CLAIMS

What is claimed is:

1. A fetching method configured to take out an accommodating box in a protective bag of a semiconductor article, wherein the protective bag has an accommodating space and an opening, the accommodating box is disposed in the accommodating space through the opening, the protective bag is configured to have a packaging portion and a non-packaging portion, the packaging portion covers an outer periphery of the accommodating box, the non-packaging portion is folded into a tail structure, a tape is adhered to the packaging portion and the tail structure, and the tape is configured to fix the tail structure to the packaging portion, the fetching method comprising:

a positioning step implemented by fixing the semiconductor article;

a cutting step implemented by controlling one or more knife machines to sequentially cut off the tape and the tail structure, so that the packaging portion forms a fetching opening and the accommodating box is exposed through the fetching opening;

a stretching step implemented by controlling a bag stretching machine to stretch the packaging portion; and

a taking out step implemented by controlling a fetching device to enter into the packaging portion, hold the accommodating box, and take out the accommodating box from the packaging portion.

2. The fetching method according to claim 1, wherein the cutting step is implemented by controlling two knife machines, wherein the two knife

machines are sequentially controlled, and the two knife machines are respectively defined as a first knife machine and a second knife machine, and wherein, in the cutting step, the first knife machine is controlled to cut off the tape, so that the tail structure is in a movable state, and then the second knife machine is controlled to cut off the tail structure, so that the packaging portion forms the fetching opening.

3. The fetching method according to claim 2, further comprising a bag opening step between the cutting step and the stretching step, wherein the bag opening step is implemented by controlling a plurality of suction assemblies to suck onto an outer side of the packaging portion and flipping the suction assemblies in a direction away from the accommodating box.

4. The fetching method according to claim 2, wherein, in the stretching step, four rod bodies of the bag stretching machine are controlled to enter into the packaging portion, and then at least one movement module is controlled to allow the four rod bodies to move away from the accommodating box, so as to stretch the packaging portion.

5. The fetching method according to claim 1, wherein, in the positioning step, four pushing devices of a holding machine are controlled to respectively push against four side surfaces of the semiconductor article, and two abutting devices are controlled to abut against the packaging portion to fix the semiconductor article that is disposed on a carrying platform, wherein each of the pushing devices includes one of a plurality of drivers and one of a plurality of pushing members, and in the positioning step, the four drivers

are controlled, so that the four pushing members push against the packaging portion and the accommodating box, and wherein each of the abutting devices includes one of a plurality of drivers and one of a plurality of abutting members, and in the positioning step, the two drivers of the two abutting devices are controlled, so that the two abutting members of the two abutting devices only abut against the packaging portion.

6. A fetching apparatus configured to take out an accommodating box in a protective bag of a semiconductor article, wherein the protective bag has an accommodating space and an opening, the accommodating box is disposed in the accommodating space through the opening, the protective bag is configured to have a packaging portion and a non-packaging portion, the packaging portion covers an outer periphery of the accommodating box, the non-packaging portion is folded into a tail structure, a tape is adhered to the packaging portion and the tail structure, and the tape is configured to fix the tail structure to the packaging portion, the fetching apparatus comprising:

a processing device;

a fixing machine electrically connected to the processing device, wherein the processing device is configured to control the fixing machine to fix the semiconductor article;

one or more knife machines electrically connected to the processing device and configured to cut off the tape and the tail structure;

a bag stretching machine electrically connected to the processing device and configured to stretch the packaging portion; and

a fetching device electrically connected to the processing device and

configured to take out the accommodating box disposed in the packaging portion from the packaging portion,

wherein, the processing device controls the fixing machine to fix the semiconductor article, and then the processing device controls the one or more knife machines to cut off the tape and the tail structure, so that the packaging portion forms a fetching opening and the accommodating box is exposed through the fetching opening, and wherein, after the accommodating box is exposed through the fetching opening, the processing device sequentially controls the bag stretching machine to stretch the packaging portion and controls the fetching device to enter into the packaging portion, so as to take out the accommodating box.

7. The fetching apparatus according to claim 6, wherein the fetching apparatus includes two knife machines that are respectively defined as a first knife machine and a second knife machine, the first knife machine includes a first knife and a first knife driver, the second knife machine includes a second knife and a second knife driver, the processing device is electrically connected to the first knife driver and the second knife driver, the first knife is connected to the first knife driver, and the second knife is connected to the second knife driver, and wherein the processing device is configured to control the first knife driver to drive the first knife to cut off the tape, and the processing device is configured to control the second knife driver to drive the second knife to cut off the tail structure.

8. The fetching apparatus according to claim 6, further comprising a transferring machine, wherein the transferring machine includes a rail and a

carrying platform, the carrying platform is controllable to move along the rail, the fixing machine is disposed on the carrying platform, the fixing machine includes four pushing devices, and each of the pushing devices includes a driver and a pushing member, wherein in each of the pushing devices, the driver is electrically connected to the processing device, and the pushing member is connected to the driver, and wherein, when the processing device is disposed on the carrying platform, the processing device controls the four pushing devices, so that four pushing members push against the packaging portion and the accommodating box.

