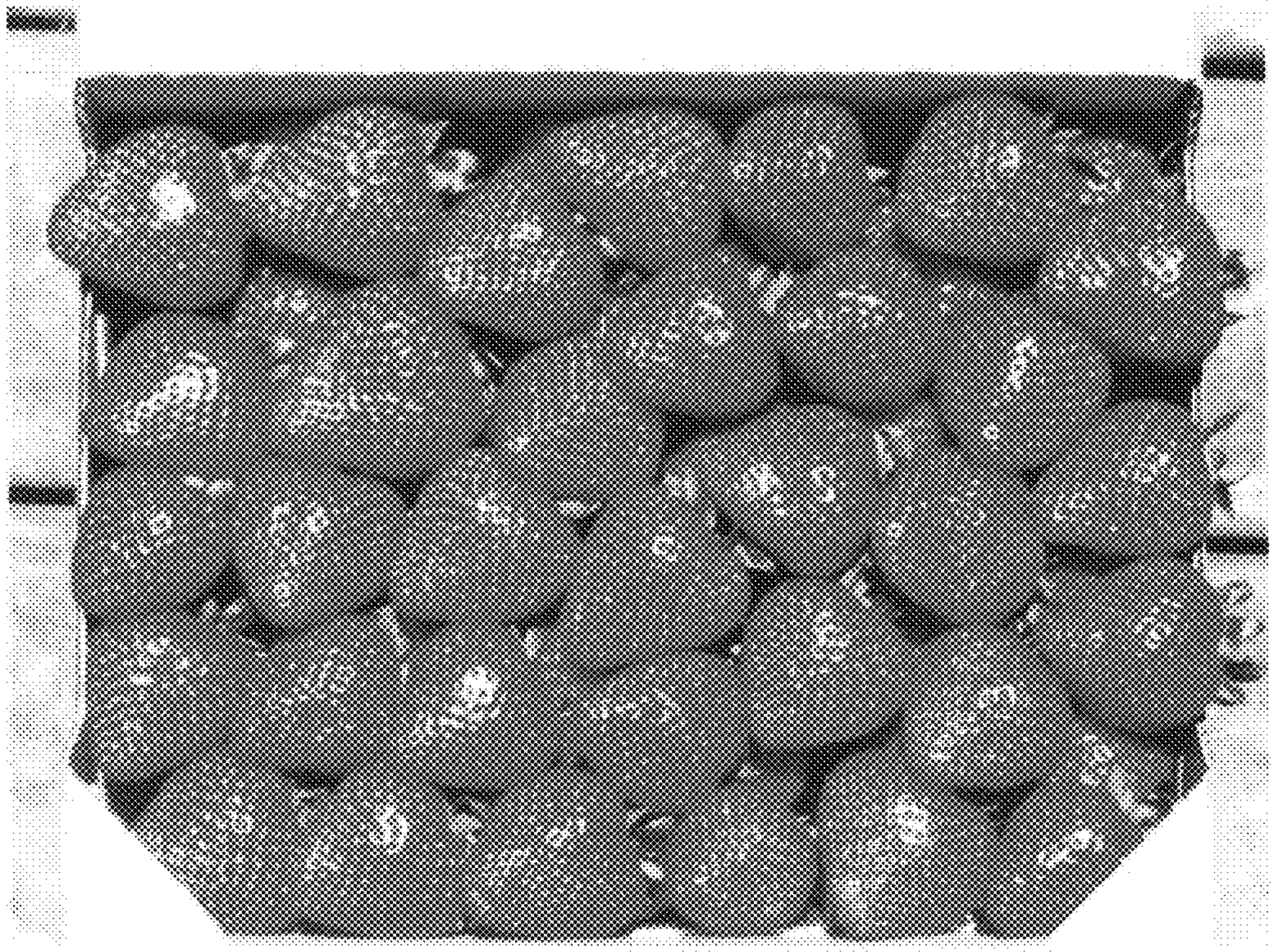

FIG. 3