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(54) **STRAWBERRY PLANT NAMED ‘BISCAYNE’**

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(52) U.S. Cl. **Plt./209**

(58) Field of Search Plt./208, 209

(56) **References Cited**

U.S. PATENT DOCUMENTS

P.P. 8,649 3/1994 Sjulín et al. Plt./208

OTHER PUBLICATIONS

U.S. application No. 08/858,843, Mar. 7, 2000, Strawberry plant named ‘Captiva’, filed May 19, 1997.

U.S. application No. 08/862,821, Mar. 7, 2000, Strawberry plant named ‘Mirador’, filed May, 23, 1997.

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(57) **ABSTRACT**

This invention relates to a new and distinct variety of strawberry named ‘Biscayne’, botanically identified as *Fragaria×ananassa*. The closest known varieties are ‘Key Largo’ (U.S. Plant Pat. No. 8,649), ‘Captiva’ (U.S. Plant Pat. No. 11,277, allowed) and ‘Mirador’ (U.S. Plant Pat. No. 11,279, allowed). The new variety is a partially everbearing fruit bearing variety. The variety is distinguished from ‘Key Largo’ by its strong plant vigor, concave cross section of the leaf, rounded teeth on the terminal leaflet, outward pose of the petiole hairs, larger to the same size diameter of the calyx relative to the corolla, medium fruit glossiness, strong adherence of the calyx to the fruit, fruit of soft to medium firmness, medium to early time of flowering and early harvest maturity.

2 Drawing Sheets

1

1. BACKGROUND OF THE INVENTION

The new variety originated as a result of a controlled cross between the strawberry plants ‘Key Largo’ (U.S. Plant Pat. No. 8,649) and ‘L3’ (unpatented proprietary) in an ongoing breeding program, and was discovered as a seedling in a controlled breeding plot. The original seedling of the new cultivar was asexually propagated by stolons in Shasta County, California. Propagules were transplanted to a controlled breeding plot in Valrico, Hillsborough County, Fla. where the new cultivar first fruited in December 1994 and was selected for further evaluation. ‘Biscayne’ was subsequently asexually propagated and underwent further testing in the area of Valrico, Fla. from 1995–1999. This propagation and testing has demonstrated that the combination of traits disclosed herein which characterize the new variety are fixed and retained true to type through successive generations of asexual reproduction.

2. SUMMARY OF THE INVENTION

The present invention relates to a new and distinct variety of strawberry named ‘Biscayne’. The variety is botanically identified as *Fragaria×ananassa*. The new variety is distinguished from other varieties by a number of characteristics as set forth in Tables 1, 2 and 3.

3. COMPARISON TO CLOSEST VARIETIES

The varieties which we believe to be closest to ‘Biscayne’ from those known to us are ‘Key Largo’ (U.S. Plant Pat. No. 8,649), ‘Captiva’ (U.S. Plant patent application Ser. No. 08/858,843, allowed) and ‘Mirador’ (U.S. Plant patent application Ser. No. 08/862,821, allowed). There are several

2

characteristics of ‘Biscayne’ that are different from, or not possessed by ‘Key Largo’, ‘Captiva’ or ‘Mirador’. Table 1 provides information on the plant and fruit characteristics of the new variety ‘Biscayne’ compared with characteristics of ‘Key Largo’, ‘Captiva’ and ‘Mirador’. Table 2 provides additional information of the plant and fruit characteristics of the new variety ‘Biscayne’ compared with characteristics of the varieties ‘Captiva’, ‘Key Largo’, and ‘Mirador’. Table 3 provides isozyme characteristics of the new variety as compared to the varieties ‘Key Largo’, ‘Captiva’ and ‘Mirador’.

4. BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying photographs show typical specimens of the new variety, including fruit, foliage and flowers, in color as nearly true as it is reasonably possible to make in color illustrations of these characteristics.

FIG. 1 shows the fruit in longitudinal section, illustrating the typical flesh coloration.

FIG. 2 shows the upper surface of the two typical folioles of the new variety.

FIG. 3 shows the flower and reproductive organs of the new variety, as well as the size and position of the petals and sepals and the underside of the calyx.

FIG. 4 shows typical whole fruit.

