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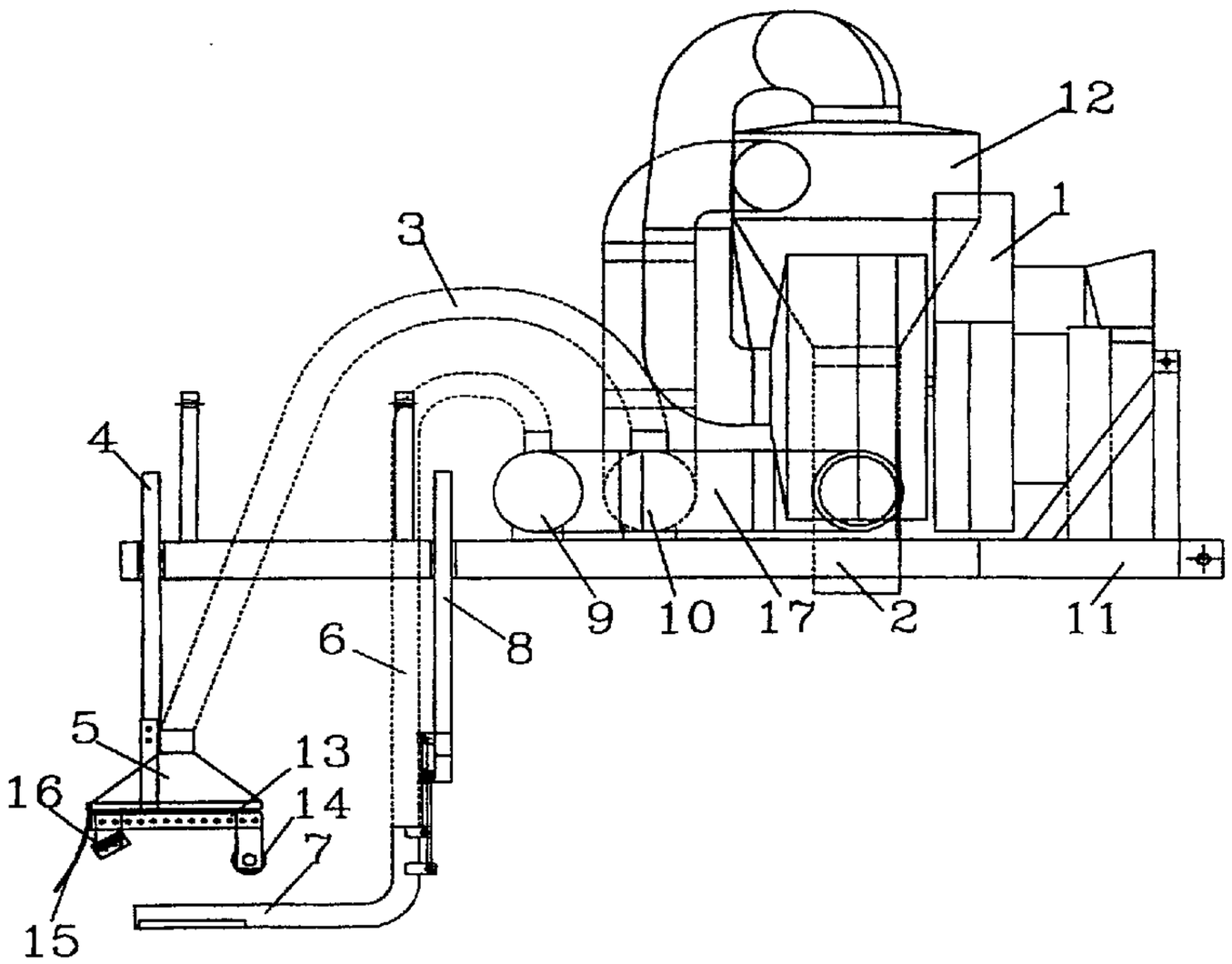
(54) Titre : PROCEDE ET DISPOSITIF DE COLLECTE SELECTIVE DE MATIERE ET D'ORGANISMES SUR DES PLANTES

(54) Title: METHOD AND DEVICE FOR SELECTIVELY COLLECTING MATERIAL AND ORGANISMS ON PLANTS



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The invention has reference to a procedure for selective collection of material and organisms around and on the plants where the material/organisms exist. Some kinds of the material/organisms are collected by exposing the plants to an air current between a blower outlet (7) and a suction hood (5). According to the invention stimuli signals are aimed at the plants in order to influence other kinds of material /organisms to leave the plants and/or to avoid congregating on the plants, so they cannot be exposed to the air current. The invention has also reference to a device for realizing the procedure.

