Date	June 1, 2016	Court	Intellectual Property High Court, Fourth Division
Case number	2015 (Ne) 10091		

– A case in which the court ruled as follows: The "circumstances … under which … would have been unable to sell" as provided in the proviso to Article 102, paragraph (1) of the Patent Act means the circumstances that inhibit a reasonable cause and effect relationship between the act of infringement and reduction in the sale of the product of the patentee, etc., and circumstances such as existence of competitive products in the market, infringer's marketing efforts (power of brand and promotion activities), performance of the infringing product (functions, design and other features different from those of the patented invention), difference of the subject market (price and form of sale) fall under said circumstances; the infringer has the burden of proving the existence of the aforementioned circumstances.

References: Article 102 of the Patent Act

Numbers of related rights, etc.: Patent No. 4365885

Summary of the Judgment

The plaintiff in the first instance, who holds the patent right in question (the "Patent Right") for an invention titled "bag breaker and driving method for the same," alleged that the act of the defendant in the first instance of producing, assigning, etc. the defendant's product constitutes the act of infringement of the Patent Right as the defendant's product falls within the technical scope of the patented invention in question (the "Patented Invention"). Based on this allegation, the plaintiff in the first instance filed this action against the defendant in the first instance to seek [i] an injunction against the production, assignment, etc. of the defendant's product and disposal of the defendant's product and half-finished defendant's product under Article 100 of the Patent Act and [ii] payment of 28,169,021 yen, which is part of the compensation for damage, based on the right to claim damage in tort.

The court of prior instance partially upheld the claims of the plaintiff in the first instance. In response, the plaintiff in the first instance and the defendant in the first instance, respectively, filed an appeal against the part in the judgment in prior instance where each of them lost the case.

In this judgment, the court first ruled that the defendant's product falls within the technical scope of the Patented Invention, and then determined the damage set forth in Article 102, paragraph (1) of the Patent Act as outlined below.

"A. Article 102, paragraph (1) of the Patent Act is the provision that prescribes the method of calculating the amount of damage in the case of claiming compensation for

damage of lost earnings caused by reduction in the sales quantity under Article 709 of the Civil Code. In the main clause of said paragraph, it is provided that the amount obtained by multiplying the quantity of articles assigned by the infringer by the amount of profit per unit of articles which would have been sold by the patentee, etc. if there had been no such act of infringement, may be presumed to be the amount of damage, the maximum of which shall be the amount attainable by the patentee, etc. in light of the capability of the patentee, etc. to work the relevant invention. In the proviso to said paragraph, it is provided that if the infringer proves existence of any circumstance under which the patentee, etc. would have been unable to sell the assigned quantity in whole or in part, an amount proportionate to the number of articles not able to be sold due to such circumstances shall be deducted. Thereby, said proviso intends to realize more flexible determination of the reduced sales quantity through conversion of the burden of proof of the reduced sales quantity that has a reasonable cause and effect relationship with the act of infringement, unlike in the past when it had been inevitable to determine the reduced sales quantity in an all-or-nothing manner.

In light of the provisions and the aforementioned purpose of Article 102, paragraph (1) of the Patent Act, it should be considered that an article fall under the 'articles which would have been sold' by the patentee, etc. only if it is a product of the patentee, etc. of which the sales quantity is affected by the act of infringement, that is, a product of the patentee, etc. that is in a competitive relationship with the infringing product in the market. In addition, the 'amount of profit per unit' is the amount (amount of marginal profit) obtained by deducting manufacturing costs and variable expenses that increase according to the sales quantity of the product from the sales price of the product of the patentee, etc. It should be considered that the patentee, etc. has the burden of alleging and proving this, including the capability of the patentee, etc. to work the relevant invention.

Furthermore, the infringer has the burden of proving the existence of the 'circumstances under which' the patentee, etc. 'would have been unable to sell' the assigned quantity in whole or in part as provided in the proviso to Article 102, paragraph (1) of the Patent Act. If existence of such circumstances is proven, an amount proportionate to the number of articles not able to be sold due to such circumstances is deducted. The 'circumstances under which' the patentee, etc. 'would have been unable to sell' means the circumstances that inhibit a reasonable cause and effect relationship between the act of infringement and reduction in the sale of the product of the patentee, etc. For example, existence of competitive products in the

market, infringer's marketing efforts (power of brand and promotion activities), performance of the infringing product (functions, design and other features different from those of the patented invention), difference of the subject market (price and form of sale) should be included in said circumstances.

B. Regarding the assigned quantity

… the assigned quantity of the defendant's product during the period from August 28, 2009 (date of registration of establishment of the Patent Right) to around March 2013 is eight in total.

C. Regarding the 'amount of profit per unit of articles which would have been sold … if there had been no such act of infringement'

… it is reasonable to recognize the amount of marginal profit per unit of the plaintiff's product as 3,512,740 yen ….

D. Regarding the capability to work the relevant invention

… the plaintiff in the first instance is recognized as having been able to supply the plaintiff's product in response to additional demand for the product that would have arisen in absence of the act of infringement in question at the time when the act of infringement was committed.

E. Amount obtained by multiplying the assigned quantity by the profit per unit

The amount obtained by multiplying the assigned quantity by the profit per unit is 28,101,920 yen ….

F. Whether there are the circumstances set forth in the proviso to Article 102, paragraph (1) of the Patent Act

(A) … are not sufficient to recognize the fact that the bag breaker sold by the aforementioned third party exerts function and effect that are similar to those of the Patented Invention. In addition, the status of sales share in the market for bag breakers and the price of the bag breaker sold by the third part are unclear …. Therefore, it is impossible to say based on the determined facts mentioned above that there are circumstances under which the plaintiff in the first instance would have been unable to sell the plaintiff's product in the quantity corresponding to the assigned quantity of the defendant's product. There is no other evidence that is sufficient to recognize existence of such circumstances.

(B) … it cannot be immediately said that the identity of the market between the plaintiff's product and the defendant's product is lost even if their prices differ to the extent mentioned above, taking into account the fact that the subject product is a bag breaker, which is a product for which demanders are not general consumers but corporations, including companies, and the fact that the usable life thereof is at least

several years. There is no other evidence that is sufficient to recognize an absence of such identity.

(C) As mentioned above, it cannot be said that there are circumstances that fall under the proviso to Article 102, paragraph (1) of the Patent Act in this case. …

G. Summary

On these bases, the amount of damage under Article 102, paragraph (1) of the Patent Act is recognized as 28,101,920 yen."

Judgment rendered on June 1, 2016, Original received on the same day, Court clerk
2015 (Ne) 10091 Appeal case of seeking injunction against patent infringement, etc.
Court of Prior Instance: Osaka District Court, 2012 (Wa) 6435
Date of conclusion of oral argument: April 27, 2016

Judgment

Appellant and Appellee: OSAKA N.E.D. MACHINERY CO., LTD. (hereinafter referred to as the "first court Plaintiff")

Appellee and Appellant: OHARA CORPORATION (hereinafter referred to as the "first court Defendant")

Main text

1. The judgment in prior instance shall be modified as follows on the basis of the present appeal by the first court Plaintiff.
   (1) The first court Defendant should not produce, transfer, export, import, or offer to transfer any of the products described in the attached lists 1 and 2 of the Defendant's products.
   (2) The first court Defendant should dispose of each of the listed products and semi-finished products thereof (those including the structures described in the attached list 1 or 2 of the Defendant's products not completed as products yet).
   (3) The first court Defendant should pay to the first court Plaintiff the monetary amount of 28,101,920 yen and a rate of 5% per annum from October 23, 2014 until completion of the payment.
   (4) The other claims by the first court Plaintiff shall be dismissed.
2. The present appeal by the first court Defendant shall be dismissed.
3. The first court Defendant shall bear the court costs of both the first and second instances.
4. This judgment can be provisionally executed only for clause 1(3).

Facts and reasons

No. 1 Gist of the appeal

1. Object of the appeal by the first court Plaintiff

(1) The judgment in prior instance shall be modified as follows.

(2) The first court Defendant should not produce, transfer, export, import, or offer to

transfer any of the products described in the attached lists 1 and 2 of the Defendant's products.

(3) The first court Defendant should dispose of each of the listed products and semi-finished products thereof (those including the structures described in the attached list 1 or 2 of the Defendant's products but not completed as products yet).

(4) The first court Defendant should pay to the first court Plaintiff the monetary amount of 28,169,021 yen and a rate of 5% per annum from October 23, 2014 until completion of the payment.

(5) The first court Defendant shall bear the court costs of both the first and second instances.

(6) The declaration of provisional execution for the aforementioned (4).

2. Object of the appeal of the first court Defendant

(1) The portion in which the first court Defendant lost in the judgment in prior instance shall be reversed.

(2) All of the claims by the first court Plaintiff shall be dismissed.

(3) The first court Plaintiff shall bear the costs of both the first and second courts.

No. 2 Outline of the case (unless otherwise specified, abbreviations follow those in the judgment in prior instance)

1. This case is a case in which the first court Plaintiff having the patent right (Patent No. 4365885, the present patent right) of the invention titled "bag breaker and driving method thereof" alleged that the bag breaker described in the attached lists 1 and 2 of the Defendant's product (Defendant's product) in the judgment in prior instance belongs to the technical scope of each of the inventions (present patent inventions) described in Claims 1, 2, and 4 of the scope of claims of the patent according to the present patent right (present patent) and thus, the first court Defendant's act of production, transfer, and the like of the Defendant's product is an act of infringing the present patent right, and an act of use of the Defendant's product by a customer who purchased the Defendant's product from the first court Defendant in the course of trade is an act of infringing the present patent right and that the first court Defendant's act of maintenance for the Defendant's product used by the customer aids the infringement on the present patent right which is use of the Defendant's product by the customer, and claimed from the first court Defendant [i] injunction of production, transfer, and the like of the Defendant's product and disposal of the Defendant's product and the semi-finished product thereof under Article 100 of the Patent Act; and [ii] payment to Plaintiff of a part of the damages 28,169,021 yen (a part of the total

sum of the amount of damage of 28,101,920 yen by the transfer of the Defendant's product and the amount of damage of 3,579,837 yen by the maintenance for the Defendant's product) and delay damages at a rate of 5% per annum stipulated in the Civil Code from October 23, 2014, the date after the tort, until completion of the payment.

2. The judgment in prior instance approved the first court Plaintiff's claims to such a degree that [i] injunction of production, transfer, and the like of the Defendant's product and disposal of the Defendant's product and the semi-finished product thereof; and [ii] payment to Plaintiff of 17,563,700 yen and the delay damages are requested, while the remaining was dismissed by stating that [i] the Defendant's product belongs to the technical scope of the present Patent Invention 1 (invention described in Claim 1) and the present Patent Invention 2 (invention described in Claim 2) but does not belong to the technical scope of the present Patent Invention 3 (invention described in Claim 4); [ii] it is not found that the present patent should be invalidated by the patent invalidation trial; [iii] the amount of damage by the first court Defendant's transfer of the Defendant's product is 17,563,700 yen (Article 102, paragraph (1) of the Patent Act); and [iv] the claim for damages by the first court Defendant's maintenance for the Defendant's product has no grounds.

3. Then, the first court Plaintiff and the first court Defendant appealed against the portion they lost in the judgment in prior instance, respectively. The first court Plaintiff corrected the description in relation to the configuration of the Defendant's product from the description in the attached lists of the Defendant's products in the judgment in prior instance to the description in the attached Defendant's product list in this court, changed the object of the claim for disposal to the claim for disposal of the Defendant's product and the semi-finished product thereof (those including the structures in the attached list 1 or 2 of the Defendant's products but not completed as the products), and withdrew the claim on the ground of the infringement of the present Patent Invention 3.

4. The basic facts are the correction of the judgment in prior instance as follows and as described in No. 2, 1 in the "Facts and reasons" in the judgment in prior instance, and they are cited.

(1) The description to page 5, line 17 in the judgment in prior instance "(Plaintiff ..." to the same page, line 21 "found.)" is deleted.

(2) The "surface which goes directly" on page 6, line 5 in the judgment in prior instance is altered to the "surface which is orthogonal".

(3) The "aforementioned d" on page 6, line 16 in the judgment in prior instance is

altered to the "aforementioned 1-d".

