



US00PP23255P2

(12) **United States Plant Patent**  
**Nelson et al.**(10) **Patent No.:** US PP23,255 P2  
(45) **Date of Patent:** Dec. 18, 2012(54) **STRAWBERRY PLANT NAMED 'BG-4316'**(50) Latin Name: *Fragaria ananassa*Varietal Denomination: **BG-4316**(75) Inventors: **Steven D. Nelson**, Watsonville, CA  
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CA (US); **Leo W. Stoeckle**, Ventura, CA  
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(US)(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.(21) Appl. No.: **13/137,317**(22) Filed: **Aug. 5, 2011**(51) **Int. Cl.****A01H 5/00** (2006.01)(52) **U.S. Cl.** ..... **Plt./209**(58) **Field of Classification Search** ..... Plt./209  
See application file for complete search history.*Primary Examiner* — Annette Para(74) *Attorney, Agent, or Firm* — Foley & Lardner LLP(57) **ABSTRACT**

This invention relates to a new and distinct variety of strawberry plant named 'BG-4316'. This new strawberry plant named 'BG-4316' is primarily adapted to the growing conditions of the central coast of California, and is primarily characterized by its acute terminal leaflet base, medium to strong anthocyanins on the fruiting truss, orange red fruit color, medium-sized fruit, and calyx is slightly to much larger than the fruit.

**4 Drawing Sheets****1**

Latin name of the genus and species of the plant claimed:  
*Fragaria ananassa*.

Variety denomination: 'BG-4316'.

**BACKGROUND OF THE INVENTION**

The present invention relates to a new and distinct strawberry variety named 'BG-4316'. This new variety is a result of a controlled cross made in 2002 in an ongoing breeding program between strawberry variety designated 'BG-633' (patented, U.S. Plant Pat. No. 13,320) and strawberry variety designated 'BG-1445' (a non-patented selection). Due to the combining of the reciprocal seed lots, it is unknown as to which parent variety is the seed parent and which parent variety is the pollen parent. The variety is botanically known as *Fragaria ananassa*.

The seedling resulting from the aforementioned cross was selected from a controlled breeding plot in Ventura County, Calif. in the winter of 2004. After its selection, the new variety was asexually propagated by stolons in both San Joaquin County, Calif. and Siskiyou County, Calif. The new variety was extensively tested over the next several years in fruiting fields in Ventura County, Calif. This propagation has demonstrated that the combination of traits disclosed herein as characterizing the new variety are fixed and remain true to type through successive generations of asexual reproduction.

**BRIEF SUMMARY OF THE INVENTION**

'BG-4316' is primarily adapted to the climate and growing conditions of the central coast of California. The nearby Pacific Ocean provides the needed humidity and moderate temperatures to produce a strong vigorous plant and maintain fruit quality during the winter and spring production months.

The following traits have been repeatedly observed and are determined to be unique characteristics of 'BG-4316', which in combination distinguish this strawberry plant as a new and distinct variety:

1. Acute terminal leaflet base;
2. Medium to strong anthocyanins on the fruiting truss;

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3. Orange red fruit color;
4. Medium-sized fruit; and
5. Calyx is slightly to much larger than the fruit.

5 The strawberry variety that is believed to be most closely related to the new variety 'BG-4316' is 'BG-1975' (patented, U.S. Plant Pat. No. 17,725). In side-by-side comparisons to the similar strawberry variety 'BG-1975', 'BG-4316' differs by the following combination of characteristics as described in Table 1.

**TABLE 1**

| <b>COMPARISON TO THE SIMILAR VARIETY</b> |                              |                                                   |
|------------------------------------------|------------------------------|---------------------------------------------------|
| <b>Characteristic</b>                    | <b>'BG-4316'</b>             | <b>'BG-1975'<br/>(U.S. Plant Pat. No. 17,725)</b> |
| Marketable yield<br>(gm/plant)           | 1,134                        | 1,080                                             |
| 20 Fruit predominant shape               | Conical                      | Ranges from conical to almost cylindrical         |
| Insertion of achenes                     | Level with the surface       | Ranges from level with to below the surface       |
| 50% of plants with ripe fruit            | Medium                       | Ranges from medium to early                       |
| Plant size                               | Medium                       | Ranges from medium to large                       |
| 25 Foliage color                         | Medium green                 | Ranges from medium to light yellow green          |
| Petiole pubescence                       | Moderate                     | Heavy                                             |
| Fruiting truss anthocyanin intensity     | Ranges from medium to strong | Weak                                              |
| Expression of hollow center              | Ranges from weak to moderate | Moderate                                          |
| Fruit color                              | Orange red                   | Ranges from orange red to red                     |

35 For identification, a series of molecular markers have been determined for this new variety.

'BG-4316' differs from its parents, 'BG-633' and 'BG-1445' by the following combination of characteristics as described in Table 2.