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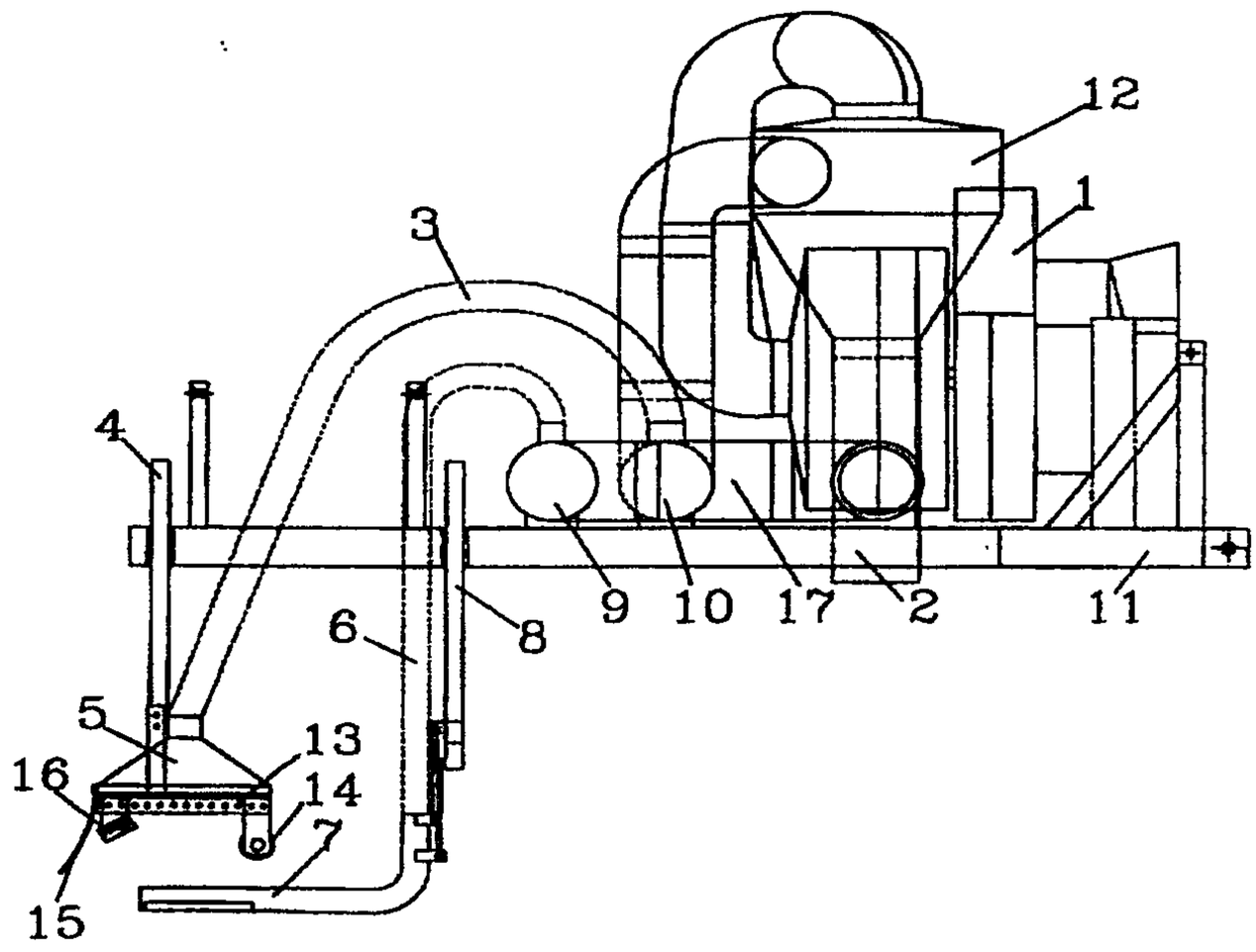
(54) Title: METHOD AND DEVICE FOR SELECTIVELY COLLECTING MATERIAL AND ORGANISMS ON PLANTS

(57) Abstract

The invention has reference to a procedure for selective collection of material and organisms around and on the plants where the material/organisms exist. Some kinds of the material/organisms are collected by exposing the plants to an air current between a blower outlet (7) and a suction hood (5). According to the invention stimuli signals are aimed at the plants in order to influence other kinds of material/organisms to leave the plants and/or to avoid congregating on the plants, so they cannot be exposed to the air current. The invention has also reference to a device for realizing the procedure.