5. DESCRIPTION OF THE NEW VARIETY

This following detailed description of the new variety is based upon observations taken of plants and fruit grown in Valrico, Fla., U.S.A. Observations of ‘Biscayne’, ‘Key

Largo', 'Captiva' and 'Mirador' were taken in side by side comparison in 1999. 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. Colors are described and the closest matching color ratings are provided using The Royal Horticultural Society (R.H.S.) Colour Chart.

5.1 Propagation

The new variety is principally propagated by way of stolons. Although propagation by stolons is presently preferred, other known methods of propagating strawberry plants may be employed.

5.2 Characteristics of the New Variety

Information on the new variety is presented in Tables 1, 2 and 3. In the tables, the flowers described are secondary flowers except where indicated. Petal color of 'Biscayne' is white which is not referenced in The Royal Horticultural Society Colour Chart. The fruit described is the secondary fruit on one year old plants. Fruit and flower measurements are an average of both primary and secondary fruit and flowers, respectively.

PLANTS AND FOLIAGE

Plants of 'Biscayne' are of strong vigor compared to medium vigor for 'Captiva', 'Key Largo' and 'Mirador'. The habit of 'Biscayne' is flat globuse while that of 'Key Largo' and 'Mirador' is globuse. The density of 'Biscayne' is medium compared to open for 'Mirador'. The average plant height is 20.4 cm, the average plant diameter is 39.5 cm, and the average number of crowns/plant is 3.3.

The upperside of 'Biscayne' leaves are dark green with an RHS color rating of 137A. The underside of the leaves is light green having an RHS color rating of 139C.

The leaf profile is concave and there is weak interveinal leaf-blistering. The plants have three leaflets only. The terminal leaflet margin profile is revolute and the length-to-width ratio of the terminal leaflet is broader than long. The leaves have medium glossiness. The shape of the base of the terminal leaflet is rounded and the average number of teeth per terminal leaflet is 28.5. The average length and width of the terminal leaflet are 9.2 cm and 9.8 cm, respectively.

The petiole has dense pubescence and the pose of the petiole hairs is outwards. The average petiole length is 12.7 cm. The petiole color has an RHS color rating of 144B.

The bract frequency is 100% and the bracts typically occur in pairs compared to 'Captiva' and 'Mirador' having single bracts occurring with a frequency of 60%.

The stipule length and width are 4.2 cm and 2.3 cm, respectively. The stipule pubescence is sparse.

'Biscayne' has numerous stolons that are of medium thickness with strong anthocyanin coloration and medium pubescence.

FLOWER AND FRUIT CHARACTERISTICS

The position of the 'Biscayne' inflorescence is level with the foliage compared to that of 'Key Largo', 'Captiva' which are beneath and 'Mirador' which is above. The flowers are medium in size. The average petal length and width are 1.3

cm and 1.5 cm, respectively. The average flower diameter is 3.4 cm. The average calyx diameter is 4.4 cm.

The diameter of calyx is larger than the corolla. On secondary flowers, the diameter of the inner calyx is the same size as the outer calyx. On secondary flowers with 5 to 6 petals, the petals are overlapping. The petal length-to-width ratio on secondary flowers is broader than they are long compared to 'Key Largo', and 'Captiva' which are as long as broad.

The fruiting trusses are long in length with an average length of 17.1 cm from the crown to the base of the terminal flower or fruit. The attitude at first picking is semi-erect compared with prostrate and erect for 'Captiva' and 'Mirador', respectively.

Observations of 'Biscayne' fruit were taken of secondary fruit on one year old plants. The fruit are predominantly conical in shape. The fruit length to maximum width ratio is longer than broad. The fruit are medium in size. The average length and width of the fruit are 3.8 cm and 3.7 cm, respectively. There is a slight difference in fruit shape between the primary and secondary fruits. The band without achenes is narrow. The fruit surface has a weak unevenness.

The fruit skin color is even and red with an RHS color rating of 46B and has medium glossiness.

The insertion of the achenes is level with the surface of the fruit.

The calyx is inserted with the fruit and the pose of the calyx segments is spreading compared to that of 'Key Largo' which is reflexed. The calyx diameter is larger than the fruit diameter. The adherence of the calyx to the fruit is strong.

The fruit flesh is firm when fully ripe. The color of the fruit flesh is medium red with an RHS color rating of 44A. The fruit flesh color is slightly uneven, and the fruit flesh color distribution is marginal and central. The fruit has a large sized hollow center.