TABLE 2

| Characteristic                 | COMPARISON WITH PARENT VARIETIES |                                          |           |
|--------------------------------|----------------------------------|------------------------------------------|-----------|
|                                | 'BG-4316'                        | 'BG-633'<br>(U.S. Plant Pat. No. 13,320) | 'BG-1445' |
| Marketable yield<br>(gm/plant) | 1,134                            | 964                                      | 692       |
| Fruit gloss                    | Medium                           | Weak                                     | Medium    |
| Fruit size                     | Medium                           | Ranges from medium to large              | Large     |
| Plant size                     | Medium                           | Ranges from medium to small              | Medium    |

## BRIEF DESCRIPTIONS OF THE PHOTOGRAPHS

The accompanying color photographs illustrate the overall appearance of typical specimens of the new strawberry variety 'BG-4316', at various stages of development as true as it is reasonably possible with color reproductions of this type. Color in the photographs may differ slightly from the color value cited in the botanical descriptions which accurately describe the color of 'BG-4316'. The depicted plant and plant parts of the new strawberry variety 'BG-4316' are approximately six months old. The photographs were taken in Ventura County, Calif.:

FIG. 1 shows typical fruiting field characteristics of 'BG-4316', taken in the month of April 2011;

FIG. 2 shows a close-up view of the typical leaf structure of 'BG-4316', taken in the month of April 2011;

FIG. 3 shows typical mature and immature field fruit of 'BG-4316', taken in the month of April 2011; and

FIG. 4 shows typical internal and external mature fruit characteristics of 'BG-4316', taken in the month of April 2011.

## DETAILED BOTANICAL DESCRIPTION

The new variety 'BG-4316' has not been observed under all possible environmental conditions. The characteristics of the new variety 'BG-4316' may vary in detail, depending upon variations in environmental factors, including weather (temperature, humidity and light intensity), day length, soil type and location. In addition, the characteristics of any parental variety or comparison variety included in Tables 1-9 of the present invention may vary in detail, depending upon variations in environmental factors, including weather (temperature, humidity and light intensity), day length, soil type and location.

The aforementioned photographs, together with the following description of the new variety 'BG-4316', unless otherwise noted, are based on observations taken during the 2011 growing season in Ventura County, Calif. These measurements and ratings were taken from plants of 'BG-4316' dug from a high-elevation nursery located in Siskiyou County, Calif. during early October 2010 and planted approximately four to five days later in Ventura County, Calif. The approximate age of the observed plants is six months. Yield observations and fruit quality characteristics are averaged from six years of data collected from the 2006 through 2011 growing seasons. Flower measurements and characteristics are from secondary flowers unless otherwise noted. Fruit characteristics and measurements are from secondary fruit unless otherwise noted.

Color terminology where noted follows The Royal Horticultural Society Colour Chart, London (2007).

The following tables 3-9 describe fruit, plant, stolon, foliage, fruiting truss, flower and pest disease characteristics of the new strawberry 'BG-4316' in comparison to the similar strawberry variety 'BG-1975'.