METHOD AND DEVICE FOR SELECTIVELY COLLECTING MATERIAL AND ORGANISMS ON PLANTS

The present invention in a first aspect relates to a method for selectively collecting a first kind of matter from around and on plants by exposing the plants to an air current between a blower outlet and a suction hood; and in a second aspect to a device for selective collection of matter from around and on plants comprising a blower outlet and a suction hood cooperatively arranged for exposing the plants to an air current therebetween to collect a first kind of matter.

In connection with plant cultivation there exists a lot of different organisms which in one way or another are dependent on the plants. The purpose of this invention is to collect material and organisms, collectively matter from the plant cultivation, especially insects, arthropods and funguses in order to influence the cultivation result in the desired direction and also to make use of the collected material. This procedure creates opportunities for non-poisonous cultivation and use of the plants and the organisms free from chemicals.

The collection of organisms on plants by exposing them to compressed air and at the same time sucking them up in a container is previously known, for example by DK 24911.

There is a disadvantage with the known device, in that the material and organisms, existing on or around the plants will be injudiciously sucked-up and collected in the container. Useful insects like, for example ladybirds, bees and bumble-bees will be sucked up. Firstly it is desirable that these are left untouched. Secondly the collection of such organisms, means that the collected material is more heterogeneous which makes it more difficult to make use of it for different purposes.

The purpose of the present invention is to bring about a procedure and a device of this kind where this disadvantage is set aside and consequently some of the organisms on and

around the plants are prevented to be sucked-up in the container.

Accordingly, the present invention provides a method for selectively collecting a first kind of matter from around and on plants by exposing the plants to an air current between a blower outlet and a suction hood, characterized by directing stimulus signals toward the plants, said signals being such that a second kind of matter is subjected to at least one action

selected from the group of actions comprising an action whereby the second kind of matter is influenced to leave the plants and an action whereby the second kind of matter is retarded from gathering on the plants,

so that said second kind of matter is not exposed to said air current.

In accordance with the present invention the signals may comprise one or more signals selected from the group comprising sound, light, heat and scent signals.

In accordance with the present invention at least one of the following may be adjustable: the blower outlets pressure; the suction hood's suction pressure; and the distance between the blower outlet and the suction hood.

In accordance with the present invention the stimulus signals may comprise one or more signals selected from the group comprising heat and cold.

In accordance with the present invention the plants may be further exposed to mechanical movement during the exposing step. In accordance with the present invention the mechanical movement may be brushing.

The present invention also provides a device for selective collection of matter from around and on plants comprising a blower outlet and a suction hood cooperatively arranged for exposing the plants to an air current therebetween to collect a first kind of matter characterized by signal generating means directed toward the plants and arranged

to send out stimulus signals of a kind so that a second kind of matter is subjected to at least one action

selected from the group of actions comprising an action whereby the second kind of matter is influenced to leave the plants and an action whereby the second kind of matter is retarded from gathering on the plants,

so that said second kind of matter will not be exposed to said air current.

In accordance with the present invention the signal generating means may comprises means for producing one or more signals selected from the group comprising: sound; light, heat and scent.

In accordance with the present invention regulation means may be arranged to adjust at least one of the following: the blower outlet's air pressure, the suction hood's suction pressure; and the distance between said blower outlet and said suction hood.

In accordance with the present invention the signal generating means may comprise means for producing one or more signals selected from the group comprising cold and heat.

In accordance with the present invention the device may further include mechanical means to impart motion to the plants. In accordance with the present invention the mechanical means may be a brush. In accordance with the present invention the mechanical means may be a scraper.

Owing to the fact that these signals make some of the organisms leave the plants or prevent them from congregating there, it is possible to avoid that these organisms be sucked-up in the container.

According to a preferred embodiment form of the invention these signals consist of sound-, light- or scent signals or combinations of these. Through this type of influence some kinds organisms will be frightened away, especially sound- and light signals

produce this effect. Furthermore, by sending out a scent substance some kinds of organisms can be made to change residence or to avoid settling down on the plants. This allows that the following collection can be made on plants where such kinds of organisms which one does not want to collect are absent due to the scent treatment.