The fruit has a medium sweetness, with medium acidity and fine texture.

The time of flowering when 50% of the plants are at first flower early, Initial flowering occurs in late-October to early-November.

The harvest maturity when 50% of the plants possess ripe fruit is early. Season of harvest is from late-November through early-April. 'Biscayne' is partially everbearing variety.

The average number of stamens is 29.

Anthocyanin coloration is red to purple red.

The average number of pedicels/peduncle is 4.2. Average peduncle diameter is 4.5 mm and average peduncle length is 13.9 cm. The average pedicel diameter is 2.2 mm and average pedicel length is 9.5 cm. Average petiole diameter is 3.4 mm.

Achene insertion is level with surface. Achene color is yellow to red (13B to 46A).

The average number of sepals is 10.5. Average sepal length 1.14 cm.

Percent brix is 9.4. The amount of pollen produced is abundant and fertile.

TABLE 1

DETAILED COMPARISON OF ‘BISCAYNE’, ‘KEY LARGO’, ‘CAPTIVA’ AND ‘MIRADOR’				
	BISCAYNE	KEY LARGO	CAPTIVA	MIRADOR
<u>Plant Characteristics</u>				
Height of Plant	20.4 cm	18.3 cm	13.0 cm	20.0 cm
Spread of Plant	39.5 cm	39.2 cm	33.1 cm	35.0 cm
Number of Crowns	3.3 cm	4.0 cm	4.4 cm	3.0 cm
<u>Leaf Characteristics</u>				
Terminal Leaflet Width	9.8 cm	8.9 cm	7.3 cm	9.0 cm
Terminal Leaflet Length	9.2 cm	8.5 cm	7.2 cm	8.3 cm
Terminal Leaflet Length/Width Ratio	0.94	0.96	0.99	0.92
Number of Teeth/Terminal Leaflet	28.5	23.8	25.4	20.0
Petiole Length	12.7 cm	10.4 cm	8.1 cm	12.8 cm
Bract Frequency	100% Typically in pairs	30% Typically in pairs	60% Typically single	60% Typically single
Stipule Length	4.2 cm	3.7cm	3.6 cm	3.6 cm
Stipule Width	2.3 cm	1.9 cm	1.8 cm	2.2 cm
<u>Flower Characteristics</u>				
Petal Width	1.5 cm	1.5 cm	1.4 cm	1.6 cm
Petal Length	1.3 cm	1.5 cm	1.4 cm	1.5 cm
Petal Length/Width Ratio	0.87	1.00	1.00	0.94
Flower Diameter	3.4 cm	3.9 cm	3.6 cm	4.0 cm
Calyx Diameter	4.4 cm	5.1 cm	4.3 cm	4.0 cm
<u>Fruit Characteristics</u>				
Fruit Width	3.7 cm	3.5 cm	3.6 cm	3.5 cm
Fruit Length	3.8 cm	4.2 cm	4.1 cm	3.5 cm
Fruit Length/Width Ratio	1.03	1.20	1.14	1.00
Average Berry Weight (g)	Medium 19.8 g	Medium 22.4 g	Medium 17.8 g	Small 16.3 g
Fruit Skin Color	Red 46B	Dark Red 46B	Light Red 45A	Pale Rose 45B
Fruit Flesh Color	Medium Red 44A	Light Red 44C	Light Red 49C	Pale Rose 43B
Total Yield (g/plant)	430	277	369	551

TABLE 2

CHARACTERISTICS OF ‘BISCAYNE’, ‘KEY LARGO’, ‘CAPTIVA’ AND ‘MIRADOR’				
	BISCAYNE	CAPTIVA	KEY LARGO	MIRADOR
<u>Plant</u>				
Habit	Flat globuse	Flat globuse	Globuse	Globuse
Density	Medium	Medium	Medium	Open
Vigor	Strong	Medium	Medium	Medium
<u>Leaf</u>				
Color of upper side	Dark green 137A	Dark green 137A	Dark green 137A	Dark green 137A
Color of under side	Light green 139C	Light green 139C	Light green 139C	Light green 139C
Shape in cross section	Concave	Slightly Concave	Slightly Concave	Slightly Concave
Interveinal	Weak	Weak	Weak	Weak