TABLE 3

| Characteristic                                              | FRUIT CHARACTERISTICS               |                                                 |
|-------------------------------------------------------------|-------------------------------------|-------------------------------------------------|
|                                                             | 'BG-4316'                           | 'BG-1975'<br>(U.S. Plant<br>Pat. No. 17,725)    |
| Color of mature fruit                                       | RHS 34A<br>Orange red               | RHS 45A<br>Ranges from orange red to red        |
| Color of internal flesh                                     | RHS 34C<br>Light red                | RHS 44A<br>Medium red                           |
| Fruit length (cm)                                           | 4.3                                 | 4.5                                             |
| Fruit width (cm)                                            | 3.8                                 | 3.9                                             |
| 20 Fruit length/width ratio                                 | 1.15                                | 1.14                                            |
|                                                             | Slightly longer than broad          | Slightly longer than broad                      |
| Calyx diameter (cm)                                         | 5.5                                 | 5.2                                             |
| Average fruit weight (gm)                                   | 24.9                                | 26.6                                            |
| 25 Achene color, shaded side                                | RHS 153D                            | RHS 152D                                        |
| Achene color, sun-exposed side                              | Yellow green group                  | Yellow green group                              |
| Achenes per berry                                           | RHS 182A                            | RHS 183A                                        |
| Achene weight (mg)                                          | Greyed purple group                 | Greyed purple group                             |
| 30 Marketable fruit yield (gm/plant)                        | 331                                 | 300                                             |
| Fruit size                                                  | 0.50                                | 0.67                                            |
| Predominant fruit shape                                     | 1,134                               | 1,080                                           |
| 35 Difference in shapes between primary and secondary fruit | Medium                              | Ranges from medium to large                     |
| Band without achenes                                        | Conical                             | Ranges from conical to almost cylindrical       |
| Unevenness of fruit surface                                 | Slight                              | Ranges from slight to moderate                  |
| Evenness of fruit color                                     | Absent or very narrow               | Absent or very narrow                           |
| 40 Fruit glossiness                                         | Even                                | Ranges from slightly uneven to even             |
| Insertion of achenes                                        | Medium                              | Ranges from medium to strong                    |
| 45 Insertion of calyx                                       | Level with surface                  | Ranges from below surface to level with surface |
| Attitude of calyx                                           | In basin                            | In basin                                        |
|                                                             | Ranges from collapsing to spreading | Spreading                                       |
| Size of calyx in relation to fruit diameter                 | In basin                            | In basin                                        |
| 50 Adherence of calyx                                       | Ranges from                         | Ranges from slightly larger to much larger      |
| Firmness of fruit skin                                      | collapsing to spreading             | Very strong                                     |
| Firmness of fruit flesh                                     | Strong                              | Ranges from medium to strong                    |
| Keeping quality                                             | Ranges from medium to strong        | Medium                                          |
| Distribution of red color of the flesh                      | Good                                | Good                                            |
| 55 Hollow center expression                                 | Marginal and central                | Marginal and central                            |
| Fruit flavor                                                | Ranges from weak to moderate        | Moderate                                        |
| Soluble solids (% brix)                                     | Good                                | Very good                                       |
| Time of first flowering                                     | 7.4                                 | 8.6                                             |
| 60 Time of first harvesting                                 | Ranges from early to medium         | Ranges from early to medium                     |
| Harvest period                                              | Ranges from early to medium         | Ranges from early to medium                     |
| Type of bearing                                             | Late December to late May           | Early January to late May                       |
|                                                             | Not remontant                       | Not remontant                                   |

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TABLE 4

| PLANT CHARACTERISTICS |                              |                                           |
|-----------------------|------------------------------|-------------------------------------------|
| Characteristic        | 'BG-4316'                    | 'BG-1975'<br>(U.S. Plant Pat. No. 17,725) |
| Plant height (cm)     | 21.3                         | 23.0                                      |
| Plant spread (cm)     | 28.5                         | 26.1                                      |
| Plant size            | Medium                       | Ranges from large to medium               |
| Plant habit           | Globose                      | Globose                                   |
| Plant density         | Medium                       | Medium                                    |
| Plant vigor           | Ranges from medium to strong | Ranges from medium to strong              |

TABLE 5

| STOLON CHARACTERISTICS        |                                |                                           |
|-------------------------------|--------------------------------|-------------------------------------------|
| Characteristic                | 'BG-4316'                      | 'BG-1975'<br>(U.S. Plant Pat. No. 17,725) |
| Stolon color                  | RHS 146C<br>Yellow green group | RHS 146D<br>Yellow green group            |
| Stolon anthocyanin coloration | RHS 184A<br>Greyed red group   | RHS 182A<br>Greyed red group              |
| Stolon anthocyanin intensity  | Strong                         | Weak                                      |
| Average stolon quantity       | Ranges from medium to many     | Medium                                    |
| Stolon diameter at bract (mm) | 2.8                            | 3.1                                       |
| Stolon pubescence             | Medium                         | Strong                                    |
| Attitude of hairs             | Upwards                        | Slightly outward                          |

