【CLAIMS】

~~【Claim 1】~~

~~A food waste packaging apparatus for an automatic waste collection system, wherein the food waste packaging apparatus automatically carries out a series of processes of putting food waste into a packaging bag, sealing the packaging bag and discharging the packaging bag to a storage chute located below a waste inlet port when the food waste is put into the waste inlet port.~~

【Claim ~~2~~1】

~~The~~ A food waste packaging apparatus (100) for the automatic waste collection system ~~according to claim 1~~, comprising:

a loading unit (300) arranged below ~~the~~ a waste inlet port in such a fashion that a plurality of packaging bags (10) are laid in the horizontal direction and vertically loaded on the loading unit (300); wherein the loading unit (300) comprises height controlling means (310) and width controlling means (320) for controlling height and width of the loading unit (300) according to the standards of height and width of the packaging bags (10) to thereby support the loaded packaging bag from the outside;

supply means (400) for sucking the top packaging bag out of the packaging bags loaded on the loading unit, placing the sucked top packaging bag below a hopper (200) of the waste inlet port in the vertical direction by rotation, and opening the upper portion of the packaging bag to make the packaging bag ready to receive the food waste therein; wherein the supply means (400) comprises grip means (410) and suction means (430) that are shaft-mounted to a second rotary shaft (450), and

wherein the grip means (410) for holding the packaging

bag when the suction means is rotated are opposed to each other at both sides of the suction means (430), and each of the grip means (410) comprises: a fixed gripper (411) that is shaft-mounted to the second rotary shaft (450) and is bent in the form of the Alphabet "L"; and a rotary gripper (415) rotatably joined to the lower portion of the outer face of the fixed gripper (411) for holding the packaging bag together with the fixed gripper (411);

wherein the suction means (430) comprises: a rotary body (431) shaft-mounted to the second rotary shaft (450); a mounting rod (432) mounted at the rotary body; a cylinder (433) joined to the mounting rod; and a first suction plate (434) joined to a piston rod (433a) of the cylinder (433) and connected to an air line; and a second suction plate (436) opposed to the first suction plate (434) and connected to an air line when the mounting rod is rotated at an angle of ninety degrees to keep horizontality;

sealing means (500) arranged at the upper portion of the waiting packaging bag to seal the upper portion of the packaging bag by heat when the food waste is received in the packaging bag; and

discharging means (600) for supporting the bottom of the packaging bag and discharging the packaging bag to a storage chute arranged below the discharging means by means of rotation after the completion of the sealing of the packaging bag.

~~[Claim 3]~~

~~The food waste packaging apparatus according to claim 2, wherein the loading unit comprises height controlling means and width controlling means for controlling height and width of the loading unit according to the standards of height and width of the packaging bags to thereby support the loaded~~

~~packaging bag from the outside.~~

【Claim 42】

The food waste packaging apparatus (100) according to claim ~~31~~, wherein the height controlling means (310) are mounted oppositely against each other in the height direction of the packaging bags (10), and each of the height controlling means (310) comprises: a conveying shaft (311) traversing along the height direction of the packaging bags (10); a guide (312) arranged side by side with the conveying shaft near end portions of the conveying shaft; a control main body (313) conveyed along the conveying shaft (311) and the guide (312); a support projection (314) protrudingly formed at an upper portion of the control main body (313) for supporting outer faces of the upper and lower portions of the loaded packaging bags; and stoppers (315) for fixing the control main body (313) not to move when a position of the control main body (313) is determined.

~~【Claim 5】~~

~~The food waste packaging apparatus according to claim 3,~~; and

wherein the width control means (320) are mounted oppositely against each other in the width direction of the packaging bags (10), and each of the width controlling means (320) comprises: a first rotary shaft (321) traversing along the width direction of the packaging bags (10); a guide (322) arranged side by side with the first rotary shaft (321) near end portions of the first rotary shaft; a support projection (324) conveyed along the first rotary shaft (321) and the guide (322) and supporting the width of the loaded packaging bags from the outside; and stoppers (325) for fixing the support projection (324) not to move when a position of the support projection (324) is determined.

【Claim ~~6~~3】

The food waste packaging apparatus (100) according to claim ~~5~~2, wherein one of the width control means (320) has a handle (326) joined to an end of the first rotary shaft (321) for rotating the first rotary shaft (321) to thereby make the support projections, which are opposed to each other, distance from each other and closer to each other.

~~【Claim 7】~~

~~The food waste packaging apparatus according to claim 2, wherein the supply means comprises grip means and suction means that are shaft-mounted to a second rotary shaft, and~~

~~wherein the grip means for holding the packaging bag when the suction means is rotated are opposed to each other at both sides of the suction means, and each of the grip means comprises: a fixed gripper that is shaft-mounted to the rotary shaft and is bent in the form of the Alphabet "L"; and a rotary gripper rotatably joined to the lower portion of the outer face of the fixed gripper for holding the packaging bag together with the fixed gripper.~~

~~【Claim 8】~~

~~The food waste packaging apparatus according to claim 7, wherein the suction means comprises: a rotary body shaft-mounted to the second rotary shaft; a mounting rod mounted at the rotary body; a cylinder joined to the mounting rod; and a first suction plate joined to a piston rod of the cylinder and connected to an air line; and a second suction plate opposed to the first suction plate and connected to an air line when the mounting rod is rotated at an angle of ninety degrees to keep horizontality.~~

【Claim ~~9~~4】

The food waste packaging apparatus (100) according to claim ~~8~~1, wherein the second suction plate (436) is joined

face to face with another piston rod (437) and moves horizontally.

【Claim ~~10~~5】

The food waste packaging apparatus (100) according to claim ~~8~~1 or ~~9~~4, wherein a weight shaft (435) for balancing weight is joined to the second rotary shaft (450) and located side by side with the mounting rod.

【Claim ~~11~~6】

The food waste packaging apparatus (100) according to claim ~~2~~1, wherein the sealing means (500) comprises:

a third rotary shaft (502) rotating at a predetermined angle; cantilevers (504a and 504b) protrudingly mounted at the third rotary shaft (502) in the opposite direction to each other; links (506a and 506b) respectively joined to the cantilevers (504a and 504b); bearings (508a and 508b) respectively joined to the links (504a and 504b); and slide shafts (510) that move in a state where the bearings (508a and 508b) are shaft-mounted, the slide shafts (510) being opposed to each other, and

wherein connectors (510a and 510b) are respectively joined to the opposed bearings (508a and 508b), and respectively comprise sealers (512a and 512b) for sealing both sides of the upper portion of the packaging bag by heat.