TABLE 2-continued

CHARACTERISTICS OF ‘BISCAYNE’, ‘KEY LARGO’, ‘CAPTIVA’ AND ‘MIRADOR’				
	BISCAYNE	CAPTIVA	KEY LARGO	MIRADOR
<u>blistering</u>				
Glossiness	Medium	Medium	Medium	Medium
Number of leaflets	3	3	3	3
Terminal leaflet margin profile	Revolute	Revolute	Revolute	Revolute
Terminal leaflet shape of base	Rounded	Obtuse	Slightly oblique	Slightly oblique
Terminal leaflet shape of teeth	Rounded	Obtuse	Rounded	Rounded
Terminal leaflet average number of teeth	28.5	25.4	23.8	20.0
Petiole pubescence	Dense	Medium	Medium	Medium
Petiole pose of hairs	Outwards	Upwards	Upwards	Outwards
Petiole color	144B	141C	141C	141C
Stipule: pubecence	Sparse	Medium	Medium	Sparse
Bracts frequency on petioles	100%. Typically in Pairs	60%; Typically single	30%, Typically in pairs	60% Typically single
<u>Stolon</u>				
Number	Many	Medium to many	—	Many
Anthocyanin coloration	Strong	Strong	—	Medium to strong
Thickness	Medium	Medium to thick	—	Thin to Medium
Pubescence	Medium	Sparse to Medium	—	Sparse to Medium
<u>Inflorescence</u>				
Position relative to foliage	Level	Beneath	Beneath	Above
Flower size	Medium	Medium	Large	Small
Diameter of calyx relative to corolla	Larger	Larger	Much larger	Same size
Diameter of inner calyx relative to outer	Same size	Smaller	Smaller	Smaller
Spacing of petals	Over-lapping	Over-lapping	Over-lapping	Over lapping
<u>Fruiting Truss</u>				
Attitude at first picking	Semi-erect	Prostrate	Semi-erect	Erect
Length	17.1 cm	9.4 cm	16.6 cm	17.3 cm
<u>Fruit</u>				
Weight (g)	19.8	17.8	22.4	16.3
Predominant shape	Conical	Conical	Conical	Conical
Difference in shapes between primary-and secondary fruits	Slight	Slight	Slight	Slight
Band without achenes	Narrow	Narrow	Narrow	Narrow
Unevenness of surface	Weak	Weak	Weak	Weak
Skin color	Red 46B	Orange Red 45A	Dark Red 46B	Red 45B

TABLE 2-continued

CHARACTERISTICS OF ‘BISCAYNE’, ‘KEY LARGO’, ‘CAPTIVA’ AND ‘MIRADOR’				
	BISCAYNE	CAPTIVA	KEY LARGO	MIRADOR
Evenness of color uneven	Even	Slightly even	Even	slightly even
Glossiness	Medium	Medium	Strong	Medium
Insertion of achenes	Level with surface	Level with surface	Below surface	Level with surface
Insertion of calyx	Level	Above fruit	Above fruit	Above fruit
Pose of the calyx segments	Spreading	Spreading	Reflexed	Spreading
Size of calyx in relation to fruit	Larger	Larger	Larger	Larger
Adherence of Calyx	Strong	Medium	Strong	Medium
Firmness of flesh	Firm	Firm	Firm	Firm
Color of flesh	Medium Red 44A	Light Red 49C	Light Red 44B	Pale Rose 43B
Evenness of flesh color	Slightly uneven	Slightly uneven	Slightly uneven	Slightly uneven
Distribution of flesh color	Marginal and central	Marginal and central	Marginal and central	Only marginal
Hollow center size	Large	Small	Medium	Medium
Sweetness	Medium	Medium	Medium	Medium
Texture when tasted	Fine	Fine	Medium	Fine
Acidity	Medium	Medium	Medium	Medium

5.3 Insect and Disease Resistance and Susceptibility

The ‘Biscayne’ variety is moderately susceptible to *Xanthomonas fragariae* and Botrytis fruit rot. The variety is susceptible to Powdery Mildew and Verticillium wilt. The

‘Biscayne’ variety is also susceptible to injury by the two-spotted spider mite (*Tetranychus urticae*), lygus bug (*Lygus hesperus*) and Aphis spp (Aphids). ‘Biscayne’ is moderately resistant to Strawberry Mottle Virus.