TABLE 6

| FOLIAGE CHARACTERISTICS |                                |                                                                   |
|-------------------------|--------------------------------|-------------------------------------------------------------------|
| Characteristic          | 'BG-4316'                      | 'BG-1975'<br>(U.S. Plant Pat. No. 17,725)                         |
| Foliage:                |                                |                                                                   |
| Color of upper surface  | RHS 137B<br>Medium green       | RHS 146B<br>Ranges from light yellow green to medium yellow green |
| Color of underside      | RHS 147C<br>Yellow green group | RHS 147C<br>Yellow green group                                    |
| Shape in cross section  | Slightly concave to flat       | Slightly concave to flat                                          |
| Interveinal blistering  | Ranges from weak to medium     | Ranges from weak to medium                                        |
| Leaf glossiness         | Medium                         | Ranges from weak to medium                                        |
| Number of leaflets      | 3                              | 3                                                                 |
| Terminal Leaflet:       |                                |                                                                   |
| Length (cm)             | 7.0                            | 7.0                                                               |
| Width (cm)              | 5.8                            | 6.2                                                               |
| Length/width ratio      | 1.22                           | 1.13                                                              |
|                         | Longer than broad              | Ranges from as long as broad to longer than broad                 |
| Serrations/leaf         | 20.0                           | 20.8                                                              |
| Leaf Size               | Ranges from medium to small    | Ranges from medium to small                                       |
| Shape of base           | Acute                          | Acute                                                             |
| Shape of teeth          | Rounded                        | Rounded                                                           |

TABLE 6-continued

| FOLIAGE CHARACTERISTICS |                                                  |                                           |
|-------------------------|--------------------------------------------------|-------------------------------------------|
| Characteristic          | 'BG-4316'                                        | 'BG-1975'<br>(U.S. Plant Pat. No. 17,725) |
| Petiole:                |                                                  |                                           |
| Petiole color           | RHS 144A                                         | RHS 144B                                  |
| Petiole length (cm)     | 14.3                                             | 15.5                                      |
| Petiole diameter (mm)   | 3.4                                              | 3.7                                       |
| Petiolule color         | RHS 144A                                         | RHS 144B                                  |
| Petiolule length (mm)   | 5.8                                              | 11.7                                      |
| Petiole pubescence      | Moderate                                         | Heavy                                     |
| Attitude of hairs       | Ranges from slightly outward to strongly outward | Strongly outward                          |
| Stipule:                |                                                  |                                           |
| Color                   | RHS 146C                                         | RHS 146C                                  |
| Anthocyanin coloration  | RHS 60B                                          | RHS 61B                                   |
| Anthocyanin intensity   | Ranges from medium to strong                     | Weak                                      |
| Length (mm)             | 17.8                                             | 16.0                                      |
| Width (mm)              | 12.7                                             | 10.1                                      |

TABLE 7

| FRUITING TRUSS CHARACTERISTICS |                                                  |                                             |
|--------------------------------|--------------------------------------------------|---------------------------------------------|
| Characteristic                 | 'BG-4316'                                        | 'BG-1975'<br>(U.S. Plant Pat. No. 17,725)   |
| Anthocyanin coloration         | RHS 181C                                         | RHS 181C                                    |
| Anthocyanin intensity          | Greyed red group<br>Ranges from medium to strong | Greyed red group<br>Weak                    |
| Length at maturity (cm)        | 23.8                                             | 28.6                                        |
| Position relative to foliage   | Level with the foliage                           | Ranges from level with to above the foliage |
| Pubescence                     | Ranges from weak to medium                       | Strong                                      |
| Attitude at first pick         | Prostrate                                        | Prostrate                                   |

TABLE 8

| FLOWER CHARACTERISTICS |                          |                                           |
|------------------------|--------------------------|-------------------------------------------|
| Characteristic         | 'BG-4316'                | 'BG-1975'<br>(U.S. Plant Pat. No. 17,725) |
| Petal color            | RHS NN155C               | RHS NN155C                                |
| Sepal color            | White group<br>RHS N137A | White group<br>RHS 138A                   |
| Corolla diameter (mm)  | 30.2                     | 27.7                                      |
| Calyx diameter (mm)    | 38.0                     | 38.8                                      |
| Petal length (mm)      | 11.8                     | 10.7                                      |
| Petal width (mm)       | 11.8                     | 10.5                                      |

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TABLE 8-continued

| FLOWER CHARACTERISTICS                      |                             |                                           |
|---------------------------------------------|-----------------------------|-------------------------------------------|
| Characteristic                              | 'BG-4316'                   | 'BG-1975'<br>(U.S. Plant Pat. No. 17,725) |
| Petal length/width ratio                    | 1.0                         | 1.02                                      |
| Petals/flower                               | 5.8                         | 6.3                                       |
| Sepal length (mm)                           | 15.7                        | 15.5                                      |
| Sepal width (mm)                            | 4.5                         | 5.5                                       |
| Sepal length/width ratio                    | 3.46                        | 2.81                                      |
| Sepals/flower                               | 11.7                        | 12.6                                      |
| Size of calyx relative to corolla           | Larger                      | Larger                                    |
| Size of inner calyx relative to outer calyx | Ranges from same to smaller | Ranges from same to smaller               |
| Relative position of petals                 | Overlapping                 | Overlapping                               |