It is previously known, for example by SU 1 685 347, SU 1 777 754, SE 116 241 and US 1 478 424 that in collecting organisms from plants, one can expose them to different kinds of influence as for example warmth, scent, sound or light. In the known devices and procedures however this influence aims to attract the organisms in order to collect them or in combination with air-sucking improve the effect of the collection. They are therefore designed for this purpose and do not allow any separating effect.

In the dependent claims, advantageous embodiments of the invented method and the invented device are mentioned.

The invention is more deeply explained by the following detailed description of an embodiment of this with reference to the enclosed figure showing a collection device according to the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side plan view showing the preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE DRAWING AND THE PREFERRED EMBODIMENT OF THE INVENTION

The device consists of a blower with varying suction and pressure qualities. The compressed air passes the airchannel 9 for distributing the air to the flexible pipes 6 and the especially designed blower outlets 7. The airchannel 9 is equipped with an air pressure regulator. The blower outlets are designed in order to aim an air current at the plant and the organism. The organisms are instantly sucked up, at the same time as the

plant and the organism. The organisms are instantly, at the same time as the plants start to move, which makes it more difficult for the material and the organisms to cling to the plant and make the transportation possible through the air current to the suction hood 5. The material and organisms are transported through the flex pipes 3 to a suction channel 10, which is equipped with a device for regulation of the suction pressure which leads to a cyclone 12 with container 2. The suction hood 5 can in certain cases be equipped with an elastic screening 15, so the air current more easily can be led in the flow direction. In or outside the field between the blowpipe 7 and suction hood 5 the extra fittings 16 are fixed, like equipment for heating / cooling 17 and supply of adding agent 17, scraper 14, brushes 14, sound- and lightequipment 16 on special holds 13, where they individually can be adjusted to the right height and breadth position. The equipment can be fixed on a chassie 11, which can be placed on a vehicle such as a tractor or on a selfgoing unit. The blower outlets 7 and the hoods 5 are separately fixed to lifting devices 8 and 4 and through flexible tubes 6 and 3 connected with a blower unit 1 whose driving force could be power from a vehicle or a separate motor. The brush 14 is best placed horizontally and rotating and arranged as vertically and horizontally adjustible.

The field of current air between the blow- and suction outlets is best if it could be varied. This could be done by regulating the blow- or suction pressure or both of them. Another possibility of regulation could be made by arranging the outlets sideways and vertically adjustible so that their mutual distance can be adjusted. By the adjustment an adaption to the cultivated plants and to the behaviour of the organisms is brought about. Warmth or cold added in order to improve the effect can be distributed directly in the field or through blower outlet. The effect field can be multiplied with advantage through arrangement of several blow- and suction outlets in order to cover a bigger harvest area. The facilities used in order to improve the effect could then be arranged individually for each field or cover more of them. The same is true about the signal instruments which influence some of the organisms to depart in order to avoid

collection.

The collected material from the field, could through the flexible pipes be collected in a container under the cyclon but before the energy source, so that there is a minimal destructive effect on the collected material which makes it possible to use this material. This procedure is to be used on plants within the following families among others: Umbellate Family (Umbelliferæ), Grass Family (Gramineæ), Composite / Daisy Family (Compositæ), Wallflower / Crucifer Family (Cruciferæ), Mint / Labiate Family (Labiatæ), Lily Family (Liliaceæ), Flax Family (Linaceæ), Heath Family (Ericaceæ), Goosefoot Family (Chenopodiaceæ), Rose Family (Rosaceæ), Poppy Family (Papaveraceæ), Pea Family (Leguminosæ).

Claims:

1. A method for selectively collecting a first kind of matter from around and on plants by exposing the plants to an air current between a blower outlet and a suction hood, characterized by directing stimulus signals toward the plants, said signals being such that a second kind of matter is subjected to at least one action

selected from the group of actions comprising an action whereby the second kind of matter is influenced to leave the plants and an action whereby the second kind of matter is retarded from gathering on the plants,

so that said second kind of matter is not exposed to said air current.

2. A method according to claim 1, where said signals comprise one or more signals selected from the group comprising sound, light, heat and scent signals.

3. A method according to claim 1 where at least one of the following is adjustable: the blower outlets pressure; the suction hood's suction pressure; and the distance between the blower outlet and the suction hood.

4. A method according to claim 1 wherein said stimulus signals comprise one or more signals selected from the group comprising heat and cold.

5. A method according to claim 1 wherein the plants are further exposed to mechanical movement during said exposing step.