5.4 Isozyme Analysis

In addition to the morphological description above, the new cultivar ‘Biscayne’ has been analyzed to obtain an indication of its genetic makeup to provide further means for identifying the new variety and distinguishing it from some other somewhat similar and/or related strawberry varieties. Specifically, leaf samples of ‘Biscayne’, ‘Captiva’, ‘Key Largo’ and ‘Mirador’ were analyzed by electrophoresis for isozyme patterns of the enzymes phosphoglucoisomerase (PGI), leucine aminopeptidase (LAP) and phosphoglucomutase (PGM). See *J. Amer. Soc. Hort. Sci.* 106:684–687. Isozyme characterization of the four varieties is presented in Table 3, with the letters representing the banding patterns for each enzyme as designated in the above-identified article.

TABLE 3

ISOZYME ANALYSIS FOR ‘BISCAYNE’ AND ‘KEY LARGO’, ‘CAPTIVA’ AND ‘MIRADOR’				
Locus	BISCAYNE	CAPTIVA	KEY LARGO	MIRADOR
PGI	A1	A2	A1	A3
PGM	B3	C2	C4	C4
LAP	C4	B3	B3	B3*

*With slower migrating band staining more weakly than typical B3 pattern.

What is claimed is:

- 1. A new and distinct variety of strawberry plant, substantially as shown and described.