TABLE 9

| PEST AND DISEASE REACTIONS |                        |                                           |  |
|----------------------------|------------------------|-------------------------------------------|--|
| Characteristic             | 'BG-4316'              | 'BG-1975'<br>(U.S. Plant Pat. No. 17,725) |  |
| Two-spotted spider mite    | Moderately susceptible | Moderately susceptible                    |  |
| Powdery mildew             | Moderately susceptible | Moderately susceptible                    |  |
| Botrytis fruit rot         | Moderately susceptible | Moderately susceptible                    |  |
| Angular leaf spot          | Susceptible            | Susceptible                               |  |

We claim:

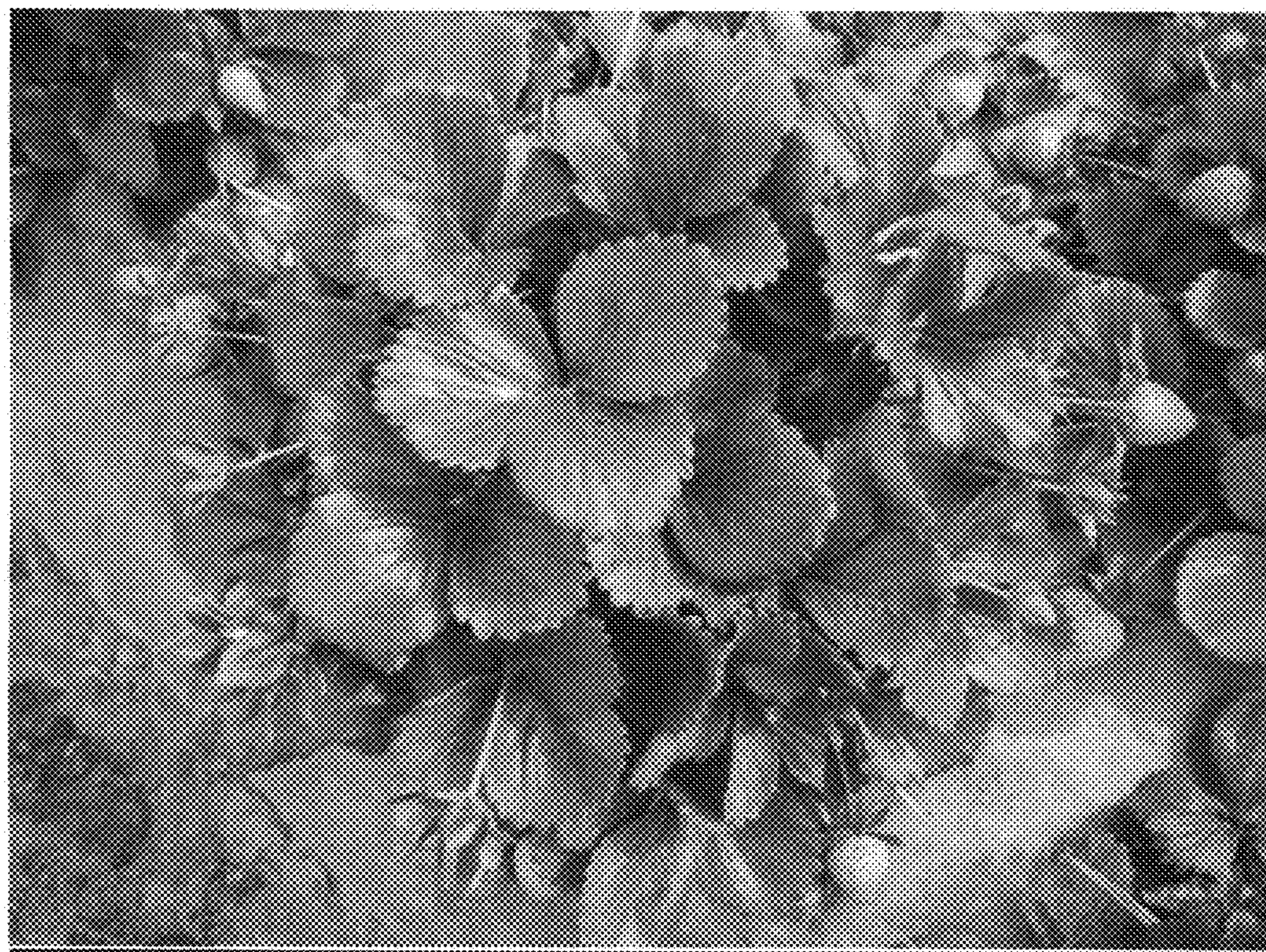
- 15 1. A new and distinct strawberry plant named 'BG-4316', as herein described and illustrated by the characteristics set forth above.