(4) The "aforementioned d" on page 7, line 19 in the judgment in prior instance is altered to the "aforementioned 2-d".

5. Issues

(1) Whether the product described in the attached Defendant's product list 1 (Defendant's Product 1) belongs to the technical scopes of the present Patent Inventions 1 and 2

A. Fulfillment of the constituent feature C

B. Fulfillment of the constituent features D and E

(2) Whether the product described in the attached Defendant's product list 2 (Defendant's Product 2) belongs to the technical scopes of the present Patent Inventions 1 and 2

A. Fulfillment of the constituent feature C

B. Fulfillment of the constituent features D and E

(3) Whether the Defendant's Products 1 and 2 are equivalent to the present Patent Inventions 1 and 2 and belong to the technical scopes thereof.

(4) Amount of damage

In this court, the first court Plaintiff withdrew the allegation related to the amount of damage under Article 102, paragraph (2) of the Patent Act. Moreover, the first court Defendant withdrew the allegation related to the defense of invalidity.

(omitted)

No. 4 Judgment of this court

1. Meaning of the present patent invention

(1) Scope of claims

The description in the scope of claims of the present Patent Inventions 1 and 2 is as follows:

[Claim 1]

A bag breaker comprising: a bag breaking chamber made of a rectangular frame body; a movable side cutter on which a plurality of plate-shaped cutters, each being made of a perpendicular plate at a right angle to a rotating shaft, is projected in a radial direction from the rotating shaft and disposed with a shift in the radial direction by a required angle to the axial direction on a surface of a rotary body pivotally supported horizontally between one of facing wall surfaces of the bag breaking

chamber; a fixed side cutter in which a plurality of plate-shaped cutters, each being made of a perpendicular plate projected/disposed with a plate thickness being horizontal from the other parallel facing wall surface of the bag breaking chamber, are aligned in the axial direction of the rotary body; and driving control means for performing repeated driving of a forward/backward rotation pattern for the rotary body, wherein the plate-shaped cutter made of the perpendicular plate on the movable side passes between the plate-shaped cutters made of the perpendicular plates on the fixed side in accordance with the repeated driving of the forward/backward rotation pattern of the rotary body so that the plurality of plate-shaped cutters made of the perpendicular plates on the movable side and the fixed side are meshed with each other at a predetermined interval, and a bag body is broken between the plurality of plate-shaped cutters made of the perpendicular plates on the movable side and the fixed side meshed with each other at the predetermined interval.

[Claim 2]

The bag breaker according to Claim 1, wherein the plate-shaped cutter on the fixed side has a sharp edge portion.

(2) Description in the present Description

The detailed description of the invention in the present Description (Exhibit Ko 2) has substantially the following description (for Figs. 4 to 7 cited in the description, see the attached list of drawings of the present Description.).

A. Technical Field

[0001]

The present invention relates to a bag breaker in which, when mixed trash packed in various bag bodies and collected at a waste disposal site as household trash or industrial wastes is classified and collected according to the type into inflammable waste and recyclable waste or according to the type of materials into bottles, aluminum cans, steel cans, plastic containers, and the like packed in bags, for example, a work of taking out contained objects by breaking the bag bodies (hereinafter referred to as bag-breaking) and of separating/removing the broken bag pieces and the objects in the bag body performed as pretreatment of the separating work is facilitated, and to a driving method thereof.

B. Problems to be Solved by the Invention

[0007]

In conventional bag breakers, inclination angles and spring strength of an inclined side plate or an inclined pressing plate need to be adjusted depending on the size of the bag bodies and the type of contents, and setting of the spring force takes

labor. Moreover, bag pieces torn by the cutting blade can be easily tangled, and there is a demerit that lowering of treatment capacity or stoppage can be induced easily.

[0008]

Moreover, the conventional bag breaker constituted by two rotating shafts improved in order to solve the demerit that the bag pieces torn by the cutting blade are tangled has a demerit that the device for changing rotation speeds of the right and left rotating shafts is complicated and cannot be made compact.

[0009]

Furthermore, the conventional bag breaker constituted by one rotating shaft having a plurality of cutting blades disposed radially and a uniaxial rotating shaft made of a pressing plate disposed oppositely to that can have its mechanism simplified as compared with the biaxial bag breaker constituted by the two rotating shafts, but it has a demerit that tangling of the torn bag pieces on the cutting blade cannot be prevented.

[0010]

In view of the aforementioned current circumstances, the present invention has an object to provide a bag breaker with simplified configuration so as to be constituted by one rotating shaft and in which the demerit of tangling of the torn bag pieces after the bag breaking is solved, and a driving method thereof.

C. Means for Solving the Problem

[0011]

As the result of various examinations with the purpose of disposition/configuration of a movable side cutter or the like capable of catching of bag bodies and efficient bag breaking and of smooth separation of the bag pieces after bag breaking from the contents in the bags in the configuration having the uniaxial rotating shaft both in the cases of classified collection according to type and according to the type of materials of the contents of the bag bodies, the inventors found that the bag bodies filled with cans, bottles, and the like can be efficiently broken and the bag pieces can be separated from cans, bottles, and the like without tangling of the bag pieces on the rotating shaft, for example, by disposing a pair of cutters (linear cutters) in a diameter direction with respect to the rotating shaft and disposing a plurality of the movable side cutters by shifting them by 90 degrees, for example, in the rotating shaft direction, by disposing a rod-shaped catcher faced with these movable side cutters from the horizontal direction and having a spring action at a predetermined interval, and by performing repeated driving of the cutters in a

forward/backward rotation pattern instead of rotation.

[0012]

Moreover, the inventors found that by providing a fixed side cutter fixed/disposed in the horizontal direction instead of the rod-shaped catcher in the bag breaker with the aforementioned configuration, the bag bodies in which plastic materials are packed can be broken, and the bag pieces and the plastic can be separated efficiently.

[0013]

Furthermore, as the result of examination on a driving method of the movable side cutter, the inventors found in the bag breaker having the aforementioned configuration that, by performing the repeated driving of the forward/backward rotation pattern in the bag breaker with various patterns with a basic operation of a right rotation and a left rotation as one pattern and by changing the rotating angles thereof in accordance with the can, bottle, plastic material, and the like contained in the bag bodies, the bag bodies can be efficiently broken, and the bag pieces can be separated from the trash without tangling of the bag pieces on the rotating shaft, and thereby they completed the present invention.

[0014]

That is, the present invention is a bag breaker comprising: a bag breaking chamber made of a rectangular frame body; a movable side cutter on which a plurality of plate-shaped cutters, each being made of a perpendicular plate at a right angle to a rotating shaft, is projected in a radial direction from the rotating shaft and disposed with a shift in the radial direction by a required angle to the axial direction on a surface of a rotary body pivotally supported horizontally between one of facing wall surfaces of the bag breaking chamber; a fixed side cutter in which a plurality of plate-shaped cutters, each being made of a perpendicular plate projected/disposed with a plate thickness being horizontal from the other parallel facing wall surface of the bag breaking chamber, are aligned in the axial direction of the rotary body; and driving control means for performing repeated driving of a forward/backward rotation pattern for the rotary body, wherein the plate-shaped cutter made of the perpendicular plate on the movable side passes between the plate-shaped cutters made of the perpendicular plates on the fixed side in accordance with the repeated driving of the forward/backward rotation pattern of the rotary body so that the plurality of plate-shaped cutters made of the perpendicular plates on the movable side and the fixed side are meshed with each other at a predetermined interval, and a bag body is broken between the plurality of plate-shaped cutters made of the perpendicular plates on the

movable side and the fixed side meshed with each other at the predetermined interval.

[0015]

Moreover, the present invention is a driving method of the bag breaker characterized in that the driving control means has a load sensor in a rotation driving source, driving of the rotary body is stopped at an excessive load, and during a normal operation such driving is performed that a plurality of forward/backward rotation patterns is repeated that rotation angles of the forward/backward rotation are changed at each unit with the forward/backward rotation pattern in which, after the movable side cutter is rotated at a required angle in one direction from a horizontal reference point, it is rotated by the required angle in an opposite direction, and the bag body is broken.

D. Advantageous Effect of the Invention

[0016]

According to the present invention, by constituting the one cutter rotary body at the center of the bag breaking chamber and the fixed cutter group provided on both sides in the rotating shaft direction so as to simplify the mechanism and by repeatedly driving the rotary body of the forward/backward rotation pattern, the bag body thrown down into the bag breaking chamber can be reliably caught and can be efficiently broken alternately and continuously in each of bag breaking spaces formed on the respective sides of the movable side cutter.

[0017]

Moreover, according to the present invention, the bag bodies stacked in a hopper above the bag breaking chamber are pushed up by the movable side cutter during repeated driving of the rotary body of the forward/backward rotation pattern and thus, occurrence of a bridge phenomenon of the bag bodies can be prevented, and the bag pieces after the bag breaking are not tangled on the rotary body and the fixed side cutter by means of the configuration in which the one rotary body is repeatedly driven in the forward/backward rotation pattern.

[0018]

Furthermore, according to the present invention, soft bag bodies containing waste plastic materials can be efficiently broken by collaboration of the cutters on the movable side and the fixed side by means of the configuration in which the movable side cutters and the fixed side cutters repeatedly driven in the forward/backward rotation pattern are combined.

E. Brief Description of the drawings

[0019]

[Fig. 4] Fig. 4 is a side explanatory view seen from a shaft end side of the rotary body of the bag breaker according to the present invention.
[Fig. 5] Fig. 5 is a front explanatory view of the rotary body of the bag breaker in a longitudinal axial direction according to the present invention.
[Fig. 6] Figs. 6A to 6C are explanatory views for explaining a bag breaking function of the bag body by the bag breaker according to the present invention.
[Fig. 7] Fig. 7 is a side explanatory view seen from the shaft end side of the rotary body of the bag breaker according to the present invention.
F. Description of the embodiments
[0020]

A bag breaker according to the present invention is characterized in that

a movable side cutter on which a plurality of plate-shaped cutters are projected in a radial direction from a surface of a rotary body and disposed with a shift in a radial direction by a required angle to an axial direction is pivotally supported horizontally in a bag breaking chamber made of a rectangular frame body, is repeatedly driven in a various forward/backward rotation pattern, and a bag body is caught between the movable side cutter and a fixed side cutter made of a plate-shaped cutter having a sharp cutting edge portion horizontally disposed from the wall surface of the bag breaking chamber and broken.

[0021]

The configuration and the driving method of the bag breaker to be a basis of the bag breaker according to the present invention will be described in detail by referring to the drawings. ...

[0031]

Subsequently, a configuration of the bag breaker according to the present invention in which a plate-shaped cutter 24 having a sharp cutting edge is employed for the fixed side cutter 20 will be described. Fig. 4 is a side explanatory view seen from a shaft end side of the rotary body of the bag breaker, and Fig. 5 is a front explanatory view of the rotary body in a longitudinal axial direction.

[0032]

A basic structure is ... the bag breaker 1 has a totally similar configuration in which a hopper 3 is provided on an upper surface with a bag breaking chamber 2 as a main body, a rotary body 10 is horizontally disposed in the bag breaking chamber 2, and a plate-shaped cutter 12 made of a perpendicular plate is provided on a surface of a rotary body 11 radially and at a right angle to a rotating shaft, and employment of a plate-shaped cutter 24 for the fixed side cutter 20 is different. That is, it has the

configuration in which the hopper 3 is provided on the upper surface of the bag breaking chamber 2 formed on the rectangular frame body, the rotary body 10 is rotatably disposed horizontally between one of parallel perpendicularly facing wall surfaces of the bag breaking chamber 2, while the fixed side cutter 20 is provided on the other parallel perpendicularly facing wall surface of the bag breaking chamber 2, and the bag body thrown down from the hopper 3 is discharged through a discharge port 5 on an opening bottom surface of the bag breaking chamber 2 after being broken in the bag breaking chamber 2.