* * * * *

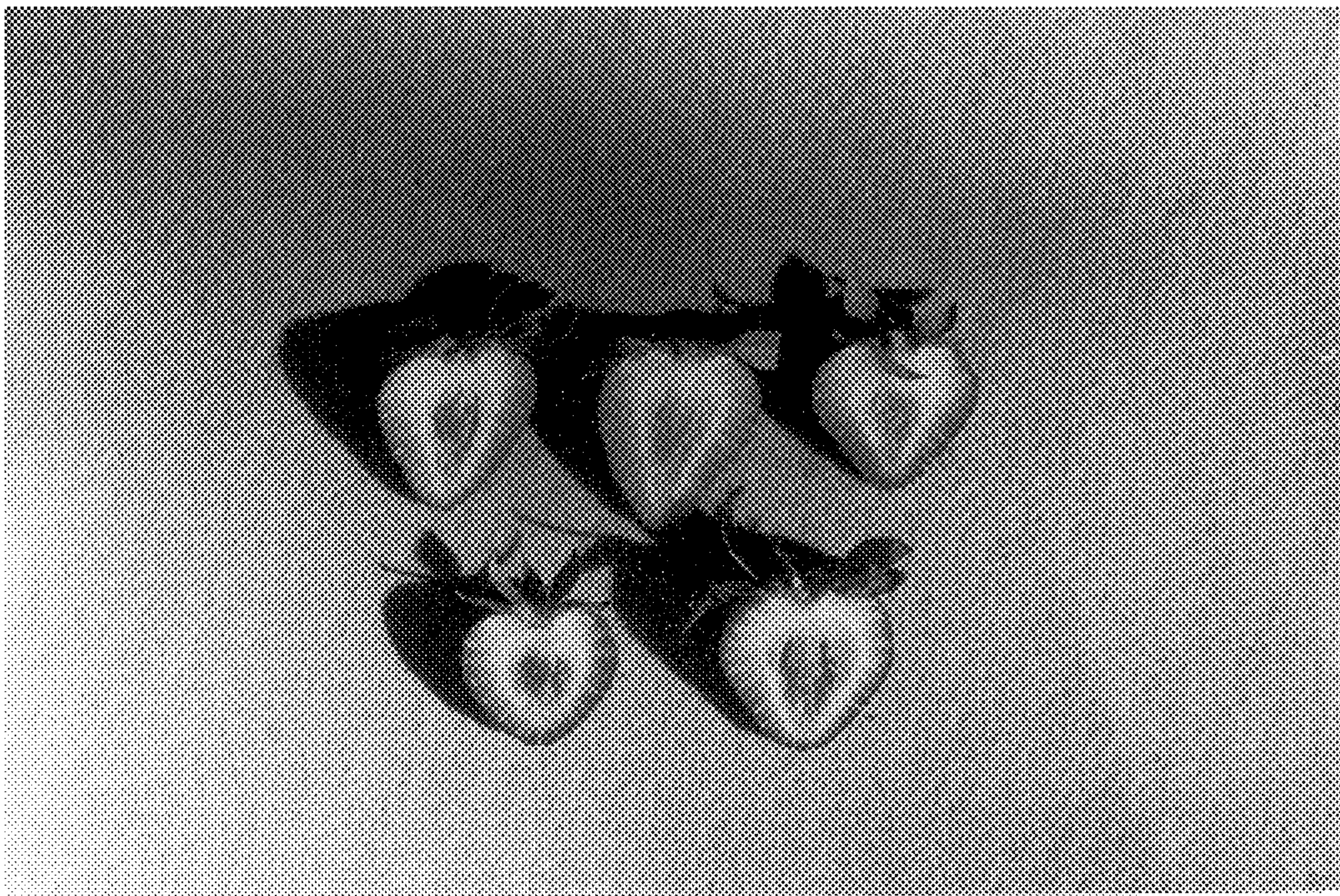


FIG. 1