6. A method according to claim 5 wherein said mechanical movement is brushing.

7. A device for selective collection of matter from around and on plants comprising a blower outlet and a suction hood cooperatively arranged for exposing the plants to an air current therebetween to collect a first kind of matter characterized by signal generating means directed toward the plants and arranged to send out stimulus signals of a kind so that a second kind of matter is subjected to at least one action

selected from the group of actions comprising an action whereby the second kind of matter is influenced to leave the plants and an action whereby the second kind of matter is retarded from gathering on the plants,

so that said second kind of matter will not be exposed to said air current.

8. A device according to claim 7, wherein said signal generating means comprises means for producing one or more signals selected from the group comprising: sound; light, heat and scent.

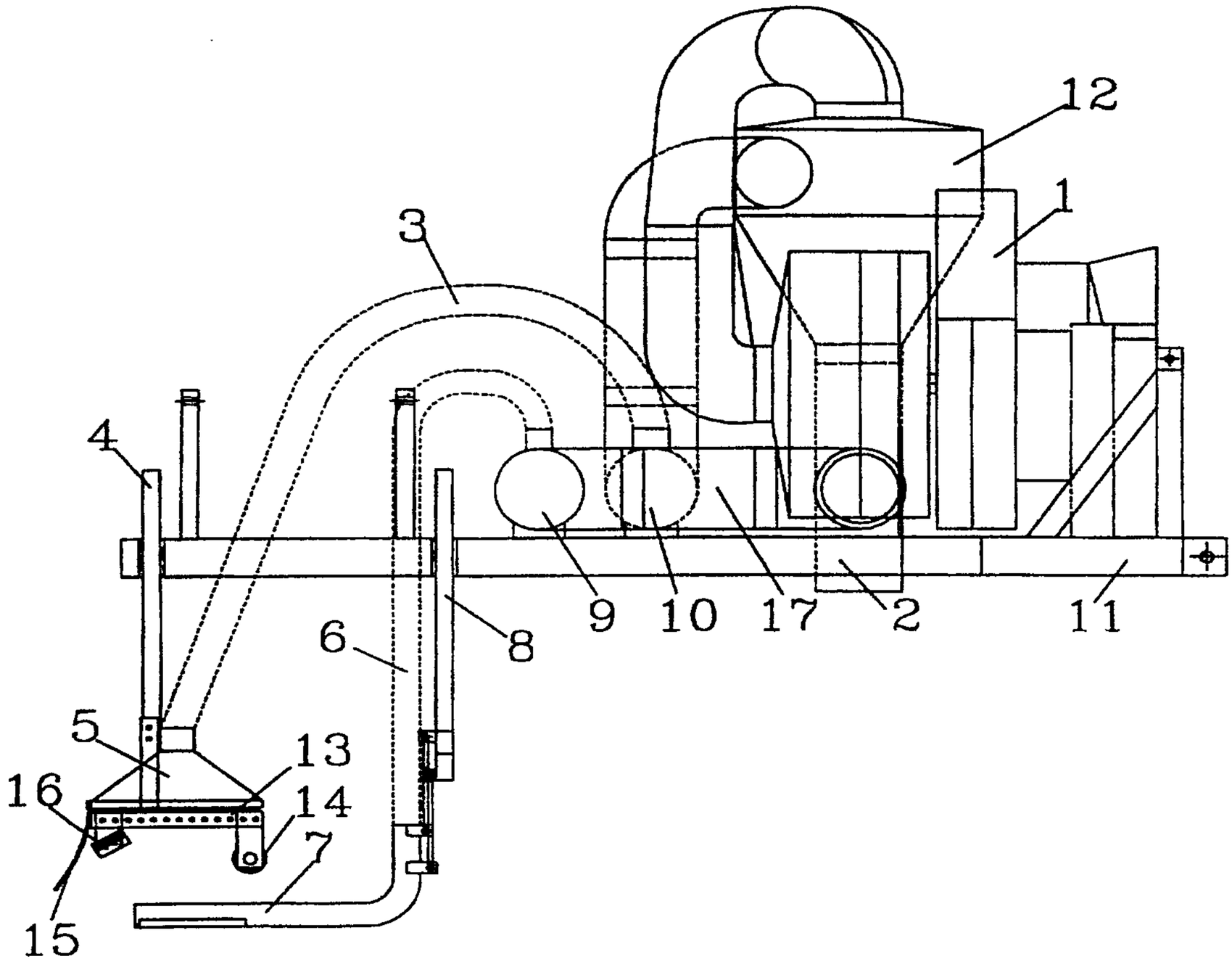
9. A device according to claim 7, wherein regulation means are arranged to adjust at least one of the following: the blower outlet's air pressure, the suction hood's suction pressure; and the distance between said blower outlet and said suction hood.