\* \* \* \* \*

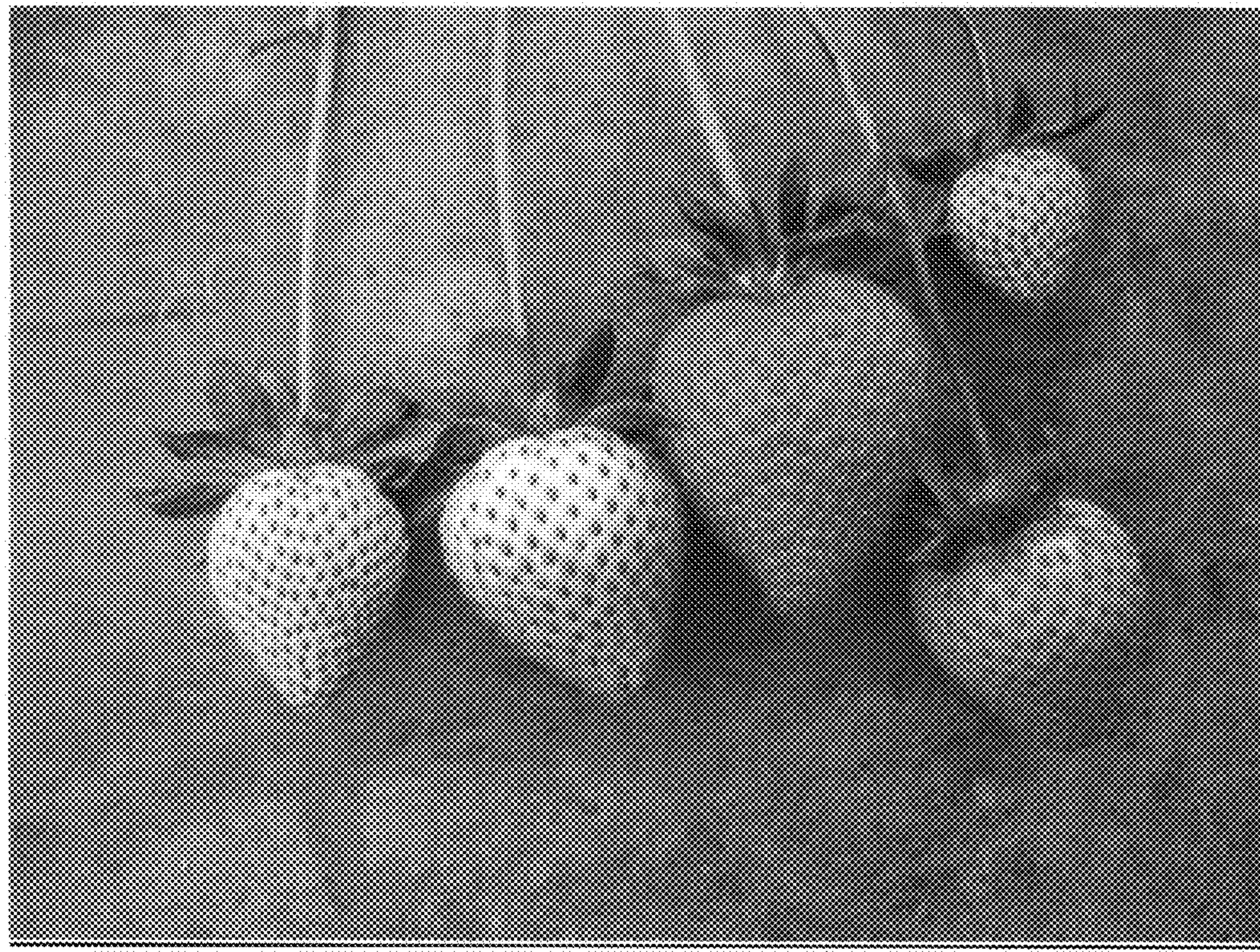
**FIG.1**



FIG. 2



**FIG. 3**



**FIG. 4**