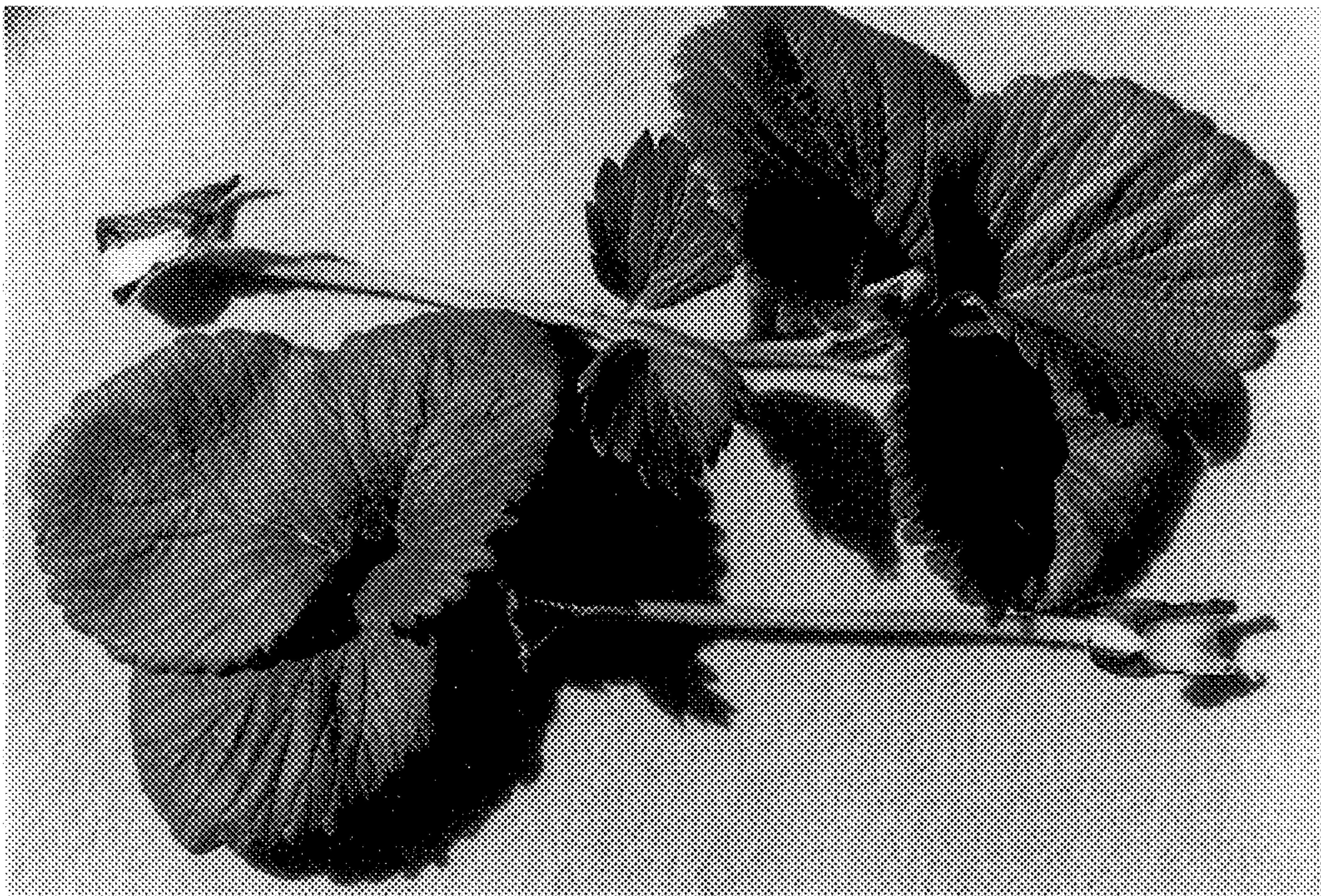


FIG. 2

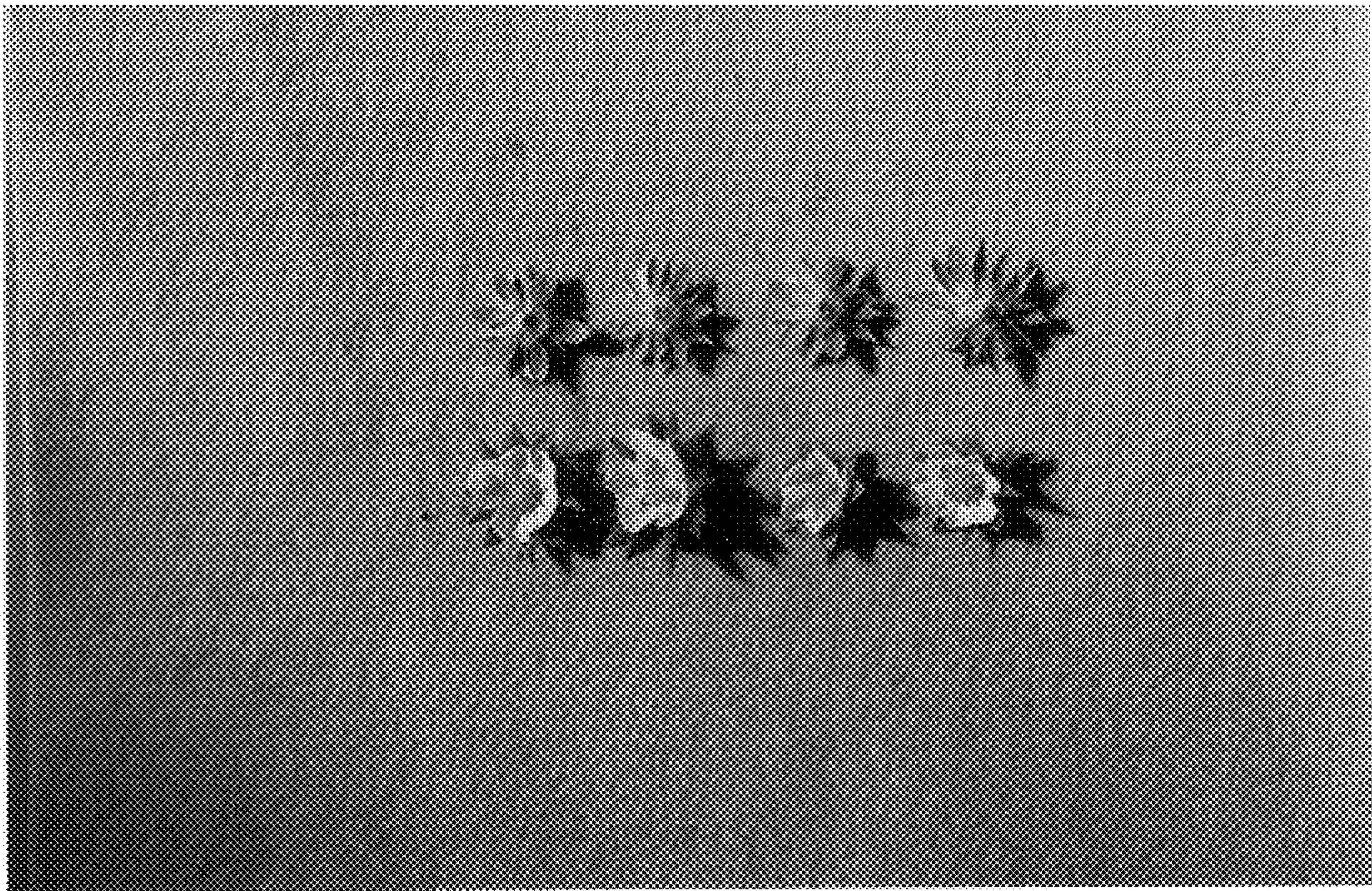