[0033]

The movable side cutter 10 is configured so that the plate-shaped cutters 12 constituted such that the cutter distal end portions are aligned in one diameter direction of the rotary body 11 are disposed at the predetermined interval in the axial direction of the rotary body 11 such that the cutter distal end portions are shifted by 90 degrees each. The rotary body 11 is repeatedly driven by an electric motor or the like, not shown, in the forward/backward rotation pattern. Note that the shape and number of the plate-shaped cutters 12, the disposed interval of the rotary body 11 in the axial direction, the radial angle of the cutting edge, and the like are selected as appropriate in accordance with the bag body and the contents type thereof and the like. The plate-shaped cutter 24 employed as the fixed side cutter 20 is constituted by, as illustrated in Figs. 4 and 5, the perpendicular plate with the plate thickness being horizontal and attached to a strip-shaped bracket 8 with an upper end portion fixed to a shaft 9 pivotally supported on an upper end of an outer wall of the bag breaking chamber 2 and suspended so that the sharp tip end of the cutting edge enters the bag breaking chamber 2. Here, the fixed side cutter 20 is constituted by alternately disposing two plates and one plate in the axial direction of the rotary body 11 in three stages in the vertical direction in the bag breaking chamber 2.

[0034]

The action of the bag breaker 1 according to the present invention constituted by employing such plate-shaped cutter 24 will be described. As illustrated in Fig. 6A, the action of pushing up the bag body which is a work in the upper direction is exercised by the movable side cutter 10 repeatedly driven in the forward/backward rotation pattern so that the bridging of the bag body in the hopper 3 can be prevented.

[0035]

Moreover, as illustrated in Figs. 4 and 5, by means of the repeated driving of the movable side cutter 10 in the forward/backward rotation pattern, the plate-shaped cutter 12 on the movable side constituted by the plurality of perpendicular plates

aligned at the predetermined interval in the axial direction of the rotary body 11 with a shift of 90 degrees each in the rotating direction and the plate-shaped cutter 24 on the fixed side constituted similarly by the plurality of perpendicular plates aligned at the predetermined interval in the axial direction of the rotary body 11 on both sides thereof with the plate thickness of each being horizontal and having the sharp cutting edge distal end of each enter the bag breaking chamber 2 are meshed with each other. That is, by means of the repeated driving of the movable side cutter 10 of the forward/backward rotation pattern, the plate-shaped cutter 12 constituted by the plurality of movable side perpendicular plates vertically passes between the plate-shaped cutters 24 constituted by a plurality of the perpendicular plates with the plate thickness on the fixed side being horizontal or particularly the center part between the adjacent plate-shaped cutters 24, 24. As the result of this meshing, the bag breaking action of the bag breaker 1 basically becomes such that, as illustrated in Figs. 6B and 6C, the bag body is pushed by the movable side cutter 10, caught, torn, and broken by the plurality of plate-shaped cutters 24. Assuming that the movable side cutter 10 alternately repeats a pattern 1 by 180 degrees to the right and 180 degrees to the left and a pattern 2 by 360 degrees to the right and 360 degrees to the left, for example, the bag is caught in the right rotation in the pattern 1 and can be torn in the left rotation, and in the pattern 2, the bag can be pushed/cut and broken by rotating both to the right and left. During continuous operation, the bag breaking by such tearing and pushing/cutting advances alternately or simultaneously.

[0036]

By employing such plate-shaped cutter 24, the bag body containing waste plastic or the like can be efficiently broken. That is, since the bag body containing the waste plastic or the like is lightweight and has few rigid foreign substances mixed in, it cannot be caught by the rod-shaped catchers in some cases since both are deflected, but the plate-shaped cutter 24 is fixed and has a sharp cutting edge, and by repeatedly driving the movable side cutter 10 of the forward/backward rotation pattern as above, it can efficiently catch the bag body and easily break the bag.

[0037]

Moreover, as illustrated in Fig. 7, the fixed side cutter 20 for which the plate-shaped cutter 24 is employed has a plurality of the plate-shaped cutters 24 attached to the lattice-shaped bracket 8, and the plate-shaped cutter 24 group can be retreated from the bag breaking chamber 2 by making a shaft 9 pivotally supported on the outer wall upper end of the bag breaking chamber 2 rotatable when a large load is applied by a damper unit 30. That is, it is expected that a large foreign substance is likely to

be thrown in, since a work to be treated is an inflammable object in the case of the bag body containing waste plastic or the like, and maintenance is facilitated so that stoppage of the device by them does not occur frequently.

[0038]

In the bag breaker of the present invention, a load sensor is preferably provided at a rotation driving source, for example, in the driving control means so that, if the load is made excessively large by a large foreign substance, such control is executed that the driving of the rotary body is stopped or reversed and discharged. Moreover, during normal operation, with the forward/backward rotation pattern in which, after the movable side cutter is rotated by a required angle in one direction from the horizontal reference point, it is rotated by the required angle in the opposite direction as one unit as described above, control of repeating a plurality of the forward/backward rotation patterns in which the rotation angles of the forward/backward rotation are changed at each unit or control in which a combination of a plurality of patterns is repeated can be executed.

[0039]

The rotation angle of the movable side cutter is preferably designed such that the angle is changed by changing operating time by a timer, mainly in order to improve a bag breaking rate. Moreover, with regard to a peripheral speed, design may preferably be such that the speed can be changed by an inverter in order to adjust mainly a treatment amount. In an example of the device in embodiment 1 in which treatment of 30 m^3 is executed per hour, for example, the rotating cutter peripheral speed is assumed to be 24 to 48 m/min.

[0040]

Moreover, programming can be performed such that stoppage of the device or shortage of the bag breaking does not occur in accordance with assumption of a range of changes in conditions such as the assumed trash type, the size of the bag body, and the treatment amount or the like, by increasing/decreasing a bag-breaking treatment amount of the bag body by changing the speed (peripheral speed of the movable side cutter) at which the rotary body is repeatedly driven in the forward/backward rotation pattern in accordance with the load amount sensed by the load sensor or by changing the rotation angles of the forward/backward rotation pattern to angles set in advance in accordance with the load amount sensed by the load sensor and performing driving in which the combination of the forward/backward rotation pattern with different rotation angles is repeated.

G. Embodiments

[0043]

With regard to the bag breaker 1 including the rod-shaped catcher assuming the bag body containing drink cans and drink bottles, the control of alternately repeating the pattern 1 of 90 degrees to the right and 90 degrees to the left and the pattern 2 of 180 degrees to the right and 180 degrees to the left was executed for the repeated driving pattern of the forward/backward rotation pattern of the movable side cutter, and speed control was executed by the inverter motor 43 so that the cutter peripheral speed was 24 to 48 m/minute and then, it was found that treatment capacity of 30 m^3/hr on average was obtained. ...

[0048]

... The configuration in which the configurations in Figs. 4 and 5 are employed and assembled in the bag breaker 1 of the device illustrated in Figs. 8 and 9 was obtained, and assuming the bag body containing plastics, the repeated driving control of the forward/backward rotation pattern alternately repeating the pattern 1 of 180 degrees to the right and 180 degrees to the left and the pattern 2 of the 360 degrees to the right and 360 degrees to the left was executed, and a driving inverter motor output was selected so that the peripheral speed of the movable side cutter was 35 to 70 m/minute and then, it was found that the treatment capacity of 60 m^3/hr on average was obtained.

H Industrial Applicability

[0049]

According to the present invention, by constituting the one cutter rotary body at the center of the bag breaking chamber and the fixed cutter group provided on both sides in the rotating shaft direction so as to simplify the mechanism and by repeatedly driving the rotary body in the forward/backward rotation pattern, the bag body thrown down into the bag breaking chamber can be reliably caught and can be efficiently broken alternately and continuously in each of bag breaking spaces formed on the respective sides of the movable side cutters.

[0050]

Moreover, according to the present invention, the bag bodies stacked in a hopper above the bag breaking chamber are pushed up by the movable side cutter during repeated driving of the rotary body in the forward/backward rotation pattern and thus, occurrence of the bridge phenomenon of the bag bodies can be prevented, and the bag pieces after the bag-breaking are not tangled on the rotary body and the fixed side cutter by means of the configuration in which the one rotary body is repeatedly driven in the forward/backward rotation pattern.

(3) According to the description in the aforementioned (1) and (2), the outline of the present patent invention is as follows.

A. The present patent invention relates to a bag breaker which facilitates the work of taking out contents by breaking bag bodies and separating/removing broken bag pieces and the bag body contents performed as pretreatment of separating work of trash packed in the bag body and collected ([0001]).

The conventional bag breaker constituted by one rotating shaft having a plurality of cutting blades disposed radially and a uniaxial rotating shaft made of a pressing plate disposed oppositely to that can have its mechanism simplified as compared with the biaxial bag breaker constituted by the two rotating shafts, but it has a demerit that tangling of the torn bag pieces on the cutting blade cannot be prevented ([0009]).

B. In view of the situation in the aforementioned A, the present patent invention has an object to provide a bag breaker with simplified configuration so as to be constituted by one rotating shaft and in which the demerit of tangling of the torn bag pieces after the bag breaking is solved ([0010]), as a solution of such a problem, by disposing a pair of cutters (movable side cutters) in a diameter direction with respect to the rotating shaft and disposing a plurality of the movable side cutters by shifting them by 90 degrees, for example, in the rotating shaft direction, by disposing a fixed side cutter fixed/disposed at a position faced with these movable side cutters from the horizontal direction at a predetermined interval, and by performing the repeated driving of the movable side cutters in the forward/backward rotation pattern instead of rotation, it was found that the bag bodies can be efficiently broken, and the bag pieces can be separated from the cans, bottles, and the like without tangling of the bag pieces on the rotating shaft ([0011], [0012]), and the configuration described in Claims 1 and 2 of the scope of claims according to the present patent invention was employed as in the aforementioned (1) ([0014]).

C. According to the present patent invention, the effects that the bag pieces after the bag breaking are not tangled on the rotary body and the fixed side cutter or the like are exerted by constituting the one cutter rotary body at the center of the bag breaking chamber and the fixed cutter group provided on both sides in the rotating shaft direction [i] so as to simplify the mechanism and by repeatedly driving the rotary body in the forward/backward rotation pattern, the bag body thrown down into the bag breaking chamber can be reliably caught and can be efficiently broken alternately and continuously in each of bag breaking spaces formed on the respective sides of the movable side cutters; [ii] the bag bodies stacked in a hopper above the bag breaking chamber are pushed up by the movable side cutter during repeated

driving of the rotary body of the forward/backward rotation pattern and thus, occurrence of a bridge phenomenon of the bag bodies can be prevented, and [iii] by means of the configuration in which the one rotary body is repeatedly driven in the forward/backward rotation pattern ([0016], [0017], [0049], [0050]).

2. Issue (1) (Whether the Defendant's Product 1 belongs to the technical scopes of the present Patent Inventions 1 and 2)

(1) This court also decided that the Defendant's Product 1 fulfills the constituent features C, D. and E and belongs to the technical scopes of the present Patent Inventions 1 and 2. The reasons for that are as follows:

(2) Fulfillment of the constituent feature C

A. Meaning of the "parallel facing wall surfaces"

(A) With regard to the constituent feature C ("the fixed side cutter in which a plurality of plate-shaped cutters, each being made of a perpendicular plate projected/disposed with a plate thickness being horizontal from the other parallel facing wall surface of the bag breaking chamber are aligned in the axial direction of the rotary body"), according to the description in the scope of claims, in the configurations of the bag breaker having the bag breaking chamber, the movable side cutter, the fixed side cutter, and the driving control means, it is obvious that the disposition of the fixed side cutter is regulated, in the bag breaker of the present Patent Invention 1, the movable side cutter and the fixed side cutter are provided so as to be meshed with each other at a predetermined interval, and the plate-shaped cutter constituted by the perpendicular plate on the movable side passes between the plate-shaped cutters, each being constituted by the perpendicular plate on the fixed side, in accordance with the repeated driving of the rotary body in the forward/backward rotation pattern (constituent feature E), and the bag body is broken between the plurality of plate-shaped cutters on the movable side and the fixed side meshed with each other at the predetermined interval (constituent feature F), but the meaning of the "parallel facing wall surface" is not found to be unequivocally obvious from the description in the scope of claims (Claim 1).