9. The fetching apparatus according to claim 6, further comprising two abutting devices, wherein each of the abutting devices includes one of a plurality of drivers and one of a plurality of abutting members, wherein in each of the abutting devices, the driver is electrically connected to the processing device, and the abutting member is connected to the driver, and wherein the processing device is configured to control the two drivers, so that the two abutting members only abut against the packaging portion.

10. The fetching apparatus according to claim 6, wherein the bag stretching machine includes a lift module, two supporting structures, four rod bodies, and four movement modules, the lift module is electrically connected to the processing device, the two supporting structures are connected to the lift module, each of the supporting structures has two of the movement modules disposed thereon, and each of the rod bodies is connected to one of the movement modules, wherein the processing device is electrically connected to the lift module and the four movement modules, and the

processing device is configured to control the lift module, so that the four rod bodies enter into the packaging portion through the fetching opening, and wherein the processing device is configured to control the four movement modules, so that the four rod bodies in the packaging portion move away from the accommodating box to stretch the packaging portion.

11. The fetching apparatus according to claim 10, wherein the fetching machine further includes two auxiliary movement modules and two auxiliary boards, the two auxiliary movement modules are disposed on the two supporting structures, each of the auxiliary boards is connected to one of the auxiliary movement modules, and the processing device is configured to control the lift module, so that the two auxiliary boards enter into the packaging portion, and wherein the processing device is configured to control the two auxiliary movement modules, so that the auxiliary boards move away from the accommodating box to stretch the packaging portion.

12. The fetching apparatus according to claim 6, further comprising two flipping devices, wherein each of the flipping devices includes a movement module, a rotatable module, a supporting structure, and a plurality of suction assemblies, wherein in each of the flipping devices, the movement module and the rotatable module are electrically connected to the processing device, the movement module is connected to the rotatable module, the supporting structure is connected to the rotatable module, the rotatable module is controllable to rotate the supporting structure, and the suction assemblies are fixed to the supporting structure, and wherein the processing device controls the suction assemblies to suck onto an outer side

of the packaging portion, and then the processing device is configured to control the two rotatable modules to flip the two supporting structures, so that the suction assemblies flip the packaging portion away from the accommodating box.

13. A bag opening apparatus configured to take out an accommodating box in a protective bag of a semiconductor article, wherein the protective bag has an accommodating space and an opening, the accommodating box is disposed in the accommodating space through the opening, the protective bag is configured to have a packaging portion and a non-packaging portion, the packaging portion covers an outer periphery of the accommodating box, the non-packaging portion is folded into a tail structure, a tape is adhered to the packaging portion and the tail structure, and the tape is configured to fix the tail structure to the packaging portion, the bag opening apparatus comprising:

a processing device configured to be communicatively connectable to a fetching device;

a fixing machine electrically connected to the processing device, wherein the processing device is configured to control the fixing machine to fix the semiconductor article;

one or more knife machines electrically connected to the processing device and configured to cut off the tape and the tail structure; and

a bag stretching machine electrically connected to the processing device and configured to stretch the packaging portion,

wherein the processing device controls the fixing machine to fix the semiconductor article, and then the processing device controls the one or

more knife machines to cut off the tape and the tail structure, so that the packaging portion forms a fetching opening and the accommodating box is exposed through the fetching opening, wherein, after the accommodating box is exposed through the fetching opening, the processing device sequentially controls the bag stretching machine to stretch the packaging portion, and wherein, when the bag stretching machine stretches the packaging portion, the processing device is configured to transmit a signal to the fetching device, so that the fetching device takes out the accommodating box from the packaging portion.

14. A fetching system, comprising the fetching apparatus as claimed in any one of claims 6 to 12, a central control apparatus, and a bag recycling apparatus, wherein the central control apparatus is electrically connected to the fetching apparatus and the bag recycling apparatus, and wherein the central control apparatus is configured to control the fetching apparatus to cut off the tail structure of the semiconductor article and take out the accommodating box in the packaging portion, and then the central control apparatus controls the bag recycling apparatus to fold and recycle the packaging portion.

15. The fetching system according to claim 14, wherein the bag recycling apparatus includes at least one movement module, a clamping module, and a platform, the at least one movement module is connected to the clamping module, the clamping module includes two clamping arms and an entering member, the entering member is arranged between the two clamping arms, each of the clamping arms faces toward the entering member, and each of

the clamping arms is controllable to move in a direction toward the entering member or move in a direction away from the entering member, so as to clamp the packaging portion or no longer clamp the packaging portion, wherein the central control apparatus is electrically connected to the bag recycling apparatus, and wherein the central control apparatus is configured to control the clamping module and the at least one movement module to clamp and move the packaging portion to the platform.