FIG. 3

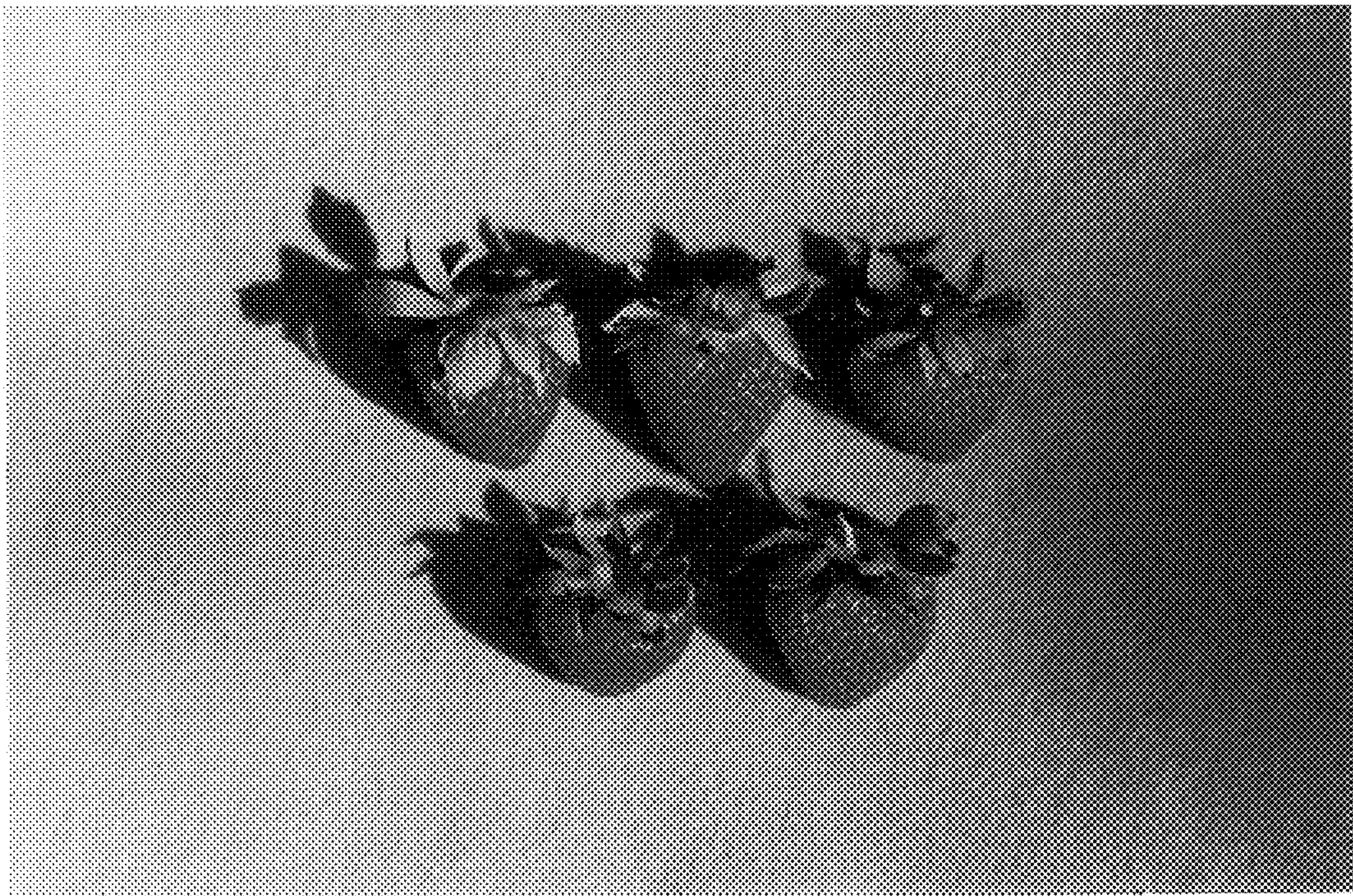


FIG. 4