(B) The present Description describes that [i] the means for solving the problem in the present patent invention is such that a pair of cutters (linear cutters) is disposed in a diameter direction with respect to the rotating shaft, a plurality of the movable side cutters is disposed by shifting them by 90 degrees, for example, in the rotating shaft direction, fixed side cutters faced with these movable side cutters from the horizontal direction are disposed at a predetermined interval, and the

repeated driving of the forward/backward rotation pattern is performed with respect to the movable side cutters ([0011], [0012]), [ii] the bag breaker according to the present patent invention is characterized in that a movable side cutter on which a plurality of plate-shaped cutters are projected in a radial direction from a surface of a rotary body and disposed with a shift in a radial direction by a required angle to an axial direction is pivotally supported horizontally in a bag breaking chamber made of a rectangular frame body, is repeatedly driven in a various forward/backward rotation pattern, and a bag body is caught between the movable side cutter and a fixed side cutter made of a plate-shaped cutter having a sharp cutting edge portion horizontally disposed from the wall surface of the bag breaking chamber and broken ([0020]), [iii] according to the bag breaker of the present patent invention, by constituting the one cutter rotary body at the center of the bag breaking chamber and the fixed cutter group provided on both sides in the rotating shaft direction so as to be able to simplify the mechanism of the bag breaker and by repeatedly driving the rotary body of the forward/backward rotation pattern, the bag body thrown down into the bag breaking chamber can be reliably caught and can be efficiently broken alternately and continuously in each of bag breaking spaces formed on the both sides of the movable side cutters ([0016]), [iv] the fixed side cutter 20 in the embodiment has the configuration in which the perpendicular plate, the plate-shaped cutter 24 with the plate thickness being horizontal is attached to a strip-shaped bracket 8 with an upper end portion fixed to a shaft 9 pivotally supported on an upper end of an outer wall of the bag breaking chamber 2 and suspended so that the sharp tip end of the cutting edge enters the bag breaking chamber 2 ([0033]), as the result of this meshing between the plate-shaped cutter 12 on the movable side constituted by a plurality of a perpendicular plates aligned at the predetermined interval in the axial direction of the rotary body 11 and by being shifted by 90 degrees each in the rotating direction and the plate-shaped cutter 24 on the fixed side constituted by the plurality of perpendicular plates similarly aligned at the predetermined interval in the axial direction of the rotary body 11 on both sides with the plate thickness of each being made horizontal and having the sharp cutting end distal end enter into the bag breaking chamber 2, the bag breaking action of the bag breaker 1 basically becomes such that, as illustrated in Figs. 6B and 6C, the bag body is pushed by the movable side cutter 10, and caught, torn, and broken by the plurality of plate-shaped cutters 24 ([0035]).

(C) By considering the aforementioned description in the present Description, it is

interpreted that the word "parallel" in the disposition of the fixed side cutter means to be in parallel with the rotating shaft of the rotary body, and the "wall surface" on which the fixed side cutter is disposed means a surface having an area and a shape to such a degree that the fixed side cutter can be projected/disposed in parallel with the rotating shaft of the rotary body and having an action of partitioning the bag-breaking space.

Therefore, the "parallel facing wall surface" in the constituent feature C is interpreted to mean a surface in parallel with the rotating shaft of the rotary body, having the area and the shape to such a degree that the fixed side cutter can be disposed thereon, and having the action of partitioning the bag-breaking space and the two surfaces faced with each other with the rotating shaft between them.

B. Fulfillment of the constituent feature C by the Defendant's Product 1

The specific configuration of the Defendant's Product 1 is as in No. 2, 1(6)A in "Facts and reasons" in the judgment in prior instance, and the configuration 1-c is that "in the bag breaking chamber (2), left and right side surfaces (surfaces orthogonal to the rotating shaft of the rotary body (11)) of a cuboid frame body [i] are closed by an appropriate plate material, openings of the bottom surface, the top surface, and the front and rear surfaces (surfaces in parallel with the rotating shaft of the rotary body (11)) are left open, and the lateral material [ii] is extended on upper sides of the open front and rear surfaces, a lower side of the lateral material [ii] is still open, a plurality of windows are formed in the lateral material [ii], and a plate body on which the fixed side cutter (20) is projected is detachably provided at each of the windows, and a door [iii] capable of being opened/closed is provided in order to hold the movable side cutter (10) from below".

Among them, the lateral material [ii] is extended on the both upper sides of the front and rear surfaces (surfaces in parallel with the rotating shaft of the rotary body (11)), the plurality of windows are formed in the lateral material [ii], and the plate body on which the fixed side cutter is projected is provided at each of the windows and thus, such configuration can be considered to be a surface in parallel with the rotating shaft of the rotary body, having an area and shape such that the fixed side cutter can be disposed and having the action of partitioning the bag-breaking space and the two surfaces faced with each other with the rotating shaft between them and corresponds to the "parallel facing wall surfaces" in the constituent feature C.

Therefore, the Defendant's Product 1 fulfills the constituent feature C.

(3) Fulfillment of the constituent features D and E

A. Meaning of the "repeated driving of the forward/backward rotation pattern"

(A) The present Patent Invention 1 has the "driving control means performing repeated driving of the forward/backward rotation pattern for the rotary body", but what specific driving of the rotary body means this "repeated driving of the forward/backward rotation pattern" is not clear from the description in the scope of claims (Claim 1).

(B) By considering the description in the present Description, the present Description describes that it was found that the bag body can be efficiently broken, and the bag pieces can be separated from the cans, bottles, and the like without tangling of the bag pieces on the rotating shaft by performing the "repeated driving of the forward/backward rotation pattern instead of rotation" for the movable side cutter ([0011]).

Moreover, the present Patent Invention 1 is constituted by the one cutter rotary body at the center of the bag breaking chamber and the fixed cutter group provided on both sides in the rotating shaft direction thereof, and by repeatedly driving the rotary body in the forward/backward rotation pattern, [i] the bag body thrown down into the bag breaking chamber can be reliably caught and efficiently broken alternately and continuously in each of the bag breaking spaces formed on both sides of the movable side cutter; [ii] occurrence of the bridge phenomenon of the bag body can be prevented; and [iii] such effects that the bag pieces after the bag breaking are not tangled on the rotary body or the fixed side cutter are exerted ([0016], [0017], [0049], [0050]), and the present Description has the description on the action that "the action of pushing up the bag body which is a work in the upper direction is exercised by the movable side cutter 10 repeatedly driven in the forward/backward rotation pattern so that the bridging of the bag body in the hopper 3 can be prevented." ([0034]), "by means of the repeated driving of the movable side cutter 10 in the forward/backward rotation pattern, the plate-shaped cutter 12 constituted by the plurality of movable side perpendicular plates vertically passes between the plate-shaped cutters 24 each being constituted by the perpendicular plate with the plate thickness on the fixed side being horizontal or particularly the center part between the adjacent plate-shaped cutters 24, 24. As the result of this meshing, the bag breaking action of the bag breaker 1 basically becomes such that, ... the bag body is pushed by the movable side cutter 10, and is caught, torn, and broken by the plurality of plate-shaped cutters 24. Assuming that the movable side cutter 10 alternately repeats a pattern 1 by 180 degrees to the right and 180 degrees to the left and a pattern 2 by 360 degrees to the right and 360 degrees to the left, for example, the bag is caught in the right rotation in the

pattern 1 and can be torn in the left rotation, and in the pattern 2, the bag can be pushed/cut and broken by rotating both to the right and left. During continuous operation, the bag breaking by such tearing and pushing/cutting advances alternately or simultaneously." ([0035]).

Furthermore, in the embodiment, as the repeated driving pattern of the forward/backward rotation pattern of the movable side cutter, [i] the example of driving of alternately repeating the pattern 1 of 90 degrees to the right and 90 degrees to the left and the pattern 2 of 180 degrees to the right and 180 degrees to the left ([0043]), and [ii] the example of the driving alternately repeating the pattern 1 of 180 degrees to the right and 180 degrees to the left and the pattern 2 of 360 degrees to the right and 360 degrees to the left ([0048]) are described.

(C) As described above, the present Description has the description that the driving for the movable side cutter of the present Patent Invention 1 is not rotation but repeated driving of the forward/backward rotation pattern, but in view of the fact that the term "pattern" generally means a "type", this is interpreted to mean repeated driving in the pattern with the combination of the right rotation and the left rotation as one pattern, not simple driving of right rotation or left rotation. Since there is no description in the present Description that the right and left rotation angles of the forward/backward rotation pattern are not larger than a predetermined angle, it is interpreted that the right and left rotation angles of the forward/backward rotation pattern in the present patent invention 1 are not limited to those not larger than the predetermined angle.

On the other hand, in view of the fact that the invention specifying matter "repeated driving of the forward/backward rotation pattern" was added by amending the "swing rotation driving" described in the Description and the like first attached to the application of the original application and the term "pattern" is a term having a meaning of "type, model, format" ("Kojien", 6th Edition, Iwanami Shoten) and moreover, in view of the fact that the present Patent Invention 1 exerts the effects that [i] the bag body thrown down into the bag breaking chamber can be reliably caught and efficiently broken alternately and continuously in each of the bag breaking spaces formed on both sides of the movable side cutter; [ii] occurrence of the bridge phenomenon of the bag body can be prevented; and [iii] the bag pieces after the bag breaking are not tangled on the rotary body and the fixed side cutter and the like, and the present Description provides description only on the driving at the right and left rotation angles on the one pattern being the same, it is interpreted that the "forward/backward rotation

pattern" does not mean the driving with the right rotation and the left rotation in the one pattern biased to either one of the right rotation and the left rotation in the one pattern but means the driving in which the right rotation and the left rotation in the one pattern are balanced.

(D) Paragraphs [0013] and [0015] in the present Description have the description on the driving repeating the plurality of forward/backward rotation patterns in which the rotation angles of the forward/backward rotation are changed at each unit with the forward/backward rotation pattern in which, after the movable side cutter is rotated by the required angle in one direction from the horizontal reference point, it is rotated by the required angle in the opposite direction as one unit, but the description is the description related to the invention of the driving method of the bag breaker described in Claims 5 to 7 in the scope of claims, and it cannot be interpreted from the description that the "repeated driving of the forward/backward rotation pattern" in the present Patent Invention 1 is limited to the driving repeating the plurality of forward/backward rotation patterns as described above. Moreover, since it is interpreted that, in the description in [0043] and [0048], the embodiment disclosed therein corresponds not only to the present Patent Invention 1 but also to the invention described in Claims 5 to 7, it cannot be so interpreted, either, that the "repeated driving of the forward/backward rotation pattern" in the present Patent Invention 1 is limited to the driving repeating the plurality of forward/backward rotation patterns as described above.

(E) As described above, by considering the description in the present Description, it is interpreted that the "repeated driving of the forward/backward rotation pattern" of the present Patent Invention 1 is not simple right rotation or left rotation but means the driving repeating one to plural types of patterns with the combination of the right rotation and the left rotation as one pattern with the right rotation and the left rotation in the one pattern having balanced rotation angles.

B. Fulfillment of the constituent features D and E by the Defendant's Product 1

The specific configuration of the Defendant's Product 1 is as in No. 2, 1(6)A of the "Facts and reasons" in the judgment in prior instance and the configuration 1-d is "means for driving/rotating the rotary body 11 forward/backward by determining forward rotation time and backward rotation time through setting of a forward rotation timer and a backward rotation timer", and in this specific configuration, according to the evidence (Exhibit Otsu 1), an automatic driving mode is included other than a manual driving mode in control of the rotary body of the Defendant's Product 1, and in the automatic driving, the bag breaker is automatically driven, and the forward

rotation/backward rotation is automatically switched in accordance with a set value. In relation with the setting, setting items for the timer/counter include "D142 regular forward rotation time (regular forward rotation time)", "D143 stop time after regular forward rotation (stopped for set time when the regular forward rotation time (D142) is reached, and switched to regular backward rotation)", "D144 forward-backward switching time (interval time at switching from forward rotation to backward rotation, backward rotation to forward rotation)", "D149 regular backward rotation time (backward rotation operation is performed for set time when regular forward rotation time (D142) is reached)", "D150 stop time after regular backward rotation (stopped for set time when the regular backward rotation time (D149) is reached, and switched to regular forward rotation)", and it is found that the "regular forward rotation time" and the "regular backward rotation time" can be set in numeral values in the range from 0 to 3000 seconds in the unit of one-tenth of a second, the "stop time after regular forward rotation" in the range from 1 to 3000 seconds in the unit of one-tenth of a second, the "stop time after regular backward rotation" in the range from 0 to 3000 seconds in the unit of one-tenth of a second, and the "forward-backward switching time" in the range from 2 to 3000 seconds in the unit of one-tenth of a second.