10. A device according to claim 7, wherein said signal generating means comprises means for producing one or more signals selected from the group comprising cold and heat.

11. A device according to claim 7, further including mechanical means to impart motion to the plants.

12. A device as claimed in claim 11, wherein said mechanical means is a brush.

13. A device as claimed in claim 11, wherein said mechanical means is a scraper.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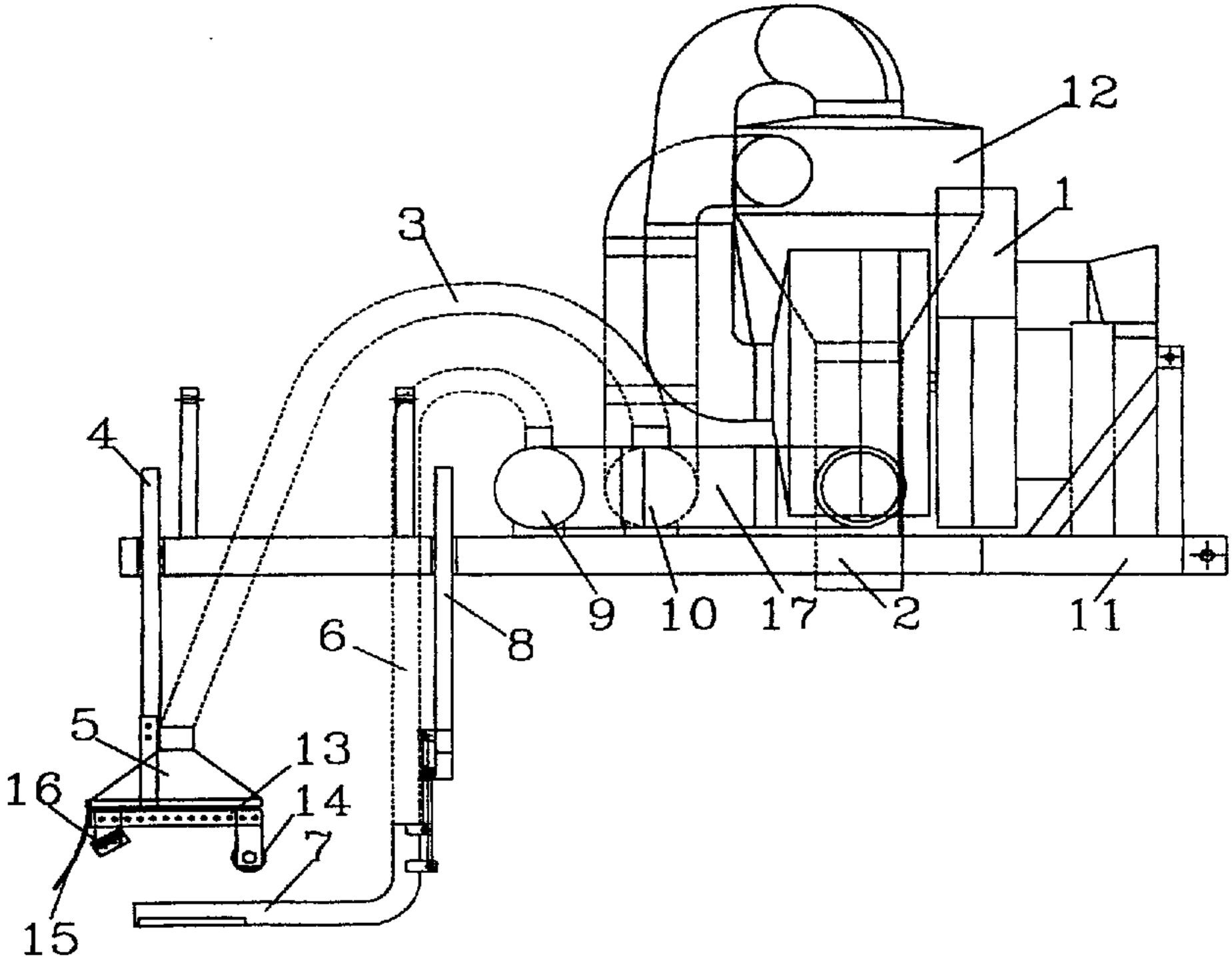
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