Then, the Defendant's Product 1 can be found to have the configuration in which the driving is regularly repeated with a combination (pattern) of one set which is a combination of a set of the forward rotation (right rotation) and the backward rotation (left rotation) at the rotation angles at which the forward rotation (right rotation) and the backward rotation (left rotation) in the combination are balanced by setting the numeral values of substantially the same degree to the regular forward rotation time and the regular backward rotation time.

Therefore, the "means for driving/rotating the rotary body 11 forward/backward" in the configuration 1-d of the Defendant's Product 1 corresponds to the "driving control means for performing repeated driving of the forward/backward rotation pattern" of the constituent feature D, and the "forward/backward driving rotation" in 1-e corresponds to the "repeated driving of the forward/backward rotation pattern" in the constituent feature E and thus, the Defendant's Product 1 fulfills the constituent features D and E.

(4) Summary

There is no dispute between the parties on the fulfillment by the Defendant's Product 1 of the constituent features A, B, F, and G, and as in the aforementioned (2) and (3), the Defendant's Product 1 fulfills the constituent features C to E. Therefore,

the Defendant's Product 1 is found to belong to the technical scope of the present Patent Invention 1.

Moreover, since there is no dispute between the parties on the fulfillment by the Defendant's product 1 of the constituent feature H, the Defendant's Product 2 is also found to belong to the technical scope of the present Patent Invention 1.

3. Issue (2) (Whether the Defendant's Product 2 belongs to the technical scope of the present Patent Inventions 1 and 2)

(1) This court also decides that the Defendant's Product 2 fulfills the constituent features C to E and belongs to the technical scopes of the present Patent Inventions 1 and 2. The reasons for that are as follows.

(2) Fulfillment of the constituent feature C

The specific configuration of the Defendant's Product 2 is as in No. 2, 1(6)B in the "Facts and Reasons" in the judgment in prior instance, and the configuration 2-c is the configuration in which "the front and rear surfaces (surfaces in parallel with the rotating shaft of the rotary body (11)) are left open, and the pipe member (25) is extended between the left and right side surfaces of the frame body (1) on upper sides of the open front and rear surfaces, a lower side of the pipe member (25) is still open, a plurality of fixed side cutters (20) are juxtaposed in a projecting state on this pipe member (25)", and the pipe member (25) can be considered to be a surface in parallel with the rotating shaft of the rotary body (11), having the plate-shaped cutter on the fixed side disposed, and having an action of partitioning the bag breaking space and two surfaces faced with each other with the rotating shaft between them and thus, it corresponds to the "parallel facing wall surface" referred to in the constituent feature C.

Therefore, the Defendant's Product 2 fulfills the constituent feature C.

(3) Fulfillment of the constituent features D and E

The specific configuration of the Defendant's Product 2 is as in No. 2, 1(6)B of the "Facts and reasons" in the judgment in prior instance, and similarly to the aforementioned 2(3), the "means for driving/rotating the rotary body 11 forward/backward" in the configuration 2-d corresponds to the "driving control means for performing the repeated driving of the forward/backward rotation pattern" in the constituent feature D and the "forward/backward driving rotation" in 2-e corresponds to the "repeated driving of the forward/backward rotation pattern" in the constituent feature E and thus, the Defendant's Product 2 fulfills the constituent features D and E.

(4) Note that, the first court Defendant alleges that allegation of infringement of the

present patent right for the Defendant's Product 2 is contrary to the principle of good faith, but even if the allegation in this lawsuit is different from the opinion indicated at the reconciliation negotiation before the institution thereof, that cannot immediately lead to approval of the allegation by the first court Plaintiff in this lawsuit, as it would be contrary to the principle of good faith, and there is not sufficient evidence to find other circumstances which support such evaluation.

(5) Summary

There is no dispute between the parties on the fulfillment by the Defendant's Product 2 of the constituent features A, B, F, and G, and as in the aforementioned (2) and (3), the Defendant's Product 2 fulfills the constituent features C to E. Therefore, the Defendant's Product 2 is found to belong to the technical scope of the present Patent Invention 1.

Moreover, since there is no dispute between the parties on the fulfillment by the Defendant's Product 2 of the constituent feature H, the Defendant's Product 2 is found to belong also to the technical scope of the present Patent Invention 2.

4. Issue (4) (amount of damage)

(1) Damage under Article 102, paragraph (1) of the Patent Act

A. Article 102, paragraph (1) of the Patent Act is the provision stipulating the calculation method of the amount of damage when damages for lost profits caused by reduction in the sales quantity are claimed under Article 709 of the Civil Code, and the main text of the paragraph is the provision in which the amount calculated by multiplying the number of articles transferred by the infringer by amount of profit per unit from the products that the patentee or the like could have sold if there had been no infringement, may be presumed as the amount of the damage that the patentee or the like has incurred, within the limits of an amount proportionate to the ability of the patentee or the like to work the patented invention, and the proviso stipulates that if the infringer proves that there are circumstances due to which the patentee or the like would have been unable to sell a number of products equivalent to all or part of number transferred, an amount proportionate to the number of products that could not have been sold due to such circumstances are to be deducted from the amount of damage thus calculated for the purpose of more flexible finding of reduction in the sales quantity than the conventional all-or-nothing like finding by promoting reversed onus of proof of the reduction in the sales quantity having a legally sufficient cause with the infringement.

According to the wording in Article 102, paragraph (1) of the Patent Act and the aforementioned object, the "products that the patentee or the like could have sold if

there had been no infringement" should be interpreted to be the product of the patentee or the like influenced in the sales quantity by the infringement; that is, it is only necessary to be the product of the patentee or the like having a competitive relationship with the infringement product in the market. Moreover, the "amount of profit per unit" is the amount (amount of marginal profits) obtained by deducting the manufacturing costs and fluctuating costs increasing in accordance with the sales quantity of the product from the selling price of the product of the patentee or the like, and it should be interpreted that the burden of proof of the allegation lies with the patentee side, including the ability of the patentee or the like to work the invention.

Moreover, with regard to the "circumstances due to which sales would have been impossible" for the patentee or the like about a number of products equivalent to all or part of number transferred stipulated in the proviso to Article 102, paragraph (1) of the Patent Act, the infringer bears the burden of proof, and when presence of such circumstances is proven, the amount according to the quantity corresponding to the circumstances is deducted, and the "circumstances due to which sales would have been impossible" are intended to be circumstances impeding the legally sufficient cause between the infringement and the reduction in the sales of the products of the patentee or the like, and circumstances including presence of competitive products in the market, business efforts of the infringers (brand strength, advertisements), performances of the infringement products (features such as functions, designs, and the like other than the patent invention), uniqueness of the market (price, sales form) and the like should be considered to be applicable.

B. Transferred quantity

According to the evidence (Exhibit Otsu 95) and the entire import of the oral argument, it is found that the first court Defendant transferred the Defendant's products with the serial numbers "15096", "15097", and "15099" to "15103" from August 28, 2009 to around March of 2013.

Moreover, according to the entire import of the oral argument, the first court Defendant is found to bring the portions other than the control operation panel in the Defendant's product with the serial number "15094" on August 21, 2009 and the control operation panel on October 14 of the same year to the customers, respectively. In addition the Defendant's product is roughly configured by a frame portion, a rotating drum portion, a driving portion, and the control operation panel, and the control operation panel among them is a configuration bearing the function of (manual / automatic) operation control of the bag breaker (Exhibit Otsu 1) and is indispensable to work the present patent invention and thus, when the control

operation panel is brought to the customer, it is found that the transfer (delivery) of the Defendant's product as the infringement product together with the other configuration portions having been brought previously is found to have been completed.

Therefore, the transfer quantity of the Defendant's product during a period from August 28, 2009 (date of registration of establishment of the present patent right) to around March of 2013 is 8 units in total.

C. "Amount of profit per unit that the patentee or the like could have sold if there had been no infringement"

(A) As in the aforementioned A, the "product that the patentee or the like could have sold if there had been no infringement" should be interpreted to be the product of the patentee or the like influenced in the sales quantity by the infringement; that is, it is only necessary to be a product of the patentee or the like having a competitive relationship with the infringement product in the market.

Considering it in this case, according to the evidences (Exhibits Ko 12, 13, 21, and 22) and the entire import of the oral argument, it is found that the first court Plaintiff sold various models of the bag breaker (Plaintiff's product); that is, "HTP-3", "HTP-6", "HTP-10", "HTP-15", "HTP-20", "HT-3", "HT-6", "HT-10", "HT-15", and "HT-20" and the first court Plaintiff explained the principle in relation to these bag breakers that "there is no tangling/fixation on the shaft in the uniaxial swing type. Efficient bag breaking and prevention of tangling are realized by the rotary cutter alternately repeating 2 patterns of rotating angles (adjustable) of the forward/backward rotation." and the like. According to the aforementioned facts, it is found that the Plaintiff's product is applicable to a product having the competitive relationship with the worked products of the present Patent Inventions 1 and 2 or at least with the Defendant's product in the market.

(B) According to the evidence (Exhibit Ko 23) and the entire import of the oral argument, it is found that the first court Plaintiff received orders for 14 units of the Plaintiff's product from November 29, 2010 to March 28, 2014, and the total sum of the sales was 90,390,000 yen.

(C) Costs

According to the evidences (Exhibits Ko 23, 25, and 26) and the entire import of the oral argument, with regard to the forms of the sales, manufacture, and delivery of the Plaintiff's product in the first court Plaintiff, it is found that [i] the first court Plaintiff outsources the manufacture of the Plaintiff's product to a third party,

and the total sum of a purchase amount of the aforementioned 14 units including the outsourcing costs (raw material costs, supplies costs, processing costs from outside manufacture, delivery/transport expenses, and the like) was 41,211,631 yen; [ii] the manufactured Plaintiff's product was directly delivered from the subcontractor to the orderer (customer of the first court plaintiff); [iii] the first court Plaintiff does not hold an inventory of the Plaintiff's product and does not insure the Plaintiff's product; and [iv] the first court Plaintiff does not employ sales representatives exclusively handling the bag breaker.

According to the aforementioned facts, the raw material costs, supplies costs, processing costs, delivery costs (including transportation costs) and the like in the deals of the Plaintiff's product are found to be included in the purchase amount in the aforementioned [i]. Moreover, as described above, the first court Plaintiff does not employ a sales representatives exclusively handling the bag breaker, and the labor costs increased for manufacture and sales of the 14 units of the Plaintiff's product; that is, the labor costs which should be deducted as the fluctuating costs separately from the purchase amount in the aforementioned [i], is not found to be generated. Furthermore, the first court Plaintiff does not hold the inventory of the Plaintiff's product and does not insure the product and thus, it cannot be found that the inventory carrying costs, insurance expenses, and the like are incurred as fluctuating costs.

According to the above, fluctuating costs which should be deducted from the sales amount of the Plaintiff's product other than the purchase amount of the aforementioned [i] are not sufficient to be found.

(D) Marginal profits

Then, the amount of marginal profits per unit of the Plaintiff's product is reasonably found to be 3,512,740 yen. ((90,390,000 yen – 41,211,631 yen) / 14. Fractions smaller than one are yen rounded down. The same applies to the following.)

D. Ability to work

In view of the facts that the transfer quantity of the first court Defendant is 8 units, and it is approximately 1 to 2 units per year on an average (entire import of the oral argument), the first court Plaintiff received orders of 14 units of the Plaintiff's product from November 29, 2010 to March 28, 2014, and the first court Plaintiff outsources the manufacture of the Plaintiff's product and the like, at the time of the present infringement, the first court Plaintiff is found to have had the ability to supply the plaintiff's product in response to the additional demand of the product if there had not

been infringement.

E. Amount calculated by multiplying the transferred quantity by amount of profit per unit

The amount calculated by multiplying the transferred quantity by the amount of profit per unit is 28,101,920 yen (3,512,740 yen x 8 units).

F. Circumstances in the proviso to Article 102, paragraph (1) of the Patent Act ("circumstances due to which sales would have been impossible")

(A) The first court Plaintiff alleges that, as the "circumstances due to which sales would have been impossible", it is presumed that the same type of bag breaker manufactured/sold by a third party is present in the market other than the Plaintiff's product, and its sales quantity is approximately 1 or 2 units per year similar to the Defendant's product.

According to the evidences (Exhibits Otsu 55 to 70), other than the first court Plaintiff and the first court Defendant, it is found that there are third parties who manufacture/sell the bag breaker and they include a party (Exhibit Otsu 61) who makes introduction in the goods catalog of their company that "unique blade shape and automatic reversal reduce tangling of the bags after bag breaking. Excellent bag breaking effects are exerted by the biaxial bag-breaking blade. Simple structures facilitate maintenance and reduce running costs, and employment of the inexpensive bag breaking blade promotes reduction in running costs.", a third party (Exhibit Otsu 63) who makes introduction that "clogging or winding is prevented by a unique device. Objects hard to be processed are selected by a meshing-preventing stopper, a weight balancer, and forward/backward rotation, and winding is mostly removed." on the homepage of their company, and a third party (Exhibit Otsu 66) who makes introduction that "bag breaking is efficiently performed by the biaxial rotary blade, biting of plastic bags is less than with conventional bag breakers, and sorting work is easy."

However, the present Patent Inventions 1 and 2, as in the aforementioned 1(3), exert excellent effects for the bag breaking such that [i] the mechanism is simplified, and the bag breaking can be performed continuously and efficiently; [ii] occurrence of the bridge phenomenon of the bag body can be prevented; and [iii] bag pieces after the bag breaking are not tangled on the rotary body or the fixed side cutter and the like, but only the aforementioned facts are not sufficient to find the fact that the bag breaker sold by the aforementioned third parties exercises the function and effect similar to those of the present Patent Inventions 1 and 2. Moreover, even according to all the evidences of the present case, the situation of the sales share in the bag

breaker market and the prices of the bag breakers sold by the third parties are not clear. Therefore, the aforementioned found facts cannot immediately lead to finding that there is a circumstance on the first court Plaintiff side in which the Plaintiff's product corresponding to the transfer quantity of the Defendant's product cannot be sold, and there is not sufficient evidence to find there are the circumstances other than that.

(B) The first court Defendant alleges that the price of the Plaintiff's product is higher than the price of the Defendant's product.

According to the evidences (Exhibit Ko 23, Exhibits Otsu 41 to 45) and the entire import of the oral argument, it is found that the lowest price of the 14 units of the Plaintiff's products ordered by the first court Plaintiff from November 29, 2010 to March 28, 2014 was 4,180,000 yen, while the highest price was 9,500,000 yen, and an average price per unit is approximately 6,450,000 yen; the sales price of the Defendant's product is approximately 3,500,000 yen. However, in view of the facts that the target product is the bag breaker which is a product with the intended consumers of not general consumers but corporations such as business organizations and its service life reaches at least several years (entire import of oral argument), even if there is a price difference to a degree as described above, that cannot immediately lead to loss of identicality between the Plaintiff's product and the Defendant's product in the market, and there is no other evidence sufficient to prove that.

(C) As described above, it cannot be considered in this case that there are circumstances applicable to the proviso to Article 102, paragraph (1) of the Patent Act.

G. Allegation by the first court Defendant

(A) The first court Defendant alleges that, when considering that [i] the Defendant's product is only capable of control of one type of forward/backward rotation pattern, and only the case in which the forward rotation angle and the backward rotation angle are balanced is applicable to infringement of the present patent right; [ii] the Defendant's product is set to 60 seconds for forward rotation/60 seconds for backward rotation at delivery, and it is obvious that the bridge phenomenon occurs in this state, and the function and effect of the present Patent Inventions 1 and 2 are not exerted; [iii] with regard to the forward/backward rotation control (control in one type of pattern) by the forward rotation timer and the backward rotation timer of the Defendant's product, the present Patent Inventions 1 and 2 lack novelty; [iv] the control of the Defendant's product is totally different from that of the present Patent Invention when the function and effect of the present Patent Invention is considered, and working is not possible, but there can only be a case where the control claimed by

the Present Patent can be formally worked, the infringement portion in the Defendant's product cannot boost demand of purchasers and thus, the contribution rates of the present Patent Inventions 1 and 2 does not exceed 30%.

(B) Point [i]

The "repeated driving of the forward/backward rotation pattern" in the present Patent Invention 1 is interpreted to mean not the simple right rotation or left rotation but the driving repeating one to plural types of patterns with the combination of the right rotation and the left rotation as one pattern and the rotation angles of the right rotation and the left rotation are balanced in the one pattern as in the aforementioned 2(3). Even if the Defendant's product is capable of only the control of one type of the forward/backward rotation pattern, the Defendant's product can be used in such a method that satisfies the present Patent Inventions 1 and 2 in the end. On the other hand, since the circumstances that the Defendant's product has features other than the effect of the present Patent Invention, and the feature can boost demand of the purchasers, has not been proven, the amount of damage cannot be reduced by the concept of contribution rate, or the circumstances cannot be considered to be applicable to the proviso to Article 102, paragraph (1) of the Patent Act.

(C) Point [ii]

Even if the function and effect of prevention of occurrence of the bridge phenomenon of the present Patent Inventions 1 and 2 is not exerted in the state of the timer of the Defendant's product set at the delivery, the regular forward rotation time and the regular backward rotation time can be set within the range from 0 to 3000 seconds in the unit of one-tenth of one second as in the aforementioned 2(3) in the Defendant's product and thus, the Defendant's product can be used in such a method that satisfies the present Patent Inventions 1 and 2 in the end. Moreover, the amount of damage cannot be reduced by the concept of contribution rate, or the circumstance cannot be considered to be applicable to the proviso to Article 102, paragraph (1) of the Patent Act as in the aforementioned (B).

(D) Point [iii]

With regard to the point that in the case of the control of one type of forward/backward rotation pattern, the present Patent Inventions 1 and 2 lack inventive step, there is not sufficient evidence to prove that.

(E) Point [iv]

The fact that the control of the Defendant's product corresponds to the "repeated driving of the forward/backward rotation pattern" of the present Patent Invention 1 is as in the aforementioned 2(3), and the allegation by the first court Defendant that the

control of the Defendant's product is different from the control of the present Patent Inventions 1 and 2 lacks the grounds thereof.

H. Summary

According to the above, the amount of damage under Article 102, paragraph (1) of the Patent Act is found to be 28,101,920 yen.

(2) Damage by the maintenance work by the first court Defendant

The first court Plaintiff alleges that, since the maintenance of the Defendant's product by the first court Defendant can be considered to aid the continuous use of the Defendant's product by the assignee of the Defendant's product or to facilitate that, the first court Defendant bears responsibility for damages on the ground of the joint tort as the aider to the act regarding the use of the Defendant's product by the assignee.

However, since the aforementioned allegation by the first court Plaintiff does not specify the act of use as the target of aid, it is unjust and moreover, there is not sufficient evidence to find that the first court Defendant specifically performed the maintenance act for the Defendant's product. Moreover, the damage (lost profits) suffered by the first court Plaintiff by the use of the Defendant's product has been completely evaluated in the damage by the transfer in the aforementioned (1) but other than that, there is not sufficient evidence to specifically prove that the subsequent use of the Defendant's product incurred new damage on the first court Plaintiff. Furthermore, other than the case where a patented product is found to be newly created by the maintenance act or the case applicable to the provision of indirect infringement (Article 101 of the Patent Act), the maintenance act itself is not applicable to the patent right infringement and thus, it is not such that only the first court Plaintiff who is the patentee can perform the maintenance act.

According to the above, the aforementioned allegation by the first court Plaintiff has no grounds.

5. Conclusion

As described above, the claim in this suit by the first court Plaintiff has grounds to such a degree that the first court Plaintiff claims from the first court Defendant injunction of production, transfer, and the like of the Defendant's product, disposal of the Defendant's product and the semi-finished product thereof (those including the structures described in the attached Defendant's product lists 1 or 2 but not completed as products yet), and payment of money in the amount of 28,101,920 yen and the rate of 5% per annum thereto from October 23, 2014 which is the day after the tort until completion of the payment and thus, it is approved, while the remaining has no

grounds and should be dismissed.

Therefore, (1) this appeal by the first court Plaintiff is partially grounded and thus, the judgment in prior instance is modified such that the claim by the first court Plaintiff is admitted to the degree described above, while the remaining has no grounds and is dismissed; (2) this appeal by the first court Defendant has no grounds and is dismissed, Article 67, paragraph (2), Article 61, and the proviso to Article 64 of the Code of Civil Procedure are applied to the bearing of the court costs, and the judgment shall be rendered as in the main text.

Intellectual Property High Court, Fourth Division
Presiding Judge: TAKABE Makiko
Judge: MASEKI Sumiko
Judge: SUZUKI Wakana

(Attachment)

List of Defendant's products

1. Defendant's Product 1

The bag breaker described in the "(3) Description of the drawings" column having the product name described in the "(1) Product name" column below and having the configuration described in the "(2) Configuration" column.

(1) Product name

OM type uniaxial bag breaker

(2) Configuration

g. A bag breaker (1) comprising:

a. bag breaking chamber (2) made of a rectangular frame body;

b. a movable side cutter (10) on which a plurality of plate-shaped cutters (12a, 12b) , each being made of a perpendicular plate at a right angle to a rotating shaft, are projected in a radial direction from the rotating shaft and disposed with a shift in the radial direction by a required angle to the axial direction on a surface of a rotary body (11) pivotally supported horizontally between one of facing wall surfaces (2a, 2a) of the bag breaking chamber (2);

c. an opening/closing door (2b, 2b) constituting the wall surface of the bag breaking chamber (2), a fixed side cutter (20, 20) in which a plurality of plate-shaped cutters (24), each being made of a perpendicular plate projected/disposed with a plate thickness being horizontal, are aligned in the axial direction of the rotary body (11), and a lateral material (2c, 2c); and

d. driving control means (42, 43) for performing repeated driving of a forward/backward rotation for the rotary body (11), wherein

e. the plate-shaped cutter (12a, 12b) made of the perpendicular plate on the movable side passes between the plate-shaped cutters (24) made of the perpendicular plates on the fixed side in accordance with the repeated driving of the forward/backward rotation of the rotary body (11) so that the plurality of plate-shaped cutters (12a, 12b, and 24) made of the perpendicular plates on the movable side and the fixed side are meshed with each other at a predetermined interval; and

f. a bag body is broken between the plurality of plate-shaped cutters (12a, 12b, and 24) made of the perpendicular plates on the movable side and the fixed side meshed with each other at the predetermined interval.

h. the plate-shaped cutter (24) of the fixed side cutter (20) has a sharp cutting edge portion.

i. the fixed side cutter (20) is made capable of being retreated to outside of the bag breaking chamber (2) wholly or partially with a holding portion of the cutter.

(3) Description of drawings

A. Brief Description of the Drawings

Fig. 1: Plan view of the Defendant's Product 1

Fig. 2: Front view of the Defendant's Product 1

Fig. 3: Explanatory view of a use state of the Defendant's Product 1

B. Reference Signs List

1 bag breaker

2 bag breaking chamber

2a. one of facing wall surfaces of bag breaking chamber (2)

2b. opening/closing door

2c. lateral material

10 movable side cutter

11 rotary body

12a, 12b movable side plate-shaped cutter

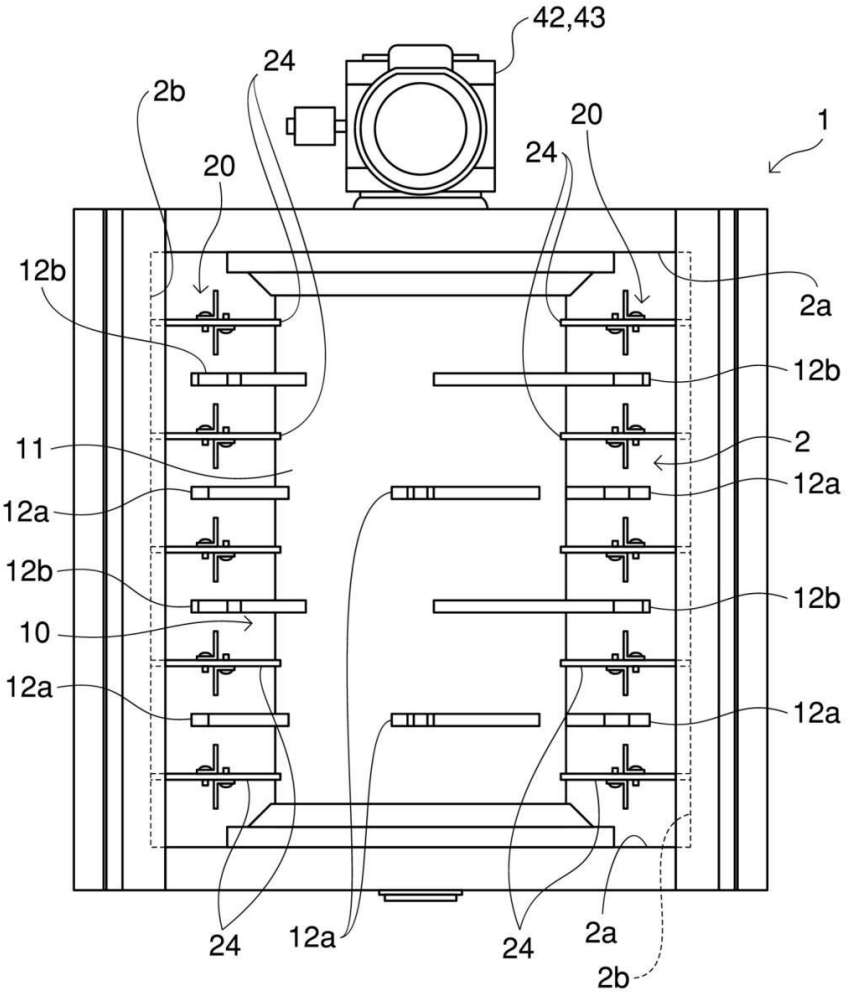
20 fixed side cutter

24 fixed side plate-shaped cutter

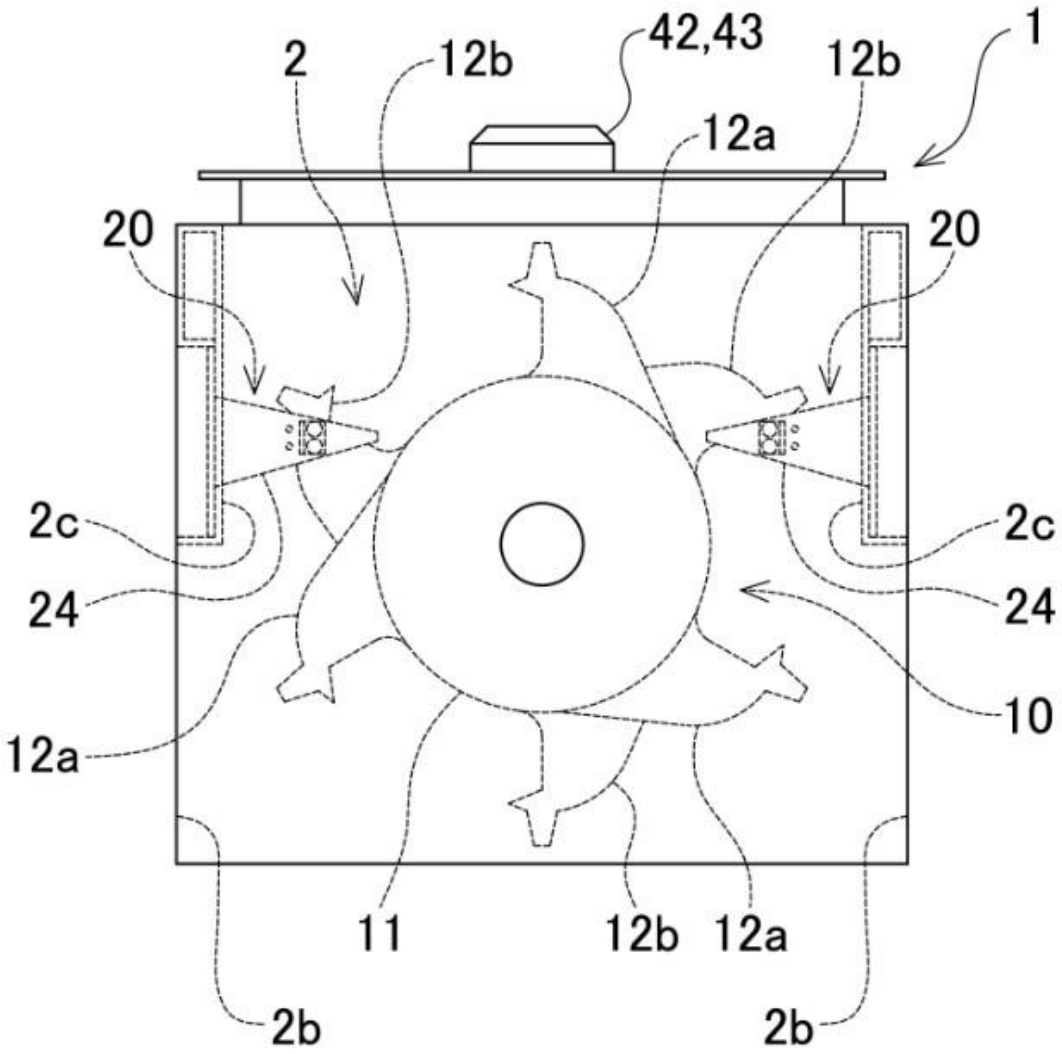
42 speed reducer

43 motor

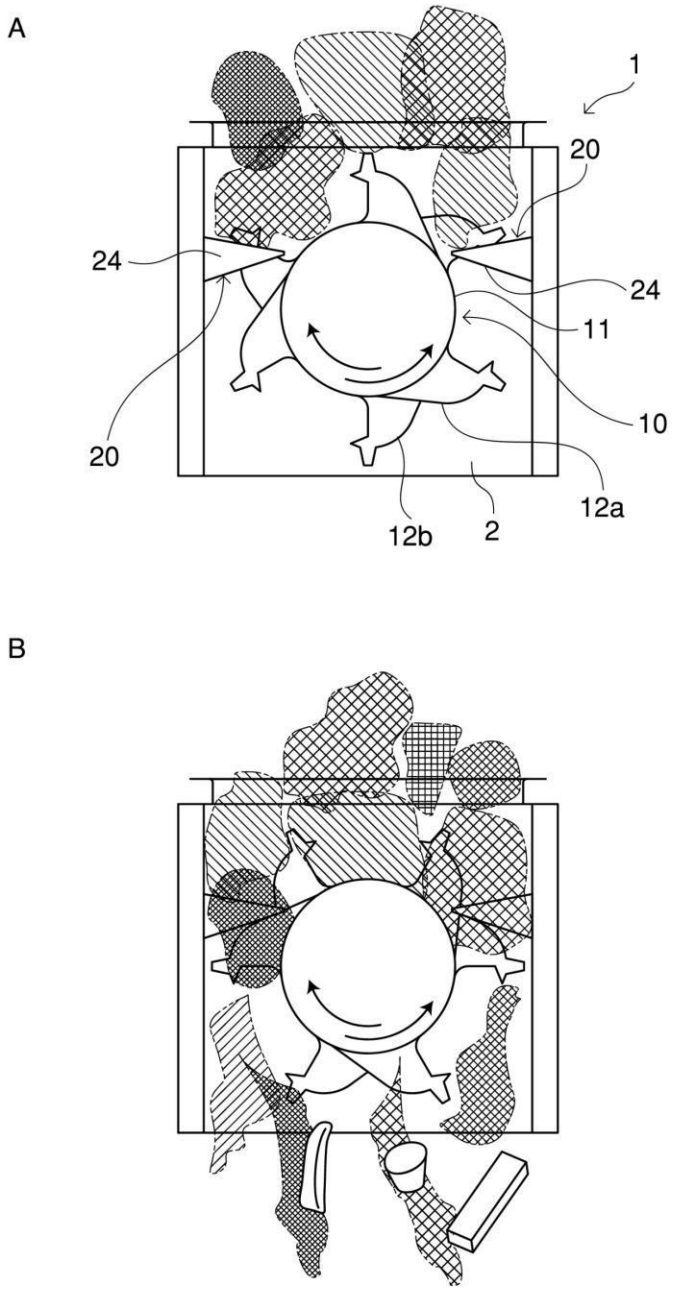
[Fig. 1: Plan view of the Defendant's Product 1]



[Fig. 2: Front view of the Defendant's Product 1]



[Fig. 3: Explanatory view of a use state of the Defendant's Product 1]



2. Defendant's Product 2

The bag breaker described in the "(3) Description of the drawings" column and having the product name described in the "(1) Product name" column below and having the configuration described in the "(2) Configuration" column.

(1) Product name

OM type uniaxial bag breaker

(2) Configuration

g. A bag breaker (1) comprising:

a. bag breaking chamber (2) made of a rectangular frame body;

b. a movable side cutter (10) on which a plurality of plate-shaped cutters (12a, 12b) , each being made of a perpendicular plate at a right angle to a rotating shaft, are projected in a radial direction from the rotating shaft and disposed with a shift in the radial direction by a required angle to the axial direction on a surface of a rotary body (11) pivotally supported horizontally between one of facing wall surfaces (2a, 2a) of the bag breaking chamber (2);

c. an opening/closing door (2b, 2b) constituting the wall surface of the bag breaking chamber (2), a fixed side cutter (20, 20) in which a plurality of plate-shaped cutters (24), each being made of a perpendicular plate projected/disposed with a plate thickness being horizontal, are aligned in the axial direction of the rotary body (11), a fixed pipe (25, 25), and a closing plate (26, 26); and

d. driving control means (42, 43) for performing repeated driving of a forward/backward rotation for the rotary body (11), wherein

e. the plate-shaped cutter (12a, 12b) made of the perpendicular plate on the movable side passes between the plate-shaped cutters (24) made of the perpendicular plates on the fixed side in accordance with the repeated driving of the forward/backward rotation of the rotary body (11) so that the plurality of plate-shaped cutters (12a, 12b, and 24) made of the perpendicular plates on the movable side and the fixed side are meshed with each other at a predetermined interval; and

f. a bag body is broken between the plurality of plate-shaped cutters (12a, 12b, and 24) made of the perpendicular plates on the movable side and the fixed side meshed with each other at the predetermined interval.

h. the plate-shaped cutter (24) of the fixed side cutter (20) has a sharp cutting edge portion.

i. the fixed side cutter (20) is made capable of being retreated to outside of the bag breaking chamber (2) wholly or partially with a holding portion of the cutter.

(3) Description of drawings

A. Brief Description of the Drawings

Fig. 1: Plan view of the Defendant's Product 2

Fig. 2: Front view of the Defendant's Product 2

Fig. 3: Explanatory view of a use state of the Defendant's Product 2

B. Reference Signs List

1 bag breaker

2 bag breaking chamber

2a. one of facing wall surfaces of bag breaking chamber (2)

2b. opening/closing door

10 movable side cutter

11 rotary body

12a, 12b movable side plate-shaped cutter

20 fixed side cutter

24 fixed side plate-shaped cutter

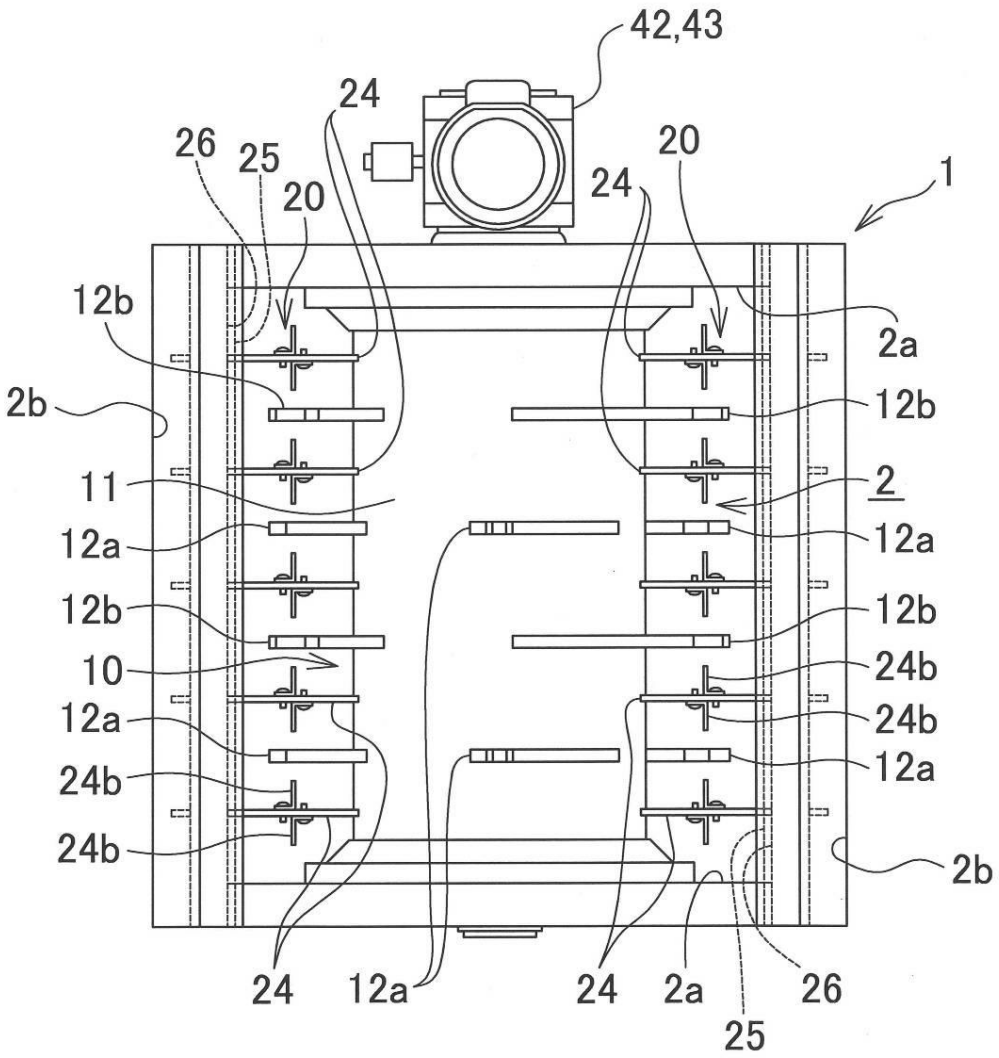
25 fixed pipe

26 closing plate

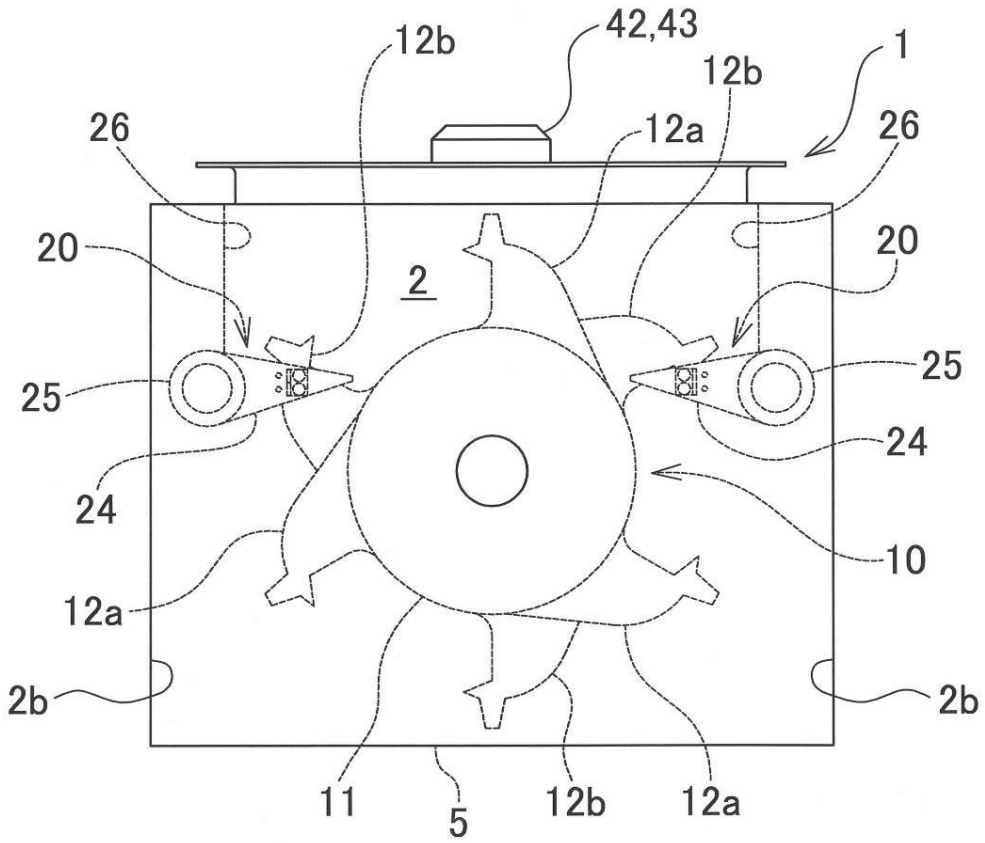
42 speed reducer

43 motor

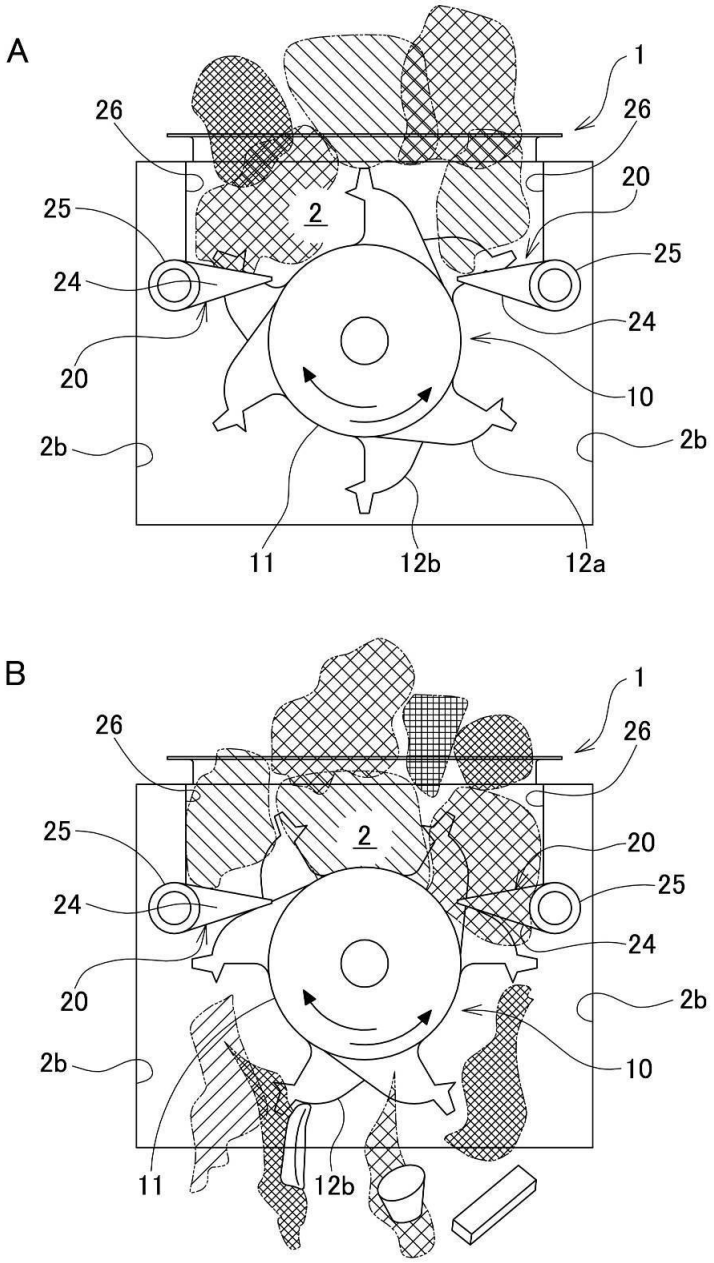
[Fig. 1: Plan view of the Defendant's Product 2]



[Fig. 2: Front view of the Defendant's Product 2]



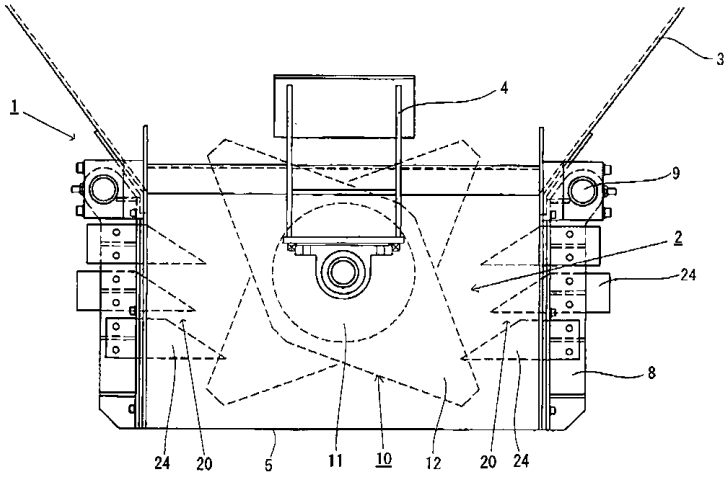
[Fig. 3: Explanatory view of a use state of the Defendant's Product 2]



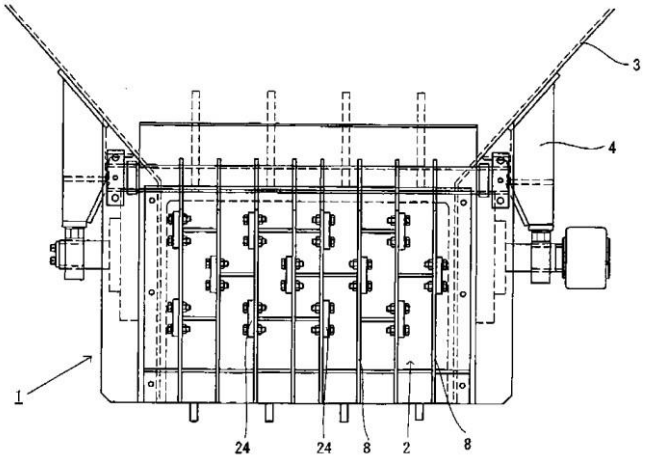
(Attachment)

List of present Description Drawings

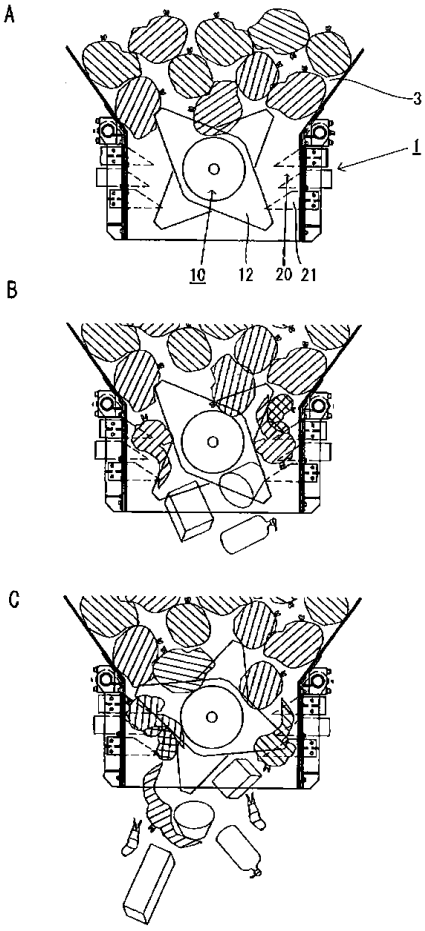
[Fig. 4]



[Fig. 5]



[Fig. 6]



[Fig. 7]